2000-2001
General Catalog

California
State
University,
Fresno

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Academic Calendar 2000-2001

This document is not intended to be construed as an employee work calendar.

Fall Semester

JULY 2000

14 Last day to file an ADMISSION APPLICATION for earlier access to STAR — fall 2000 semester

28 Last day to submit ADMISSION DOCUMENTATION to attend the fall 2000 semester

31 Telephone REGISTRATION and ADD/DROP for fall 2000 begin

AUGUST 2000

1 ADMISSION APPLICATION cycle for spring 2001 begins

11 Last day to submit to the Division of Graduate Studies departmental clearance paperwork on behalf of August 2000 master's degree candidates (include a copy of the completed final report on incomplete or in-progress work, if needed for graduation)

22 SEMESTER begins
ACADEMIC ASSEMBLY for faculty

28 INSTRUCTION begins
Auditors and "60+ Years" students may register
APPLICATION period for degrees to be granted in December 2000 begins

28-31 WELCOME WEEK '00 — activities and programs for new and continuing students, faculty, and staff (Aug. 28-Sept. 1)

TBA New Student CONVOCATION

SEPTEMBER 2000

1 WELCOME WEEK '00 (Aug. 28-Sept. 1)

1–30 Filing period for spring 2001 Final Student Teaching Applications — Multiple and Single Subject

1 Last day to
- pay registration fees
- request permission for concurrent enrollment at another college

SCHOLARSHIP APPLICATIONS for the 2001–2001 academic year will be available

4 Labor Day — no classes; all offices closed

6 Last day to DROP CLASSES without a serious and compelling reason

8 Last day to file an application for BACHELOR'S and MASTER'S DEGREES to be granted in December 2000

11 Last day to
- ADD CLASSES
- register for Credit by Examination
- file for refunds by resident students; nonresidents see *Schedule of Courses,* "Fee Refund Schedule"

15 Last day for faculty to submit CHANGES and CLEARANCES (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation with a bachelor's degree at the end of the summer 2000

25 Last day to
- change to *or* from credit/no credit grading
- change from credit registration to audit registration or audit registration to credit registration
- take examination for Credit by Examination

OCTOBER 2000

2 Last day for INTERNATIONAL STUDENTS to submit a university application for admission to graduate or postbaccalaureate studies for the spring semester

6 Last day for graduate students to apply for ADVANCEMENT TO CANDIDACY this semester in order to be eligible for graduation in May 2001

9 Last day for faculty to submit Credit by Examination grades

27 Last day to file edited, committee-approved MASTER'S THESIS for December 2000 graduation

NOVEMBER 2000

TBA OPEN HOUSE 2000

1 ADMISSION APPLICATION cycle for fall 2001 begins
Admission deadline to School of Education basic credential programs (Multiple and Single Subject), advanced credential programs, and master's degrees for spring 2001

6 Advising and fee payment for spring 2001 semester begins

17 Filing deadline for SCHOLARSHIPS for the 2001-2002 academic year

21 Last day to WITHDRAW FROM A COURSE for SERIOUS and COMPELLING REASONS, except by complete withdrawal from the university

22 THANKSGIVING RECESS
No classes; offices will post hours

23-24 THANKSGIVING RECESS
Campus closed; the library will post holiday hours

TBA ADVISING DAYS — orientation with academic advising for new undergraduates and their parents, spring 2001 semester; classes in session

DECEMBER 2000

8 Last day to file an ADMISSION APPLICATION for earlier access to STAR — spring 2001 semester

13 Last day of INSTRUCTION
Last day to withdraw from a complete program

AUGUST 2000

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	*28*	*29*	*30*	*31*		

SEPTEMBER 2000

S	M	T	W	T	F	S
					1	2
3	4	*5*	*6*	*7*	*8*	9
10	*11*	*12*	*13*	*14*	*15*	16
17	*18*	*19*	*20*	*21*	*22*	23
24	*25*	*26*	*27*	*28*	*29*	30

OCTOBER 2000

S	M	T	W	T	F	S
1	*2*	*3*	*4*	*5*	*6*	7
8	*9*	*10*	*11*	*12*	*13*	14
15	*16*	*17*	*18*	*19*	*20*	21
22	*23*	*24*	*25*	*26*	*27*	28
29	*30*	*31*				

NOVEMBER 2000

S	M	T	W	T	F	S
			1	*2*	*3*	4
5	*6*	*7*	*8*	*9*	*10*	11
12	*13*	*14*	*15*	*16*	*17*	18
19	*20*	*21*	*22*	23	24	25
26	*27*	*28*	*29*	*30*		

DECEMBER 2000

S	M	T	W	T	F	S
					1	2
3	*4*	*5*	*6*	*7*	*8*	9
10	*11*	*12*	*13*	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

***Key**: Calendar dates in **color** denote classes in session.*

***TBA**: To be announced*

14&15 Final exam preparation and faculty consultation days

18-21 FINAL SEMESTER EXAMINATIONS

22 FALL SEMESTER ends
Last day to
- submit ADMISSION DOCUMENTATION to attend the spring 2001 semester
- submit to the Division of Graduate Studies departmental clearance paperwork on behalf of December 2000 master's degree candidates (include a copy of the completed final report on incomplete or in-progress work, if needed for graduation)
- submit incomplete make-up work or request extension of time for incomplete grades from fall 1999
- submit grade substitution request form for fall 2000 without a late fee

25-31 Campus closed
WINTER RECESS (Dec. 25–Jan. 22)

Academic Calendar 2000-2001

JANUARY 2001

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	*25*	*26*	27
28	*29*	*30*	*31*			

FEBRUARY 2001

S	M	T	W	T	F	S
				1	*2*	3
4	*5*	*6*	*7*	*8*	*9*	10
11	*12*	*13*	*14*	*15*	*16*	17
18	19	*20*	*21*	*22*	*23*	24
25	*26*	*27*	*28*			

MARCH 2001

S	M	T	W	T	F	S
				1	*2*	3
4	*5*	*6*	*7*	*8*	*9*	10
11	*12*	*13*	*14*	*15*	*16*	17
18	*19*	*20*	*21*	*22*	*23*	24
25	*26*	*27*	*28*	*29*	*30*	31

APRIL 2001

S	M	T	W	T	F	S
1	*2*	*3*	*4*	*5*	*6*	7
8	9	10	11	12	13	14
15	*16*	*17*	*18*	*19*	*20*	21
22	*23*	*24*	*25*	*26*	*27*	28
29	*30*					

MAY 2001

S	M	T	W	T	F	S
		1	*2*	*3*	*4*	5
6	*7*	*8*	*9*	*10*	*11*	12
13	*14*	*15*	*16*	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

***Key**: Calendar dates in **color** denote classes in session.*

***TBA**: To be announced*

Spring Semester

JANUARY 2001

1 Campus closed
WINTER RECESS (Dec. 25–Jan. 22)

1 FINANCIAL AID application filing period for priority consideration for the 2001–2002 academic year begins (Jan. 1–March 2)

2 Fall 2000 grades due from faculty
WINTER SESSION begins (Jan. 2–19, tentative)

8 Telephone REGISTRATION and ADD/DROP for spring 2001 begin (except Jan. 15)

15 Martin Luther King, Jr. holiday — no classes; campus closed

23 SEMESTER begins

25 INSTRUCTION begins
Auditors and "60+ Years" students may register
APPLICATION period for degrees to be granted in May 2001 begins

FEBRUARY 2001

1–28 Filing period for fall 2001 Final Student Teaching Applications — Multiple and Single Subject

2 Last day to
- pay registration fees
- request permission for concurrent enrollment at another college
- DROP CLASSES without a serious and compelling reason

7 Last day to
- ADD CLASSES
- register for Credit by Examination
- file for refunds by resident students; nonresidents see *Schedule of Courses*, "Fee Refund Schedule"

9 Last day for faculty to submit CHANGES and CLEARANCES (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation with a bachelor's degree at the end of the fall 2000 semester
Last day file an application for BACHELOR'S and MASTER'S DEGREES to be granted in May 2001

19 Presidents' Day — no classes; all offices closed

22 Last day to
- change to *or* from credit/no credit grading
- change from credit registration to audit registration or audit registration to credit registration
- take examination for Credit by Examination

MARCH 2001

TBA PREVIEW DAY 2001

1 Last day for INTERNATIONAL STUDENTS to submit a university application for admission to graduate or postbaccalaureate studies for the spring semester

2 Filing deadline for FINANCIAL AID priority consideration for the 2001–2002 academic year

8 Last day for faculty to submit Credit by Examination grades

9 Last day for graduate students to apply for ADVANCEMENT TO CANDIDACY this semester in order to be eligible for graduation in August 2001 or December 2001

26 Last day to file edited, committee-approved MASTER'S THESIS for May 2001 graduation

APRIL 2001

1 Admission deadline to School of Education basic credential programs (Multiple and Single Subject), advanced credential programs, and master's degrees for fall 2001

9-13 SPRING RECESS

19-22 VINTAGE DAYS

24 Last day to WITHDRAW FROM A COURSE for SERIOUS and COMPELLING REASONS, except by complete withdrawal from the university

30 Advising and fee payment for fall 2001 begins

MAY 2001

16 Last day of INSTRUCTION
Last day to withdraw from a complete program

17&18 Final exam preparation and faculty consultation days

21-24 FINAL SEMESTER EXAMINATIONS

25 Last day to
- submit incomplete make-up work or request extension of time for incomplete grades from spring 2000
- submit to the Division of Graduate Studies departmental clearance paperwork on behalf of May 2001 master's degree candidates (include a copy of the completed final report on incomplete or in-progress work, if needed for graduation)
- submit grade substitution request form for spring 2001 without a late fee

26 SPRING SEMESTER ends
90th annual COMMENCEMENT

28 Memorial Day holiday observed — no classes; campus closed.

29 SUMMER SESSION begins (May 29–Aug. 17); see *Summer Session Catalog*

JUNE 2001

4 Spring 2001 grades due from faculty

29 Last day for faculty to submit CHANGES and CLEARANCES (incomplete grades, approved petitions, departmental approvals, transfer transcripts) required for graduation with a bachelor's degree at the end of the spring 2001 semester

JULY 2001

4 Fourth of July holiday — campus closed

6 Last day to file an application for bachelor's degree to be granted August 2001

The California State University

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. Ten years later, the system became The California State 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. California State University, Monterey Bay, became the CSU's 21st campus in September 1994. The California Maritime Academy in Vallejo, founded in 1929, joined the CSU as its 22nd campus in July 1995. The CSU's 23rd campus — California State University, Channel Islands — serves students in the Ventura County region.

Responsibility for The California State University is vested in the Board of Trustees, consisting of ex officio members, alumni and faculty representatives, and members 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 of 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, 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 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 the campuses require for graduation a basic program of General Education requirements, regardless of the type of bachelor's degree or major field selected by the student.

The CSU offers more than 1,600 bachelor's and master's degree programs in some 240 subject areas. Many of these programs are offered so that students can complete all upper-division and graduate requirements by part-time, late afternoon and evening study, or by distance learning from home or work via computer or television. 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.

In fall 1998, the system enrolled 350,254 students, taught by more than 19,500 faculty. Last year the system awarded more than half of the bachelor's degrees and 30 percent of the master's degrees granted in California. More than 1.84 million persons have been graduated from the CSU campuses since 1960.

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http://www.humboldt.edu/

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State Capitol, Sacramento 95814

The Honorable Cruz Bustamante
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State Capitol, Sacramento 95814

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State Capitol, Sacramento 95814

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Correspondence with Trustees should be sent:
c/o Trustees Secretariat

The California State University
401 Golden Shore
Long Beach, CA 90802-4210

Appointed Trustees

Appointments are for a term of eight years, except for student, alumni, and faculty trustees, whose terms are for two years. Terms expire in the year listed below the names. Names are listed in alphabetical order.

William D. Campbell
2003

Martha C. Fallgatter
2003

Robert G. Foster
2006

Laurence K. Gould Jr.
2002

William Hauck
2001

Dee Dee Myers
2005

Joan Otomo-Corgel
2000

Ralph R. Pesqueira
2004

Frederick W. Pierce IV
2000

Ali C. Razi
2001

Michael D. Stennis
2000

Anthony M. Vitti
2005

Stanley T. Wang
2002

Office of the Chancellor

The California State University
400 Golden Shore
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and Chief Academic Officer

Richard P. West
Executive Vice Chancellor
and Chief Business Officer

Charles W. Lindahl
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Academic Affairs

Jackie R. McClain
Vice Chancellor,
Human Resources

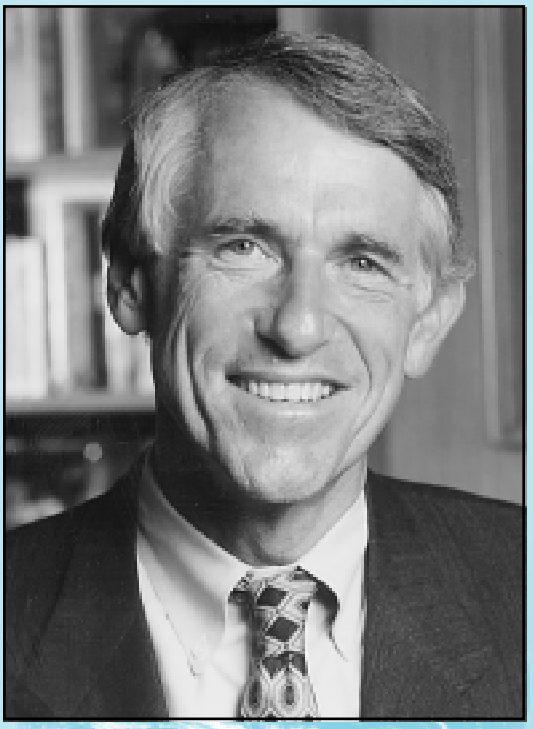
Douglas X. Patiño
Vice Chancellor,
University Advancement

Christine Helwick
General Counsel

William J. Dermody
Chief of Staff

Sandra B. George
Associate Chief of Staff

President's Message



The 2000-2001 General Catalog

As we embark upon a new century, California State University, Fresno is uniquely poised to provide a quality education to our students. Last year we launched the university's new Smittcamp Family Honors College, a program which combines the best of a small liberal arts college experience with the advantages of a large public university. We also implemented a new General Education program which will provide our students with an outstanding academic base. At Fresno State our number one priority is to enhance continuously the quality of the learning environment that we provide for our students.

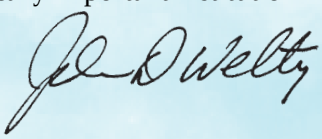
In addition to our outstanding faculty and academic programs, two new landmarks — the Downing Planetarium and the Smittcamp Alumni House — now serve the campus and the community. The Downing Planetarium is a 4,000 square foot, 74-seat structure which features a Spitz star projector and other state-of-the-art equipment. The Alumni House will provide a campus base for alumni events and the new building will feature conference rooms, a library, Alumni Association offices, and a visitor's information center that will assist the public.

The dynamic, changing face of higher education, the advent of the information age, and the increasing global interdependence of nations make it imperative that we find new and better ways to meet the needs of our students and prepare them to succeed in this new society. Our goal is to do this while preserving what is most unique and valuable about our history and traditions.

At Fresno State we have adopted a new strategic plan: "Vision for the 21st Century: A Plan for Excellence" which guides us as we move forward to meet these challenges. Our plan includes new instructional delivery systems, partnerships with all levels of education, greater reliance on non-state sources of support, more efficient use of our facilities, renewal of our commitment to graduate education, and increasing opportunities for learning in our diverse community. During your time at Fresno State you will benefit from many of these changes.

The *General Catalog* reflects the university's ongoing commitment to academic excellence. This tradition will continue to grow as we actively recruit highly qualified students and continue to launch our new honors program. The university will continue to offer a breadth of study that includes degrees at the bachelor's and master's levels and at the doctoral level in educational leadership. Students from all walks of life, of many ethnicities, of both sexes, and of all economic levels participate in the Fresno State learning experience as they strive to meet the challenges of the new millennium.

We are all on a journey that will take us beyond the challenges and accomplishments of past generations. California State University, Fresno will continue to serve as a critically important institution in our community and region as we move together into the 21st century.



Fresno

The Community

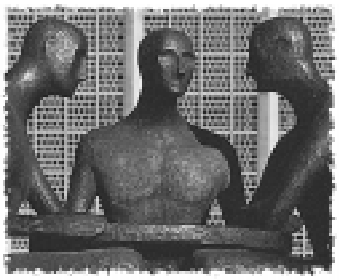
As we enter a new century, Fresno has a population of more than 415,000, yet it seems to have a strong sense of community. Cultural events are numerous and feature such groups and facilities as the Fresno Arts Center, the Fresno Metropolitan Museum, the Fresno Philharmonic Orchestra, and several live theater organizations.

World-renowned guest artists and the talented Maestro Raymond Harvey win critical praise for the Fresno Philharmonic. Season tickets and student discounts are available.

The community is proud of California State University, Fresno and enthusiastically supports many of the university's programs, including sports, the arts, academic competitions, and other special events.

Recreation

Fresno is the only place in the nation within an easy drive of three national parks — Yosemite, Sequoia, and Kings Canyon. The university's recreational activities and social life often center on the outdoors.



Boating, fishing, water skiing, and windsurfing at one of the six nearby lakes are popular activities during the spring and summer. Winter recreation includes downhill skiing and

cross-country skiing at nearby Sierra Summit or Badger Pass in the beautiful Sierra Nevada.

All year round, nature lovers and outdoor sports enthusiasts can choose from a variety of parks to visit while in Fresno.

In addition to an extensive intramural program, on-campus recreation includes a series of current films, drama productions, and concerts ranging from rock to jazz to classical. The annual Vintage Days celebration and a number of university receptions, winetastings, art festivals, and the University Lecture Series are among the many events open to the public. Students informally meet in areas such as the University Student Union, the Satellite Student Union, and the Pavilion throughout the day and evening.

Fresno City College

Established in 1910, Fresno City College is part of the California State Community Colleges system that includes 106 campuses and enrolls approximately two million students. Located on the old Fresno State campus on University Avenue, Fresno City College offers programs for students who plan to transfer to California State University, Fresno.

Campus

The University

California State University, Fresno began as a two-year state normal school with 150 students in 1911, largely preparing teachers for their profession.

Today, this university is a stimulating center of intellectual and cultural activity, dedicated to academic excellence, integrity, and freedom. With more than 18,000 students registered, the university recognizes its commitment to develop qualified professionals who will become tomorrow's leaders in every walk of life.

California State University, Fresno offers challenging and innovative programs in the liberal arts and sciences, in the professions, in applied fields, and in special and interdisciplinary areas. Departmental programs provide unusual and exciting opportunities for a proficient and enriching university experience.

The excellence of our faculty is documented in a variety of ways, including recognition from national and international associations. Ninety percent of the full-time, tenure-track faculty hold doctoral degrees in their areas of study. However, the most important characteristic of our faculty is their ability to care about students and their willingness to give of their time on an individual basis.

The Campus

Under a dense canopy of 4,000 trees, the campus sits at the northeast edge of Fresno, against a backdrop of the beautiful Sierra Nevada. The campus was officially designated as an arboretum in 1978. Its parklike setting creates a beautiful environment for making new friends and pursuing a quality education.

The 327-acre main campus features more than 46 traditional and modern buildings. An additional 34 structures are on the 1,083-acre University Farm, which is considered one of the most modern and best equipped agricultural facilities in the West.

Outstanding research facilities (computer, engineering, electronics, and industrial technology laboratories) are complemented by cultural and recreational facilities. The campus has two student unions, indoor and outdoor theaters for drama and music, and swimming facilities. Students can make use of many individual and team sport facilities, a baseball stadium at Beiden Field that seats 6,575 spectators, a football/soccer stadium that seats over 41,031, and Bulldog Diamond, a 5,467-seat softball stadium.

The campus is fully accessible and students with mobility impairments will find the naturally flat terrain easy to navigate.

California State University, Fresno

Accreditation

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

College/school, department, or program accreditations, certificated memberships, and accrediting organizations include:

- Accreditation Board for Engineering and Technology
- Accrediting Council on Education in Journalism and Mass Communication
- American Assembly of Collegiate Schools of Business
- American Chemical Society
- American Council for Construction Education
- American Dietetic Association
- American Physical Therapy Association
- American Speech-Language-Hearing Association
- California Board of Registered Nursing
- California State Department of Health Services
- Commission on Accreditation of Allied Health Education Programs
- Commission on Teacher Credentialing
- Council for Accreditation of Counseling and Related Educational Programs
- Council on Education for Public Health
- Council on Education of the Deaf
- Council on Rehabilitation Education Inc.
- Council on Social Work Education
- Foundation for Interior Design Education Research
- National Accreditation Council for Environmental Health Curricula
- National Association of Industrial Technology
- National Association of Schools of Music
- National Association of Schools of Public Affairs and Administration
- National Association of Schools of Theatre
- National Athletic Trainers Association
- National Council for Accreditation of Teacher Education
- National Environmental Health Science and Protection Accreditation Council
- National League for Nursing
- National Recreation and Park Association
- State Board of Registration for Professional Engineers and Land Surveyors

The University's Mission

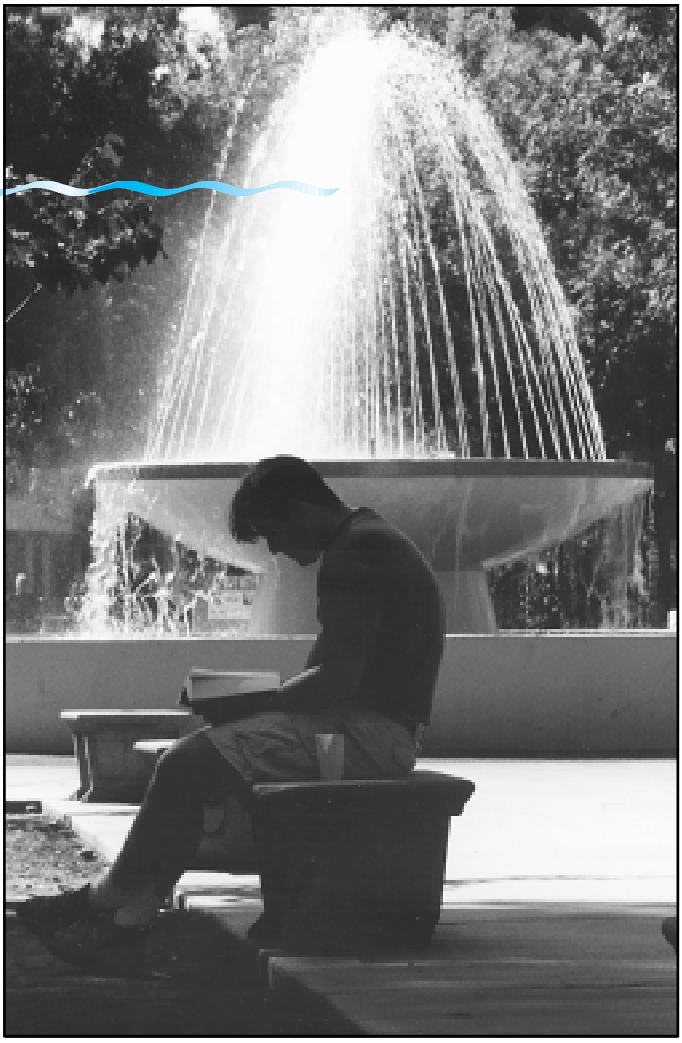
The university offers a high-quality educational opportunity to qualified students at the bachelor's and master's levels, as well as in joint doctoral programs in selected professional areas. To carry out this mission, the university provides a General Education program. California State University, Fresno furnishes opportunities for students to expand their intellectual horizons, foster lifelong learning, prepare for further professional study, and gain an appreciation of cultures other than their own. The university offers undergraduate degrees and programs in the liberal arts and sciences as well as in a variety of professional disciplines emphasizing agriculture, business, engineering and technology, health and human services, and education, preparing students for

productive careers and responsible world citizenship. Building upon the strength of these undergraduate programs, graduate programs provide opportunities for personal and career enhancement through advanced study, preparing students for positions of leadership in the arts, sciences and professions.

The university encourages and protects free inquiry and expression, ensuring a forum for the generation, discussion and critical examination of ideas. By emphasizing the primacy of quality teaching and the close interaction between faculty and students, the university seeks to stimulate scholarly inquiry and discourse, inspire creative activity, heighten professional and technical competencies, encourage and support research and its dissemination, and recruit and develop outstanding teacher-scholars/artists.

The university fosters an environment in which students learn to live in a culturally diverse and changing society. Within that environment, it strives to develop a community founded upon mutual respect and shared efforts, in which individuals can communicate openly and work together to enrich the lives of all and to further the growth and excellence of the university. The university seeks and encourages historically underrepresented students to embark upon and complete a university education.

The university serves the San Joaquin Valley while interacting with the state, nation and world. California State University, Fresno is a center of intellectual, artistic and professional activity. Through applied research, technical assistance, training and other related public service activities, the university anticipates continuing and expanding partnership and linkages with business, education, industry and government.



The University's History

California State University, Fresno is the sixth oldest in the California State University 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.

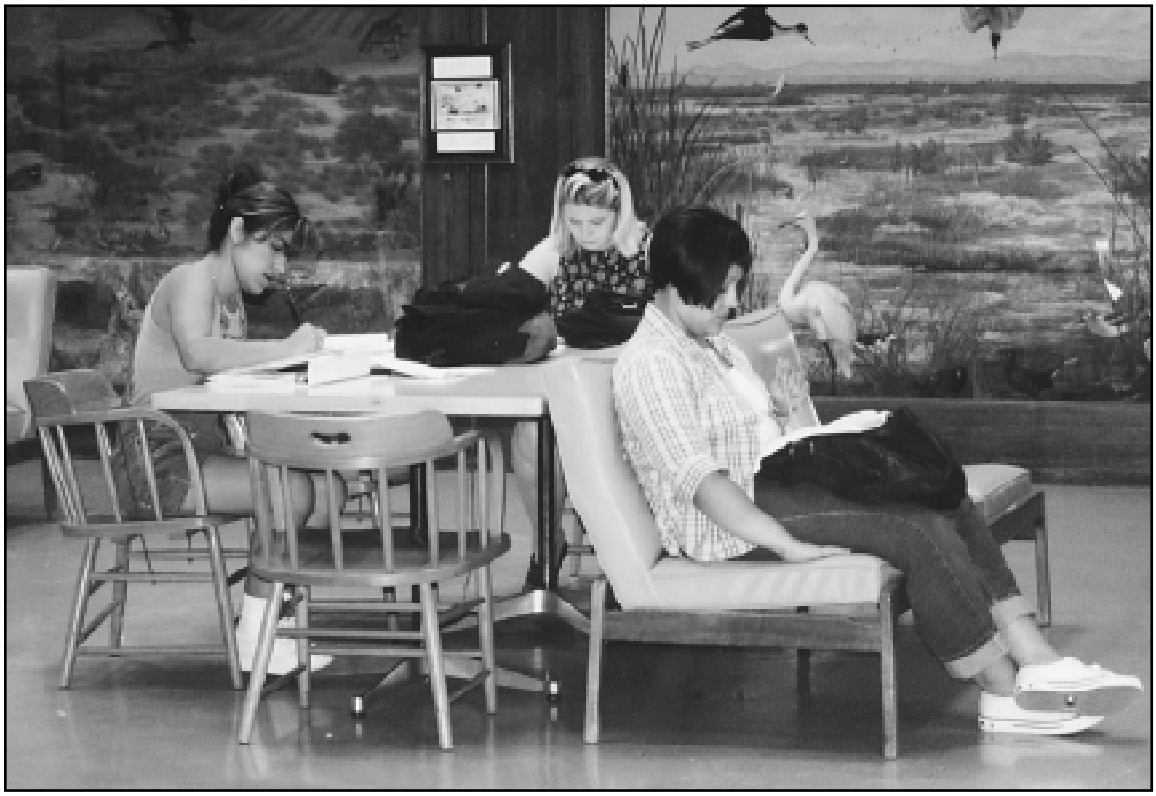
Between 1911 and 1921 a campus was built on University Avenue, then the northern border of Fresno. In 1921, the combined schools became Fresno State Teachers College, authorized to offer a four-year program and grant the bachelor of arts degree in teaching.

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 accelerated, both academically and physically. In 1949, the university offered its first master's degree; today, it offers this degree in 39 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, and in 1982 the system was renamed The California State University.

In fall 1991, the university began offering an interdisciplinary doctoral degree (Ed.D.) in educational leadership, offered in partnership with the University of California.

California State University, Fresno



The official seal of the university was designed by artist and California State University, Fresno Professor Emeritus Darwin Musselman, who also created the seal used by the California State University system. The Fresno State seal includes the “lamp of learning” and the “book of knowledge.” The Latin inscription “Lvcem accipe vt reddas” translates “Receive the light that you may give it forth.” The date 1911 refers to the founding year of the school.

Between 1965 and 1968 an approximation of university organization 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 is now comprised of The College of Agricultural Sciences and Technology, the College of Arts and Humanities, the Sid Craig School of Business, the School of Education and Human Development, the College of Engineering and Computer Science, the College of Health and Human Services, The College of Science and Mathematics, the College of Social Sciences, the Division of Extended Education, and the Division of Graduate Studies.

Fresno Normal School, in 1911, had an enrollment of 150 students, most of whom were women. By 1940 enrollment had increased to 2,000 students, and in 1968 enrollment surpassed 10,000. In the fall of 1999, more than 18,000 students registered at California State University, Fresno.

The presidents, in order of tenure:

Charles L. McLane (1911-27)
Frank W. Thomas (1927-48)
Arnold E. Joyal (1948-64)
Frederic W. Ness (1964-69)
Karl L. Falk (Acting) (1969-70)
Norman A. Baxter (1970-80)
Harold H. Haak (1980-91)
John D. Welty (1991-)

Honors

What is an honors program?

Simply put, it is a program of educational opportunity for outstanding students. It takes the form of specially structured academic offerings designed to engage students more comprehensively and intellectually with an institution's best faculty on virtually a one-to-one basis. Honors studies provide top students the opportunity to function in the most stimulating and challenging intellectual learning environment an institution can create.

Earl and Muriel Smittcamp Family

California State University, Fresno planned to establish a program of honors study for many years. With an initial generous gift of $1 million from the Earl and Muriel Smittcamp Family, the plan for the Honors College is now a reality.

The Honors College

Studying the best programs in the country, the university created a concept for an honors education at Fresno State.

Working to provide the advantages of a small liberal arts college within the resources of a major university, the Honors College offers three types of degrees with honors: *University Honors*, *College/School Honors*, and *Department Honors*. A degree with *University Honors* is based in General Education honors studies and requires 24 lower-division and 9 to 12 upper-division units. All courses are specially designed and will be available only to honors students. The initial offerings are structured so all honors students take these courses together, thereby becoming a special honors learning community in which students and faculty truly share a common experience. In order to stimulate maximum student/faculty interaction, courses will be limited to 25 students each.

College/School Honors are earned at the upper-division level. Students may pursue a special program of advanced study within the college/school of their chosen discipline. Currently, the Sid Craig School of Business has such a program in place. In time, all colleges/schools plan to have comparable upper-division programs for their majors.

Similarly, Fresno State is working on the details for embracing the honors program in the Department of Psychology. Psychology Honors exemplifies the third opportunity for a degree with honors — *Department Honors.*

Honors Colloquium

A distinctive offering of the Honors College over and above the innovative design of the courses is each semester's Honors Colloquium. Designed around the "town meeting" model, each semester's offerings will be focused on a topic of current importance. In fall of 1999, for example, two timely topics would have been "Public Service and Private Life" and "The United States and Social Responsibility: Self Improvement vs. Global Imperatives." A combination of faculty experts, University Lecture Series guests, and various outside authorities address the topic in a weekly public gathering. Honors students then engage with the week's expert in a dialogue that grows from the expert's presentation. The honors director or other faculty is the moderator; our campus community at large is invited as audience.

These colloquia also provide opportunities for faculty to present their own research. The campus can learn about a colleague's research while students experience models for presenting their own research. Finally, Honors students themselves will use the colloquia as a vehicle for publicly presenting their own senior honors projects.

Scholarships

Assisted by Student Affairs and Financial Aid, President Welty pairs the honors academic opportunity with financial opportunity.

All 50 students in each Smittcamp Family Honors College class receive a President's Honors Scholarship Grant. This consists of the equivalent of full tuition and fees, an annual $200 book allowance, and free housing on campus for all four years of a student's honors study.

The program is designed to attract more freshmen students to California State University, Fresno. The intellectual level of the campus is enhanced by Honors College offerings and activities; the impact resonates throughout the Central Valley.

For more information, contact the director of the Honors College.

The Smittcamp Family Honors College

California State University, Fresno
Office of the Director
2345 East San Ramon Avenue,
M/S MH128
Fresno, CA 93740-8031

Phone: (559) 278-8160
Toll Free: (877) 323-2089
FAX: (559) 278-8162

E-mail: *honors@csufresno.edu*

COURSES

Honors (HONOR)

1. Honors Colloquium (1; max total 6) Colloquium for students in the Smittcamp Family Honors College. Overview of the university. Presentation and discussion of current topics. Special presentations by faculty, campus guests, and senior honors project students.

University Lecture Series

Jack Canfield

A highly sought-after expert and speaker on motivation, personal development, and self-esteem, Jack Canfield is the best-selling author of *Chicken Soup for the Soul.*

June Jordan

A highly acclaimed and award-winning poet, novelist, essayist, playwright, and political activist, June Jordan has become a highly published African American writer.

The University Lecture Series

The University Lecture Series (ULS) is an educational forum that features distinguished speakers, performers, and public figures. The series seeks to provide quality lectures that will stimulate and enhance the intellectual climate of our university and surrounding communities.

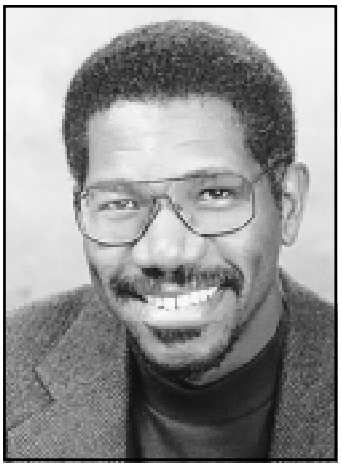
Featured speakers have included actor and environmentalist Ed Begley Jr., essayist and author Gerald Early, fitness consultant Loretta LaRoche, Pulitzer Prize winner Robert K. Massie, international investigator Yaron Svoray, motivational speaker and author Jack Canfield, photojournalist and activist Jane Hamilton-Merritt, and poet and playwright June Jordan.

The University Lecture Series is funded in part by the Office of the Provost and Vice President for Academic Affairs, Coke and James Hallowell, the University Student Union, and Associated Students. Special programs may be planned, supported, or jointly sponsored by off-campus groups.

For more information, call the University Lecture Series Office at (559) 278-2431. ❖

Yaron Svoray

Yaron Savoy has risked his life to shed light on some of the world's most abhorrent criminal activities. This courageous international investigator tells his story in his book, *In Hitler's Shadow.*



Gerald Early

One of the premiere essayists and authors of our time, Dr. Early has become widely regarded as an expert on topics ranging from jazz to multiculturalism.

Jane Hamilton-Merritt

As a photojournalist covering the Vietnam War, Jane Hamilton-Merritt became familiar with the plight of the Hmong. She was nominated for the 1998 Nobel Peace Prize for her tireless efforts to keep Hmong human rights issues at the forefront of world consciousness.

University 1

University 1: Introduction to the University
Thomas Administration, Room 128
(559) 278-4775
http://www.csufresno.edu/universityone/
Patricia B. Hart, *Director*

Everyone has questions when first entering California State University, Fresno. University 1 helps students master the demands of attending a university by answering many of those questions. More importantly, University 1 provides a greater understanding of what it means to be in an academic community. It explains why the art of lifelong learning is essential in today's world.

Freshman, transfer, and reentry students should take University 1 during the first semester they enroll. Students taking the course earn 3 units of credit while acquiring the survival techniques for a meaningful and successful college experience.

University 1:
An Introduction
to the University (3)
An overview of various topics designed to guide students through the academic process and help ensure their success. Elective credits are applicable toward most majors. Students gain an understanding of college life, scholarship, and the development of a purposeful community. Strategies to cope with both academic and social demands are presented, as well as the rewards and responsibilities of lifelong learners.

Topics Covered

Academic Success
Career Planning
Financial Aid
Library Resources
Using the Internet
Valuing Diversity
Health and Wellness
Ethics and Responsibility
Lifelong Learning ❖

The Vision of University 1

University 1 is designed to guide students through the academic process and to help ensure their success. The course lays a cornerstone for higher education and advanced study. University 1 helps develop skills for lifelong learning and achievement.

Benefits of University 1

University 1 presents strategies for keeping ahead academically, managing time effectively, and graduating on schedule. The course helps build self-confidence while enhancing the ability to set goals and explore career options. University 1 is designed to expand intellectual horizons and to help students acquire the necessary tools for future success.

Master the Art of Higher Learning

Students' experiences during their first year at a university lay the foundation for their undergraduate years. That foundation encompasses the hopes, dreams, and expectations leading to successful lives as students and citizens.

Diversity

Campus Climate and Diversity

California State University, Fresno is not immune to issues of racial and gender intolerance that have surfaced across the country. While we are fortunate that the university has not had to deal with some of the more blatant aspects of racial and gender discrimination, these issues are very important to us.

As a university community, we have taken steps to become more sensitive to issues of race and gender. We must continue to be vigilant and not tolerate improper behavior that is motivated and directed at individuals or groups based solely on these criteria. I would like to underscore the fact that this type of wrongful behavior will not be tolerated on our campus. Any instance of this kind, or any that intends to abridge the rights of anyone on campus, will be investigated and the appropriate action taken, including legal action when necessary.

As a university, we have the clear obligation to ensure equal access and opportunity for all to participate in education and university life, whether as students, faculty, or staff. We need everyone's participation in our efforts to promote an atmosphere of understanding and cooperation that is free from bigotry and intolerance.

Projected as a future world-class economist who could use his college education to help his Third World country off the coast of Africa, Amadeu Rodrigues da Silva was named the winner of the 1999 President's Medal. With a 4.0 GPA in his fields of study, Rodrigues da Silva was courted by the nation's best doctoral programs.

In closing, let me direct your attention to the following statement that I fully endorse:

President John D. Welty

The California State University reflects California's rich cultural diversity. The varied backgrounds of students, faculty, and staff enrich the university's intellectual life and create its unique community.

While the university views diversity as a great source of its strength, some people on campus, as elsewhere in society, feel threatened by those who are different and act in disregard of the personal dignity and rights of others. Discrimination and harassment have no place in a university community. They limit the educational aspirations of students, interfere with the performance of faculty and staff, and damage the environment of tolerance and mutual regard that must prevail for a university to fulfill its mission.

The university is therefore committed to maintaining an environment free from discrimination and harassment. To fulfill this commitment, the university will work to prevent discrimination from occurring and will ensure that federal and state laws as well as university regulations prohibiting discrimination are fully enforced.

Demeaning and gratuitously offensive conduct sometimes takes expressive forms that, although repugnant, cannot be prohibited or punished. Both the First Amendment to the Constitution of the United States and Article I, Section 2 of the California Constitution restrict the university's power to limit free speech. To do so, even in the case of speech that is offensive and demeaning, would undermine basic principles of discourse fundamental to any university.

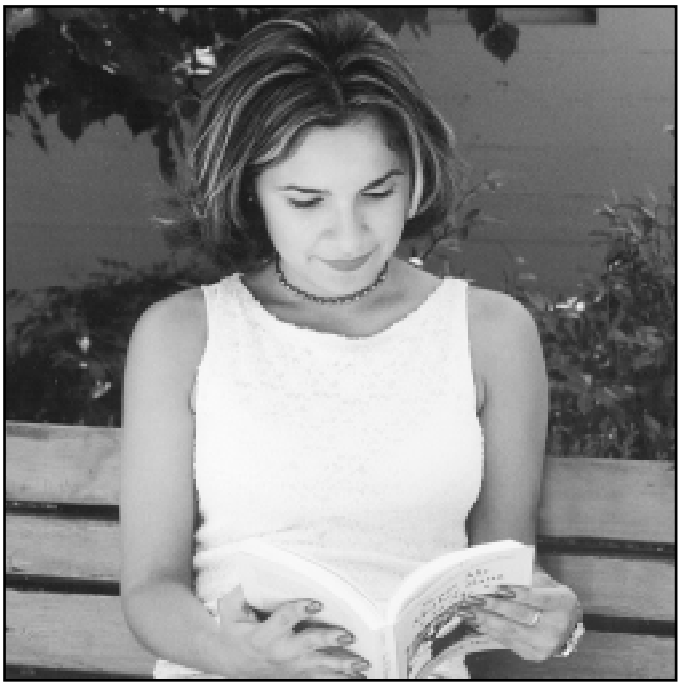
As an educational institution, the university will use its intellectual and persuasive powers to discourage offensive and harassing speech from occurring and to encourage civil exchange. The university will attempt to teach its students and employees to listen as well as to speak, and to do both with an open mind. This is consistent with the university's mission to foster dialogue that educates students and prepares them for effective citizenship. The mission requires respect for differing viewpoints, but does not give license for demeaning language and harassing behavior that stifle free exchange of ideas and compromise the university's educational goals.

Respect throughout the university for the dignity and rights of others, including the right to be free from discrimination and harassment and the right to speak freely, is essential to creating and maintaining an environment conducive to learning.

— From Campus Climate: Toward Appreciating Diversity, a report prepared for the CSU, 1990.

Travel
into
Tomorrow

Read



Read a Good Book

Our campus is committed to advancing excellence in liberal education and fostering the individual's bond to lifelong learning.

Good books make significant experiences. Page by page, they take us into their worlds and deliver to us experiences that we might not otherwise live, thoughts that we might not otherwise realize, environments that we might not otherwise visit. They are, as Jonathan Swift called them, the "children of the brain."

Reading is the vehicle that empowers the images of others' thoughts in our own. It is the wise person who learns from the experiences of others; even wiser is the person who does so by the magic of a good book.

Students and prospective students should read the books listed in the far left column. Faculty members often reference these books in courses taught on campus. We encourage members of the university community to read these books and to watch for and attend events sponsored in support of this program.

Reading List

Compiled by faculty and staff

1. Aronson, Elliot. *The Social Animal*
2. Carson, Rachel. *Silent Spring*
3. Dickens, Charles. *David Copperfield*
4. Franklin, John Hope. *Three Negro Classics*
5. Fuentes, Carlos. *The Old Gringo*
6. Krotkin, Joel and Yoriko Kishimoto. *America's Resurgence in the Asian Era*
7. Piercy, Marge. *Woman at the Edge of Time*
8. Reisner, Marc. *Cadillac Desert: The American West and Its Disappearing Water*
9. Riding, Alan. *Distant Neighbors*
10. Thomas, Lewis. *The Lives of a Cell*
11. Voltaire. *Candide*
12. Womack, Jones and Roos. *The Machine That Changed the World*

Academic Enhancement Services

Academic Enhancement Services
Student Affairs
Joyal Administration, Room 224
(559) 278-1787 • FAX: (559) 278-2323
http://studentaffairs.csufresno.edu/
Maxine McDonald, *Executive Director*

Academic Enhancement Services (AES) includes several student support programs that enhance the retention, graduation, and success of all students. Students participate in activities and programs that help them to develop, learn, and achieve. AES includes General Education advising, academic planning, counseling, cultural enrichment activities, learning assistance, and tutorial services.

In addition to the programs described in the copy that follows, AES includes Advising and Testing Services, the Educational Opportunity Program, the Learning Resource Center, and the Intensive Learning Experience.

Southeast Asian Student Services

Southeast Asian Student Services provides activities and services which are designed to help students make a successful transition to the university. Services include orientation to the university, leadership development, mentoring, advising, and personal counseling. Students are encouraged to provide community service to local Southeast Asian communities.

For more information, contact Southeast Asian Student Services, Joyal Administration, Rm. 224, at (559) 278-1787.

Summer Bridge Program

Summer Bridge is an on-campus residential program that allows low-income, first-time freshmen to experience California State University, Fresno. Summer Bridge prepares students to meet the demands of the university and bridge the gap between high school and university life. Students receive academic credit for completion of a rigorous academic program that includes instruction in writing, mathematics, computer technology, cultural studies, and an orientation to the university.

For more information, contact Summer Bridge, Joyal Administration, Rm. 224, at (559) 278-6025.

University Migrant Services

University Migrant Services (UMS) serves students from migrant seasonal farmworker backgrounds. Services and activities are designed to help migrant students maximize their academic skills and abilities as well as support their personal development throughout their university experience.

Participation in activities such as community service, internships, and leadership development activities enrich the academic experience and success of migrant students.

For more information, contact University Migrant Services, Joyal Administration, Rm. 224, at (559) 278-1787. ❖

Summer Bridge prepares students to make the transition from high school to college.

Academic Innovation Center
McKee Fisk, Room 110
(559) 278-2058
Robert M. Threlkeld, *Director*

Academic Innovation Center

The Academic Innovation Center

The Academic Innovation Center (AIC) is the unit responsible for providing faculty and staff with technology and media to improve the teaching and learning process. One of the division's goals is to assist students as they develop practical video production skills through the use of AIC's outstanding video studio facilities.

AIC's primary goals:

- to improve the quality of instruction through the use of new technologies
- to increase access to the university's academic programs
- to generate funds to support educational technology

AIC provides a number of services to students, faculty, and staff. These include training, classroom support, creative imaging, and mediated learning.

Training

AIC is responsible for faculty and staff training. Through the use of several computer training facilities and video studios, faculty and staff are able to learn software applications — from basic computing to course production on the World Wide Web. AIC holds regular workshops almost daily throughout the academic year.

Classroom Support

Multimedia equipment, color TV monitors, and VCRs are available for use in classrooms throughout the university. A closed-circuit television system delivers programs to many campus facilities. AIC also provides maintenance, repair, technical support, and consultation for most television and classroom media equipment.

Digital Production

Professional staff members consult with faculty on the concept development, instructional design, production, and distribution of academic media. In the video and imaging studio facilities, staff members use advanced techniques to produce instructional videos, television programs, video courses, educational supplements, PowerPoint presentations, and digital and traditional photographs.

Mediated Learning

AIC produces and delivers mediated and distance learning in a variety of modes. The campus has extensive compressed video facilities linked to community colleges and K-12 schools in the region. Satellite and microwave technologies are employed to deliver programs. Through its advanced electronic technologies and staff, AIC works with faculty to design courses and programs for delivery over the World Wide Web. Distance learning courses are listed in the *Schedule of Courses*. ❖

The Academic Innovation Center video production staff shoots both on location and in the AIC modern studio facility to produce instructional, promotional, and academic videos.

Advising Services

Advising Services
Student Affairs
Joyal Administration, Room 224
(559) 278-1787 • FAX: (559) 278-2323
http://studentaffairs.csufresno.edu/
J. Richard Arndt, *Director*

Advising Services

The Office of Advising Services provides a variety of services designed to help you achieve your educational goals and effectively use the resources of the university.

We can assist you in undeclared major advising, General Education advising, and academic petition procedures. We can also help you decide upon your major, assist you with general academic problem-solving, and give you appropriate referrals. You may call on us for initial advice regarding special majors. We are also available to explain university policies and procedures.

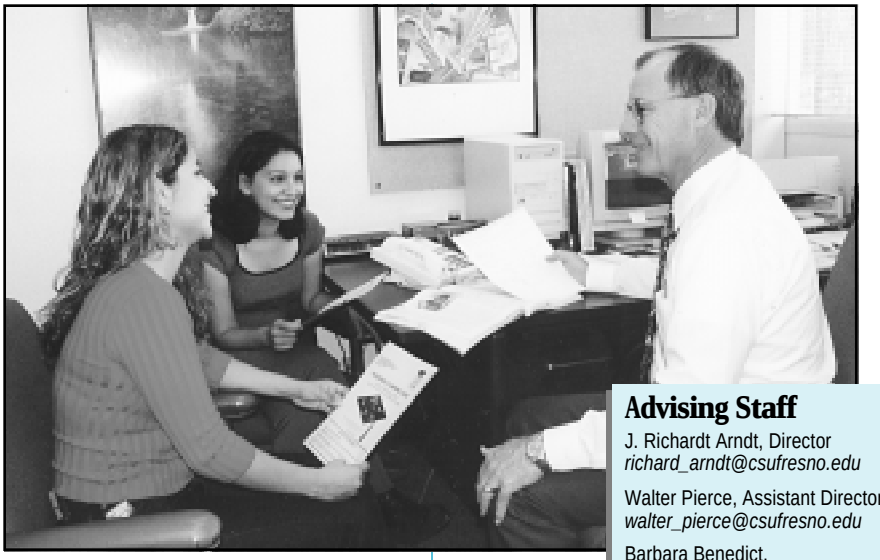
Undeclared Major Advising

We advise undeclared majors until a major is declared. We can suggest faculty contacts in the academic departments who will be of help to you. Also, experienced vocational counselors are available in the Career Services office, where you will be assisted on an individual basis with the appropriate use of vocational testing.

We encourage freshmen, especially undeclared majors, to enroll in University 1 (Introduction to the University) to ensure smooth transition into the university.

General Education Advising

We provide General Education advising if you are not in a specialized program or major (e.g., Business Administration, Educational Opportunity Program [EOP], Engineering and Computer Science, Liberal Studies). If you are an incoming student, we will help you plan a schedule that incorporates G.E. with major and elective coursework as appropriate. If you are a continuing student, we can help you make sure you are taking correct G.E. classes.



Advising Staff

J. Richardt Arndt, Director
richard_arndt@csufresno.edu

Walter Pierce, Assistant Director
walter_pierce@csufresno.edu

Barbara Benedict,
Academic Counselor
barbara_benedict@csufresno.edu

Robert Lundal, Academic Counselor
robert_lundal@csufresno.edu

Major Advising

The various academic departments do advising in specific requirements for a major, minor, or teaching credential. You should meet with your faculty adviser at least once each semester before registering for classes.

Depending on your major department's procedures, you will have a faculty adviser assigned to you or selected by you. A close working relationship with your major adviser and other department faculty can help you determine your program and choose appropriate experiences related to your academic and career goals. However, the ultimate responsibility for knowing and meeting all graduation requirements is yours. Therefore, we recommend that you check each semester's grades and your evaluation or DARS (Degree Audit Reporting System) report for correctness. (See *Baccalaureate Degree Requirements.*)

Special Major Advising

If you are an undergraduate student interested in designing a special major, you initiate the process with an appointment in our office to receive appropriate information and to obtain an application form. A graduate student interested in establishing a special major at the master's level should consult the graduate dean. (See *Special Major for the Bachelor of Arts Degree* and *Special Graduate Programs — Special Major*.)

Academic Petitions

Petitions regarding substitutions or exceptions to the General Education and Upper-Division Writing Skills requirements are obtained in our office. Normally, an appointment with one of our academic counselors is required. Petition forms for repeating a class and substituting the new grade are obtained in the Joyal North Lobby. (See *Grade Substitution by Repetition of Courses*, page 77.) Petition forms to request a retroactive withdrawal are obtained in Joyal Administration, Room 106.

Change of Major

To change your major, initiate the procedure in Joyal Administration, North Lobby. Graduate (except second baccalaureate students) and international students process major changes in their respective offices. ❖

Alumni Association

California State University, Fresno
Alumni Association Inc.
Smittcamp Alumni House
(559) 278-ALUM
http://129.8.21.20/
Jacquelyn K. Glasener, *Executive Director*

Alumni Association

The California State University, Fresno Alumni Association serves as a vital link between the university, its alumni, and the greater Fresno community. Its primary purpose is to develop and apply its funding and volunteered-time resources toward the advancement of higher education and enhanced communication among alumni, campus administration, students, and friends.

In addition to sponsoring student scholarships, the association co-hosts a Golden Grad Society dinner each year to honor graduates of 50 or more years. Alumni and friends also enjoy special receptions and celebrate at the Homecoming tailgate party.

The Alumni Association network links together more than 5,000 members. Fresno State alumni represent more than 55 academic areas of study and have migrated to every state in the nation.

In an ongoing effort to serve members, the Alumni Association offers many member-only discounts and privileges. These include Internet/WWW access, group health, dental, vision, auto, and life insurance rates, Price Costco membership privileges, M.B.N.A. American Bank, N.A. line of credit, discounts at Kennel Bookstore and The Bulldog Shop, discounted admission for various university events, and library privileges at most CSU campuses.

Membership is open to graduates and friends of the university. Annual dues are $25 for new graduates, $35 for single membership, and $55 for joint membership. Single life memberships are $600 and joint life memberships are $750. Business memberships are also available for $150.

Publications

Dues-paying members receive *The Blue Wave*, an informative quarterly newsletter published by the Alumni Association.

Academic and Regional Chapters

The association will keep you in touch with the university college/school/department from which you graduated. There are 18 official academic chapters of the Alumni Association. Satellite extensions are now being formed throughout the state to involve out-of-town alumni in all of the fun.

Graduation Pictures

The Alumni office sponsors the photographs taken at each commencement. Graduates are individually photographed, free of charge, before the ceremony processional each May.

Scholarships

Fresno State students may apply for Alumni Scholarships through the Financial Aid Office. Awards are made to undergraduate and graduate students based on need, scholarship, leadership, and involvement. The Alumni Trust Council oversees the investment of the Alumni Association's contributions and the distribution of its scholarship funds. ❖

Associated Students

Associated Students
California State University, Fresno
Student Affairs
University Student Union, Room 316
(559) 278-2656
FAX (559) 278-2720

Associated Students

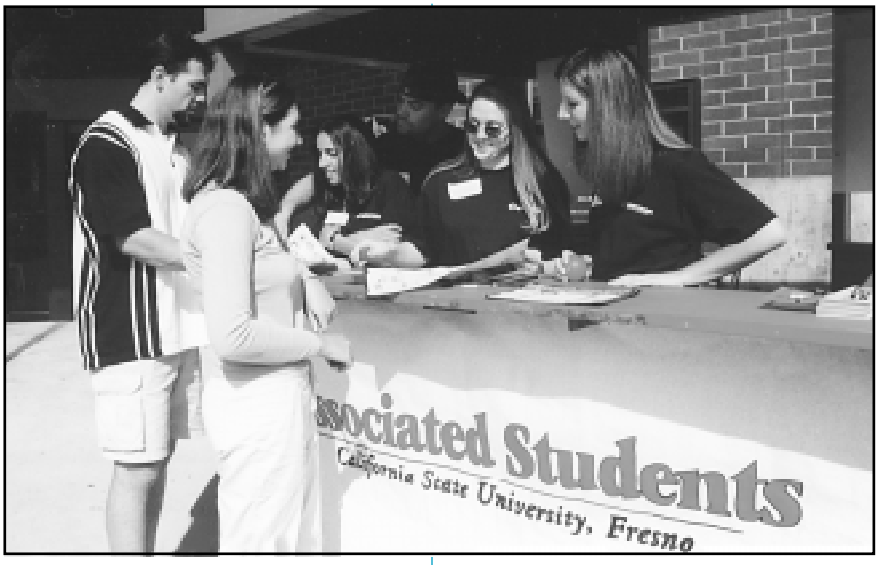
As the recognized student body government organizations, Associated Students, California State University, Fresno provides a means for effective student participation in the governance of the university, fosters awareness of student opinions on campus issues, assists in the protection of student rights, and provides programs and services to meet the needs of the students and campus community.

The Associated Students Senate is comprised of three executive officers: president, executive vice president, vice president of finance, and 21 senators. Senators are elected either as representatives of their academic major or as at-large senators. There are ten academic representatives: agricultural sciences, arts and humanities, business, education and human development, engineering and computer science, health and human services, science and math, graduate studies, and undeclared majors.

The at-large senators are responsible for activities and projects related to specific campus constituencies and issues, such as student organizations, athletics, and parking.

How Do I Become a Member of Associated Students? Enrolled students at Fresno State are automatically members of the Associated Students.

The per-semester student body fee supports programs such as campus publications, recreation and intramural sports activities, and student organizations, as well as provides for the day-to-day operations of student government.



Programs and Services

Within the annual operating budget, funds are allocated to student organizations, campus newspapers, intramural and recreational sports, programs and services, and education initiatives.

Student Clubs and Organizations Funding. The annual budgeting process for student groups gives organizations an opportunity to request funds for speakers, promotional and publicity initiatives, entertainment performers, and more. This budgeting process occurs every spring.

Recognized student clubs and organizations received more than $125,000 during the 1999-2000 academic year.

Educational Research Grants. Educational Research Grants (ERG) offer financial support to both graduate and undergraduate research projects (under faculty supervision) in all academic disciplines. Applications for grants are typically available in October.

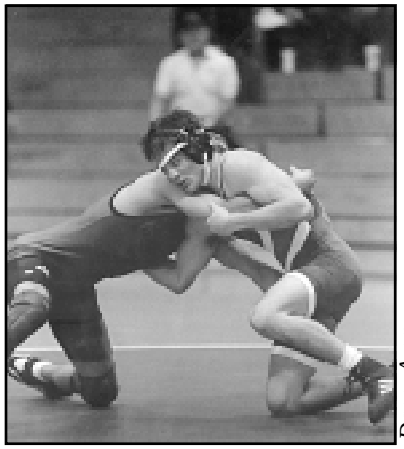
Student Insurance Programs. All Fresno State students are eligible to enroll in the student insurance programs offered, which include a comprehensive medical program and dental/vision plan.

Information about the programs and the companies providing them is available through the Associated Students.

Campus Activities. Associated Students contributes money to campus activities in which all students are encouraged to participate. These include intramural and recreational sports programs, the University Lecture Series, multicultural festivals, and more. ❖

Athletics

Athletics Department
Office of the President
North Gym, Room 146
(559) 278-2643
Allen R. Bohl, *Director*



Danny Ayers

Athletics

Academic excellence and athletic accomplishment go hand in hand at Fresno State. Fresno State is a member of the Western Athletic Conference. The broad-based intercollegiate athletics program provides athletes with opportunities for high-level competition while they pursue a quality education.

To ensure academic development, California State University, Fresno – known in the athletics world as Fresno State – has instituted a counseling system designed specifically for student athletes. Services include academic advising, guidance and counseling, monitoring of progress, and daily study halls.

Facilities

Bulldog Stadium, home of the football team and men's and women's soccer teams, features a 41,031-seat capacity. Beiden Field, a 6,575-seat baseball stadium, is considered one of the finest collegiate complexes in the country. Bulldog Diamond, home of the 1998 NCAA champion Fresno State softball team, seats 5,467 and is the finest on-campus facility of its kind in the nation. Fresno State has track and field facilities, two gymnasiums, an indoor/outdoor swimming complex, six indoor/outdoor handball/racquetball courts, and putting greens and driving areas, complete with sand traps for golf. Fresno State also has new women's locker rooms, one of the best weight rooms on the West Coast with 10,800 square feet, and the newly constructed Spalding G. Wathen Tennis Center.

Men's Intercollegiate Athletics

Baseball. The Diamond 'Dogs have advanced to NCAA post-season play 10 of the last 12 years and 26 times overall, with three College World Series appearances.

Basketball. The Bulldogs basketball program has advanced to post-season play five of the past six seasons, including a trip to the NIT Final Four in 1998, with Selland Arena sold out on a season-ticket basis.

Cross Country/Track and Field. Fresno State's cross country team captured conference titles in 1981, 1984 and 1988. The track and field team won 10 straight league crowns from 1983-1992.

Football. The Bulldogs tied for the Western Athletic Conference championship their first two years in the league in 1992 and 1993, advancing to bowl games each year.

Golf. Fresno State's golf team has finished in the top 20 nationally 10 times in the past 19 years, including a fifth place finish in 1990.

Soccer. Highlights include the 1998 WAC Championship, 14 NCAA tournament appearances since 1982, a number one ranking in 1987, and a 1986 Final Four showing.

Todd Warshaw

Tennis. The Bulldogs have advanced to the NCAA tournament the past six years, including the Sweet 16 in 1999. They have garnered three NCAA singles All-Americans in that span.

Wrestling. The Bulldogs have finished in the top 25 nationally in the past seven years, winning the WAC title the past seven seasons.

Women's Intercollegiate Athletics

Basketball. Fresno State's competitive basketball program put together nine winning seasons during a recent 10-year stretch.

Cross Country/Track and Field. The Bulldogs have built powerful track and cross country programs, winning consecutive conference track crowns in 1991 and 1992.

Equestrian. The Bulldog equestrian team had its first individual national champion in 1998, with five individuals placing in the top 10 nationally in their respective events.

Soccer. Now in its fifth season as a varsity program, the Bulldog soccer team finished third at the WAC Tournament in 1998 and had three players named to all-conference teams.

Softball. The Bulldogs brought home Fresno State's first team national championship in 1998. They have received 22 straight playoff berths with 12 appearances in the Women's College World Series.

Swimming and Diving. The Bulldogs have had an All-American for four straight years and have finished third in the conference three of the past six seasons.

Tennis. The Bulldogs have advanced to NCAA regional play the past four seasons, including reaching the Sweet 16 in 1999 after capturing its first WAC title.

Volleyball. Fresno State has won 21 or more matches five of the past seven seasons, with five post-season appearances, including a trip to the NCAA tournament in 1998. ❖

Auxiliaries

Auxiliary Corporations
2771 East Shaw
Fresno, CA 93710
(559) 278-0800
Lynn D. Hemink, *Executive Director*

Auxiliaries

The Office of the Chancellor for the California State University system has authorized each campus to establish nonprofit organizations to assist the campus in administering areas where funds are generated from nonstate sources. The following auxiliary organizations provide direct and indirect services for Fresno State students.

The Agricultural Foundation of California State University, Fresno

This auxiliary operates the University Farm and student project program for The College of Agricultural Sciences and Technology. The foundation leases the 1,083-acre farm from the university. In addition, it operates the San Joaquin Valley Experimental Range of more than 4,000 acres situated on Highway 41 south of the town of Coarsegold. The foundation is governed by a board of directors.

The Agricultural Foundation provides the funding, the land, animals, orchards, and vineyards for students to receive practical experience in agriculture. Students in the student project program receive units of credit for their experience and also benefit from any profit earned by their projects.

Laboratory experiences funded by the Agricultural Foundation include raising livestock and growing crops. Students in The College of Agricultural Sciences and Technology maintain herds of cattle (both dairy and beef), as well as horses, sheep, and swine. Students also grow all types of crops on the University Farm. This must be done on a self-supporting basis with the income from the farm meeting the costs of its operation.

The California State University, Fresno Association Inc.

This nonprofit corporation enhances the educational goals of the university. Through the operation of the Kennel Bookstore, the University Student Union (USU), the University Courtyard (on-campus living), and campus Food Services, as well as through the support of various university projects, the association is a major contributor to the university. So are you when you patronize these campus facilities. The money you spend, after expenses are met, is directed right back into university projects.

The association is governed by a board of directors. The board must hold a public meeting at least once each quarter. The paid staff operate the facilities in accordance with the rules and regulations established by the board of directors.

In addition, a USU board, a bookstore advisory committee, and a food service committee assist auxiliaries in their operations. Surplus funds generated in excess of required reserves for working capital, capital replacements, and future operations are used for the benefit of the entire campus. When you see the following facilities and services, think of the California State University, Fresno Association Inc.:

- The USU and Satellite Student Union
- The Kennel Bookstore
- Ramps, automatic doors, and elevators for use by the handicapped
- The University Courtyard swimming pool
- The all-weather track
- The campus amphitheater
- Campus lighting and beautification projects
- Signs and landscaping on Maple Avenue

The California State University, Fresno Athletic Corporation

The Athletic Corporation administers the men's and women's intercollegiate athletic programs of this university. This nonprofit corporation is governed by a board of directors.

The California State University, Fresno Foundation

The foundation is responsible for the financial management and administration of grants and contracts, oversight of foundation investments, and operation and management of trust accounts in support of university operations. It is responsible for acceptance and management of all gifts and charitable donations — matching gifts, wills, bequests, trusts, endowments, academic and athletic scholarships, and short-term student loans — made to the university and other auxiliary corporations.

The foundation provides the campus community with high-quality financial services while generating funds to support university programs and activities. ❖

California State University, Fresno/COS Center

California State University, Fresno/COS Center
915 South Mooney Blvd.
Visalia, CA 93277
(559) 625-3950 • (559) 278-4621
Susan Vasquez, *Director*

The center's office is located on the College of the Sequoias campus in Visalia.

COS Center

A student can attend classes leading to an undergraduate or graduate degree and can earn a credential or certificate at the California State University, Fresno/COS Center in Visalia. The center offers courses at times that are convenient to reentry as well as community college transfer students.

The center's students are registered as regular California State University, Fresno students. They earn resident credit for completed courses, with the majority of courses being delivered via instructional television.

Coursework and degrees offered at the center are fully accredited by the Western Association of Schools and Colleges.

The center is located on the College of the Sequoias campus and has been established as a cooperative arrangement between California State University, Fresno and the College of the Sequoias. The purpose of the center is to provide higher educational opportunities to the communities of Tulare and Kings counties.

Academic Programs

Undergraduate

- Bachelor of Arts in Liberal Studies
- Bachelor of Science in Business Administration with an option in Management
- Bachelor of Science in Criminology

Graduate

Master of Arts in Education with options in

- Administration and Supervision
- Reading/Language Arts

Credential

- Multiple Subject/CLAD
- Administration and Supervision
- Reading/Language Arts Specialist

Student Services

Information and assistance in filing applications are available through the California State University, Fresno/COS Center in the following areas:

- Admissions
- Registration (STAR system, Open University, add/drop of courses)
- Credential program admission
- Financial Aid
- University Outreach Services
- Testing
- Educational Opportunity Program (EOP)

For more information, stop by the California State University, Fresno/COS Center Office and ask Nita Bilvado about the center and what it has to offer. ❖

Career Services

Career Services
Student Affairs
Joyal Administration, Room 256 and 274
(559) 278-2381 • (559) 278-7849
http://studentaffairs.csufresno.edu/career
Caroline Williams, *Interim Director*

Students learn about careers and financial planning at the Job Fair.

Career Services

The Career Services (CS) office assists you in formulating a career development plan that will permit you to put your education to work in a satisfying and rewarding career field.

CS provides services that help you develop and implement your career plan. Services include career counseling, part-time employment, cooperative education, job search workshops, full-time job interviews (held on campus), and career information. This service is free to enrolled students and is available to alumni for a nominal fee. To receive assistance, telephone (559) 278-2381 for an appointment or see a counselor for consultation on a walk-in basis.

Undergraduate Career Services

Ideally, the career decision-making process should begin as soon as you enter the university. Consider talking with a counselor who will assist you in making your career decision by directing you to the appropriate service: career testing, workshops, computerized guidance systems, and/or career information. Other resources available include Career Day, the Career Information Network, and the Resource Center. These services and resources will help you select a major and career goal compatible with your career interest.

Undergraduate Employment

Whether you're looking for a part-time or summer job to help you with expenses or a work experience that will help you prepare for your career, CS offers a number of undergraduate employment and work-related learning opportunities. To discover what opportunities await you, visit Joyal Administration, Room 256.

In addition to gaining valuable experience through working or volunteering, you will have a realistic means to test your career decision. In some cases, you will also earn academic credits. (See *Students for Community Service*, page 47.)

Depending on your interests, goals and financial needs, you might be interested in accessing services through any one of our undergraduate programs, including student employment, cooperative education, internships, community service, and scholars service grants.

The Career Resource Center

The center provides current information about majors, careers, trends, course requirements, salaries, and the future outlook. The Resource Center contains numerous periodicals, books, videos, and publications with information that will help you select a career. Two computer-assisted guidance systems are located in the center.

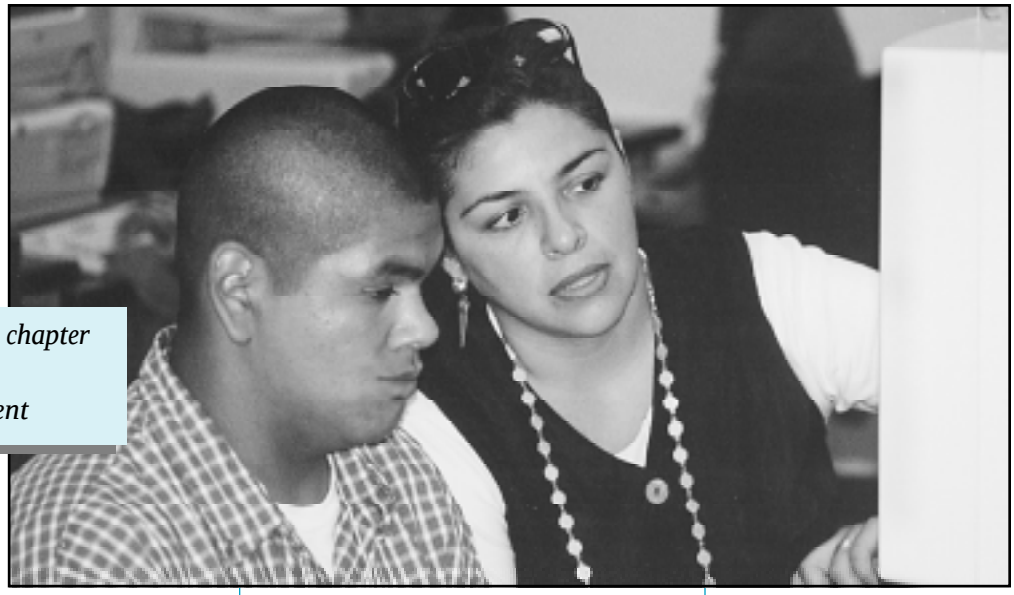
Graduate and Alumni Career Services

CS offers a wide variety of employment-related services for graduating students and alumni of the CSU system. Career employment can be obtained from current employment listings, from national, regional, and local organizations that actively recruit through campus interviews, from job fairs, JOBTRAK, and job searches on the Internet. CS also maintains an active program designed to assist teachers and other education professionals in obtaining positions at all levels of education. Visit Joyal Administration, Room 274, to take advantage of these services, or call (559) 278-7849 for more information.

A home page is available on the Internet. (See address at top of page.) Besides promoting the recruitment of our students, this site provides students with direct links to hundreds of job sites now available on the World Wide Web. ❖

Educational Opportunity Program

Educational Opportunity Program
Student Affairs
Joyal Administration, Room 224
(559) 278-1787
http://studentaffairs.csufresno.edu/eop/
Maxine McDonald, *Director*



EOP alumni chapter president assists a student

The Educational Opportunity Program

The Educational Opportunity Program (EOP) is designed to make higher education a possibility for students who have the potential and motivation to achieve academic success with the assistance of comprehensive support services.

Eligibility

To qualify for EOP, you must be a California resident and an undergraduate student with a family history of low income and limited educational achievement. In addition, you must demonstrate potential for success and be motivated to achieve your educational goals. If the combination of your grades, test scores, and high school courses does not meet criteria normally required for entrance to the university, special admission may be offered. EOP also admits regularly eligible students with specific economic and educational support needs.

Services for EOP Students

Special services designed to support and assist EOP students in developing their academic potential include:

- preadmission counseling
- orientation programs
- special summer program — a three-week, intensive session that focuses on the development of essential academic skills
- diagnostic testing
- financial aid follow-up
- academic advising
- tutorial services
- learning assistance workshops
- counseling
- career planning
- recreational activities

EOP Grant

Eligible students may be offered an EOP grant each academic year. You may apply for the grant by using the standard financial aid application form and procedures required by the Financial Aid Office.

How to Apply for EOP

When you apply for admission through EOP, you are required to submit additional forms and materials. This process enables EOP to select the most qualified applicants to fill the limited number of enrollment openings available each year.

Pick up a copy of the CSU system-wide application booklet and the EOP application from the Admissions or EOP offices at any CSU campus or from your school counselor.

Submit the following admissions materials to the Office of Admissions and Records:

- A complete CSU undergraduate application
- $55 application fee or Fee Waiver Request Form
- ACT or SAT test score (The EOP Office recommends the ACT for applicants in high school.)

Submit the following application materials to the EOP office:

- Applicant Information Form
- Nomination Form
- Autobiographical Statement
- Recommendation Form
- High school and/or college transcripts, or GED score ❖

Extended Education

Division of Extended Education
Education Building, Room 130
(559) 278-0333
http://www.csufresno.edu/ExtendedEd
Audrey S. Anderson, *Dean*

Students of all ages are welcome in extension classes like Experimental Art Workshop.

The Division of Extended Education

The Division of Extended Education is responsible for providing adult learners with educational opportunities designed to meet their needs for career advancement, professional growth, or life enrichment.

California State University, Fresno is sensitive to the ever-changing demands of adult life and attempts to meet these diverse educational needs through its many offerings and formats.

Extension Programs

Various academic departments offer conferences, institutes, workshops, seminars, and courses at several sites throughout the university's service area through the Division of Extended Education.

The financially self-supporting Extension Program includes a variety of courses in all disciplines to meet the growing demand for continuing education. To provide flexibility and to serve the needs of the entire community, regular university courses are offered for credit, as well as other programs for noncredit.

Open University

Open University provides an opportunity for those individuals who are not matriculated at the university to enroll in regular courses as extension students. These courses are open to anyone in the community.

Travel Study Programs

These programs feature a pleasant and rewarding way to learn about another culture. With university faculty members as escorts, these programs offer cultural activities based on a unique combination of travel and learning.

Noncredit Programs

Offerings in this area include specially designed programs developed to satisfy the needs of the specific participants or organizations involved. Short courses, conferences, seminars, workshops, institutes, and test preparation classes are offered regularly throughout the year.

Certificate Programs

Certificate programs are designed for adults who are seeking in-depth knowledge or competency in a specialized area but who do not need a degree. With segments building upon one another, these programs help increase participants' advancement and/or career options.

Off-Campus Degree Programs

These programs allow students living in other areas to earn degrees without moving or commuting to the campus. They consist of classes held at remote sites as well as interactive courses that originate on the university's campus and are broadcast to select locations throughout the state.

Summer and Winter Programs

The university offers short-term summer session and winter session classes to university students who wish to earn residence credit toward a degree and to individuals from the community wishing to continue their education. These programs often accelerate progress toward earning a degree or credential.

For a catalog of current course offerings, call the Division of Extended Education at (559) 278-0333. ❖

Health and Psychological Services

University Health and Psychological Services
Student Affairs
Health Center
5044 N. Barton Avenue (at Shaw)
(559) 278-2734
Director Robert M. Paull, M.D., M.P.H.

Services

University Health and Psychological Services provides outpatient clinical medical care and, separately, psychological counseling services to university students in accordance with policies set by the board of trustees of The California State University.

The university underwrites a portion of the costs of operating the center. Students, on a cost-sharing basis, contribute to the operation of the center by paying at the time of registration each semester a mandatory health fee, which may be used only to support the student health program. Thereafter, the student pays nothing further for most services provided within the Health Center. The Health Center has prepared a brochure that gives more details regarding services available and charges, if any, for such services. The brochure is available at the center or at various locations on campus.

Facilities

The Health Center is uniquely designed as a medical building with well-equipped doctors' offices and examination rooms linked by a computer-based medical management system. Up-to-date laboratory, X-ray, pharmacy, and physical therapy facilities are located in the building.

Staff

Fully qualified staff members meet your health care needs. The staff includes full-time physicians (including specialists in internal medicine and family practice), nurse practitioners, nurses, pharmacists, a physical therapist, a health educator, a nutritionist, clinical laboratory and X-ray technologists, and a medically knowledgeable and sensitive clerical staff. Part-time physician consultants in orthopedics, psychiatry, radiology, and dermatology are also available.

Counselors are professionals trained in counseling, social work, and psychology who assist students in acquiring a wide range of skills in life management, career and life planning, and personal development and growth. Through counseling, students are provided with the opportunity to discover more about themselves, where they want to go, and better ways of getting there. The center's services are *not* related to academic or class counseling; academic counseling is not offered at the Health Center.

Appointments and Consent to Treat

You may make appointments in person or by telephone. If you are under the age of 18, your parents must consent to your treatment.

Women's Health

The Health Center provides a range of services to meet a woman's unique medical needs: comprehensive examination, laboratory testing, Pap tests, counseling, and consultation. Availability of services may vary during the school year depending upon staffing and patient requirements. Contact the Health Center for a specific appointment.

Pharmacy

Prescriptions/nonprescriptions are available for a modest fee.

Qualified staff members offer on-site health care.

Physical Therapy

This popular service generally is available by referral from a Health Center physician only. There may be some charges for such services. Address specific questions to the Health Center staff.

Immunizations

The Health Center provides immunizations when clinically indicated. A charge may be necessary for high-cost vaccine. This includes administering allergy shots to students who have their own medications. Be sure to bring your immunization record with you to the Health Center.

Summer Care

You may be eligible for services during the summer when enrolled. There is a mandatory one-time fee for such services paid at the time of registration. Continuing students not enrolled during the summer may also be seen on a per-visit charge basis. Call ahead to determine your eligibility for care.

Health Insurance

You may purchase an insurance protection plan for emergency illness and accidental injury during hours that the Health Center is closed. Sponsored by the Associated Students, this program provides coverage for hospital benefits, medical, surgical, and related services for any illness or accident.

Health Education Information

If you are concerned with a health-related problem, you are encouraged to consult with the Health Center staff. They will either answer your questions or direct you to someone who can. A full-time health educator develops and coordinates health education programs. Health education literature is available in the Health Center and in the University Student Union. ❖

Housing

University Housing
The Atrium
(559) 278-2345
Karen L. Johnson, *Acting Director*

On-Campus Living

Make University Courtyard, Fresno State's on-campus living complex, a piece of your success. Residents have the opportunity to become part of a community of students who share experiences and support each other in achieving academic success.

Accommodations

The remodeled air conditioned/ heated rooms include an extra long twin bed over an 80" x 36" desk, three-drawer dresser, two-drawer file cabinet, book carrel with task light, two-position chair, and closet with storage space above for each resident. A meal plan, computer lab (free Internet and e-mail service), basic cable service, utilities, fitness center, swimming pool, laundry facility, recreation facilities, and community custodial services are included.

Residence Hall Living

The convenience of on-campus living makes it easy to go to and from class, use the campus library, and attend dances, plays, lectures, sporting events, and concerts during evenings and weekends.

The halls offer interesting programs designed to add an exciting dimension to on-campus living. Social activities include karaoke, bowling, special dinners, barbecues, and movies. Educational programs provide information on such topics as alcohol awareness, appreciation of differences, and personal safety.

Individual Halls

The housing complex consists of nine residence halls, the Atrium Building, and the Residence Dining Facility. Three halls are community style. Six halls are shared one-, two-, or three-bedroom residence suites with a furnished living room and bathroom. Quiet and substance-free living areas are available. All halls house men on one wing or suite and women on another. Up to 1,000 students can live on campus. The majority of the rooms are shared by two students, although approximately 145 single rooms are available on a first-come, first-served basis.

Staff

Trained professionals are available to help make your stay in the residence halls enjoyable. They develop social, cultural, educational, and recreational activities and opportunities.

Augmenting the staff are the resident directors, assistant resident directors, resident advisers, and public safety assistants. Serving as student leaders on each floor, residence life staff receive training in active listening and crisis intervention. They understand university structure; they can assist students with academic-related issues, emergencies, and personal concerns.

How to Apply

The housing application process is separate from the university admissions process.

Applications are available in February for the academic year and spring semester. You are urged to apply early since on-campus space is limited and current residents receive priority room selection. Your license agreement is for an entire academic year. (Exception: spring semester.)

All first-time undergraduate university applicants automatically receive housing information. You need not wait until you are officially accepted by the university to submit your housing application. If you notify us in writing by July 15 that you have changed your mind, or by August 15 if you are not accepted to the university, your deposit will be refunded (less a $50 processing fee). To request a housing application, contact the Housing Office at (800) 555-0482 or (559) 278-2345.

Employment Opportunities

Students living in the residence halls receive priority consideration for student positions available in housing, food services, athletics, and the bookstore. Information is included in your housing application packet.

Priority Registration

Current residents who sign up by April 6 to return to the halls for the following year receive priority registration for courses.

Off-Campus Housing

For information on houses, rooms, and students looking for roommates, call (559) 278-1000. The university does not inspect, approve, or disapprove any units offered for rent. ❖

Information Technology Services

Information Technology Services
McKee Fisk, Room 137
(559) 278-3923
http://www.csufresno.edu/ITS/
James Morris, *Director*

Resources and Services

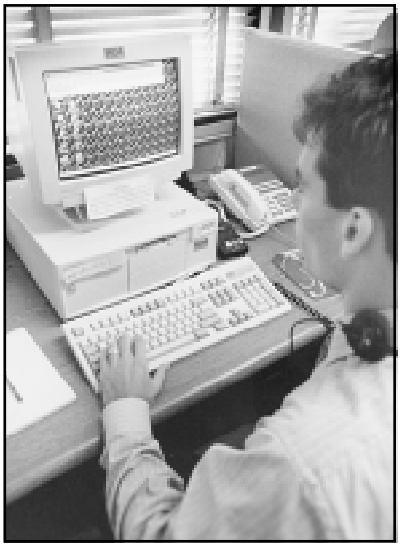
Information Technology Services (ITS) offers a broad range of resources and services to the students, faculty, and staff of California State University, Fresno.

University Computer Access Requirement

At California State University, Fresno, computers and communications links to remote resources are recognized as being integral to the education and research experience. Every student is required to have his/her own computer or have other personal access to a workstation (including a modem and a printer) with all the recommended software. The minimum and recommended standards for workstations and software, which may vary by academic major, are updated periodically and are available from Information Technology Services (see Web address listed at the top of this page) or the Kennel Bookstore. In the curriculum and class assignments, students are presumed to have 24-hour access to a computer workstation and the necessary communication links to the university's information resources. The university maintains a limited number of workstations in various labs to facilitate this access. It provides the means to allow students access from their home environment to university computing and network resources and the Internet.

Electronic Mail Services

The university provides a free electronic mail account to every student, faculty, and staff member who requests one. These accounts can be accessed from any of the networked computers on campus or from a home computer with a modem. To request an account, currently enrolled students should bring their Student I.D. card to the University Student Union information desk. Faculty and staff may request an account by calling (559) 278-5000 or completing a form in McKee Fisk, Room 137.



World Wide Web Services

ITS maintains several World Wide Web servers for campus use. All students, faculty, and staff members who have an electronic mail account through the university may publish Web pages on these servers. In addition, ITS maintains a centralized Web server for all university departments and ASI-recognized student groups. The university's address on the World Wide Web is listed at *http://www.csufresno.edu*.

Consulting Support

The Help Desk provides general computing and communications support to the campus and is available to answer questions about electronic mail, the Internet, telephone and voice mail services, as well as some specific applications for the PC, Macintosh, and Unix platforms. Students can contact the ITS Help Desk by calling (559) 278-7000. The ITS Help Desk is available to the campus Monday through Friday from 7 a.m. to 4 p.m. Faculty and staff should call (559) 278-5000. The Help Desk can also be reached via e-mail at *help@csufresno.edu* or at *http://www.csufresno.edu/ITS/wo.*

Computing Laboratories

Although ITS does not maintain any campuswide open use computing laboratories, there are a number of labs supported by university colleges/schools and departments. Most of these labs offer workstations that are connected to the campus data network, providing access to file servers, the electronic mail hosts, and the Internet. You may contact our Help Desk for more information about the location and hours for these labs or take a look at the AIT Web site (*www.csufresno.edu/ait/*) for a list of campus labs.

Dialup Internet Services

The Central Valley Internet Project (CVIP) offers high-speed, low-cost Internet accounts to qualified students, alumni, and educators. A CVIP account allows members who have a computer and modem to send and receive electronic mail, to browse the World Wide Web, to listen to audio segments and view video clips, to participate in Internet news and topic groups, to upload and download to and from thousands of computers worldwide, and to create and maintain their own Web home pages.

California State University, Fresno students, faculty, and staff may purchase individual accounts for a nominal fee (basic non-graphical electronic mail accounts are always free to all members of the university community). To obtain a CVIP account, call (559) 278-1111, Monday through Friday, 8 a.m. to 5 p.m., or stop by the Information Center on the main level of the University Student Union, Monday through Friday, 9 a.m. to 5 p.m. You can also obtain an account at the CVIP offices in the Bulldog Plaza at the corner of Cedar and Barstow, Monday through Friday, 8 a.m. to 5 p.m. ❖

International Programs

International Programs Office
Academic Affairs
Family and Food Sciences, Room 111
(559) 278-6452 • FAX (559) 278-4203
http://www.csufresno.edu/International_Programs
Peter J. Klassen, *Director*

International Programs

The International Programs Office is responsible for leadership and coordination of international study abroad programs conducted by California State University, Fresno. The office is designed to assist faculty and administrators in developing and strengthening international education efforts; disseminate information about international study opportunities; encourage students to enroll in international study programs; award limited numbers of tuition waivers to international students coming to study in Fresno; and serve as an information center for Fulbright awards and other sources of support for study abroad.

An advisory council works with the director to assist in this task. A resource center, maintained in the International Programs Office, provides international education materials for faculty, staff, and students, while a newsletter, *Horizons International*, reports on latest developments.

The university, in its *Vision for the 21st Century: A Plan for Excellence*, set a goal to have 10 percent of students participating in the study abroad programs.

Several "semester abroad" programs allow students to complete part of their studies in other countries:

- The London Semester
- The China Semester
- The South Pacific Semester

In addition, students have a wide range of study-abroad opportunities through the CSU International Programs and through the University Studies Abroad Consortium. (See *International Programs* under the Special Programs section on pages 462-464.)

In its determination to enhance global understanding, California State University, Fresno encourages international academic exchange and cooperation. The university also has partnerships with a number of universities around the globe.

For the experience of a lifetime, contact the International Programs Office at (559) 278-6452.

At the present time, the university maintains academic cooperative programs, including, in most instances, student exchanges, with the following institutions:

- University of Central Lancashire, United Kingdom
- University of Leeds, United Kingdom
- University of Münster, Germany
- University of Stuttgart, Germany
- Copernicus University, Poland
- University of Gdansk, Poland
- Belarusian State University, Belarus
- Yerevan State University, Armenia
- Beijing Union University, China
- East China Normal University, China
- Hangzhou University, China
- Baiko Jo Gakuin University, Japan
- Kochi University, Japan
- Dong-A University, Korea
- Kon-Kuk University, Korea
- Sungshin Women's University, Korea
- University of the Philippines
- University of Guanajuato, Mexico
- University of Torreon, Mexico
- Instituto Tecnologico y de Estudios Superiores de Monterey, Mexico
- University of Seville and University of Barcelona, Spain

In some instances, instruction is available in English. Usually, fluency in the language of the country is required. University cooperative arrangements allow waiver of tuition in most instances. In addition, various other benefits are available because of cooperative agreements. ❖

International Student Services and Programs

International Student Services and Programs
Student Affairs
Joyal Administration, Room 211
(559) 278-2782 • FAX: (559) 278-7879
http://studentaffairs.csufresno.edu/international_students
Carol B. Munshower, *Director*

International Community

California State University, Fresno enjoys a large international student community. Our multicultural staff is committed to international student success, as stated in our mission statement. We provide a comfortable environment that allows students to make the most of their educational experience.

International Student Services and Programs

The program sends international students information regarding arrival in the United States, visa and immigration, housing in the Fresno area, and registration after students are admitted. After arrival, the staff guides students through several mandatory preregistration workshops, post-admission English testing, and registration. International students may need to enroll in English as a Second Language courses during their first semester or a course in American culture and society. (See *International Programs* under the Special Programs section.) Visit our Web address. (See top of this page.)

International staff will assist you in obtaining housing. An American family or a student from your country can meet you at the airport when you first arrive and provide some short-stay emergency housing.

Learn about Americans by making friends with families through our International Friendship Program.

Enjoy recreational activities with fellow classmates by participating in trips and activities.

Opportunities

Share your country and culture with the Fresno community and the Fresno State campus by speaking to small groups through our Speaker's Program and Exploring Global Diversity — International Coffee Hour series.

Join the many international clubs or any of the 200 other organizations available on campus. Participate in and enjoy the varied cultural programs during the year, such as International Week, International Culture Night, Mooncake Festival, Malaysia Night, and other national day celebrations.

Learn about travel around the United States by using our Resource Center. A computer terminal is also available for electronic mail.

The foreign student advisers take a personal interest in helping you adjust to the academic environment and resolve your own personal concerns, such as financial assistance, immigration matters, and personal needs. Agency- and foreign government-sponsored students participate in our Sponsored Student Program.

We offer you more than good weather, a reasonable cost of living, and excellent selections in undergraduate and graduate academic programs. We care about your development as a whole person; we want your stay in the United States to be worthwhile. We believe your experience and involvement in the United States will enrich your life, as well as our university. We look forward to sharing this experience with you. ❖

Mission Statement

Our mission is to provide the highest quality services to international students and serve as an international education resource to the university community at California State University, Fresno.

We are committed:

- to providing a warm and informative welcome to international students, recognizing their importance and their contributions to the campus and the Fresno community;
- to providing appropriate services and assistance to international students so they do not face challenges alone;
- to working with international students, assisting with their adjustment and understanding of their new environment in a comfortable setting where they have opportunities and encouragement to pursue their dreams, be involved in the university community and have their efforts recognized;
- to encouraging international students to ask questions and offer suggestions while we do our utmost to address their concerns with respect, reassurances, and understanding;
- to serving as a resource to faculty and staff to facilitate international exchange, enhance cross-cultural communication and support international endeavors;
- to providing prospective students and parents with information about the university and the quality of available educational experiences which enhance and promote the continued flow of students from nations around the world; and
- to offering our friendship today and tomorrow as we work together to dream and build a better world.

Learning Resource Center

Learning Resource Center
Student Affairs
Lab School, Room 137
(559) 278-3052
Sonya L. Hildreth, *Interim Coordinator*
http://studentaffairs.csufresno.edu/

The Learning Resource Center

The Learning Resource Center (LRC) provides services to all university students who would like to become more independent and efficient learners. Services to faculty include assistance in forming study groups for students enrolled in courses and/or help forming modified supplemental instruction groups led by a trained student SI leader.

Workshops and handouts on improving learning skills such as time management, note taking, test anxiety, plus other areas are available each semester. Other programs and services are outlined on this page.

The Intensive Learning Experience (ILE) Program

This program provides academic assistance to freshmen who score at or below the lower quartile on the EPT (T141 and E7) and/or the ELM (370 or below). ILE features courses in English, English as a second language, entry level mathematics, and reading with a low teacher-student ratio, counseling services, and academic advising. (See course information on this page.) The program's aim is to increase the retention and graduation rates of historically underrepresented and underprepared college students.

University Tutorial Services

These services are available to enrolled Fresno State students. Tutoring for small groups is primarily available in high-demand subject areas. Groups of up to four students are matched for one-hour weekly sessions with faculty-recommended student tutors. Drop-in labs in accountancy and mathematics are also available. Tutoring services of the Educational Opportunity Program (EOP) and the ILE English as a Second Language (ESL) lab are located in the Learning Resource Center. They work collaboratively with University Tutorial Services.

Courses

The following courses are offered by various departments in cooperation with the LRC and its associated programs. English as a Second Language and College Planning Skills count as elective credit toward graduation.

UNIV 20. Academic Learning Strategies (3)
A seminar course in academic learning techniques and strategies designed to address the educational needs of those students who may be experiencing difficulty in their academic and personal adjustment to university requirements. (Formerly UNIV 20T)

ENGL A. Fundamental Writing Skills (1-3; max total 3)
This course is for students who score at or below T150 and E7 on the EPT.

ENGL ARL. Fundamental Writing Skills Center (1-2; max total 2)
This course is for students enrolled in English A.

E S L 20 and 30. English as a Second Language (3 units each)
These two courses are for speakers of English as a second language scoring at or below T129 and E6 on the EPT.

LEE AR. Reading Skills (1-3; max total 3)
This course covers vocabulary development, comprehension, and reading rate for ILE Program students whose EPT reading score is 135 or below. ❖

Library Services

Henry Madden Library
Hours of opening: (559) 278-2596
Circulation services: (559) 278-2551
Reference questions: (559) 278-2174
http://www.lib.csufresno.edu
Michael Gorman, *Dean*

Henry Madden Library is an invaluable student resource.

The Library

The Henry Madden Library is a center for study, learning, and scholarship at Fresno State. Its collections and services are central to undergraduate and graduate instructional programs and to research of all kinds. More detailed information is available from our Web site. (See top of page.)

On-line System. ALIS includes an on-line catalogue enabling you to locate books, journals, and other library holdings quickly and easily. You can also gain access to a large number of periodical databases at workstations found throughout the library.

Collections

Books and Bound Periodicals. The Madden Library contains more than 950,000 volumes on all subjects and in many languages, as well as a large number of periodicals in microform. This diverse collection will meet your research needs throughout your university career.

Periodical Subscriptions. The library subscribes to more than 2,600 periodicals from all over the world. A complete and up-to-date listing indicating which issues are available may be found in ALIS.

Government Publications. The Government Documents Department is a selective depository for United States and California documents. The department contains a circulating collection of more than 260,000 documents on all topics.

Specialized Collections. The library contains a Curriculum/Juvenile library, the largest Music Library in the CSU system, a large and growing Map Library, and a Special Collections library housing rare books, materials on local and state history, and other specialized collections.

Services

Assistance. Librarians are ready and willing to help you with your library research at the Reference Desk and in other departments of the library.

Learning about the Library. Handouts describing the library and its services can be found near the entrance. Tours and library instruction workshops are offered; see information at the Reference Desk.

Access to Databases. The library provides access to dozens of periodical databases on a wide range of subjects. Some databases provide citations and abstracts, while some provide the complete text of articles. Databases are available at workstations within the library, in campus computer labs, and remotely from home to Fresno State students, faculty, and staff.

Borrowing from Other Libraries. The Interlibrary Borrowing Service enables you to borrow research materials from libraries throughout the country.

Multicultural Program. The Multicultural Program uses the library's collections and services to support cultural diversity. Its activities include collecting materials in ethnic/multicultural studies, assistance and instruction in the use of those materials, outreach to culturally diverse students to encourage knowledge and use of the library, and library displays on cultural topics.

Library Media Center. Videos and video sets of educational value are available for individual study in the Music and Media Library (third floor).

Copiers. Photocopy machines are available throughout the library. A card system allows you to use the machines and to make paper copies of microfilm and microfiche. Cards may be purchased from vending machines in the library.

Services for Students with Disabilities. This facility, housed on the first floor, provides a variety of services, including listening and recording booths, Braille reference books, and reading machines for the visually impaired. ❖

Outreach Services

University Outreach Services
Student Affairs
Joyal Administration, Room 250
(559) 278-2048
http://outreach.csufresno.edu/ • http://studentaffairs.csufresno.edu/
Frances A. Peña, *Director*

The University Outreach Office

The Office of University Outreach Services (UOS) coordinates many of the university's ongoing outreach programs and recruitment.

As a regional university, Fresno State concentrates its major outreach activities in high schools and community colleges in the Central Valley, which extends from Sacramento to Bakersfield.

The primary focus of UOS is to assist students with preadmission procedures necessary to attend Fresno State and to develop and maintain a viable relationship with all segments of the community for a better understanding of the university and its services. Another important outreach service is to improve access for students from educationally and/or economically disadvantaged families.

High School Outreach

University Outreach visits high schools during the fall semester with follow-up visits in the spring. Outreach representatives provide information on admissions, financial aid, scholarships, housing, and academic majors in small or large group settings.

Community Colleges/ Transfer Services

Outreach staff members visit community colleges in the university's service area regularly and see most students by appointment. Students are assisted with admissions, financial aid, and advising information. Staff members also provide information on campus support programs. They visit most colleges in the Valley and Central Coast areas on a regular basis. Consult with your transfer center or counseling center. University Outreach Services also participates in the Fresno City College Transfer Center Project. The Transfer Center Project sponsors several activities to promote and increase the number of transfer students.

Student Ambassadors

University college ambassadors motivate high school and community students to enroll in college preparatory courses that will lead to CSU admission. Ambassadors provide community college students with valuable information on the benefits of higher education. Ambassadors distribute materials to help students prepare for a baccalaureate degree. Two community colleges and 23 high schools are in the program.

Early Outreach

This UOS component encourages, motivates, and exposes students to higher education as early as the seventh grade. Services provided to students include school site visits, enrichment workshops, university classroom experiences, campus tours, advising, career days, and parent orientations.

Outreach also encourages elementary age students to attain academic achievement and to begin setting higher educational goals. Outreach programs are targeted at elementary schools in the Fresno Unified, Clovis Unified, and West Fresno School districts.

Tours

Student tour guides conduct campus tours for prospective students and their families. Group tours may also be accommodated with advance notice. Contact the office for the scheduled hours.

School-Based Recruitment Program

Members of University Outreach serve as liaisons with the eight academic colleges/schools. Outreach members disseminate information specific to the colleges/schools, arrange departmental meetings for prospective students and their parents, and engage in specific recruitment activities.

Orientation Programs

Orientation programs (Advising Days) are offered at California State University, Fresno to provide new students with a smooth transition to the university from high school or another college. Special parent orientation programs are also included. One-day sessions are held prior to the fall and spring semesters of each academic year. To introduce students to campus life, academic programs, and services, University Outreach Services annually sponsors Open House in the fall for prospective students and Preview Day in the spring for new students. ❖

UOS makes information available through its many site visits, classroom presentations, college fair booths, and campus tours.

Reentry Program

Reentry Program
Student Affairs, University Center
(559) 278-3046
http://studentaffairs.csufresno.edu/
Angela Cisneros, *Coordinator*

Reentry

Education is the key to a better life and a more secure future. The Reentry Program assists potential students, 25 years of age and older, who wish to begin or resume a college education.

Transitions are difficult for people of all ages because they usually entail changes in routines and adjustments to new relationships and surroundings.

The reentry staff has a special interest in fulfilling the changing needs of adult learners. Though many who have been away from the formal learning process are apprehensive, the success rate among returning students is high.

Adults possess certain assets that come only with age and experience. Older students tend to have strong motivation, coupled with a special eagerness to learn. Broader life experiences usually mean more effective coping skills. Staff and peer advisers help reentry students to make the best use of these advantages.

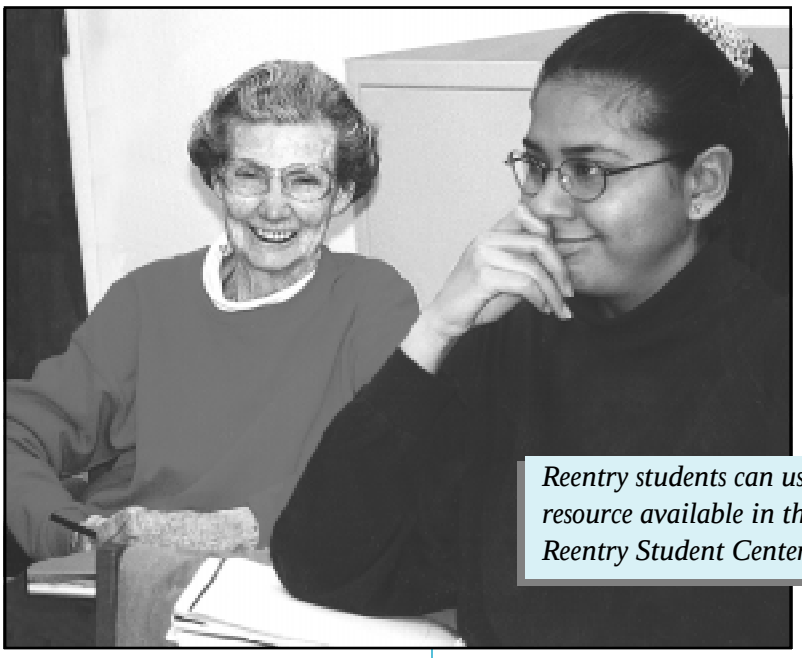
At the same time, returning individuals often face complicated circumstances which, while making further education desirable, also make it difficult to achieve. Reentry staff can help reentry students when complex issues need attention.

Services

We'll help answer your initial questions about college. We can advise you regarding eligibility, courses, costs, deadlines, and other services.

Academic Advising

Academic advising gives you the information you need to make informed decisions about your academic career.



Reentry students can use the resource available in the Reentry Student Center.

Personal Counseling

Limited services are available to assist you with the transition to student life.

Extended Hours

This program provides support services for reentry students with evening classes. Offices are open until 7 p.m. during the regular semester.

Peer Support and Tutoring

The support of peers promotes a feeling of belonging to the campus community. The Reentry Center provides a place for you to meet friends and relax between classes. It also offers students an opportunity to form study groups. These groups provide emotional support and an opportunity to share concerns with other reentry students. Peer tutoring is also available.

Coffee Hours

These activities are scheduled weekly and provide you with informal information sessions. Excellent speakers from the campus and community address a variety of interesting topics, such as time management, stress control, and overcoming academic anxiety.

Career Exploration and Counseling

Referrals are available to assist you in making well-informed, appropriate decisions when change is needed.

Workshops

Workshops are offered to further assist you with self-awareness, personal growth, relationship and family enrichment, and academic success.

Referrals

Reentry may make referrals on your behalf to campus services, such as Career Development and Employment Services, University Health and Psychological Services, Child Care Center, and Financial Aid.

If you would like more information about the many opportunities for reentry students, visit the Reentry Office or call (559) 278-3046. ❖

Services for Students with Disabilities

Services for Students with Disabilities
Student Affairs, Henry Madden Library, Room 1049
(559) 278-2811
TDD: (559) 278-3084 • FAX: (559) 278-4214
http://studentaffairs.csufresno.edu/
Carole Snee, *Interim Coordinator*

Services to Students with Disabilities

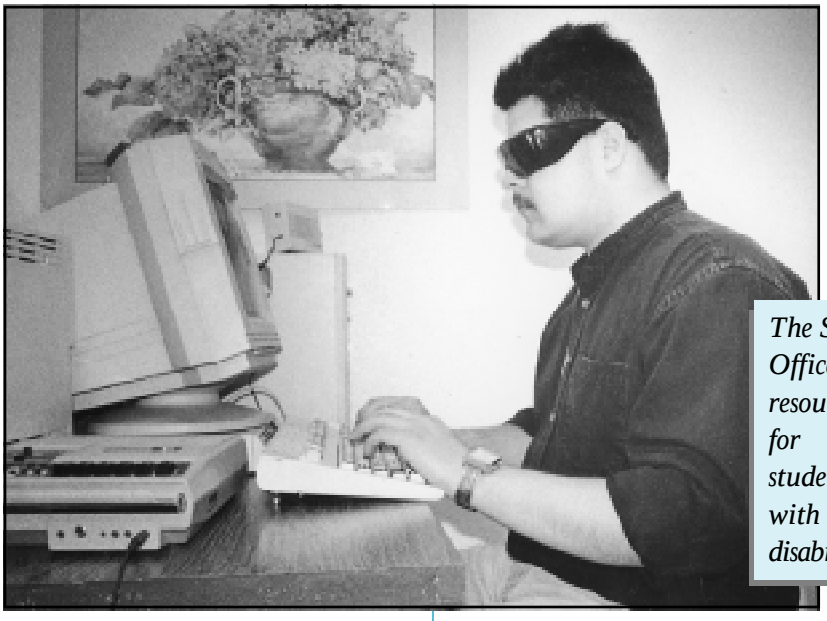
Services for Students with Disabilities (SSD) provides specialized resources that help students with physical, perceptual, and learning disabilities to achieve maximum independence while pursuing educational goals. Students who have temporary or permanent disabilities affecting academic functioning may be eligible for a variety of support services.

California State University, Fresno is committed to meeting the spirit and letter of the Americans with Disabilities Act and other legislation that calls for full inclusion of persons with disabilities. SSD staff members work with all areas of the university to reduce or eliminate physical, academic, and other barriers.

Services Provided

SSD staff members take a personal interest in meeting the special needs of students with disabilities. The SSD office, located in the Henry Madden Library, has disabilities management and testing accommodation specialists on staff and provides adaptive equipment and testing rooms.

Academic support services (available to students with physical, perceptual, and learning disabilities) include readers, scribes, sign language interpreters, note takers, audio-taped textbooks, adaptive equipment (including print enlargers), speech input and voice output computers, braille printers, testing accommodations, and disability management (which emphasizes personal growth and development as well as independence and self-advocacy). Other services provided include career exploration and campus-to-career skills building.



The SSD Office is a resource for students with disabilities.

Requesting Services

Students with disabilities need to visit the SSD office to initiate a request for services. Upon receipt of appropriate verification from a professional documenting the disability, a meeting is scheduled with a disabilities management specialist to establish services. Students who believe that they may have a disability but do not have previous verification of a disability should visit the SSD office to decide on an appropriate course of action.

Priority Registration

When services have been established and registration fees paid, students with verified disabilities may be given priority registration privileges to facilitate class scheduling.

Campus Access

The campus is committed to reducing and eliminating structural obstacles as well as providing elevators, accessible restrooms, drinking fountains, telephones, and TDDs (Telephone Devices for the Deaf). Portable science laboratory stations and other specialized academic equipment are available for students who use wheelchairs. Blue curb parking, campus maps, wheelchair loans, and other aids are also available.

California State University, Fresno is one of the most accessible university communities in California. The climate is moderate and the flat terrain poses few mobility obstacles.

Student's Responsibilities

Students are responsible for personal accommodations such as attendant care, transportation to and from the campus, and other personal services not directly related to academic coursework. SSD staff will assist students who need to contact campus, state, and community agencies that provide such services. ❖

Student Affairs

Office of the Vice President for Student Affairs and Dean of Students
Joyal Administration, Room 262
(559) 278-2541
Judy K. Sakaki, *Vice President for Student Affairs and Dean of Students*
http://studentaffairs.csufresno.edu/

Student Affairs

The Division of Student Affairs at California State University, Fresno provides a full array of services and programs that support student success at the university. Services are designed to encourage student development and to enable students to realize their academic, personal, and career goals.

We care about our students and know that they learn and develop as a result of their experiences both inside and outside of the classroom. As a result, we take extra care in ensuring that the university not only has excellent curricular offerings, but also excellent co-curricular or student services and activities. The Office of the Vice President for Student Affairs and Dean of Students provides leadership and support to the many programs and offices in the division. They are as follows:

- Admissions, Records, and Evaluations
- Advising Services
- Career Services
- College Assistance Migrant Program
- Educational Opportunity Program
- Central California Educational Opportunity Center
- Educational Talent Search
- Enrollment Services Information Systems
- Financial Aid and Scholarships
- International Student Services and Programs
- Learning Resource Center
- Mendota GEAR UP Project
- Reentry Program
- Services for Students with Disabilities
- Student Activities and Leadership Development
- Student Support Services Program
- Southeast Asian Student Services
- Summer Bridge Program
- Testing Services
- University Health and Psychological Services
- University Migrant Services
- University Outreach Services
- Upward Bound Program/ ESL Upward Bound
- Women's Resource Center

Dispute Resolution

A student-related dispute could arise out of a decision or action in the course of official duty by a member of the faculty, staff, or administration of California State University, Fresno. The decision or action could be alleged as 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 dispute resolution process is to provide a mechanism for students to have a third party review the situation.

The student must first make a good faith effort to resolve the matter informally by talking directly with the individual concerned, the individual's direct supervisor or department chair, and the director of the unit or college/ school dean. If resolution is not effected through the informal procedures, for assistance students should contact the Office of the Vice President for Student Affairs and Dean of Students.

Student Absences

Students are expected to attend class and should maintain contact with their faculty members regarding any absences. Individual faculty members should be contacted when there are extended absences (more than one week) due to illness, death in the immediate family, or other situations. In urgent or extraordinary emergencies that preclude direct contact with individual faculty, students may contact the Office of the Vice President for Student Affairs and Dean of Students at (559) 278-2541. Any make-up work or missed assignments remain the responsibility of the student. ❖

The Division of Student Affairs offers support services through a variety of programs available to all students.

Student Affairs Federal Programs

Student Affairs Federal Programs
Joyal Administration, Room 262
(559) 278-2541 • FAX: (559) 278-7276
Robert Hernandez, *Executive Director*
http://studentaffairs.csufresno.edu/

College Assistance Migrant Program
Joyal Administration, Room 224
(559) 278-1787
FAX: (559) 278-6654
http://www.csufresno.edu/CAMP/

The College Assistance Migrant Program (CAMP) at California State University, Fresno provides retention services to university students from migrant and seasonal farmworker families. As a retention service program, CAMP is committed to help students stay in school. Our staff will help you explore your academic and career choices and make sure that you have the information you need to make informed decisions.

Services designed to assist CAMP students include academic assistance, career planning, cultural enrichment, recruitment, job search, financial aid and scholarship application assistance, and vision and dental care assistance.

Central California Educational Opportunity Center
2450 E. San Ramon 3, Room 106
(559) 278-2280
FAX: (559) 278-2322
http://studentaffairs.csufresno.edu

The CCEOC is an outreach program that provides free information and assistance to adults who aspire to be first generation college students, have a low income, and are interested in pursuing a postsecondary education.

Services from CCEOC encompass assistance with admission applications, financial aid applications, career assessment and counseling, academic advising, information on entrance examinations, academic needs assessment, and workshops on postsecondary education options.

Educational Talent Search
2450 E. San Ramon 3, Room 106
(559) 278-2276 or (800) 307- 0602
FAX: (559) 278-2322
http://studentaffairs.csufresno.edu/

Educational Talent Search is an outreach program designed to encourage and assist participants to graduate from secondary school and enroll in postsecondary educational programs. Each year 700 eligible participants will be selected from the designated schools.

Services from Educational Talent Search include academic advising and planning, career counseling, financial aid information, college admissions orientations, college entrance and pre-admission testing, parent orientations, and college tours.

Mendota GEAR UP Project
2450 E. San Ramon 3, Room 106
(559) 278-2271
FAX: (559) 278-2322
http://studentaffairs.csufresno.edu/

The Mendota GEAR UP Project is an experimental partnership program designed to increase the college-going rate of low-income students enrolled at Mendota Unified School District. The project will begin with a sixth- and seventh-grade group of 300 students and add grades until 600 students are served over the five-year period.

The program will provide to all students early developmental outreach services including mentoring, tutoring, counseling, and other activities like after-school programs, summer academic and enrichment programs, college visitations, and parent/teacher workshops.

Student Support Services
Lab School, Room 137
(559) 278-3052
FAX: (559) 278-6211
http://studentaffairs.csufresno.edu/

The Student Support Services Program (SSSP) purpose is to improve the academic performance, retention, and graduation rates of participating Fresno State students. SSSP seeks to help students gain the knowledge and skills necessary for the full range of academic and career options.

Services and courses provided by SSSP include academic assessment, individualized instructional support, personal and career development skills, ENGL RS (Writing Skills Application), and LEE 1R (Reading Application Skills.)

Upward Bound/ESL Upward Bound
5240 N. Jackson
University Center #127
(559) 278-2693/(559) 278-5796
FAX: (559) 278-4306
http://www.csufresno.edu/upward

The Upward Bound Program at California State University, Fresno is designed to enhance the academic skills and career goals of program participants from targeted high schools. Services provided to students are designed to enhance student enrollment and encourage completion of postsecondary education.

Services provided are academic assessment and advising, career counseling, after school and Saturday tutoring, parent workshops, financial aid advising, tours of college campuses, and a five-week residential program. ❖

Student Life

Student Life
Student Affairs
University Student Union, Room 306
(559) 278-2741
Carole A. Snee, *Interim Executive Director*
http://studentaffairs.csufresno.edu/

During Vintage Days, students enjoy fun activities like sumo wrestling games.

Student Activities and Leadership Development

Being involved during your college life means you take an active role in shaping your learning experience. The staff of the Office of Student Activities and Leadership Development recognizes the importance of positive experiences outside the classroom in shaping the well-rounded student. Staff members strongly support the academic experience at the university and promote active involvement in college activities to enhance intellectual growth.

The Office of Student Activities and Leadership Development provides opportunities and encouragement for cultural, social, emotional, educational and physical development in a variety of ways. Developing leadership skills in students is one of the primary goals. The staff understands that student development is not a single program but rather an ethic that flows through all of the activities and programs of the office. Seeking to know and understand student needs and helping students accomplish their goals are the common threads throughout the office.

A strong emphasis in hands-on learning means students create programs while learning leadership, personal development, and management skills. Program staff, other university group advisers, and faculty serve as resources and facilitators to maximize student success.

Programs and Function

The Office of Student Activities and Leadership Development functions as the administrative home for many diverse student activities and programs. The office issues permits for use of the Free Speech Area; officially recognizes the more than 250 student organizations; assists students with planning activities and developing programs; and reserves campus facilities, grounds, and classrooms for use by student organizations.

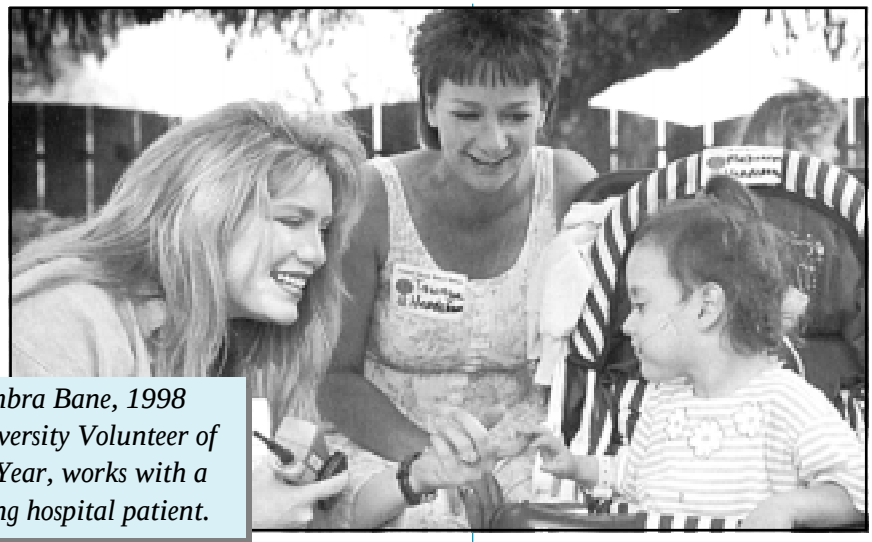
Professional staff work closely with the Associated Students, Inc., Greek Affairs, and the Vintage Days Planning Committee (which plans a four-day spring celebration for students, faculty, staff, and the surrounding communities). Other major programs include the Intramural and Recreation Program, student leadership development, the Fresno State RentsLine, club sports teams, and University Commencement activities.

Special Programs

The Office of Student Activities and Leadership Development is also involved with planning, developing, and advising many special events and programs. Some of these include the following: Homecoming activities, Parents' Weekend, Welcome Week, New Student Convocation, Greek Week, Multicultural Student Leadership Conference, Diversity Awareness Program, Student Health Insurance Plan, Bulldog Life and Student Traditions (BLAST) activities, Cross-Cultural Student Leadership Retreat, and the Student Services Expo. ❖

Students for Community Service

Students for Community Service
Academic Affairs
Joyal Administration, Room 256
(559) 278-7079
http://www.csufresno.edu/scs
Chris Fiorentino, *Coordinator*



Tambra Bane, 1998 University Volunteer of the Year, works with a young hospital patient.

California State University, Fresno has a rich history of engaging students in service to the community. As part of an overall educational experience, community service can have a profound effect on a student's personal, professional, and academic development. For these reasons, the CSU system and our university want to make service a part of every student's educational experience.

Community Service-Learning

Community service-learning refers to any service activity that is linked to academics. This term includes volunteer activities with service organizations and service that is directly tied to academic courses, known as service-learning.

The university established Students for Community Service (SCS) to

- promote the value and benefits of community service and service-learning to the students, staff, and faculty of the university;
- foster a sense of social responsibility and civic ethic;
- provide students with meaningful, "real-world" learning opportunities; and
- establish service-oriented partnerships between the university, other educational institutions, and the community we serve.

To promote the value of service activities and enhance the subsequent learning experience, the university offers two community service-learning courses for academic credit. (See sidebar.)

Service-Learning

Service-learning is an educational approach that involves students in meaningful community service directly related to the course's learning goals. Service-learning courses are listed in the catalog and the Schedule of Courses with an "S" designation. (See page 97.)

Who Volunteers?

SCS hopes you will. If you enjoy the rewards of helping someone in need and are concerned with social issues, SCS can find a place for you to share your talents with others. In return, you will experience real-life situations that can help you decide what career path to pursue after college. You will also sharpen your interpersonal skills by working with others.

In addition to finding ongoing work for volunteers, SCS refers students to work at one-time events, such as blood drives, Kid's Day, or preparing and serving meals to the homeless.

The university offers two courses in which you can receive academic credit for your community service-learning experience.

COM S 1. Community Service-Learning (1-3 units) Provides a community service-learning experience where students apply their academic knowledge and skills to community-based issues and needs. Experiential learning will be enhanced through class discussions and presentations on topics related to community service-learning. *CR/NC* grading only.

COM S 101. Community Service Internship (1-3 units; max total of 6 units can apply toward electives requirements) Provides a community service-learning experience to help students develop personal, professional, and academic knowledge and skills. *CR/NC* grading only.

Note: Students are required to complete a minimum number of volunteer service hours with a nonprofit agency of their choice. The required number of service hours is determined by the course and number of COM S units. For more information, contact the SCS coordinator or visit the SCS Web page.

Who Benefits?

Everyone! Research has shown that students who are involved in community service activities during their undergraduate years significantly enhance many aspects of their personal, professional, and academic development. Service-learning approaches within the classroom have been shown to improve student learning and to enhance faculty teaching. Nonprofit programs and citizens of our community dramatically benefit from the service work of students. Community service and service-learning provide an opportunity for everyone to gain important benefits. ❖

Office of Testing Services

Office of Testing Services
Student Affairs
Family and Food Sciences, Room 110
(559) 278-2457 • FAX: (559) 278-3583
Phyllis Redfield, *Coordinator*
http://studentaffairs.csufresno.edu/

Testing Services

Test taking is very much a part of student life on a university campus.

The overall goal of the Office of Testing Services is to provide students and the university with information which will help students make academic decisions. Toward that end, the office coordinates and administers a wide variety of standardized tests. These include tests used for admission to colleges, universities, and professional schools; tests for proper placement in English and math classes; tests that assess your preparation and potential for success in undergraduate or graduate programs; and tests that assess your success in meeting the writing requirements of a university graduate.

The professional staff has expertise in areas of student growth and attribute measurement, program assessment and evaluation, and computer-based analysis of student and faculty surveys.

In addition, Testing Services administers, on a referral basis from academic or career counselors, several tests designed to measure career interests and personality characteristics.

Undergraduate Entrance Examinations

Student application for admission to California State University, Fresno may require scores from the SAT or ACT. While these tests are not administered on this campus at this time, staff members have information about dates and places tests are given. The Test of English as a Foreign Language (TOEFL) is usually required for International Students seeking admittance to our university. Special TOEFL dates are scheduled each year for students in the American English Institute (AEI). Otherwise, all TOEFL tests are offered only on computer at Computer-Based Testing (CBT) centers.

Testing Services is a Computer-Based Testing (CBT) center.

Required Tests

Testing Services has information about tests you may be required to take which are administered on campus. These include the CSU English Placement Test (EPT), the Entry Level Mathematics Test (ELM), and the Upper-Division Writing Examination (UDWE).

Graduate School Testing

This office handles the administration of several tests given nationwide for admission to graduate school. These include the Law School Admission Test (LSAT), the Miller Analogies Test (MAT), and the PRAXIS.

The Graduate Record Examination (GRE), Graduate Management Admissions Test (GMAT), and Test of English as a Foreign Language (TOEFL) are all administered only on computer at Computer-Based Testing (CBT) centers. The Test Office is a CBT center and offers the GRE, GMAT, and TOEFL via this medium.

Test Scoring

An instructional test scoring service aids faculty in the development, scoring, analysis, and electronic grade management for objective tests used in the classroom.

Consultative Services

Within the limits of available time, the staff provides assistance to students, faculty, and other university departments in the areas of test development and analysis, research design, statistical analysis, test evaluation, and computer applications related to the aforementioned activities.

For more information about tests and services, stop by the Office of Testing Services, Family and Food Sciences, Room 110, and ask the people who work with tests the most. ❖

University Student Union

University Student Union
California State University, Fresno Association
University Student Union, Room 306
(559) 278-2741
Joel R. Zarr, *Director*
http://www.csufresno.edu/USU/

With thirty years of history on the Fresno State campus, the University Student Union is central to campus life and seeks to provide the Fresno State community with quality facilities, services and events.

Facilities and Services

The University Student Union, or USU, provides a variety of facilities to meet your needs. A spacious, comfortable lounge is suitable for a study session. Eight meeting rooms are designed for student organizations to gather and plan their year. For those who prefer the outdoors, the north courtyard, south patio and balcony all feature places to sit and relax between classes. With a capacity of 800, the Satellite Student Union is one of the primary event facilities on campus and hosts many campus events. From concerts and performing arts to films and lectures, many events are held in the Whitfield Hall of the Satellite Student Union.

The USU Recreation Center offers bowling, billiards, video games, and other attractions. With twelve lanes, the USU Recreation Center is also home of the Fresno State Men's and Women's Bowling Teams. For quieter pursuits, you and your friends can also enjoy a chess game after classes.

The USU Pavilion features a variety of shops for your convenience. Need to mail a letter or package? Stop by the United States Post Office Express. If you're looking for the latest release from your favorite group, then come by the Tower Records Satellite Store. Rather than stop by the bank on your way home, visit the full service Golden One Credit Union. Dreaming about traveling abroad? Make your educational experience a reality with the experts at Council Travel. Hungry? Have lunch at the USU Food Court, which hosts Taco Bell, Subway, Asia Express, TCBY and Hungry Bear Cookies.

The USU Information Center offers a wide range of services designed to help you. Event tickets, money orders, discount movie tickets, bus tickets, and student football tickets are just a few of the items that can be obtained at the USU Information Center. Administrative offices closed? You can pick up parking permits, request for transcripts, add/drop forms, and other materials after 4:30 p.m. at the USU Information Center.

The PR/Graphics Center offers quality, cost-effective design services. The expert staff is available to help you develop first-rate promotional materials for your event or organization.

Programs and Involvement Opportunities

In addition to quality facilities and services, the USU also offers a number of programs and opportunities designed to support the co-curricular experience.

Looking for a job on campus? The USU offers various opportunities for student employment in the areas of the Recreation Center, Custodial Services, Information Center, Maintenance Services, PR/Graphics Center, and Technical Services.

The USU Diversity Awareness Program is a grant program designed to support student efforts in the promotion of diversity on campus and awards $20,000 in grants every year.

Students play a vital role in the governance of the USU by serving on the USU Board or one of its committees: Planning and Operations, Budget and Finance, Art Advisory, Personnel and USU Productions. Through their involvement, students provide valuable direction, insight and leadership in the operation of the union.

USU Productions is a student volunteer committee of the USU Board. Responsible for the planning and presentation of social, cultural, educational and recreational events for the Fresno State community, USU Productions offers a unique opportunity for student involvement and leadership on campus. Concerts, lectures, Homecoming, the annual performing arts series, films, and comedy shows are just a few of the many events presented by the students of USU Productions. Open to all Fresno State students, USU Productions and the USU Board actively recruit throughout the academic year. If you would like to become involved or want more information, please call 278-2741. ❖

Women's Resource Center

Women's Resource Center
Student Affairs
University Center, Room 125
(559) 278-4435
Francine Oputa, *Coordinator*
http://studentaffairs.csufresno.edu/

The Center

The Women's Resource Center provides services to enhance the learning and working experiences of women in the university community. The center provides a supportive environment for interaction and self-discovery through a wide range of campus activities.

The center provides services to the full spectrum of university women. Men are encouraged to participate in the center's activities, to support organizational goals, and to promote among their peers recognition of sexism, racism, and other forms of discrimination against women.

The center is inclusive of all women on campus regardless of age, ethnicity, sexual orientation, or disability. The center's staff members seek to provide a haven against the intolerance and negative stereotyping that are abundant in society and also to offer a place for a diverse interchange of ideas and experiences, which is the *basis* for a positive academic setting.

Services

The center provides a place where women can share with one another, learn in a collaborative rather than competitive fashion, and seek growth-promoting experiences.

Internships and volunteer opportunities are available for interested students. Course credits are possible.

Support and discussion groups are offered on a variety of issues including, but not limited to, current women's issues, single parents, body image, sexual abuse, lesbian support, and support for women of color.

Peer counseling and referral services are available to women who are coping with personal transitions, crises, or any other life experiences for which they need non-judgmental guidance and support.

Training

Training is offered for individuals who are interested in leading support groups or providing peer counseling to other students. The center also offers joint training with the local rape crisis center for those interested in becoming advocates for victims of sexual assault.

Special projects that fit the mission of the center are available. Input from the university community on special programs is welcomed. The center provides a variety of intellectual, cultural, social, artistic, recreational and personal growth activities for women. The activities celebrate the multicultural composition of our community and promote healthy lifestyles and nonviolent relationships. In collaboration with other campus women's groups, the Women's Resource Center works each year on Women's Herstory Month and End Violence Against Women Week.

If you would like more information about the many opportunities for women, visit the Women's Resource Center or call (559) 278-4435. ❖

The Women's Resource Center offers support groups and sponsors activities like the "Take Back the Night" march against violence.

Travel
into
Tomorrow

Admission Requirements

Admissions Office

Student Affairs

Vivian Franco, *Interim Director*

Joyal Administration Lobby

(559) 278-2261

http://studentaffairs.csufresno.edu

Admission Requirements

Requirements for admission to California State University, Fresno are in accordance with Title 5, Chapter 1, Subchapter 3, of the *California Code of Regulations.* If you are not sure of these requirements, you should consult a high school or community college counselor or the Admissions Office. Applications may be obtained at California high schools or community colleges or from the Admissions Office at any of the campuses of the California State University.

Electronic versions of the CSU undergraduate and graduate applications are accessible on the World Wide Web at *http://www.csumentor.edu*. The CSUMentor system allows students to browse through general information about 22 CSU campuses, view multimedia campus presentations, send and receive electronic responses to specific questions, and apply for admission and financial aid.

Importance of Filing Complete, Accurate, and Authentic Application for Admission Documents. The CSU advises prospective students that they must supply complete and accurate information on the application for admission, residence questionnaire, and financial aid forms. Further, applicants must submit authentic and official transcripts of all previous academic work attempted. Failure to file complete, accurate, and authentic application documents may result in denial of admission, cancellation of academic credit, suspension, or expulsion (Section 41301 of Title 5, *California Code of Regulations*).

Applicants are required to include their correct Social Security number (individual taxpayer identification number) in designated places on applications for admission pursuant to the authority contained in Section 41201, Title 5, *California Code of Regulations,* Section 6109 of the Internal Revenue Code. The university uses the Social Security number to identify records pertaining to the student, to identify the student for purposes of financial aid eligibility and disbursement, and to identify the student's repayment of financial aid and other debts payable to the institution. Also, the Internal Revenue Service requires the university to file information returns that include the student's Social Security number and other information such as the amount paid for qualified tuition, related expenses, and interest on educational loans. This information is used to by the IRS help determine whether a student, or a person claiming a student as a dependent, may take a credit or deduction to reduce federal income taxes.

Taxpayers who claim Hope Scholarship or Lifetime Learning tax credit will be required to provide their name, address, and Taxpayer Identification Number to the campus.

Undergraduate Application Procedures

Prospective students, applying for part-time or full-time undergraduate programs of study in day or evening classes, must file a complete undergraduate application as described in the undergraduate admissions booklet or on our Website. The $55 nonrefundable application fee should be in the form of a check or money order payable to *The California State University* and may not be transferred or used to apply to another term. Credit card payment is acceptable for the application.

An alternate campus and major may be indicated on the application, but *applicants should list as an alternate campus only a CSU campus that also offers the major.* Generally, an alternate major will be considered at the first choice campus before an application is redirected to an alternate choice campus.

For undergraduate admission to California State University, Fresno you must:

1. Submit a current application with a nonrefundable application fee to the Admissions Office.
2. Request institutions formerly attended to send 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 your registration. All transcripts submitted by students are retained by California State University, Fresno.
3. Take the Scholastic Aptitude Test (SAT I) or American College Test (ACT) and request official scores be sent to California State University, Fresno if you are a lower-division applicant. The Test of English as a Foreign Language (TOEFL) is required of all foreign applicants and applicants who do not have at least three years of full-time schooling at the secondary level or beyond where English is the principal language of instruction.
4. Take any additional proficiency or placement tests required. (See *Systemwide Tests Required of Most New Students* on page 56.)

In addition to the other documents required, a veteran should file a copy of the *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 certain admission requirements. Special admission may be granted if the 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 sometime during the first semester's enrollment.

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

Remedial course units are not accepted for admission or 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.

Impacted Programs

The CSU designates programs as impacted when more applications are received in the first month of the filing period than can be accommodated. Some

programs are impacted at every campus where they are offered; others are impacted at some campuses. You must meet supplementary admissions criteria if applying to an impacted program.

The CSU will announce before the opening of the fall filing period which programs are impacted and what supplementary criteria campuses will use. That announcement is published in the *CSU Review*, distributed to high school and college counselors. Information about the supplementary criteria is also sent to program applicants.

You must file your application for admission to an impacted program during the first month of the filing period. Further, if you wish to be considered in impacted programs at two or more campuses, you must file an application to each.

Supplementary Admission Criteria. Each campus with impacted programs uses supplementary admission criteria in screening applicants. Supplementary criteria may include ranking on the freshman eligibility index, the overall transfer grade point average, and a combination of campus-developed criteria. If you are required to submit scores on either the SAT I or the ACT, you should take the test no later than November if applying for fall admission.

The supplementary admission criteria used by the individual campuses to screen applicants appear periodically in the *CSU Review* 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 alternate major either at the first-choice campus or another campus.

Graduate and Postbaccalaureate Application Procedures

All graduate and postbaccalaureate applicants (e.g., master's degree applicants, those seeking credentials, and those interested in taking courses for personal or professional growth) must file a complete graduate application as described in the graduate and postbaccalaureate admissions booklet. CSU students who completed undergraduate

degree requirements and graduated the preceding term are also required to complete and submit an application and a nonrefundable application fee. Since applicants for postbaccalaureate programs may be limited to the choice of a single campus on each application, redirection to alternate campuses or later changes of campus choice will be minimal. To be assured of initial consideration by more than one campus, it will be necessary for any applicant to submit separate applications (including fees) to each. Applications may be obtained from the Graduate Studies Office or the admissions office of any California State University campus. An electronic version of the CSU graduate application is available on the World Wide Web at *http://www.csumentor.edu/*.

Postbaccalaureate students seeking a second undergraduate degree must file an undergraduate admission application.

For additional information, see the *Division of Graduate Studies.*

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 $55 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 application fee. (See *Planned Educational Leave.*)

Application Filing Periods

Each campus accepts applications until capacities are reached. Many campuses limit undergraduate admission in an enrollment category because of overall enrollment limits. If applying after the initial filing period, consult the campus admissions office for current information.

- Applications for the fall semester are accepted beginning November 1. Student notification begins in December.
- Applications for the spring semester are accepted beginning August 1. Student notification begins in September.

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, applications will be accepted well into the extended filing periods until quotas are filled.

Application Acknowledgment. You may expect to receive an acknowledgment of your application. The notice will also include a request that you submit the records necessary for the campus to evaluate your qualifications. You may be assured of admission if the evaluation of your qualifications indicates that you meet CSU admission requirements and campus requirements for admission to an impacted program. Such a notice is not transferable to another term or to another campus.

Hardship Petitions. The campus has established procedures for considering qualified applicants who would be faced with extreme hardship if not admitted. Petitioners should write to the Admissions Office regarding specific policies governing hardship admission.

Undergraduate Admission Requirements

Freshman Requirements. You qualify for regular admission as a first-time freshman if you are a high school graduate, have a qualifiable eligibility index (see table), and have completed with grades

ELIGIBILITY INDEX TABLE

for California High School Graduates or Residents of California

GPA	ACT Score	SAT I Score	GPA	ACT Score	SAT I Score	GPA	ACT Score	SAT I Score
3.00 and above qualifies with any score			**2.66**	17	780	**2.31**	24	1060
			2.65	17	780	**2.30**	24	1060
2.99	10	510	**2.64**	17	790	**2.29**	24	1070
2.98	10	520	**2.63**	17	800	**2.28**	24	1080
2.97	10	530	**2.62**	17	810	**2.27**	24	1090
2.96	11	540	**2.61**	18	820	**2.26**	25	1100
2.95	11	540	**2.60**	18	820	**2.25**	25	1100
2.94	11	550	**2.59**	18	830	**2.24**	25	1110
2.93	11	560	**2.58**	18	840	**2.23**	25	1120
2.92	11	570	**2.57**	18	850	**2.22**	25	1130
2.91	12	580	**2.56**	19	860	**2.21**	26	1140
2.90	12	580	**2.55**	19	860	**2.20**	26	1140
2.89	12	590	**2.54**	19	870	**2.19**	26	1150
2.88	12	600	**2.53**	19	880	**2.18**	26	1160
2.87	12	610	**2.52**	19	890	**2.17**	26	1170
2.86	13	620	**2.51**	20	900	**2.16**	27	1180
2.85	13	620	**2.50**	20	900	**2.15**	27	1180
2.84	13	630	**2.49**	20	910	**2.14**	27	1190
2.83	13	640	**2.48**	20	920	**2.13**	27	1200
2.82	13	650	**2.47**	20	930	**2.12**	27	1210
2.81	14	660	**2.46**	21	940	**2.11**	28	1220
2.80	14	660	**2.45**	21	940	**2.10**	28	1220
2.79	14	670	**2.44**	21	950	**2.09**	28	1230
2.78	14	680	**2.43**	21	960	**2.08**	28	1240
2.77	14	690	**2.42**	21	970	**2.07**	28	1250
2.76	15	700	**2.41**	22	980	**2.06**	29	1260
2.75	15	700	**2.40**	22	980	**2.05**	29	1260
2.74	15	710	**2.39**	22	990	**2.04**	29	1270
2.73	15	720	**2.38**	22	1000	**2.03**	29	1280
2.72	15	730	**2.37**	22	1010	**2.02**	29	1290
2.71	16	740	**2.36**	23	1020	**2.01**	30	1300
2.70	16	740	**2.35**	23	1020	**2.00**	30	1300
2.69	16	750	**2.34**	23	1030			
2.68	16	760	**2.33**	23	1040			
2.67	16	770	**2.32**	23	1050	Below **2.00** does not qualify for regular admission		

of *C* or better each of the courses in the comprehensive pattern of college preparatory subject requirements. (See *Subject Requirements.*) Courses must be completed prior to the first enrollment in The California State University.

Eligibility Index. The eligibility index is the combination of your high school grade point average and your score on either the American College Test (ACT) or the Scholastic Aptitude Test (SAT I). For this purpose, we compute your grade point average on your final three years of high school studies, excluding physical education and military science, and use bonus points for approved honors courses. CSU may offer you early, conditional admission based on work completed through the junior year of high school and planned for your senior year.

You can calculate the index by multiplying your grade point average by 800 and adding your total score on the SAT I. Or, if you took the ACT, multiply your grade point average by 200 and add 10 times the composite score from the ACT. If you are a California high school graduate or a legal resident of California for tuition purposes, you need a minimum index of 2900 using the SAT I or 694 using the ACT. The Eligibility Index Table illustrates several combinations of required test scores and averages.

If you neither graduated from a California high school nor are a legal resident of California for tuition purposes, you need a minimum index of 3502 (SAT I) or 842 (ACT).

If your grade point average is 3.0 or above (3.61 for nonresidents), you are exempt from submitting test scores. However, you are urged to take the SAT I or ACT since all campuses use test results for advising and placement purposes.

You will qualify for regular admission when the university verifies that you have a qualifiable eligibility index and will have completed the comprehensive pattern of college preparatory subjects and, if applying to an impacted program, meet supplementary criteria.

Graduates of secondary schools in foreign countries must be judged to have academic preparation and abilities equivalent to applicants eligible under this section.

Honors Courses. Grades, in up to eight semesters of honors courses in approved subjects and taken in the last two years of high school, receive additional points in grade point average calculations. Each unit of *A* in approved courses receives a total of 5 points; *B*, 4 points; *C*, 3 points; *D*, 1 point; and none for *F* grades.

Subject Requirements. The California State University requires that first-time freshman applicants complete, with grades of *C* or better, a comprehensive pattern of college preparatory study totaling 15 units. A "unit" is one year of study in high school. Within the 15 units completed, up to 1 unit (one year) in visual and performing arts or foreign language may be missing and offset by college preparatory course(s) in other areas. The missing unit of visual and performing arts or foreign language must be completed either prior to, or by the end of, the first year of CSU enrollment. This provision is effective through the 2002-2003 academic year.

- 4 years of English
- 3 years of mathematics (algebra, geometry, and intermediate algebra)
- 1 year of U.S. history or U.S. history and government
- 1 year of laboratory science (biology, chemistry, physics, or other acceptable laboratory science)
- 2 years of the same foreign language (subject to waiver for applicants demonstrating equivalent competence)
- 1 year in the visual and performing arts (art, dance, drama/theater, or music)

- 3 years of electives selected from English, advanced mathematics, social science, history, laboratory science, agriculture, foreign language, and the visual and performing arts

Applicants seeking admission as first-time freshmen for the fall 2003 or later terms will have the same preparatory course requirements for admission to both the California State University and the University of California. The preparatory course admission requirements for both systems will be the completion of the following courses with a grade of *C* or better: four years of English, three years of math (algebra, geometry, and intermediate algebra), two years of U.S. history or social science, two years of laboratory science, two years of foreign language, one year of visual or performing arts, and one year of electives chosen from one of the areas previously listed.

Foreign Language Subject Requirement. The foreign language subject requirement may be satisfied by applicants who demonstrate competence in a language other than English, equivalent to or higher than expected of students who complete two years of foreign language study. Consult with your school counselor or any CSU campus Admissions or Relations with Schools offices for further information.

Subject Requirement Substitution for Students with Disabilities. Applicants with disabilities are encouraged to complete college preparatory course requirements if at all possible. If an applicant is judged unable to fulfill a specific course requirement because of his or her disability, alternate college preparatory courses may be substituted for specific subject requirements.

Substitutions may be authorized on an individual basis after review and recommendation by your academic adviser or guidance counselor in consultation with the coordinator of a CSU Services for Students with Disabilities office. Although the distribution may be slightly different from the course pattern required of other students, students qualifying for substitutions will still be held responsible for 15 units of college preparatory study.

Students should be aware that failure to complete courses required for admission may limit later enrollment in certain majors, particularly those involving mathematics. For further information and substitution forms, contact the coordinator of disabled student services at your nearest CSU campus.

High School Students. Students still enrolled in high school will be considered for enrollment in certain special programs if recommended by the principal and the appropriate campus department chair and if preparation is equivalent to that required of eligible California high school graduates. Students should have at least a 3.0 GPA in college preparatory subjects or exhibit unusual academic abilities. Such admission is only for a given program and does not constitute the right to continued enrollment. Contact our Admissions Office.

Provisional Admission. California State University, Fresno may provisionally admit first-time freshman applicants based on their academic preparation through the junior year of high school and planned for the senior year. The campus will monitor the senior year of study of those provisionally admitted to ensure that they complete their senior year of studies satisfactorily — including the required college preparatory subjects — and graduate from high school.

Lower-division Transfer Admission Requirements. You are eligible for admission if you meet the following:

- have a college grade point average of 2.00 or better in all transferable college units completed
- are in good standing at the last college or university attended, i.e., you are eligible to re-enroll
- meet the admission requirements for a first-time freshman or have successfully completed necessary courses to make up the deficiencies you had in high school if you did not complete the 15-unit pattern of college preparatory subjects
- meet the eligibility index required of a freshman

Some campuses may require completion of English composition and general education math.

Contact your campus of choice to determine whether there are limits on admission as a lower-division transfer student.

Upper-division Transfer Admission Requirements (56 or more transferable units). You are eligible for admission if you meet the following:

- have a college grade point average of 2.00 or better (2.40 for non-California residents) in all transferable college units completed
- are in good standing at the last college or university attended, i.e., you are eligible to re-enroll
- have completed or will complete prior to transfer at least 30 semester units (45 quarter units) of courses equivalent to General Education requirements with a grade of *C* or better. The 30 units must include all of the General Education requirements in communication in the English language (English composition, oral communication, and critical thinking) and at least one course of at least 3 semester units (4 quarter units) required in college level mathematics

For this requirement, transferable courses are those designated for baccalaureate credit by the college or university offering the courses.

Effective for fall 2000 admission, all upper-division transfer students should contact the Admissions Office to inquire about alternative admission programs.

Transferable courses are those designated for baccalaureate credit by the college or university offering the courses.

Making up Missing College Preparatory Subject Requirements. Undergraduate applicants who did not complete subject requirements while in high school may make up missing subjects in any of the following ways.

1. Complete appropriate courses with a *C* or better in adult school or high school summer sessions.
2. Complete appropriate college courses with a *C* or better. One college course of at least three semester or four quarter units will be considered equivalent to one year of high school study.
3. Earn acceptable scores on specified examinations.

Please consult with any CSU Admissions Office for further information about alternative ways to satisfy the subject requirements.

Test Requirements. Freshman and transfer applicants who have fewer than 56 semester (84 quarter) units of transferable college credit must submit official scores — unless exempt (see *Eligibility Index* on page 54) — from either the SAT I of the College Board or the ACT. Students applying to an impacted program who are required to submit test

scores should take the test no later than early December if applying for fall admission or no later than November if applying to Chico, or San Diego, or San Luis Obispo. Test scores are also used for advising and placement purposes. Registration forms and dates for either test may be obtained from high school or college counselors or from a CSU campus testing office. Or, write to or call:

The College Board (SAT I)
Registration Unit, Box 6200
Princeton, New Jersey 08541
(609) 771-7588

ACT
Registration Unit, P.O. Box 414
Iowa City, Iowa 52243
(319) 337-1270

TOEFL Requirement. Regardless of citizenship, all undergraduate applicants who have not attended schools at the secondary level or above for at least three years full-time where English is the principal language of instruction must present a score of 500 or above on the Test of English as a Foreign Language. Applicants taking the Computer-Based Test of English as a Foreign Language must present a score of 173 or above. Individual campuses may require higher scores for specific majors. All graduate applicants must submit a minimum TOEFL score of 550, unless they have a baccalaureate degree from an institution of higher education in which English is the language of instruction.

Systemwide Tests Required of Most New Students. The CSU requires new students to be tested in English and mathematics after admission and prior to enrollment. These are not admission tests but a way to determine whether you are prepared for college work and, if not, to counsel you how to strengthen your preparation. You might be exempt from one or both of the tests if you have scored well on other specified tests or completed appropriate courses.

English Placement Test (EPT). All students enrolling at California State University, Fresno must take the EPT after admission and prior to enrollment, unless exempt according to CSU policy. (See *Academic Placement.*)

Entry-Level Mathematics (ELM) Exam. All students enrolling at California State University, Fresno must take the ELM after admission and prior to enrollment, unless exempt according to CSU policy. (See *Academic Placement.*)

Adult Students. As an alternative to regular admission criteria, applicants who are 25 years of age or older may be considered for admission as adult students if they meet all of the following conditions:

1. possess a high school diploma (or have established equivalence through either the Tests of General Educational Development or the California High School Proficiency Examination)
2. have not been enrolled as a full-time student for more than one term during the past five years (*Part-time enrollment is permissible.*)
3. earned a *C* average or better in college coursework during the last five years

Consideration is based on the applicant's probability of academic success and includes an assessment of basic skills in the English language and mathematical computation. For information, call the Reentry Office at (559) 278-3040.

Graduation Requirements in Writing Proficiency. All students must demonstrate competency in writing skills as a requirement for graduation. Information on currently available ways to meet this graduation requirement may be obtained from the Evaluations Office or the Testing Office.

Graduate and Postbaccalaureate Admission Requirements

See *Division of Graduate Studies.*

International (Foreign) Students

The California State University must assess the academic preparation of foreign students. For this purpose, "foreign students" include those who hold U.S. visas as students and exchange visitors.

The CSU uses separate requirements and application filing dates for international students who are seeking admission from international secondary schools or transferring from recognized international post-secondary schools. Applicants must have completed a comprehensive pattern of college preparatory courses. Verification of English proficiency (see the section on TOEFL requirement) and academic performance are required. Applicants who are seeking admission from American secondary or post-secondary schools must fulfill all requirements (see *Admission Requirements*). Academic records from foreign institutions must be on file at least eight weeks before registration for the first term, and, if the records are not in English, must be submitted in the native language and accompanied by certified English translations. No final admission decision will be made until required materials have been submitted to International Admissions.

Priority in admission is given to residents of California. There is little likelihood that nonresident applicants, including international students, will be admitted either to impacted majors or to those with limited openings. (See *Impacted Programs.*)

Application Forms. All foreign students requesting admission for undergraduate or graduate study at California State University, Fresno must complete and file the international student application. Applicants must submit the following:

- an international application
- a $55 nonrefundable processing fee (note that checks must be drawn on a U.S. bank account)
- a current official bank statement from financial sponsor
- an official TOEFL score taken no earlier than two years prior to attendance at California State University, Fresno
- official original or certified true copies of academic documents and other school records in the native language and in English translation

Graduate students must also file current GMAT/GRE scores and letters of recommendation.

All documents submitted become the property of California State University, Fresno and will not be returned. They will be kept permanently for those students who actually attend; however, documents for those students who do not enroll will be retained for only one year.

Application Deadlines. The international application, fee, and all required documents, transcripts, and test scores must be received no later than:

Semester	Undergraduate	Graduate
Fall	June 1	March 1
Spring	November 1	October 1

Academic credentials will be evaluated for academic eligibility in accordance with the general regulations governing admission to California State University,

Fresno. Additionally, applicants must demonstrate English proficiency. (See *TOEFL* below.)

Graduate applications will be reviewed by the individual academic departments to determine eligibility for the requested graduate program.

TOEFL. All undergraduate, graduate, and postbaccalaureate applicants, regardless of citizenship, whose native language is not English, must demonstrate competence in English.

To qualify for undergraduate admission, all students must present an official TOEFL score, taken within the last two years, of 500 or better on the pencil-based exam or 173 or better on the computer-based exam.

All graduate and postbaccalaureate applicants must present an official TOEFL score, taken within the last two years, of 550 or better on pencil-based exam or 213 or better on the computer-based exam. TOEFL will be waived for those students who hold a bachelor's degree from a U.S. university. The TOEFL score required for admission to specific programs may be higher than the 500/173 for undergraduates and 550/213 for postbaccalaureate applicants indicated above. Students should check these TOEFL requirements in the departmental listings.

To ensure that students are prepared to take advantage of the educational opportunities available at California State University, Fresno, each international student who must submit TOEFL scores will be required to participate in a post-admission testing program. The test will be administered during orientation immediately before the student's first matriculated semester. The purpose of the testing program is to assess strengths and weaknesses in oral and written English. As a result of the post-admission testing, a student may be required to enroll in certain English as a Second Language (ESL) courses.

An undergraduate 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 I-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 California State University, Fresno, a conditionally admitted student must present an official TOEFL score of 500 on the pencil-based exam or 173 on the computer-based exam, on a test taken within the last two years.

Insurance Requirement. Effective August 1, 1995, as a condition of receiving an I-20 or IAP-66 form, all F-1 and J-1 visa applicants must agree to obtain and maintain health insurance as a condition of registration and continued enrollment in the California State University. Such insurance must be in amounts as specified by the United States Information Agency (USIA) and NAFSA: Association of International Educators. The campus president or designee shall determine which insurance policies meet these criteria. Further information may be obtained from the International Student Services and Programs Office at 278-2782

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 the application for admission, residency questionnaire, reclassification request form, and, if necessary, other evidence furnished by the student are used in making this determination. A student who fails to submit adequate information to establish a right to classification as a California resident will be classified as a nonresident.

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 is found in *California Education Code* Sections 68000-68090, 68121, 68123, 68124, and 89705-89707.5, and in Title 5 of the *California Code of Regulations*, Sections 41900-41912. A copy of the statutes and regulations is available for inspection at the campus Admissions Office.

Legal residence may be established by adults who are physically present in the state and who, at the same time, intend to make California their 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. The steps necessary to show California residency intent will vary from case to case. Included among the steps may be 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.

Students who are within the state for educational purposes only do not gain the status of resident regardless of the length of their stay in California.

In general, an unmarried minor (a person under 18 years of age) derives legal residence from the parent with whom the minor maintains or last maintained his or her place of abode. The residence of an unmarried minor who has a parent living cannot be changed by the minor's own act, by the appointment of a legal guardian, or by the relinquishment of a parent's right of control.

A married person may establish his or her residence independent of his or her spouse.

An alien may establish his or her residence, unless precluded by the Immigration and Nationality Act from establishing domicile in the United States. An unmarried minor alien derives his or her residence from the parent with whom the minor maintains or last maintained his or her place of abode.

Nonresident students seeking reclassification are required by law to complete a supplemental questionnaire concerning financial independence.

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:

Quarter Term Campuses

Fall	September 20
Winter	January 5
Spring	April 1
Summer	July 1

Semester Term Campuses

Fall	September 20
Winter*	January 5
Spring	January 25
Summer	June 1

*Applies only to winter term at California State University, Stanislaus.

The residence determination dates for the four stages on CalStateTEACH are as follows:

Stage 1	September 20
Stage 2	January 5
Stage 3	June 1
Stage 4	September 20

There are exceptions from nonresident tuition, including:

1. A student below the age of 19 whose parents were residents of California and left the state while the student, who remained, was still a minor. When the minor reaches age 18, the exception continues until the student has resided in the state the minimum time necessary to become a resident.
2. Minors who have been present in California with the intent of acquiring residence for more than a year before the residence determination date and have been entirely self-supporting for that period of time. The exception continues until the student has resided in the state the minimum time necessary to become a resident.
3. Persons below the age of 19 who have lived with and been under the continuous direct care and control of an adult or adults, 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. The exception continues until the student has resided in the state the minimum time necessary to become a resident.
4. Dependent children and spouse of a person in active military service stationed in California on the residence determination date. There is no time limitation on this exception unless the military person transfers out of California or retires from military service. If either of those events happen, the student's eligibility for this exception continues until the student resides in the state the minimum time necessary to become a resident.
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 continues until the military personnel has resided in the state the minimum time necessary to become a resident.
6. Military personnel in active service in California for more than one year immediately prior to being discharged from the military. Eligibility for this exception runs from the date the student is discharged from the military until the student has resided in the state the minimum time necessary to become a resident.
7. Dependent children of a parent who has been a California resident for the most recent year. This exception continues until the student has resided in the state the minimum time necessary to become a resident, so long as continuous attendance is maintained at an institution.
8. Graduates of any school located in California that is operated by the United States Bureau of Indian Affairs, including, but not limited to, the Sherman Indian High School. The exception continues so long as continuous attendance is maintained by the student at an institution.
9. Certain credentialed, full-time employees of California school districts.
10. Full-time state university employees and their children and spouses; state employees assigned to work outside the state and their children and spouses. This exception continues until the student has resided in the state the minimum time necessary to become a California resident.
11. 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.
12. Certain amateur student athletes in training at the United States Olympic Training Center in Chula Vista, California. This exception continues until the student has resided in the state the minimum time necessary to become a resident.
13. Federal civil service employees and their natural or adopted dependent children if the employee has moved to California as a result of a military mission realignment action that involves the relocation of at least 100 employees. This exception continues until the student has resided in the state the minimum time necessary to become a resident.
14. State government legislative or executive fellowship program enrollees. The student ceases to be eligible for this exception when the student is no longer enrolled in the qualifying fellowship.

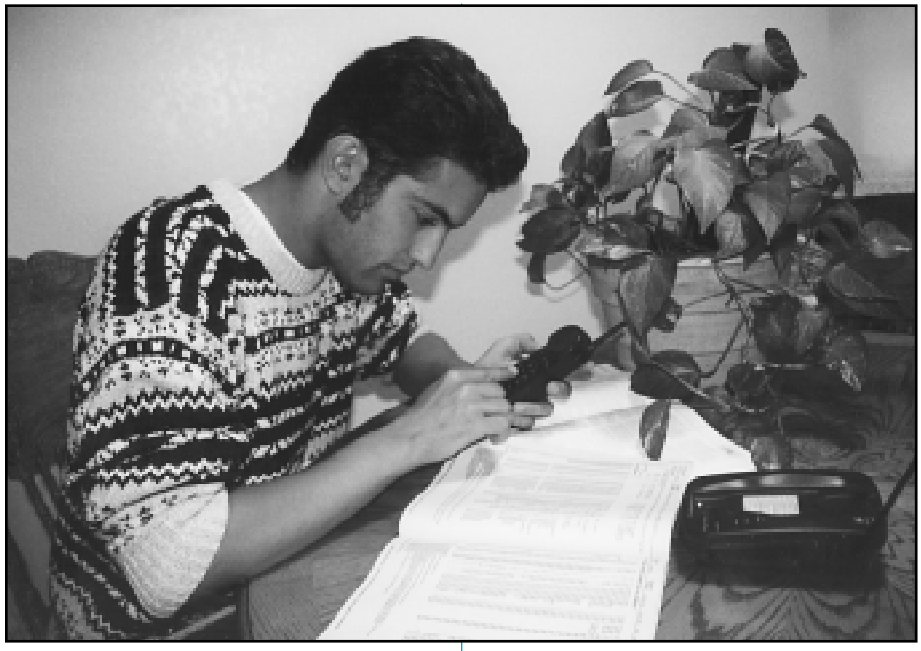
Students, following a final campus decision on their residence classification, may make a written appeal to

The California State University
Office of General Counsel
401 Golden Shore
Long Beach, California 90802-4210

within 120 calendar days of notification of the final decision by the campus of the 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 Code of Regulations.* 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.

Registration Process



Program Planning and Registration

Freshmen 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. Major information sheets are available for most of our majors. If you are undecided about a major, indicate *Undeclared* on the appropriate forms until a definite decision is reached. For general information, see *Degree Requirements*, page 84.

Depending on the major department's procedure, an academic adviser is assigned to each student, or selected by the student. 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. Overall excellence of performance in high school subjects and evidence of academic potential provide the basis for admission at California State University, Fresno.

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

Transfer Students. Students intending to transfer to California State University, Fresno should plan their transfer programs to meet our General Education and major degree requirements. Students transferring from a California community college should complete as many of the CSU General Education requirements of that college as possible while keeping in mind that a maximum of 70 transferable units is allowed from two-year institutions (community/junior colleges). A General Education Certification (requested only from California public community/junior colleges and California State University campuses) should be sent to California State University, Fresno along with the final transcripts. Earning an A.A. or A.S. degree does not necessarily mean one has fulfilled CSU admission and/or General Education requirements.

After admission to California State University, Fresno, transfer students with a declared major, entering with 40 or more units will receive a copy of their advanced standing evaluation, indicating how previous college units have been applied toward degree requirements at California State University, Fresno. Questions about one's evaluation should be directed to the student's adviser or the Evaluations Office. It is recommended that transfer students bring with them an unofficial copy of all previous college transcripts and their CSU General Education Certification when attending New Student Orientation and Advising Day to ensure accurate advising.

The California Articulation Number (CAN) identifies some of the transferable, lower-division, introductory (preparatory) courses commonly taught on California college campuses. The system assures students that CAN courses on one participating campus will be accepted "in lieu of" the comparable CAN course on another participating campus. For example: CAN ECON 2 on one campus will be accepted for CAN ECON 2 on every other participating campus. Each campus retains its own numbering system, but adds the CAN designation parenthetically in its publications. In this catalog, the CAN is listed parenthetically at the end of the course description.

It is expected that most campuses throughout the state will qualify courses to use the California Articulation Numbers. Check with academic advising offices or articulation officers for current listings of CAN courses and campuses participating in the CAN system. A *CAN Catalog* listing campuses and courses is published biannually.

Registration

Registration is open to new and returning students who have been admitted and to continuing students in good standing. Former California State University, Fresno 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 California State University, Fresno are required to pay the $55 application fee when applying. The *Academic Calendar* lists dates of registration.

Registration is complete only when all class selection through Student Telephone Assisted Registration (STAR) is finalized and all fees are paid. Payment of the initial registration fee is not allowed after the end of the first week of instruction. See the *Academic Calendar* for all deadline dates.

Registration priority for all students is determined by the number of academic units completed with limited exceptions. After a priority group is processed, then first-time freshmen register, followed by students with the highest number of completed units.

Registration in courses offered by some colleges/schools or departments may be restricted to students officially enrolled in certain majors and/or class levels. It is essential that each student's current major be correctly recorded in the university's records. Failure to do so may result in enrollment difficulties. It is the student's responsibility to be sure his or her major is correct as it appears each semester on the Telephone Registration (STAR) mailer and the Enrollment mailer. Undergraduate major changes can be made at the Admissions/Records service windows, Joyal Administration Building, North Lobby; postbaccalaureate and graduate changes at the Division of Graduate Studies Office; and international student changes at the International Admissions Office.

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 and updated policy changes as applicable. The schedule is available prior to registration and may be purchased at the Kennel Bookstore for a nominal cost.

Full-time/Part-time Students. Students taking at least 75 percent 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. For purposes of financial aid, 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 11.5
Half-time ..... 6 to 8.5

Veterans Certification. The Veterans Office acts as liaison to the Veterans Administration, the State Department of Veterans Affairs, and other related agencies for veterans, dependents, or reservists eligible to receive educational benefits. A student may obtain information and assistance regarding certification of benefits, V.A. Work Study, advance pay, and processing of tutorial assistance paperwork by visiting the Admissions and Records Office, North Lobby, Joyal Administration Building, or by calling (559) 278-7030.

Concurrent Registration at a Non-CSU College or University. While enrolled at California State University, Fresno, students may enroll for additional courses at another institution outside the CSU system with the written approval of the student's academic adviser. Such approval must be granted prior to the beginning of classes at the other institution. The courseload in the combined enrollment program may not exceed the maximum unit load restrictions for California State University, Fresno. The completed form must be filed by the end of the first week of instruction at the public contact windows, North Lobby, Joyal Administration Building.

Concurrent Registration at Another CSU Campus. A continuing undergraduate student who has completed a minimum of one semester of 12 units on the Fresno campus and is in good standing (2.0 grade point average), or a graduate student who has been and is in an authorized graduate program in good standing may enroll concurrently at another CSU campus without any additional fees. Complete information is available in the Office of the Registrar.

Visitor Registration at Another CSU Campus. A continuing undergraduate student who has completed a minimum of one semester of 12 units and is in good standing or a continuing graduate student who has completed one semester and is admitted to an authorized graduate program may register and pay fees at another CSU campus for one semester without applying for admission to that campus. Complete information is available in the Office of the Registrar.

Excess Unit/Enrollment Restrictions — Undergraduate. Undergraduate students are cautioned against registering for more than 18 units without consulting with an adviser, since more than 18 units is generally considered to be an academic overload. A limit of 16 units applies to graduate students. See the *Schedule of Courses* for details.

To register for 19 units, an undergraduate student must have an overall grade point average of 2.5; for 20 to 22 units, a student must have an overall grade point average of 3.0. Exceptions to these limits must be approved by the chair of the student's major department. An absolute limit of 22 units (excluding credit by examination units) is enforced and may be waived only with the approval of the dean of the college/school of the student's major.

An academic department may restrict enrollment by requiring students to drop a class if the student has been disqualified from the major or the student has not achieved a *C* average in the major or has not met the stated course prerequisites. This is especially true in academic areas that are impacted or are in high demand.

Enrollment in upper-division courses is normally 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 chair. 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 that may appear in our *General Catalog.*

Excess Units/Enrollment Restrictions — Postbaccalaureate/Graduate. To enroll in 17 or more units, master's degree students must demonstrate a GPA

of 3.0 or better; credential students must demonstrate a minimum GPA equivalent to the admission standards of their individual credential program. However, if the credential program requires enrollment in graduate-level (200-series) coursework, the students must demonstrate a 3.0 GPA or better. Second baccalaureate/second undergraduate major/nonobjective students may enroll in 19 units if they possess a GPA of 2.5; 3.0 for 20-22 units. Graduate-level (200-series) courses are unavailable to second baccalaureate/major and nonobjective students.

Change of Major. Each undergraduate student who wishes to change his or her major must do so at the Admissions/Records service windows, Joyal Administration Building, North Lobby, to initiate the procedure. International students report to the International Admissions Office. New graduate and postbaccalaureate students should report to the Graduate Admissions Office and continuing graduate and postbaccalaureate students should report to the Division of Graduate Studies Office.

Adding and Dropping Courses. A student is held responsible for the program of courses in which he or she is officially registered. 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 is not recorded on the permanent record. The end of the fourth week is defined as the end of the 20th instructional day of the semester. Consult the current *Schedule of Courses* for specific add/drop instructions, procedures, and deadlines.

Adding Courses. Once registered, a student may add courses through the end of the second week of instruction.

Dropping Courses. Through the seventh day of instruction, a student may drop courses without a serious and compelling reason.

After the seventh day of instruction, a student may drop a course only for a serious and compelling reason that makes it impossible for the student to complete course requirements. A *serious and compelling reason* is defined as a medical, emotional, or other condition acceptable to and verified by the dean of the college/school in which the course is offered. The condition must be stated in writing on the drop form. Upon signing the form, the course instructor may add a written recommendation to the college/school dean in the space provided. The dean may require that the student provide written substantiation as deemed necessary. Failing or performing poorly in a class is not an acceptable serious and compelling reason within the university policy, nor is dissatisfaction with the subject matter, class, or instructor.

During the final three weeks of instruction, dropping an individual course is not permitted. Instead, a student must completely withdraw unless special approval is given by the registrar in cases such as accident or illness where the cause of the drop is due to circumstances beyond the student's control. If the student has completed a significant portion of the required coursework, incomplete grades are often assigned.

Complete Withdrawal. A student may totally (completely) withdraw from all courses through the last day of instruction. Complete withdrawal is not permitted during the final examination period. If a student withdraws through the first four weeks of instruction, only the date of withdrawal is posted on the permanent record. If the student withdraws after the first four weeks, a *W* is posted for each class as well as the official date of withdrawal. For purposes of subsequent registration and catalog determination, students are considered as having been enrolled for that semester.

A student who withdraws from the university in good academic standing (not disqualified) is eligible to enroll the following semester without reapplying for admission. A student remaining unenrolled at the university for only one semester and not enrolling at another accredited institution during the interim must apply for readmission, may use the short application form available from the Admissions Office, and is not required to pay the application fee. However, a student attending another accredited institution or not enrolled for two or more consecutive semesters must reapply and pay the application fee. Contact the Evaluations Office regarding possible consequences if you remain away from California State University, Fresno more than one calendar year.

Consult the current *Schedule of Courses* for specific withdrawal instructions, procedures and deadlines.

Retroactive Withdrawal. The university recognizes that on rare occasions students will experience unexpected circumstances *beyond their control* that prohibit them from withdrawing from courses in a timely manner. A student may petition for a retroactive withdrawal if a documented hardship occurred during the term for which the withdrawal is requested and which prevented withdrawal at the time. Retroactive withdrawals may also be granted in instances where the student will suffer a significant academic hardship if the withdrawal is not approved.

Nonattendance. During the first week of classes, it is the responsibility of students to attend each class meeting of courses in which they are enrolled. Students absent from any class meeting during this period are responsible for personally contacting their instructor by the next class meeting to request being retained in the class.

In addition, as a courtesy to other students attempting to add and as a courtesy to the faculty, students who decide to drop a class should do so immediately by using the STAR system. Students must not assume that instructors will exercise their option to submit the Administrative Withdrawal Form. In short, it still is the responsibility of the student to withdraw properly from any class he/she does not intend to complete. Failure to withdraw will result in the assignment of the appropriate failing grade, *U* or *NC*.

Further, in order to permit students on waiting lists to enroll in a class, instructors may drop from their classes students who are absent from any class session during the first week of classes and do not personally notify the instructors by the next class meeting of their intent to remain in the course.

Preprofessional Preparation

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 law, medicine, veterinary medicine, pharmacy, dentistry, optometry, forestry, architecture, theology, librarianship, chiropractic therapy, osteopathic medicine, and podiatric medicine. Some of these programs are described in the text that follows.

Students planning to complete a preprofessional program and degree at California State University, Fresno 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, incorporate into their college programs courses required for entry into professional schools.

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 preprofessional advisers is available in the Office of Advising Services, Joyal Administration Building, Room 224. For more information, call Advising Services, (559) 278-1787 or fax (559) 278-2323.

Prehealth careers. Advisement is available for students interested in preparing for health careers in occupational therapy, in chiropractic medicine, in radiological technology, as a physician's assistant, and related areas. These programs are not offered at California State University, Fresno, although most, if not all, prerequisites can be found on this campus. Admission requirements vary widely for health career programs, not only from field to field, but from institution to institution. It is recommended that students seek academic and career advisement early in their academic programs.

Contact the College of Health and Human Services for information on the Prehealth Careers Advisement Program:

Ms. Georgia Porcella, Coordinator
Nursing/Physical Therapy Admissions
San Ramon 2, Room 21
(559) 278-6579; FAX: (559) 278-4437
e-mail: *georgiap@csufresno.edu*

Premedical. 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 specific courses in biology (BIO SCI 1A-B), chemistry (CHEM 1A-B, 128A-B, 129A), physics (PHYS 2A-B), and English. Also, BIO SCI 140A-B, CHEM 129B and calculus are strongly recommended or required by some medical schools, and are covered on the Medical College Aptitude Test (MCAT) exam. Because of competition for admission to medical schools, a grade point average above 3.5 is highly desirable. The MCAT is required before students 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 contact a premedical adviser prior to registration. Each student is assigned to a member of the premedical advisory committee who assists him or her in planning a program of courses and advises him or her concerning preparatory procedures for application to medical school.

For further information, contact:

Dr. Lenore Yousef
Premedical Advisory Committee
California State University, Fresno
2555 E. San Ramon, SB 314
Fresno, CA 93740-8034
(559) 278-5264; FAX: (559) 278-3963
e-mail: *lenore_yousef@csufresno.edu*.

Predental. The minimum training for dentistry is a seven-year course — the first three years (90 units) of predental training in a liberal arts college and the remaining four years (dental training) at a school of dentistry.

However, most students are not accepted by dental schools until four years of college are completed. Due to the large number of applicants, students who do not have better than a 3.5 cumulative GPA should earn a bachelor's degree before applying to a dental school. Majors that are most compatible with required classes are in the sciences, particularly biology and chemistry. However, as long as the required preprofessional courses are completed, any major is acceptable.

The minimum predental program required by accredited dental schools is one year each of English, general chemistry, physics, and biology, plus one semester (and often one year) of organic chemistry. Check with each dental school for specific requirements like psychology. The Dental Aptitude Test (DAT) and evidence of physical fitness and good moral character are usually required. Many dental schools also require a personal interview; some schools administer additional tests. For other information, contact one of the predental advisers and consult dental school catalogs.

Dr. Lorraine Wiley
Biology Department
(559) 278-2362; FAX: (559) 278-3963
e-mail: lorraine_wiley@csufresno.edu

Dr. Howard Ono
Chemistry Department
(559) 278-2394; FAX: (559) 278-4402
e-mail: howard_ono@csufresno.edu

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 Programs, 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, statistics, economics, political science, philosophy, science and foreign language. A score on the Law School Admission Test (LSAT) is required before students can be accepted into law school. It is recommended that the LSAT be taken no later than December of the student's senior year. In addition, most law schools require a personal statement and letters of recommendation that address academic skills and preparation for the study of law. For further information consult a prelaw adviser and law school catalogs.

For a list of prelaw advisers, contact the Office of Advising Services in Joyal Administration, Room 224.
(559) 278-1787; FAX: (559) 278-2323

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. In addition, a course in computer concepts is advisable. Students considering librarianship as a career should consult the prelibrary program adviser.

Kimberley Robles Smith
Henry Madden Library
(559) 278-4578
FAX: (559) 278-6952
e-mail: kimberle@csufresno.edu

Preoptometry. California State University, Fresno provides courses for the completion of preprofessional requirements of an optometry program. Most professional schools require junior standing and coursework that includes two years of biology, one year of chemistry, mathematics, physics and English, and one semester of psychology and statistics with above- average scholarship. For further information, see optometry school catalogs and consult the preoptometry adviser.

Dr. Parameswar Hari
Physics Department
(559) 278-2040; FAX: (559) 278-7741
e-mail: phari@csufresno.edu

The Optometry Admission Testing Program (OAT) exam is required before application can be made to optometry school. Application should be made one year in advance of anticipated enrollment.

Prepharmacy. California State University, Fresno provides prepharmacy coursework to prepare a student for admission into a four-year pharmacy program. All new and transfer students should indicate an interest in prepharmacy on application, admittance, and registration papers. Admission to most pharmacy schools now requires a *B-* average or better in a minimum of 60 semester units, including one year each of general chemistry, organic chemistry, physics, calculus, biology, and English composition. Certain schools may have additional specified requirements. Although some students gain admission to pharmacy school after two or three years of undergraduate study, most students are not accepted until they have completed four years of college. Students without high cumulative grade point average should graduate with a bachelor's degree before applying to a pharmacy program. Majors that are most compatible with required classes are in the sciences, particularly biology and chemistry. However, as long as the required preprofessional courses are completed, any major is acceptable. For further information, see the prepharmacy adviser and consult pharmacy school catalogs.

Dr. Howard Ono
Chemistry Department
(559) 278-2394; FAX: (559) 278-4402
e-mail: howard_ono@csufresno.edu

Preveterinary. Students preparing for the veterinary profession can satisfy their preveterinary curriculum requirements at California State University, Fresno. A minimum of 60 semester units of required courses (see below) must be taken prior to acceptance into a veterinary school program. Most students combine the required science courses with General Education and major requirements as they work toward a bachelor's degree in either animal sciences or biology. In addition to performance in required classes, prospective veterinary students are evaluated by their performance on the general portion of the Graduate Records Examination which is to be taken within five years of veterinary school application.

All students interested in veterinary medicine are encouraged to take A SCI 68, Preveterinary Orientation (taught each fall in the Department of Animal Sciences and Agricultural Education), for updated information regarding admission requirements and policies. Courses recommended by the Department of Animal Sciences and Agricultural Education for its majors preparing for veterinary school include A SCI 65A, 125, 135, 145, and 165; BIOSC 1A, 1B; CHEM 1A, 1B, 8, 109, and 150; MICRO 20; PHYAN 135; and PHYS 2A. In addition, a statistics class, two writing classes, and a speech class are required by most veterinary schools.

The College of Agricultural Sciences and Technology is equipped to provide valuable experience with large animals through the labs and projects at the university farm laboratory. Admission to veterinary school in California requires about 4.5 week equivalents (180 hours) of relevant veterinary experience in activities that specifically give the applicant an appreciation and understanding of the profession of veterinary medicine. For further information, contact the chair of the Animal Sciences Department, the campus veterinarian, and/or the adviser in the Biology Department.

Dr. Michael Thomas
Animal Sciences and Agricultural Education Department
(559) 278-4288; FAX: (559) 278-4101
e-mail: michael_thomas@csufresno.edu

Dr. David Grubbs
Biology Department
(559) 278-2460; FAX: (559) 278-2362
e-mail: david_grubbs@csufresno.edu

Fees and Expenses

Business Office

Robert P. Vega, *Director of Accounting Services*

Joyal Administration, Room 152

(559) 278-2764

Student Fees*

Fall/Spring Registration Fees. Students are required to pay registration fees prior to registering for classes. These fees consist of eight mandatory fees (noted in chart on this page) but do not include tuition charged to foreign and nonresident students. General authority governing most fees is contained in the California Education Code, Sections 89700 and 89724.

Non-Resident and Foreign Tuition**

Nonresidents and foreign students are required to pay tuition in addition to registration fees. Tuition is charged at $246 per unit with no maximum unit limit. General authority for this fee may be found in the California Education Code, Section 89705.

Extended Education Fees

Extension, per unit
Lecture or discussion course **$90**

Open University,
per unit **$110**

Summer session courses,
per unit **$115**

Winter session courses,
per unit **$115**

Miscellaneous Fees

Application Fee
Nonrefundable **$55**

Credential Fee
(*collected for Commission on Teacher Credentialing*)
Amount varies. Contact the Credential Office, School of Education and Human Development **$70**

Diploma Reissue Fee **$20**

Graduation Application Fee
(bachelor's or master's) **$35**

REGISTRATION FEES PER SEMESTER* (all students)

	Undergraduates		Graduates	
	0-6 units	7 or more units	0-6 units	7 or more units
Facility Fee	$3	$3	$3	$3
Health Service Fee	$65	$65	$65	$65
Instructionally Related Activity Fee	$10	$10	$10	$10
State University Fee	$414	$714	$438	$753
Student Academic Service Fee	$18	$18	$18	$18
Student Body Fee***	$20	$20	$20	$20
OneCard Service Fee	$5	$5	$5	$5
University Student Union Fee	$38	$38	$38	$38
Total	**$573**	**$873**	**$597**	**$912**

- Graduate and postbaccalaureate students seeking teaching credentials will be charged the graduate state university fee rate.
- Questions pertaining to your undergraduate/graduate class level status may be directed to the Admissions and Records Office (559) 278-2261

Parking Permit Fees
Automobile per semester **$54**
Motorcycle per semester **$13.50**
Automobile fall/spring **$108**
Motorcycle fall/spring **$27**
Automobile summer **$36**
Motorcycle summer **$9**

Penalty Fees
Check return fee **$20**
Late registration **$25**

Failure to meet administratively required appointment or time limit **$10**
Lost or broken items ..... **replacement cost**
Lost library items ... **replacement cost plus $10 service charge**

Damaged library items ... **replacement cost plus $10 service charge**

Programming Fee
(Not a state fee.) Foreign visa student tuition fee — same as nonresident.

Programming fee is assessed to corporate and governmental sponsors of international students for required additional services **$250**

Receipt Research Fee
one year or less **$2**
more than one year **$5**

Transcript of Record
$4 first copy, $2 each additional copy **$4**

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, *California Code of Regulations*, 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 Henry Madden Library, Student Affairs Office, and Housing Office.

* Registration fees and tuition are subject to change without advance notice from the trustees of the California State University system.

** 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 CSU provides that a student body fee may be established by student referendum with the approval of two-thirds of those students voting. The Student Body Fee was established at California State University, Fresno by student referendum on May 12, 1959. The same fee can be abolished by a similar two-thirds approval of students voting on a referendum called for by a petition signed by 10 percent of the regularly enrolled students. (*California Education Code*, Section 89300). The level of the fee is set by the chancellor. An increase in the student body fee may be approved by the chancellor only following a referendum on the fee increase approved by a majority of students voting. Student body fees support a variety of cultural and recreational programs, child care centers, and special student support programs.

Refund of Fees

Fees may be refunded only as authorized by Sections 42201 (parking fees), 41913 (nonresident tuition), 42019 (housing charges), and 41802 (all other fees) of Title 5, *California Code of Regulations*.

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.

Details concerning registration fees that may be refunded, the circumstances under which fees may be refunded, and the appropriate procedure to be followed in seeking refunds may be obtained from Student Financial Services, Joyal Building, Room 181, (559) 278-2876.

Registration Fees. All students who are entitled to a refund of registration fees or nonresident tuition for withdrawing or reducing units, within 14 calendar days after the first day of instruction, must apply for a refund by filing a "Refund Application Form" at the Admissions/ Records Service Windows in the Joyal Administration Building. If a form is not filed, refunds will be credited to the student's account. Students may elect to leave the credit balance on account to apply toward future charges.

- Registration fees are refunded in full (less a $5 processing charge) to students who withdraw by the end of the second week of instruction.
- A refund in the amount of the difference between the two levels of the state university fee (less a $5 processing charge) is refunded to students who reduce their unit load from 7 units or more to 6 units or less by the end of the second week of instruction.
- Use of the Health Center will preclude a refund of the $65 mandatory fee.

Nonresident Tuition. 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, and no refund after the sixth week.

Health Fee. The health fee is required of all regularly enrolled students, regardless of the class level or the number of units enrolled. Fee waiver students, or students who will be physically absent from the campus for the entire semester (such as a study abroad semester), or students who will be taking classes only at sites 50 miles or more from campus, may apply for a refund in accordance with the refund procedures established by Student Financial Services. Refunds will only be made for fees paid within the current academic year. The Health Center will adjudicate the requests based upon records of usage; any use of the Health Center during the semester, or, for continuing students, during the summer or winter break prior to the semester, will preclude a refund. Students who receive a refund but later wish to avail themselves of health services will be charged a sum equivalent to the mandatory fee at the time of their first visit.

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 Student Financial Services a written application for refund and returns all documents issued (including parking permits). If the permit is affixed to a vehicle and the vehicle is presented to the university for removal of the item by or under the direction of the state, such presentation and removal shall constitute return of the item.

The refund application schedule is as follows:

- 1-30 calendar days 75% refund
- 31-60 calendar days 50% refund
- 61-90 calendar days 25% refund

Returned Checks. Writing a bad check is against the law. Recipients of bad checks may sue the payer in Small Claims court for three times the amount of the check or $100, whichever is more. In addition, suit may be made against the payer for the face value of the check and all court costs. (California Civil Code, Chapter 522, Section 1719.)

Writing a bad check will result in the following.

1. The student's university records will be attached and the student will be denied all services.
2. The student will be charged $20 for processing.

SOURCE OF FUNDS AND AVERAGE COSTS FOR 1998-99 CSU BUDGET
(Projected Enrollment: 268,320 FTES)

	Amount	Average Cost Per FTE Student	Percent
Total Cost of Education*	$3,015,710,000	$10,793	100.0
•State Appropriation**	2,252,941,000	8,063	74.7
•Student Fee Support	624,128,000	2,234	20.7
•Reimbursements	138,641,000	496	4.6
Total State Support	2,252,941,000		
Total Support	3,015,710,000		

(including State General Fund appropriation, student fee support, and support from other sources.)

* Based on final campus budget submissions subsequent to the passage of the Budget Act. Totals may differ slightly from other CSU published amounts.

**Includes mandatory cost increase of $18.4 million; 3% increase in enrollment of $52.5 million; 3.8% general compensation pool increase of $89.4 million; technology access, training, and support services of $10 million; plant maintenance increase of $12 million; student assistance and faculty alliance outreach programs of $14.4 million; and campus-specific applied research, educational, and state-requested investments of $16.8 million.

3. Enrollment of classes will be cancelled. Once enrollment is cancelled, the student will not be reinstated.
   - Payment of returned checks must be made with a cashier's check or money order.
   - Personal checks will not be accepted, including checks written by a friend or relative.
   - Placing a "stop payment" or closing an account will not release the student from financial obligation nor will it automatically drop the student from enrollment. (California Administrative Code, Tile 5, Section 42381)

Debts Owed to the Institution

Should a student or former student fail to pay a debt owed to the university, the university may deny class registration, grades, transcripts, and other university services until all obligations are cleared. If a student believes that he or she does not owe all or part of an unpaid obligation, the student should contact Student Financial Services at (559) 278-2876. Student Financial Services, or another office on campus to which the student may be referred, will review the student's account and advise the student regarding the debt. (California Administrative Code, Title 5, Section 42381)

Estimate of Expenses

The basic expenses for attendance at California State University, Fresno for a year (two semesters) for full-time students who live away from home are approximately $8,151. This figure is exclusive of the Nonresident Tuition Fee but includes 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 room and board may also be reduced by cooperative living arrangements or part-time work in exchange for room and board. *Note*: registration fees estimate is for California residents.

Room and Board (average) $6,000
Registration Fees $1,746-1,824
Books and Supplies (approx.) $405

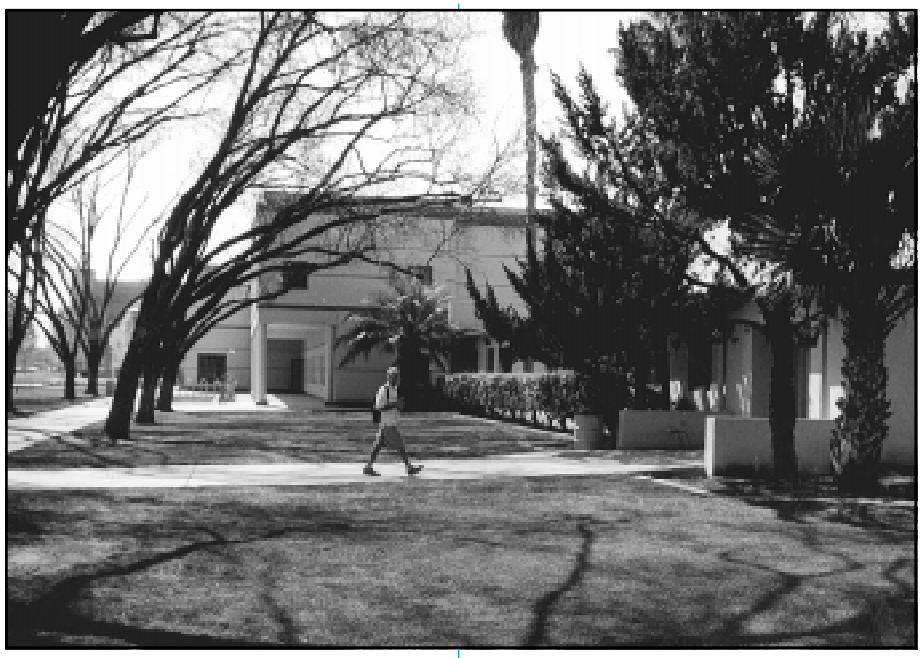
Average Annual Cost of Education and Sources of Funds Per Full-Time Equivalent Student. The 23 campuses and the Chancellor's Office of the California State University are financed primarily through funding provided by the taxpayers of California. The total state appropriation to the CSU for 1999-00 (not including capital outlay funding in the amount of $260,033,000) is $2,252,941,000. However, the *total cost of education* for the CSU is $3,015,710,000, which must provide support for a projected 279,403 full-time equivalent students (FTES). The number of full-time equivalent students is determined by dividing the total academic student load by 15 units per term (the figure used here to define a full-time student's academic load).

The *total cost of education* in the CSU is defined as the expenditures for current operations, including payments made to the students in the form of financial aid, and all fully reimbursed programs contained in state appropriations, but excluding capital outlay appropriations and lottery funds. The *average cost of education* is determined by dividing the total cost by the total FTES. The average cost of education is further differentiated into three categories: State Support (the state appropriation, excluding capital outlay), Student Fee Support, and Support from Other Sources (including federal funds).

Thus, excluding costs that relate to capital outlay (i.e., building amortization), the average cost of education per FTE student is $10,793. Of this amount, the average student fee support per FTE is $1,830. The State University Fee, application fee, and nonresident tuition are included in the average costs paid by the students; individual students may pay less or more than $1,830, depending on whether they are part-time, full-time, resident, or nonresident students.

VIP Bike Registration. The Volunteer Identification Program is available free of charge on our campus. With this service your bike is engraved with your driver's license number or a serial number and is listed on a statewide computer system if stolen. Forms for VIP registration are available at the University Student Union information desk, the residence halls and the Commons #4 Office, and the Campus Security Office.

Financial Aid



The Financial Aid Office

Financial aid is any resource available to students to offset the costs associated with attending California State University, Fresno. Aside from student and family resources, there are four basic programs of financial aid: grants, loans, work-study, and scholarships. About 95 percent of these programs are administered by the Financial Aid Office.

The majority are funded by the federal and state governments and are need-based. Eligibility for financial aid from need-based programs is determined through a formula mandated by Congress. Several programs administered by the Financial Aid Office are not need-based. There are also additional administrative units on campus that offer financial aid.

Need-Based Financial Aid Programs

For the following need-based aid programs, you are required to submit the Free Application for Federal Student Aid (FAFSA). This application is available at high schools and college financial aid offices in December and should be filed in January or February for the next academic year. Renewals, i.e., students who had a valid Student Aid Report on file for the previous academic year, will receive Renewal Applications directly from the Central Processor. If you have not received your Renewal Application by January 15, complete a FAFSA.

The official priority filing date is March 2 for the next academic year.

* Federal Pell Grant
Federal Perkins Loan
Federal Supplemental Educational Opportunity Grant
* Federal Stafford Student Loan
Federal Work-Study
Nursing Student Loan
Bureau of Indian Affairs Grant
** California Graduate Equity Fellowship Program for Underrepresented Students
California State Educational Opportunity Grant (EOP)
California State University Grant
Cal Grants A, B, and T
State Graduate Fellowship

For assistance in completing the FAFSA, please contact the Financial Aid Office.

Details about these programs are listed on pages 68-71 under the heading *Program Specifications*.

Non-Need-Based Financial Aid Programs

The Financial Aid Office also administers non-need-based aid programs. These programs are available to students and families regardless of income and assets. Applications for these programs are available in Rooms 274 and 296, Joyal Administration Building. The non-need-based programs include:

1. California State University, Fresno Institutional Scholarships
   - Applications for the 2000-2001 academic year will be available September 1, 1999. The filing deadline is November 19, 1999. For additional information on scholarships, please contact the Scholarship Office at (559) 278-6572 or consult the Financial Aid Office Website at *http://studentaffairs.csufresno.edu/financial_aid.*
2. Federal Parent Loans for Undergraduate Students (PLUS)/Federal Unsubsidized Stafford Loan
   - No set deadline. However, applicants who submit their application after May 30 cannot be assured of receiving funds before the beginning of the fall semester.

Additional information about these programs can be obtained from the Financial Aid Office Website at *http://studentaffairs.csufresno.edu/financial_aid.*

Additional Financial Aid Sources

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 mandatory systemwide fees or tuition of any kind at any California State University campus, according to the Alan Pattee Scholarship Act, *California Education*

* Even though the March 2 deadline does not apply to the Pell or Stafford Student Loan Programs, you should be aware that Pell and Stafford applications submitted after May 30 cannot be assured of receiving funds at the beginning of the fall semester.

** Graduate Equity Fellowship application deadlines may vary.

Financial Aid Office

Student Affairs

Joseph W. Heuston, *Director*

Joyal Administration, Room 296

General Information (559) 294-2200

(559) 278-2182

http://studentaffairs.csufresno.edu/financial_aid

Code, Section 68121. Students qualifying for these benefits are known as Alan Pattee scholars. For further information, contact the Registrar's Office, which determines eligibility.

Air Force Reserve Officer Training Corps Scholarships. Air Force ROTC three-year, four-year, and graduate degree scholarships are available in many technical and nontechnical majors to cover the costs of fees and tuition, book allowance, lab fees, and a monthly stipend of $150. In addition, all juniors and seniors, regardless of academic major, who have at least a 2.35 semester GPA and will graduate before turning age 27, qualify for up to $1,725 in scholarships each semester plus a monthly stipend of $150. Applications should be submitted to the Department of Aerospace Studies. For additional information, see *Aerospace Studies.*

Army Reserve Officer Training Corps. The U.S. Army offers two-, three-, and four-year scholarships at different monetary levels – up to $20,000 annually to qualified students in a variety of academic disciplines. Scholarships cover tuition, mandatory fees, $450 annually for books, and a monthly tax-free subsistence allowance of $200. All students formally enrolled in the ROTC program receive an annual allowance of $1,500 and can earn as much as $19,800 during their college careers. For additional information, see *Department of Military Science.*

Graduate Assistantships. A number of graduate assistantships and teaching associateships are available to students who are enrolled in a master's degree program. For additional information, see the *Division of Graduate Studies.*

Division of Graduate Studies Student Research Awards and Travel Grants. For additional information, see the *Division of Graduate Studies.*

Nonresident Tuition Waivers. A select number of non-resident tuition waivers are available for outstanding graduate students who demonstrate the potential to make significant academic and professional contributions in their disciplines and the graduate program.

A number of graduate assistantships and teaching associateships are available to students who are enrolled in a master's degree program.

Recipients are expected to work with the K-12 system in giving lectures/presentations. For additional information, contact the department.

Resident Advisers and Public Safety Assistants. University Courtyard employs up to 16 students to work as resident advisers (RAs) and five students to work as public safety assistants (PSAs) in the residence halls. RAs act as effective role models, develop a cohesive community of students, organize and conduct programs, and serve as resource people to students living on-campus. PSAs patrol the buildings and grounds, and provide escort service. Applications (for students with one year of on-campus living experience) are available from the University Housing Office at the beginning of the spring semester.

University Association and Foundation Loan Funds. The university operates an Emergency Loan Fund to assist students who need up to a maximum of $400 for *educationally related emergency expenses only.* These loans have to be repaid within 90 days or before the end of the semester, as designated by Student Loan Collection Services. Loans are granted on the basis of the students' need and ability to repay. The funds for these programs have been provided by gifts to the university. Applications for loans are processed through *Student Loan Collection Services, Joyal Administration Building, Room 156.*

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 full-time employees, who are not yet legal residents of California, may be exempted from the nonresident fee. Also, with verification by the dean of the School of Education and Human Development, 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).*

Program Specifications

Satisfactory academic progress requirements. To conform with the regulations that govern state and federal student financial aid programs, the university is required to define and enforce standards of satisfactory academic progress for all financial aid applicants.

All funds administered by the Financial Aid Office are subject to these standards.

The intent of these standards is to encourage student aid recipients to make steady progress toward the completion of all degree or credential requirements within a reasonable period of time.

The following descriptions are offered for your guidance:

- Students funded on the basis of a full-time budget must enroll and complete a minimum of 12 units each semester. For graduate students, the requirement is 8 units of courses in the 200 series.
- Students funded on the basis of a three-quarter budget must enroll in and complete a minimum of 9 units each semester. Graduate students in this category are obligated for a minimum of 6 units from courses in the 200 series.
- Students funded on the basis of a half-time budget must enroll in and complete a minimum of 6 units each semester. Half-time status for graduate students is 4 units of courses in the 200 series.

All recipients of financial aid must notify the Financial Aid Office prior to dropping below the units identified as *units funded* on their award notification. Aid recipients who fail to comply with these requirements may be subject to cancellation of their financial aid award and/or repayment of any aid received.

The regulations also address the issue of time-to-degree. Undergraduate students are expected to complete their degrees within the time-frame of 12 full-time semesters or 186 units (whichever occurs first). Postbaccalaureate students are allowed 45 units or six full-time semesters. Graduate students enrolled in programs requiring 60 units will be granted an exception upon request.

All units count toward your maximum allowance. Enroll in units that count toward your degree.

All financial aid recipients are reviewed for satisfactory academic progress at the end of each semester. The following criteria are used for determination of satisfactory progress: (1) *A, B, C, D,* and *CR* are acceptable indicators of satisfactory academic progress; (2) *F, I, W, U, NC, SP, RD, AU* are not acceptable.

A more detailed explanation of satisfactory academic progress requirements at California State University, Fresno is available in the Financial Aid Office, Joyal Administration Building, Room 296.

Federal Perkins Loan. Authorized by the Higher Education Act, this program provides a limited amount of low-interest loans to students who demonstrate an exceptional financial need. Currently students may borrow $15,000 during the course of their undergraduate degree. Graduate students may borrow up to $30,000 (including any amount borrowed as an undergraduate). New borrowers begin repayment nine months after they graduate, leave school, or cease attending at least half-time. (Students who received funding under the National Direct Student Loan Program have a six-month grace period.) A repayment period of up to 10 years has been established by the federal government. The Higher Education Act also authorized certain conditions under which part or all of the loan may be canceled. Details are available in Student Loan Collections Services, Joyal Administration Building, Room 156.

Federal Supplemental Educational Opportunity Grant (FSEOG). FSEOG is a grant program and, thus, does not require repayment. Awards are restricted to those undergraduates who demonstrate the greatest need and who are also Federal Pell Grant recipients. Funding for the program is limited to the allocation received from the federal government.

Federal Work-Study (FWS). FWS is a federally funded, campus-based employment program. Both undergraduate and graduate students are eligible to participate. At California State University, Fresno, students receiving FWS awards are placed in jobs on campus and with selected off-campus agencies. FWS recipients may work up to 20 hours per week on a job.

Nursing Student Loans. 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 for the first two years; $4,000 for the final two academic years, up to a $13,000 maximum. No interest is charged while the borrower pursues at least a half-time course of study, or for a period of nine months after leaving school. Interest then starts at 5 percent 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.

Bureau of Indian Affairs (BIA) Grants. If you are an eligible American Indian, Eskimo or Aleut student, or a certified member of a tribal group that is 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 (FAFSA) and supportive documents. Obtain the BIA application from your area agency, then see the BIA adviser in the Financial Aid Office to complete the BIA Need Analysis section of the application. Be sure to check with your Tribal Agency Office for BIA deadlines. Deadlines vary from one agency to another. BIA applications are normally available January through June of each year.

California Graduate Equity Fellowship Program. For additional information, see the *Division of Graduate Studies.*

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 campuses of The California State University under the Educational Opportunity Program. Eligibility for this grant is determined by criteria similar to that which governs federal financial aid programs. Admission to the university through the EOP does not automatically mean that the student is 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 range from $200 to $1,000 for the academic year.

California State University Grant. This is a need-based program for California residents, providing financial support to students. Eligibility for this grant is determined by criteria similar but not limited to that which governs federal financial aid programs.

Federal Pell Grant. The Federal Pell Grant Program is a program of student financial aid authorized by Title IV, Part A, of the Education Amendments of 1972. This program provides grants for all eligible undergraduate students to assist them in meeting educational costs. Program regulations change from year to year.

Cal Grants A and B. The California Student Aid Commission offers Cal Grants A and B to undergraduate students on the basis of demonstrated need and specific program requirements. To apply, complete the FAFSA and GPA Verification Form. The deadline for new applicants is March 2 for the next academic year. Renewal applicants may continue to apply after March 2. Recipients who complete a baccalaureate degree and who are accepted and enrolled in a teaching credential program at an institution approved by the California Commission on Teacher Credentialing will be eligible to apply for renewal of their Cal Grant award for an additional year of grant eligibility, provided financial need continues to exist. All students who are planning to enroll in an approved credential program and wish to continue receiving Cal Grant benefits will be required to submit a supplemental request. Forms are available in the Financial Aid Office.

Cal Grant T. The California Student Aid Commission offers Cal Grant T for students who are enrolled in and attend programs of professional preparation for a California K-12 single or multiple subject teaching credential. Offered for one academic year only, the grants are specifically awarded to students who already have a bachelor's degree or higher and are attending California institutions approved by the California Commission on Teacher Credentialing. In addition to the FAFSA, the Cal T program requires a supplemental application. Interested parties should contact the Financial Aid Office in January 2000 for applications and deadlines.

Law Enforcement Personnel Dependents Scholarship. The Law Enforcement Personnel Dependents Scholarship will pay for books and supplies and living expenses up to $1,500 per year for needy dependent children of law enforcement officers who have been killed or totally disabled in the line of duty. Applicants should write to the California Student Aid Commission for a special application.

State Graduate Fellowship. The Student Aid Commission also administers the State Graduate Fellowship Program. This program offers renewal recipients (only) tuition assistance for master's and doctoral students. Renewal applicants may continue to apply after March 2 by completing the FAFSA.

Federal Subsidized Stafford Student Loan. The Federal Stafford Program enables students with financial need to secure loans for the payment of educational expenses. Available to undergraduates and graduates, the Federal Stafford Loan is a federally subsidized (and insured) program, offered in conjunction with lending institutions (banks, credit unions, savings and loan associations, etc.). Undergraduates who qualify may borrow up to $2,625 per year as freshmen, $3,500 for second-year students, $5,500 per year as juniors, seniors, or credential students, up to a $23,000 maximum. Graduate students who qualify may borrow up to $8,500 per year to a $65,500 maximum (includes indebtedness incurred as an undergraduate). Simple interest, at a variable rate of up to 8.25%, is charged at repayment. Repayment begins six months after students graduate, leave school, or cease attending at least half-time. (Since interest rates, repayment periods, etc. have changed over the years, students are advised to contact their lender for more precise information.) The federal government pays the interest until the student borrower enters the loan repayment period.

Non-Need-Based Financial Aid Programs. The following non-need-based programs are administered by our Financial Aid Office.

California State University, Fresno Institutional Scholarships. Each year about 900 students are awarded Institutional Scholarships totaling more than $800,000. The majority of the scholarships, ranging from $100 to $2,000, are awarded on the basis of merit to both undergraduate and graduate students. Although requirements for specific scholarships vary, most scholarships require academic achievement or potential, plus a demonstration of the students' commitment to their school, community, or society. Financial need may be a factor but is seldom the exclusive factor. Applications must be submitted by November 19, 1999 for the next academic year. The California State University, Fresno Scholarship Application is available in the Joyal Administration Building, Rooms 274 and 296.

Federal Parent Loans for Undergraduate Students (PLUS). The PLUS Program was initiated to provide assistance to parents who do not demonstrate financial need as determined by the government formula. Parents may borrow up to the cost of attendance minus other aid for each dependent child enrolled at least half-time. Applications and information are available at the Financial Aid Office.

Federal Unsubsidized Stafford Loan. The program is open to students who may not meet need-based requirements of the Federal Stafford Loan or who may qualify for only a partial Federal Subsidized Stafford Loan. Terms and conditions are similar to the subsidized Stafford, except that the borrower is responsible for interest which accrues during the in-school period.

CSU Forgivable Loan/Doctoral Incentive Program. The largest program of its kind in the nation, the CSU Forgivable Loan/Doctoral Incentive Program is designed to increase the diversity of the pool of qualified faculty candidates for the California State University. The program provides loans of up to $10,000 per year up to a total of $30,000 within five years. For each year of full-time postdoctoral teaching at a CSU campus, individuals are granted loan forgiveness at a rate of 20% per year. Information and applications are available in Human

Resources, Joyal Administration Building, Room 148.

California Pre-Doctoral Program for Undergraduate and Graduate Students. For additional information, see the *Division of Graduate Studies.*

Institutional and Financial Assistance

The following information concerning student financial assistance may be obtained from Joseph W. Heuston, director of financial aid, Joyal Administration Building, Room 296, (559) 278-2182:

1. student financial assistance programs, including state grants, available to students who enroll at California State University, Fresno
2. the methods by which student eligibility for aid is determined and by which such assistance is distributed among students who enroll at California State University, Fresno
3. the means, including forms, by which application for student financial assistance is made and requirements for accurately preparing such application
4. the availability of federal financial aid funds for study abroad programs
5. the rights and responsibilities of students receiving financial assistance
6. the terms and conditions of any employment offered as financial aid
7. the availability of community-service Federal Work-Study jobs
8. the terms of, schedules for, and necessity of loan repayment
9. the standards the student must maintain to be considered to be making satisfactory academic progress for the purpose of establishing and maintaining eligibility for financial assistance and procedures to be followed to regain eligibility

The following information concerning the cost of attending California State University, Fresno is available from Joseph W. Heuston, director of financial aid, Joyal Administration Building, Room 296, (559) 278-2182:

1. fees and tuition (where applicable)
2. estimated costs of books and supplies
3. estimates of typical student room and board costs or typical commuting costs
4. any additional costs of the program in which the student is enrolled or expresses a specific interest

The following information concerning the refund policy of California State University, Fresno is available from Robert P. Vega, director of accounting services, Joyal Administration Building, Room 152, (559) 278-2764:

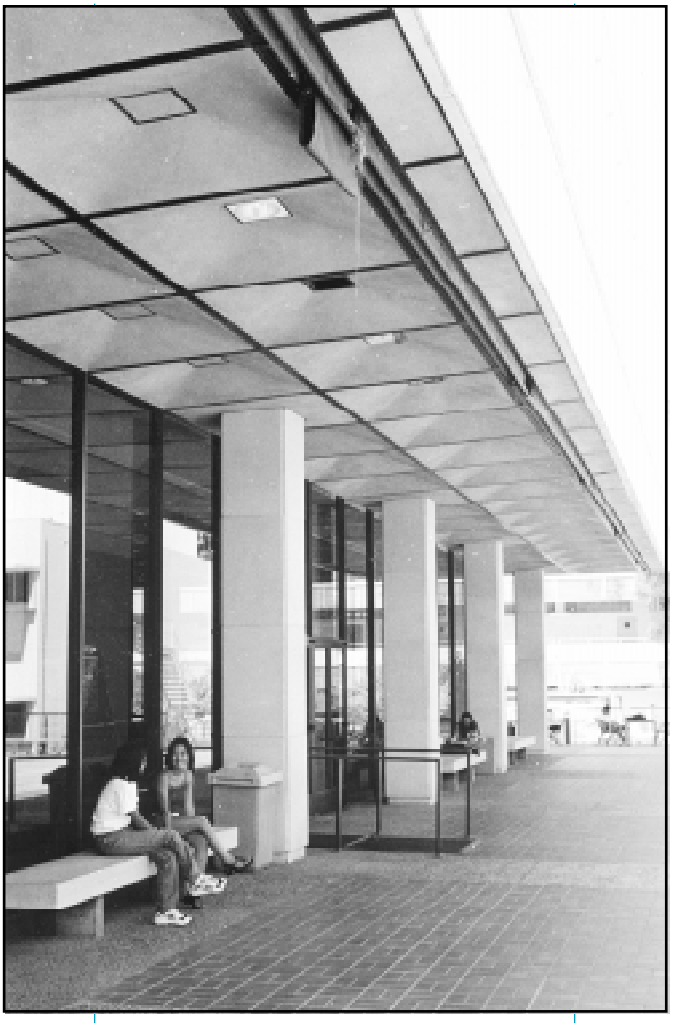
1. the refund policy for the return of unearned tuition and fees or other refundable portions of costs
2. policies regarding any return of federal Title IV student assistance funds as required by the regulations

Information concerning the undergraduate academic programs of California State University, Fresno may be obtained from the associate provost, Thomas Administration Building, Room 116, (559) 278-6639 and may include:

1. the current degree programs and other educational and training programs
2. the instructional, laboratory, and other physical plant facilities that relate to the academic program
3. the faculty and other instructional personnel

4. data regarding student retention and graduation at California State University, Fresno and, if available, the number and percentage of students completing the program in which the student is enrolled or has expressed interest
5. the names of associations, agencies, or governmental bodies that 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 concerning the graduate degree programs of California State University, Fresno may be obtained from the Division of Graduate Studies, Thomas Administration Building, Room 132. You may call (559) 278-2448 or e-mail *shirlee_fulton@csufresno.edu*. Additional information is available from the World Wide Web at *http://www.csufresno.edu/gradstudies*.



Information regarding special facilities and services available to students with disabilities may be obtained from the coordinator of disabled student services, Madden Library, Room 1049, (559) 278-2811.

The following information concerning the public safety policies of California State University, Fresno is available from the police chief, Public Safety Building, (559) 278-2243:

1. policies, procedures, and facilities for students and others to report criminal actions or other emergencies occurring on campus
2. information concerning the annual campus security report
3. information concerning the prevention of drug and alcohol abuse

Information concerning grievance procedures for students who feel aggrieved in their relationships with the university (its policies, practices, and procedures or its faculty and staff) is available from the Office of the Vice President for Student Affairs, Joyal Building, Room 262, (559) 278-2541.

Information concerning the graduation rates of students enrolling at Fresno State may be obtained from Institutional Research, (559) 278-3906.

Information concerning athletic opportunities available to male and female students and the financial resources and personnel that Fresno State dedicates to its men's and women's teams may be obtained from Athletic Media Relations, (559) 278-2509.

The federal Military Selective Service Act (the "Act") requires most males residing in the United States to present themselves for registration with the Selective Service System within thirty days of their eighteenth birthday. Most males between the ages of 18 and 25 must be registered. Males born after December 31, 1959 may be required to submit a statement of compliance with the Act and regulations in order to receive any grant, loan, or work assistance under specified provisions of existing federal law. In California, students subject to the Act who fail to register are also ineligible to receive any need-based student grants funded by the state or a public postsecondary institution.

Selective Service registration forms are available at any U.S. Post Office, and many high schools have a staff member or teacher appointed as a Selective Service Registrar. Applicants for financial aid can also request that information provided on the Free Application for Federal Student Aid (FAFSA) be used to register them with the Selective Service. Information on the Selective Service System is available and the registration process may be initiated online at *http://www.sss.gov*.

Withdrawing from the institution. Students who find it necessary to withdraw from Fresno State after enrolling for any academic term are required to follow the official withdrawal procedures. Failure to follow formal withdrawal procedures may result in the assignment of failing grades in all courses and the need to apply for readmission before being permitted to enroll in another academic term. Information on withdrawal procedures are available from the Evaluations Office, (559) 278-4076.

Prior to withdrawing from the university, students who are receiving financial aid funds must consult with the Financial Aid Office regarding any required return or repayments of grant or loan assistance received for that academic term. If a recipient of financial assistance under federal Title IV financial aid programs withdraws from the institution during a payment period, the amount of grant or loan assistance received is subject to return and repayment provisions governed by federal law.

Travel
into
Tomorrow

Academic Regulations

Academic Regulations

California State University, Fresno is authorized to grant the Bachelor of Arts, Bachelor of Science, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Physical Therapy, Master of Public Administration, Master of Public Health, and Master of Social Work degrees. California State University, Fresno, in partnership with the University of California, Davis, also offers a Doctorate in Educational Leadership (Ed.D.). See *School of Education and Human Development* for public school credentials for which the university is authorized to recommend candidates.

Definition of Key Terms

Additional Requirements. Courses from one or more departments or programs that are required in support of the major. Such courses are not included in the minimum 2.0 grade point average required in the major for graduation and may be waived or substituted at the discretion of the major department or program. Additional requirements normally may be applied toward a minor. Additional requirements may also be applied toward General Education unless specifically prohibited by the major department.

Concurrent Enrollment. The term *concurrent enrollment* is used to describe several different types of enrollment:

1. Open University Enrollment. Nonmatriculated students may enroll in regular California State University, Fresno classes through the Division of Extended Education. (See *Extended Education*.)
2. Concurrent Enrollment at Other CSU Campuses. CSU students may attend two CSU campuses simultaneously. This type of enrollment is not often used by California State University, Fresno students because of the distance to other CSU campuses. (See the registrar for details.)
3. Concurrent Enrollment at a Non-CSU College or University. While enrolled at California State University, Fresno, students may enroll for additional courses at another institution outside the CSU system with the written approval of the student's academic adviser. Such approval must be granted prior to the beginning of classes at the other institution. The courseload in the combined enrollment program may not exceed the maximum unit load restrictions for California State University, Fresno. The completed form must be filed by the end of the first week of instruction at the public contact windows, North Lobby, Joyal Administration Building.

Core. A common set of courses within a major or minor that all students are required to complete.

Double-Counting. Allowing one course to fulfill two separate requirements concurrently; e.g., allowing one course to fulfill both a major requirement and the upper-division writing skills requirement, or allowing one course to fulfill both a major requirement and General Education requirement.

Electives. Courses/units a student selects to complete the total unit requirement for the baccalaureate degree.

Grade Point Average (GPA). The grade point average is a measure of academic scholarship and performance which is computed by dividing units registered into grade points earned. Three separate GPAs are computed:

1. Cumulative GPA for all baccalaureate or postbaccalaureate units by degree objective
2. Cumulative GPA for total California State University, Fresno units
3. GPA for that semester only

A minimum of a *C* average (2.0 GPA) for units in the major, all California State University, Fresno units, and total units is required for a baccalaureate degree. (See *Grade Symbols and Grade Points, Degree Requirements.*) Master's degree students have a higher minimum GPA requirement. (See *Graduate Studies — Advancement to Candidacy, Grade Requirements.*)

Major. Set of required courses from one or more departments designed to provide students with the knowledge, skills, and experiences necessary to pursue a specific career and/or advanced study. A student must earn a 2.0 grade point average in all courses required for the major, except "additional requirements," in order to graduate. Some majors are subject to more stringent grading requirements. (Minimum Title 5 requirements: *B.A. degree* — 24 units of which 12 must be upper division exclusive of General Education; *B.S. degree* — 36 units of which 18 must be upper division exclusive of General Education.)

Minor. The minor consists of a set of required courses from one or more departments or programs. It is less comprehensive than the major. Courses fulfilling requirements for a minor usually may be counted toward General Education. Refer to the description of the specific minor for exceptions. Courses counted toward a minor may not be counted toward a major, except for those major courses designated as Additional Requirements. In the case of double minors, students are allowed to double count some coursework to fulfill both minors. However, each minor must include 12 units, 6 of which are upper-division, that are not a part of the other minor. A minor may be earned only at the time a student earns the first baccalaureate degree.

Option. Set of required courses within a major in addition to the major core courses that emphasizes one important aspect of that school, department, or program.

General Catalog Prerequisite Requirements. Prerequisite courses must be completed prior to enrollment in the listed course; corequisite courses must be completed prior to or concurrently with the listed course. Students who do not meet these requirements may be disenrolled by the instructor or by the university.

Recommended Courses. Courses that the department faculty believe would be beneficial for a student to take but are not mandated or required as part of the major.

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. Also, two hours of activity or studio (art, dance, music, physical education) are normally equivalent to one unit of credit. One quarter unit of credit is equivalent to two-thirds of a semester unit.

Units registered and units allowed are terms that appear on the student's transcript and evaluation. Units registered is the column used for GPA calculation. The units allowed column is used to determine units completed toward the total unit requirement for the degree.

Choice of Catalog

Election of Regulations. An undergraduate student must fulfill degree requirements from one catalog, not the most favorable requirements from two or more catalogs. As long as a student maintains "continuous attendance,"* he or she may elect, for purposes of fulfilling graduation requirements, one of the following:

1. The catalog in effect at the time a student begins attending a California public community college or California State University campus.
2. The catalog in effect at the time a student begins attending California State University, Fresno.
3. The catalog in effect at the time the student graduates from California State University, Fresno.

Continuous attendance is defined as being officially enrolled at least one semester or two quarters during a calendar year regardless of the number of units completed. Also, a student is considered to have been in attendance even if he or she registered and totally withdrew from school during that semester/quarter as long as the official transcript so indicates. Once a student establishes catalog rights in the CSU or California Community College system, he or she may attend any accredited college or university for no more than two years and maintain catalog rights. A planned educational leave maintains a student's continuous attendance status. (See *Planned Educational Leave of Absence.*)

Any break in attendance of one calendar year or longer ends a student's continuous attendance status. This results in the loss of catalog rights to all catalog choices prior to the break in attendance. It should be noted that enrollment in Summer Session, Open University, and extension and correspondence courses does not establish catalog rights nor contribute toward continuous attendance to maintain catalog rights. A loss of catalog rights could result in one or more additional semesters to meet new catalog requirements especially in the major and/or General Education. Once a student graduates, however, all rights to the original catalog are terminated.

Graduate (master's) students fulfill requirements based on an approved advancement to candidacy petition. These requirements are based on departmental and university requirements as published in the current catalog at the time of advancement. Continuous enrollment is likewise defined differently for master's students. (See *Graduate Studies.*)

Transcript Evaluation

Undergraduate transfer students are generally evaluated under the degree requirements listed in the *General Catalog* at the time they enter California State University, Fresno. Transfer students should contact and adviser in their major department for an evaluation of prior coursework.

Upon completion of approximately 90 semester units, students *should request* a senior evaluation from the Evaluations Office. This evaluation shows all requirements completed and any remaining baccalaureate degree requirements. Only one senior evaluation is made for each student. A degree evaluation is completed during the semester a student files for graduation. (See *Graduation and Commencement.*) Students should keep their personal copy current.

All transcripts submitted in support of an application for admission become the property of the Records Office and are not returnable. Students are strongly encouraged to obtain duplicate copies of their records from high school and prior college attendance for their personal file.

Grade Symbols and Grade Points

A — Excellent. Performance of the student has demonstrated the highest level of competence, showing sustained superiority in meeting all stated course objectives and responsibilities, and exhibiting a very high degree of intellectual initiative. (4 grade points per unit.)

B — Very Good.[1] Performance of the student has demonstrated a high level of competence, showing sustained superiority in meeting all stated course objectives and responsibilities and exhibiting a high

*A student may not begin "continuous attendance" while still enrolled in high school.

degree of intellectual initiative. (3 grade points per unit.)

C — Satisfactory.[2] Performance of the student has demonstrated a satisfactory level of competence, showing an adequate level of understanding of course objectives, responsibilities, and comprehension of course content. (2 grade points per unit.)

D — Unsatisfactory.[2, 3] Performance of the student has been unsatisfactory, showing inadequacy in meeting basic course objectives, responsibilities, and comprehension of course content. (1 grade point per unit.)

F — Failure. Fails to meet course objectives. Work at this level does not meet requirements for credit toward a degree. (0 grade points per unit.)

U — Failure — Unauthorized Withdrawal.[4] The symbol *U* indicates that an enrolled student did not complete course requirements and did not properly withdraw from the course. It is assigned when, in the opinion of the instructor, completed assignments or course activities, or both were insufficient to make normal evaluation of academic performance possible. (0 grade points per unit.)

CR — Credit for units allowed, work of *A*, *B*, or *C* quality in undergraduate courses and *A* or *B* quality in 200-level courses. (0 grade points per unit; units allowed for the degree.)

NC — No credit for units registered for, 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. (0 grade points per unit; no units allowed.)

W — Withdrawal after the fourth week of instruction. (Not used in grade point calculation.)

I — Incomplete. Semester requirements at least two-thirds complete with work of passing grade. (Not used in grade point calculation.) See *Incomplete Grade — Explanation*, which follows.

RD — Report delayed. Grade must be cleared before a degree is awarded. (Not used in grade point calculation.)

SP — Satisfactory Progress. Continuing work in progress. (No units allowed and not included in grade point calculation until grade is assigned.)

AU — Audit. Grade indicates student's status as auditor and does not earn degree credit.

Explanation of Grades

Audit Status (AU). Persons wishing to attend classes without matriculating or receiving college credit may register as auditors. Auditors register during the first week of instruction. 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 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. Regular class attendance is expected and the student may be required to participate in any or all classroom activities at the discretion of the instructor. An audited course is not listed on the student's permanent record if the requirements for auditing the class are not met. 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 the current *Schedule of Courses*.)

Credit/No Credit Grading (*CR/NC*). The credit/no credit grading policy at California State University, Fresno 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 credit/no credit 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* is 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 is assigned if the student's work is not equivalent to these standards:

1. General conditions and limitations. Some courses are not available for *CR/NC* grading (see individual course description), while others are designated as available for *CR/NC grading only*. All other courses are available for *CR/NC* grading; however, a student may not enroll in more than 6 units of *CR/NC* graded coursework per semester. 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 Admissions and Records Office.
2. Undergraduate Students. A student may not elect *CR/NC* graded coursework to satisfy requirements for the major unless the courses have been designated *CR/NC only*. A maximum of 24 semester units at California State University, Fresno of *CR/NC* evaluated credit, including all coursework taken *CR/NC only*, may be applied toward the degree.
3. Graduate Students. Credit for coursework earned through *CR/NC* in fall 1978 and in subsequent semesters may not be applied toward the master's degree unless the course has been designated as available for *CR/NC only* by the Graduate Committee. A maximum of 6 units

[1] Master's degree candidates are reminded that a *B* (3.0) average is required in the master's degree program and for all courses (related and unrelated; lower division, upper division, and graduate) taken concurrently with the master's degree program.

[2] Undergraduate students are reminded that a *C* (2.0) average is required for all college coursework completed, all courses taken at California State University, Fresno, and all courses in the major in order to graduate with a baccalaureate degree. Some majors are subject to more stringent grading requirements.

[3] Master's degree candidates are reminded that a *D* is not accepted toward any master's degree program.

[4] A *U* is assigned only for courses graded *A* through *F*. The course can be repeated and the new grade may be substituted for the *U* by petition, except for master's degree students. (See *Repeating Courses*.)

of *CR/NC only* credit may be applied to a 30-unit master's degree program and a maximum of 12 units of *CR/NC only* credit may be applied to a 60-unit program.

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

Incomplete (I). The symbol *I* (Incomplete Authorized) indicates that a portion of required coursework 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. In order to be eligible for an *I* grade, the student must have completed at least two-thirds of the required coursework with a passing grade. It is the responsibility of the student to bring pertinent information to the attention of the instructor before the end of the semester and to determine from the instructor the remaining course requirements that 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 last day of the semester/session during which it was assigned. This limitation prevails whether or not the student maintains continuous enrollment.

Failure to complete the assigned work will result in the *I* being counted as a failing grade for grade point average computation. An *I* grade not made up within one calendar year after the grade has been recorded is changed 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 chair. 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.

A short-term extension of time may be granted with justification by contacting the Office of the Registrar prior to the last day of the second semester/session.

Satisfactory Progress (*SP*). The *SP* symbol is used in connection with courses that extend beyond one academic term. It indicates that work in progress has been evaluated as satisfactory to date but that assignment of a final grade must await completion of additional work. The *SP* may be used only in courses designated on the approved *SP* grade course list published by the Office of the Provost and Vice President for Academic Affairs. Cumulative enrollment in units attempted may not exceed the total number applicable to the student's educational objective.

While completing work on an *SP* or an *I*, graduate students not enrolled in regular session coursework for a letter grade are required to maintain continuous enrollment at California State University, Fresno. This may be accomplished through enrollment in "0" unit GS Continuation. Exception: Graduate students enrolled in Project 298 or Thesis 299 receive an *SP* at the end of the first semester of enrollment and are advised to complete work on the culminating experience during four additional semesters, subject to the five-year overall time limit for completion of all master's degree requirements. In addition, if an *SP* in 298/299 is not replaced by a final grade within two years as recommended, the student's major department may require him or her to reregister for the course. (See *Graduate Studies*.)

Unauthorized Withdrawal (U). The symbol *U* indicates that an enrolled student did not complete course requirements and did not properly withdraw from the course. 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 computation this symbol is equivalent to an *F*. The *U* will not revert to any other grade.

Withdrawal (W). The *W* symbol 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.

Grading Policies and Practices

Grading. Students are expected to complete all requirements for a class by the end of the semester unless an incomplete is permitted by the instructor in accordance with university policy. Students shall not be assigned additional work or be allowed to revise previous assignments in order to improve a final grade.

College Syllabus and Record Keeping. All faculty members shall provide students at the beginning of each semester a syllabus or outline stating course goals and objectives including grading methodology, types and number of projects, written assignments, tests, experiments, etc.

Grade Substitution by Repetition of Courses. An undergraduate student may repeat an undergraduate course at California State University, Fresno. If the original grade was *D*, *F*, *U*, or *I*, and the subsequent grade is the same or higher, the student may request that the new grade be substituted for the original grade. If that substitution is requested and made, only the substituted grade will be used in determining the student's grade point average. If the original grade was *C*, *CR*, or better, or if the subsequent grade is lower than the original grade, or if the student fails to request the substitution, both grades will be used in computing the student's grade point average. Grade substitution can be made only once for each course.

A course in which a grade of *NC* was earned may be repeated but since the *NC* grade does not affect the grade point average, no substitution is necessary.

To substitute a grade by repetition at California State University, Fresno, the student must file a Grade Substitution Petition form with the Admissions/

Records Office Service Windows, Joyal Administration Building, by the last day of the semester/term during which the course is being repeated. Requests submitted after this date will be assessed a late fee.

A course attempted at another institution may be repeated by enrolling in a regular California State University, Fresno course determined by the Evaluations Office to be equivalent. A course for which grade substitution has been granted at another institution may not be repeated for grade substitution at California State University, Fresno. *In addition, a course taken at California State University, Fresno may not be repeated for grade substitution at another institution.*

Postbaccalaureate students pursuing (1) a second baccalaureate degree, (2) a second undergraduate major, (3) a teaching credential, or (4) no specific objective, are also free to repeat a course and request grade substitution on the same basis as undergraduates provided the original course was completed when the student had postbaccalaureate standing.

Postbaccalaureate students pursuing a doctoral or master's degree may, with approval of an adviser, repeat a course for academic credit, regardless of what grade was originally earned in the course. However, the student is not eligible to petition for grade substitution. All course work taken, beginning with the first term of the student's doctoral or master's degree program is used in determining the student's grade point average and graduation eligibility.

For further information, see the *Schedule of Courses* or the Grade Substitution petition form which is available at the public contact windows, North Lobby, Joyal Administration Building.

Academic Renewal. Under certain circumstances, the university may disregard up to two semesters (three quarters) of previous undergraduate coursework taken at California State University, 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 is 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, all of 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 the poor level of work represented by the term(s) under consideration is not representative (see No. 3) of the student's usual academic performance and was due to extenuating circumstances.
3. The student must have completed the following in residence at California State University, Fresno since the most recent work to be disregarded was completed:
   a. 15 semester units with at least a 3.0 GPA or
   b. 30 semester units with at least a 2.5 GPA or
   c. 45 semester units with a 2.0 GPA

   Work completed at another institution cannot be used to satisfy this request.
4. 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, i.e., that the student would have less than a 2.0 grade point average in one or more of the following:
   a. Cumulative collegiate coursework
   b. All California State University, Fresno coursework
   c. Coursework required for the major
5. This policy may not be used in concert with any other academic forgiveness policy impacting particular academic term(s).

For further information or to apply for academic renewal, contact the Admissions Office, (559) 278-2191.

Planned Educational Leave of Absence — Undergraduate Degree-Seeking Students. 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 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 and later resume studies with a minimum of procedural difficulty. A student who is approved for a planned leave will be considered a continuing California State University, Fresno student. A student with an undergraduate degree objective may, therefore, enroll for classes at the end of an approved leave without reapplying for admission and may continue at California State University, Fresno without changing graduation requirements.

Since an approved leave does not affect time requirements for completion of a credential or master's degree, a planned leave — normally — does not apply to students seeking such objectives.

Planned educational 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 appropriate admissions official, contributes to his or her educational goals and objectives.
2. The request must be for a specific period of time which shall not exceed four consecutive semesters.
3. The student must plan to return to California State University, Fresno at the conclusion of his or her leave.

The following regulations apply to the planned educational leave:

1. A student currently 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 student. Planned educational leaves are granted for up to four consecutive semesters.
3. International students must be recommended by the director of international student services and programs; 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. Leaves are not approved for students in disqualified status or on contract to remove academic deficiencies.
6. It is expected that a student will devote his or her leave primarily to nonclassroom activities. A leave is not approved if the student plans to attend another institution, unless the coursework the student seeks is not available at California State University, Fresno. Any academic credit earned while on a planned educational leave is accredited by California State University, Fresno only if permission is granted for that credit in advance by the admissions officer.
7. 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 California State University, Fresno.

Students wishing to apply for a planned educational leave should obtain a request form from the admissions officer, Joyal 106, (559) 278-2191.

Student Academic Petitions. The Student Academic Petitions Committee has the authority to permit exceptions to university baccalaureate degree requirements when fulfilling the degree requirement would prove to be an undue hardship for the student and/or such an exception can be demonstrated to be educationally justifiable. The committee will take action only upon the submission of a formal petition by the student that sets forth the facts and circumstances that may warrant special consideration.

The Petitions Committee does *not* make decisions pertaining to substitutions for undergraduate and graduate major requirements. Such requests are initiated through the student's department. Requests to waive established university policy governing graduate study may be addressed to the dean, Division of Graduate Studies. If a request cannot be accommodated, it is forwarded to the Graduate Committee.

Grade Protests. The Student Academic Petitions Committee also has the responsibility of handling grade protests for all students, undergraduate and postbaccalaureate. Students, who believe they have been graded unfairly or incorrectly by an instructor, should consult first with the faculty member concerned within the first 15 working days of the following semester and make every effort to resolve the issue. (On many occasions when students contact the instructor about a grade thought to be assigned unfairly, they learn that the instructor actually made a recording error. This will be remedied when the instructor obtains a Grade Correction Request form from the departmental secretary and submits the completed form to the Admissions and Records Office.)

If the issue is not resolved, students should then consult with the department chair. If a student still believes that the grade was assigned unfairly or incorrectly after completing this process, the student then may request that the Student Academic Petitions Committee review the issue. Before requesting such a review, students should make an appointment with an academic counselor in the Office of Advising Services (Joyal, Rm. 224; 278-1787) to discuss their particular situation and to receive a copy of the university's grade protest policy as well as additional procedural instructions.

Students then must submit a written statement no later than midsemester setting forth all pertinent details to the director of Advising Services, who chairs the Petitions Committee.

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 for undergraduate and postbaccalaureate students without a master's degree objective. Graduate (master's degree) students must maintain at least a *B* average.

A student (undergraduate, postbaccalaureate or graduate) whose grade point average falls below the satisfactory scholarship level is placed on probation and is disqualified if the grade point average falls below probation levels. (For details see the copy that follows.) Only the most recent probation or disqualification action appears on the student's transcript.

Probation. Undergraduate students are placed on academic probation, a type of academic warning, for the following:

1. Their grade point average (GPA) based on total units attempted at all colleges is below a 2.0 (*C* average) or
2. Their GPA based on all units attempted at California State University, Fresno is below a 2.0 average.

Students remain on academic probation until both overall and California State University, Fresno grade point averages are 2.0 or better, or until they are disqualified under one of the provisions of the disqualification regulations.

For example, a first semester freshman would be placed on probation if he/she carried 12 units (four 3-unit classes) and earned one *B*, two *C*s, and one *F*. A student would then have to earn three *C*s and one *B* or better (in four 3-unit classes) the following semester to regain satisfactory scholarship status.

These regulations also apply to all postbaccalaureate students except those enrolled in master's programs. The latter are expected to maintain a cumulative GPA of at least 3.0 in all units attempted subsequent to admission to the master's program. Master's students who fall below the required GPA are placed on probation.

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 that is routine for all students or for a defined group of students.

Disqualification. Students are disqualified if they are on probation and fail to meet the assigned scholarship contract or if they have a cumulative deficiency on

either the overall or California State University, Fresno record equal to or greater than that indicated in the copy that follows.

- 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
- Postbaccalaureate students: 6 grade point deficiency on postbaccalaureate units

For example, new transfer juniors are academically disqualified if they carried 12 units (four 3-unit classes) and earned two *C*s, one *D*, and one *F*. If readmitted, students then would have to earn one *B* and three *C*s (in four 3-unit classes) the next semester to be removed from academic disqualification and be placed on probation, or three *B*s and a *C* or better (in four 3-unit classes) to regain satisfactory scholarship status. The best way to regain satisfactory scholarship status is to repeat classes at California State University, Fresno in which the student previously earned *D*, *F*, or *U* grades, and petition to have the new grade substituted for the prior grade. Disqualified students also are advised to take light unit loads in attempting to bring up their GPA.

Graduate (master's) students are disqualified if their grade point average on either the overall or the California State University, Fresno postbaccalaureate record is equal to or greater than six grade points below a *B* (3.0) GPA.

Students placed on administrative-academic probation may be disqualified for the following reasons:

1. If they fail to meet the conditions for removal of probation,
2. Become subject to academic probation while on administrative-academic probation, or
3. Again become subject to administrative-academic probation for the same or similar reasons.

Readmission of Disqualified Students — Undergraduate and Graduate

Students placed on academic disqualification at the end of a semester must be readmitted to attend the subsequent semester.

An information letter advising disqualified students of their options is mailed when semester grades are available.

The assigned date and time to call, indicated in Telephone Registration materials, will be invalidated when students are academically disqualified. However, if students are readmitted they will be eligible to participate in telephone registration on or close to their original assigned date and time to call.

Undergraduate. Disqualified California State University, Fresno students who have been away one semester or longer must submit an application for readmission in addition to the appropriate petition approved by an academic adviser. Students readmitted under a special disqualification "probation" contract must fulfill the terms of that contract or again face disqualification. Contact (559) 278-2191 for more information.

Postbaccalaureate/Graduate. Disqualified postbaccalaureate students who have been away one semester or longer must submit an application for readmission and schedule an advisement interview in the Division of Graduate Studies, Thomas Administration Building, Room 132. Additionally, students who seek a master's, second baccalaureate, or credential are asked to obtain the recommendation of the department/program to which they seek readmission. Students who are undeclared must have the approval of the dean of graduate studies to be readmitted to the university.

Transcripts and Reports

Transcript of Record. Students may request transcripts of their academic records at California State University, Fresno with payment in advance. The fee is $4 for the first copy and $2 for each additional copy (2-10) ordered at the same time. California State University, Fresno transcripts are not provided to students with admission holds, unpaid financial obligations, or other administrative holds as determined by university officials. Transcripts of records from other institutions submitted to California State University, Fresno are not returned to students.

Reports to Students. An Enrollment mailer will be sent to students before instruction begins and the third week of each fall and spring semester. Students may call and get grades via the telephone at the end of each regular semester. For a nominal fee, students may request a copy of their grades at the Admissions/Records service windows, North Lobby, Joyal Administration Building.

Enrollment in Graduate-level (200-297) Courses

Enrollment in graduate-level (200-297) courses is limited to those who have been officially admitted to a graduate degree, advanced certificate, or credential program. However, there is a special program for last-semester undergraduate seniors who want to enroll in 200-level courses. All criteria listed on the *Undergraduate Petition to Enroll in Graduate (200-level) Courses* must be met. This petition, available from the Division of Graduate Studies, should be filed prior to the semester in which the student desires enrollment in 200-level course(s).

Classification of Students

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.

Postbaccalaureate/Graduates — Students who have at least one 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. This university grants credit toward its undergraduate degrees for successful completion of examinations of the Advanced Placement Program of the College Board. Students who present scores of three or better are granted from 3 to 6 semester units of college credit for each examination. In order to receive credit for these examinations from this university, students must request an official copy of their test results directly from the College Board.

Credits earned through advanced placement are not included among the maximum of 30 units of credit by examination that may be credited toward a bachelor's degree.

International Baccalaureate. Credit is granted for International Baccalaureate Higher Level examination passed with a score of 4 or higher. Contact the Evaluations Office, Joyal Administration Building, Room 115, for further information.

English Placement Test. Unless exempt according to CSU policy, all students enrolling at California State University, Fresno must take the EPT after admission and prior to enrollment. A passing score on the EPT is defined as earning a minimum total score of 151 or a minimum essay score of 8. Exemptions from the test are given only to those students who present proof of one of the following:

- a score of 550 or above on the verbal section of the College Board SAT I* Reasoning Test taken on or after April 1, 1995
- a score of 470 or above on the verbal section of the College Board SAT I* Reasoning Test taken between March 1994 and March 1995
- a score of 470 or above on the verbal section of the College Board Scholastic Aptitude Test (SAT) taken prior to March 1994.
- a score of 24 or above on the enhanced ACT English Test taken October 1989 or later
- a score of 22 or above on the American College Testing (ACT) English Usage Test taken prior to October 1989
- a score of 680 or above on the re-centered and adjusted College Board SAT II: Writing Test taken May 1998 or after**
- a score of 660 or above on the College Board SAT II* Writing Test taken prior to January 1994
- a score of 3, 4, or 5 on either the language and composition or the composition and literature examination of the College Board Scholastic Advanced Placement program
- a score on the CSU English Equivalency Examination that qualifies the student for "Pass for Credit" or "Exemption"
- completion and transfer of a course that satisfies the General Education — Breadth or Intersegmental General Education Transfer Curriculum (IGETC) written communication requirement, provided such course was completed with a grade of *C* or better

Students who cannot demonstrate basic competence on the EPT exam are required to enroll in ENGL A or, if they are nonnative speakers of English, in the E S L 20-30 series. ENGL A must be completed with a credit grade by the end of the first year of enrollment.

Entry-level Mathematics Exam. The ELM examination tests students for entry-level mathematics skills acquired through three years of rigorous college preparatory mathematics coursework (normally Algebra I, Algebra II, and Geometry).

Unless exempt according to CSU policy, all students enrolling at California State University, Fresno must take the ELM after admission and prior to enrollment.

Students may qualify to take the General Education required quantitative reasoning course by taking and passing the ELM examination with a score of 550 or higher.

* The College Board SAT and Achievement Tests were replaced by SAT I and SAT II, respectively, beginning March 1994. Beginning April 1, 1995, the SAT I and SAT II exams have been scored on a new scale.

** Beginning in May 1998, SAT II: Writing Test scores were increased about 10 to 20 points. The adjustment was made to make writing test scores more comparable to scores on other SAT II subject tests. Although scores are higher, their relative rank compared to scores for tests taken before May 1998 remain the same.

ADVANCED PLACEMENT TESTS

The most commonly passed Advanced Placement Tests and equivalent courses are as follows:

Test	Score	Units	Subjects
American History	3,4,5	6	HIST 11, 12
Computer Science AB	3,4,5	6	C SCI 40*
English Lit/Comp	3,4,5	6**	ENGL 1, 20
English Lang/Comp	3,4,5	6**	ENGL 1, 2
Math Calc AB	3,4,5	6	MATH 75***
Math Calc BC	3,4,5	6	MATH 75, 76
U.S. Gov't & Politics	3,4,5	3	Pol Sci Elective

* Remaining 2 units in lower-division Computer Science electives.
** If English Lit/Comp and English Lang/Comp are passed, then a maximum of 9 units is allowed for ENGL 1, 2, and 20.
*** Remaining 2 units in lower-division Mathematics electives.

Official scores may be obtained from:
Advanced Placement Examination
P.O. Box 6671
Princeton, NJ 08541-6671

For more information, contact the Evaluations Office, Joyal Administration Building, Room 115.

Lower-division students entering California State University, Fresno must complete the General Education quantitative reasoning requirement by the end of their fourth semester of enrollment or the completion of 60 units, whichever comes later. Students who are making serious and consistent effort to comply may be given extensions. Students who do not meet this requirement or receive extensions will be ineligible to enroll after the completion of 60 units.

Specific policies regarding retesting and placement will be determined by the campus. Exemptions from the test are given only to those students who can present proof of one of the following:

- a score of 550 or above on the mathematics section of the College Board SAT I Reasoning Test or on the College Board SAT II Mathematics Tests Level I, IC (Calculator), II, or IIC (Calculator)
- a score of 23 or above on the American College Testing Mathematics Test
- a score of 3 or above on the College Board Advanced Placement mathematics examination (AB or BC)
- a score of 3 or above on the College Board Advanced Placement Statistics examination
- completion and transfer of a course that satisfies the General Education — Breadth or Intersegmental General Education Transfer Curriculum (IGETC) quantitative reasoning requirement, provided such course was completed with a grade of *C* or better

EPT and ELM. These tests must be taken after admission and prior to enrollment.

It is the students' responsibility to confirm exemption from either the EPT or ELM exam by completing the appropriate Request for Exemption form available at the Admissions/Records service windows, North Lobby, Joyal Administration Building. The Learning Resource Center, Reentry Center, and Mathematics Department offer options for preparing for the ELM.

Information bulletins and registration materials for the EPT and ELM may be obtained from the Office of Admissions/Records or Testing Services.

Credit by Examination. California State University, Fresno grants credit to those undergraduate students who pass examinations that have been approved for credit systemwide. These include the Advanced Placement Examination and some CLEP examinations.

Students may challenge our 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 regularly enrolled students to seek college credit in courses in which they have competence but for which credit has not been earned by the usual academic processes. This permits students to accelerate their progress and provides an opportunity for wider selection of coursework. The following procedures should be followed:

1. With the concurrence of the department, students may apply for credit by examination in any course in our current *General Catalog* for which they appear to be reasonably qualified by training or experience and for which college credit has not been previously allowed. Credit by examination is not awarded if credit has been granted for previous coursework more advanced than the level represented by the examination in question. Credit by examination is not allowed in courses in which students have been permitted to register as auditors during the same semester, in which students have received a failing or no credit grade, or in which they have unsuccessfully sought credit by examination.
2. Students enroll for credit by examination at any time during the first two weeks of classes. Students must be regularly enrolled in other courses before they are 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 must be completed by students and approved by the respective departments.
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 students request credit by examination is so designated on their record. If passed, students receive a credit (*CR*) grade. If they are unsuccessful, no grade is reported. Units earned count toward all appropriate requirements but are not used in computing their GPA.
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.

Credit earned by examination *does not meet the residence requirement of the university.* For further information, consult the department concerned. See also *Advanced Placement* on page 81.

Graduate Students. Credit by examination for coursework may be used to fulfill prerequisites only and may not be applied toward the total units required for a master's degree.

Independent Study. Independent study is offered to give students experience in planning and outlining a course of study on their 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). In addition, some departments have a lower-division course (90) and/or a graduate-level course (290).

To be eligible for independent study, students should have an overall grade point average of 3.0 or higher. This requirement may be waived in exceptional cases, when approved by the department chair. Maximum credit of 6 units in independent study courses is allowed toward the bachelor's degree, and maximum credit of 6 units in independent study courses may be approved for use toward a 30-unit master's degree. Such credit is limited to a maximum of 3 units per semester. Under extraordinary circumstances more than 3 units per semester may be allowed on petition to the department chair.

Eligible students desiring to register for independent study must first obtain the consent of an instructor, who will guide the project, and the chair of the department in which the course is given. Students must register for independent study courses during the regular registration period in the same manner as they register for any other course at the time of registration.

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

Certain special regulations concerning enrollment in independent study courses during a summer session can be found in the *Summer Session Catalog*.

Credit for Noncollegiate Instruction. This university grants undergraduate degree credit for successful completion of noncollegiate instruction, either military or civilian, that has been recommended by the Commission on Educational Credit and Credentials of the American Council on Education. The number of units allowed are those recommended in *A Guide to the Evaluation of Educational Experience in the Armed Services* and the *National Guide to Educational Credit for Training Programs.*

Credit for Military Service Course/ Work. A lower-division elective credit is given for recruit training for initial entry into the service providing the student was on active duty for at least one year and one day. Credit given varies depending on the branch of service and date of entry. An applicant for credit must submit a copy of *Notice of Separation* (DD214) to the Evaluations Office.

DANTES (Defense Activity for Non-Traditional Educational Support) maintains the educational records of the servicemen and women who have completed SSTs (Subject Standardized Tests), CLEP (College Level Examination Program) examinations and GED tests. DANTES has also maintained USAFI (United States Armed Forces Institute) transcripts since that organization ceased to exist in 1974.

College credit is awarded for acceptable SST scores as recommended by DANTES. Equivalency for SST credit is determined by our departments. Other credits recommended by DANTES (CLEP, etc.) must meet university guidelines for the awarding of credit for those examinations. DANTES/USAFI correspondence credit is combined with other extension or correspondence coursework to a maximum of 24 semester units.

Additional credit is granted for military courses listed on page 211 as recommended in *A Guide to the Evaluation of Educational Experiences in the Armed Services*. A maximum of 30 units is allowed for military credit.

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, this university awards credit for successfully completed CLEP examinations. Such credit is applied to the total units required for the baccalaureate degree, but it is not 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. Credits earned through CLEP are included among the maximum of 30 units of Credit by Examination that may be credited toward a bachelor's degree. For additional information, call Testing Services, (559) 278-2457.

English 1 — Challenge by Examination. Students who want to challenge English 1 CBE may do so only by taking a challenge examination offered by our English Department or the Advanced Placement (AP)-Language and Composition or AP-Literature and Composition tests. AP exams are available only to enrolled high school students, but college students may take the California State University, Fresno examination. For information on our examination call the English Department, (559) 278-2553, or Testing Services, (559) 278-2457.

Students who pass AP-Language and Composition earn 3 units in English 1 and 3 units in English 2. Students who pass AP-Literature and Composition earn 3 units in English 1 and 3 units in English 20. Students passing our examination earn 3 units in English 1.

Upper-Division Writing Examination. The UDWE is administered by the university and may be used to satisfy the upper-division writing skills requirement. One unit of credit may be granted (ENGL 100W) to registered undergraduate students upon request. This unit may be applied toward the 40 upper-division unit degree requirement and total units for the baccalaureate degree but cannot be applied toward the 30 residence unit degree requirement or for postbaccalaureate credit. University registration deadlines must be adhered to. English 1 is a prerequisite to taking the UDWE. For details, call Testing Services, (559) 278-2457.

Degree Requirements

Baccalaureate Degree Requirements

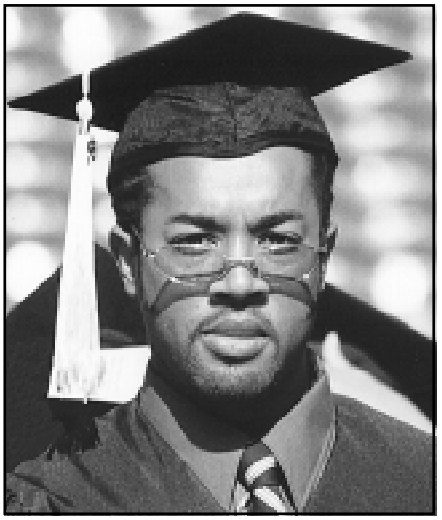
A student must complete the following requirements in order to earn a Bachelor of Arts or Science degree. Requirements are described in detail in the latter part of this section. Most students accumulate a combination of units in the major, General Education, and nondesignated electives in order to fulfill the requirements of a baccalaureate degree. These requirements are fulfilled when a student successfully completes:

1. a minimum of 124 semester units (most B.S. degree programs require 128 or more units)
2. an academic major
3. General Education requirements
4. specific course/skill requirements:
   a. English Composition (English 1 or equivalent)
   b. United States History (History 11 or 12)
   c. United States and California Constitution (Political Science 2 or 101)
   d. Upper-division writing skills
5. a minimum of 30 residence units, of which 24 must be upper-division, 12 in the major, and 9 in General Education
6. a minimum of 40 upper-division units
7. a minimum of a *C* average for units in the major, all California State University, Fresno units, and total units

To receive the degree, a student files an application for graduation obtained from the Office of Evaluations after paying the graduation fee at the cashier's window in the Joyal Administration Building by one of the published deadlines.

Dual (Concurrent) Major Requirements

Undergraduate students may desire to complete the requirements for more than one major at the time of completion of the baccalaureate degree (i.e., graduate with a dual major). When students apply for graduation, they must designate which is the primary degree major. Minimum requirements and exceptions for dual majors are as follows:



- Dual B.A. majors must include a minimum of 24 units exclusive of the other major, 12 of which must be upper-division.
- Dual B.S. majors must include a minimum of 36 units exclusive of the other major, 18 of which must be upper-division.
- Units may be double-counted for both majors above 24 mutually exclusive units (12 upper-division) in B.A. programs and 36 units (18 upper-division) in B.S. programs.
- Courses in General Education may be used to fulfill secondary major requirements.
- Students may not earn a special major as a dual major.

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. Also, students may not earn a special major as a dual major, and postbaccalaureate students are not eligible to earn a special major at the baccalaureate level.

The special major must be approved in the Office of the Provost and Vice President for Academic Affairs, with approval based upon a case-by-case justification. Candidates 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 45 units at least 30 units of which must be upper-division work. Units applied to General Education requirements may not be counted. Also, a maximum of 6 independent study units may be included in the special major program. Any exception to this limit must be approved in writing by the provost and vice president for academic affairs upon written recommendation by the special major adviser prior to registration for the additional units.

Students requesting a special major must obtain application forms from the Office of Advising Services. On these forms students must:

1. prepare a statement giving their reasons for desiring a special major in terms of academic and professional goals and why these goals cannot be met through a standard major
2. develop a specific list of courses which would, in their opinions, lead to the stated academic and professional goals
3. secure the signed approval from the Office of Advising Services, as well as from the special major adviser and department chair in the areas from which the special major courses are drawn

Students must submit the foregoing material to the Office of the Provost and Vice President for Academic Affairs for final approval.

Residence Requirements

The residence requirement for the baccalaureate degree specifies that 30 units shall be earned in residence at the campus granting the degree. Twenty-four of these units shall be earned in upper-division courses, 12 of the units

shall be in the major, and 9 units shall be in General Education. The residence requirement for graduate students is 21 units.

Extension credit and credit by evaluation, including credit by examination, may not be used to fulfill the residence requirements.

Specific Course/ Skill Requirements

English Requirement. English 1, Composition, or its equivalent is a university graduation requirement that should be completed before the end of the fourth semester of university attendance. (A grade of *C* or *CR* is the minimum acceptable grade to satisfy this requirement.) The English Placement Test does not substitute for English 1. See *English Placement Test* for test scores prerequisite to enrollment in English 1.

U.S. History and Government Requirements. Undergraduate and second baccalaureate degree candidates must demonstrate competence with respect to the Constitution of the United States, American history, and in the principles of state and local government of California in order to graduate. This may be done by passing examinations or by completing History 11 or 12 and Political Science 2 or 101. (In cases in which students have completed the federal government requirement, Political Science 102 [1 unit] will fulfill the California government requirement.) (*See History Department — American History Requirement*, *Political Science Department — United States Constitution Requirement,* and *General Education* .)

Upper-Division Writing Skills (UDWS) Requirement. All undergraduate and second baccalaureate degree candidates must demonstrate competency in writing skills at the upper-division (junior-senior) level as a requirement for graduation. Students may meet this requirement in one of two ways no sooner than the term in which 60 units are completed:

1. Passing the Upper-Division Writing Examination (UDWE) composed of both an essay and an objective component. This examination is given several times each year, including once before the beginning of each semester. Students are permitted to take the examination a maximum of two times. Upon successful completion of the UDWE, undergraduate students may request 1 unit of credit (ENGL 100W), which may be posted to their transcripts the same semester in which the UDWE was passed. For details, call Testing Services, (559) 278-2457.
2. Obtaining a *C*, *CR*, or higher grade in an approved upper-division course at this university. Approved courses can be identified in the catalog and *Schedule of Courses* by the letter *W* (e.g., ENGL 160W, IS 105W). English Composition (ENGL 1) is a prerequisite to any *W* course.

It is imperative that the UDWS requirement be met no sooner than the term in which 60 units of coursework are completed. The UDWS requirement cannot be fulfilled by a class or test taken outside of The California State University system and cannot be satisfied at a CSU campus at which the student has not matriculated.

The UDWS requirement is not part of the General Education requirement. Passing the UDWE does not exempt students from taking a *W* course if it is required in their major, e.g., PLANT 110W.

Graduate students should consult *Graduate Studies* regarding the graduate-level writing proficiency requirement.

Remedial Courses. Students admitted to a CSU campus are expected to possess basic competence in the English language and mathematical computation. Students who require remediation should be placed in remedial classes during their first term of enrollment and should demonstrate proficiency by the end of the first academic year. Such remedial courses are designated by the letter *R* following the course number, except English A. Credits earned in remedial courses cannot be used to satisfy degree requirements. (See *Learning Resource Center*.)

Unit Limitations

The following unit limitations apply to all bachelor's degrees:

1. A maximum of 70 transferable semester units (105 quarter) is allowed from two-year institutions (community/junior colleges).
2. A maximum of 8 semester units of Kinesiology (P.E.)/Dance Techniques/Athletics activity is allowed. (Kinesiology and dance majors may have credit for 12 semester units.)
3. A maximum of 12 semester units is allowed for work experience/internship/agricultural projects. (A maximum of 6 semester units may transfer into the university. A maximum of 6 semester units of the 12 is allowed in agricultural projects.) All *work experience* and *internships* are graded on a credit/no credit basis.

4. A maximum of 24 semester units at California State University, Fresno is allowed for *CR/NC* grading, excluding Credit by Examination. (See *Credit/No Credit Grading* for other limitations.)
5. A maximum of 30 semester units is allowed for Credit by Examination (excluding Credit for Advanced Placement Examination).

6. A maximum of 24 semester units is allowed for credit through Extension and/or correspondence coursework.
7. A maximum of 6 semester units is allowed for independent study coursework.
8. A maximum of 6 semester units is allowed for coursework in typing/keyboarding.
9. A maximum of 30 semester units is allowed for military service and/or education.

Second Baccalaureate Degree or Undergraduate Major Requirements

Postbaccalaureate students (i.e., those who already hold a bachelor's degree) may pursue a program leading to an additional baccalaureate *degree* or undergraduate *major*. Students are urged to consult with a departmental adviser and with the Division of Graduate Studies to determine whether a second baccalaureate or graduate program better meets their needs.

1. Postbaccalaureate students seeking an additional undergraduate *degree* must complete the following requirements:
   a. a minimum of 30 units in residence at California State University, Fresno since completion of the most recent degree, including 24 upper-division units
   b. at least 12 units in the major in residence at this university since the last baccalaureate degree. (Departments may set higher requirements.)
   c. all state and university requirements for that degree, including English 1, General Education, United States Constitution and California state and local government, American history, and the upper-division writing skills requirement. (These requirements may be met by courses taken in the students' undergraduate programs.)
   d. 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. Graduate-level courses (200 series) may not be applied toward the requirements for a second baccalaureate degree or additional undergraduate major.
   e. completion of 40 upper-division units taken since the most recent degree was granted
   f. filing of an undergraduate degree application and payment of graduation fee. (See *Graduation*.)
2. Postbaccalaureate students seeking an additional undergraduate major must complete items *b* and *d*. The transcript will indicate that all coursework for the additional major has been completed. Students pursuing a second baccalaureate *degree* or additional undergraduate *major* cannot select the catalog used for the initial undergraduate degree. If students do not remain in continuous attendance, the requirements will be those in effect at the time they reenter the university or complete their programs. (See *Choice of Catalog*.)
3. Postbaccalaureate students may not earn a minor or a second minor.
4. Second baccalaureate students are not considered for university honors.

Postbaccalaureate Credit

Upper-division and/or graduate-level units earned at Fresno State in the semester or summer session in which the bachelor's degree is granted are automatically listed on the student's permanent record as postbaccalaureate credit with the following exceptions:

1. Provided the courses are not needed for the bachelor's degree
2. Provided the student is neither on academic probation nor academic disqualification at the beginning of the final term
3. Provided the units are not in excess of stated maximum limitations (e.g., 6 units of independent study)

In addition, 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 baccalaureate and postbaccalaureate programs; use of such credit for graduate degrees at California State University, Fresno requires special approval and is limited to one-third of the total units required in a graduate degree program. (See *Graduate Studies — Advancement to Candidacy*.) Only students with graduate standing may enroll in the following courses: 290, 298, 299. (See *Graduate Studies — Criteria for Thesis and Project*.) Use of postbaccalaureate credit for other purposes is to be determined by the appropriate authority.

Graduation

Students who anticipate meeting bachelor's degree requirements by the end of a term should obtain and file a completed application for a degree (with appropriate fees) with the Evaluations Office within the first two weeks of that term. The Graduate Office processes graduate degree applications. See *Academic Calendar* for filing dates and deadlines. Failure to apply before the final deadline will delay the granting of the degree.

The Evaluations Office checks students' applications for bachelor's degrees and reports to them regarding eligibility for the degrees. Degrees are not awarded to students with *I* or *RD* grades remaining on their records. Students receiving *I* grades during the final year that have not been completed (or changed to *F* grades) by the appropriate clearance deadline will not be considered for graduation that semester and must reapply for the degree. (See *Incomplete*, page 76 and 77.)

In order to be eligible for graduation, students must:

1. Submit an application for the degree and pay the graduation fee
2. Have been approved for graduation by the faculty
3. Have completed with appropriate scholastic standing all courses required for the degree. (Graduates receive their official diplomas by mail.)
4. Have filed official transcripts for all coursework attempted prior to graduation

It is the responsibility of students to be sure that all requirements have been met and that documentation has been filed with the Evaluations Office, or Graduate Office, by the appropriate deadlines. No additions, deletions, or changes to students' records are permitted after the degree has been recorded.

Honors at Graduation. Honors at the time of graduation from the university are awarded to undergraduate students based on the following criteria:

1. Students must have an overall minimum grade point average of 3.5 on all work attempted.
2. Students must have a minimum grade point average of 3.5 on all work taken at the university.
3. Students must have completed 45 units in residence at California State University, Fresno.

The grade point average earned at California State University, Fresno determines which honors the student receives:

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 *General Catalog* for the criteria in effect at the time of graduation.

A Four-Year Graduation Plan

California State University, Fresno pledges that a first-time freshman student may attain the baccalaureate degree in four years when a student follows the provisions and regulations outlined in the copy that follows.

To facilitate students' graduation goals, California State University, Fresno extends to qualified students the opportunity to engage in a formal partnership that assures timely completion of a degree. Students enrolling in the university's Degree Guarantee Program are pledged certain advantages that will facilitate progress toward the degree. Among these advantages:

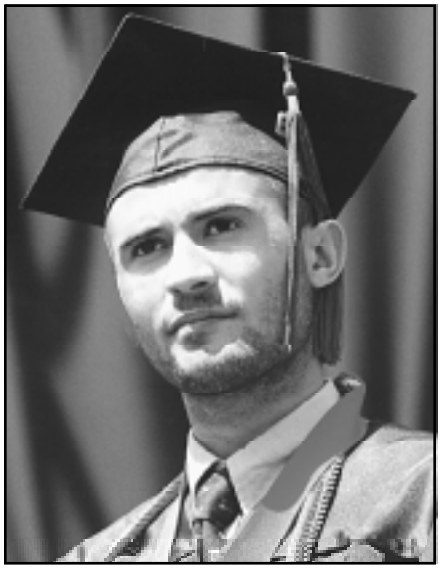
1. Guaranteed Course Availability. Students enrolled in the Degree Guarantee Program will be provided all courses specifically required for completion of their degree and major as described in the *General Catalog* and as articulated in the "Four-Year Program of Study" developed with their Degree Guarantee Program advisers.
2. Specialized Advising. Students will be eligible for advising every semester from specially designated Degree Guarantee Program advisers in their respective major departments (or, for undeclared majors, in the Office of Advising Services).
3. Highest Level Priority Registration. Students will not have their academic progress or graduation impaired by a lack of space in essential courses.

The Degree Guarantee Program is a partnership. Students share in the responsibility for timely graduation. To obtain a degree in four years, students must fulfill the following conditions:

1. Advisers. Students must meet with their designated Degree Guarantee Program adviser every semester beginning in the first semester of their freshman year for the purpose of:
   a. reaching agreement on/or updating their Four-Year Program of Study,
   b. considering available course offerings in relation to pertinent graduation requirements, and
   c. confirming academic progress toward timely graduation.
2. Four-Year Program of Study. The program is a plan designed in consultation with a designated Degree Guarantee Program adviser to ensure completion of all degree requirements within four years. The Four-Year Program of Study form must be signed jointly by the student and the adviser and placed on file in the department that offers the student's major (or temporarily, for undeclared majors, in the Office of Advising Services).
3. Entry Level Math (ELM) and English Placement (EPT) Tests. Unless exempted, students must have taken these exams during the senior year of high school or the summer prior to enrollment as a freshman. Scores must be at a level that allows the student to enroll in college level coursework. Students who require remedial and/or developmental courses prior to enrollment in college level courses will require independent assessment as to eligibility for Degree Guarantee Program enrollment. Consult the current *Schedule of Courses*, i.e., the section on "Special Requirements and Tests" for guidance and dates.
4. General Education and University Requirements. Students must fulfill in a timely manner all General Education and university requirements articulated in the *General Catalog* for their year of

entry. Students not able to obtain their preferred course and/or their preferred section (days and hours) must be flexible in selecting available alternatives to maintain degree progress.

5. Major. Students should select a major during the freshman year (unless advised otherwise) and must seek advising from the designated California State University, Fresno Degree Guarantee Program adviser in their major department so that degree obligations can be met. In many instances, changes of major will delay the completion of a degree. Students entering with an undeclared major should seek advising from the Office of Advising Services. Students must be sure all prerequisite courses, including "Additional Requirements to the Major" are accounted for in the student's academic plan for graduation (see *Four-Year Program of Study*, number 2, *Specialized Advising*).
6. Minor. Minors can be highly desirable and must be carefully planned in close cooperation with a Degree Guarantee Program adviser. Pursuit of a minor may require an increased total unit load.
7. Unit Load. Students must take a minimum of 12 units per semester (the minimum required to be a full time student) and complete an annual average of units appropriate for their degree program.
   a. 124 Unit Programs. Students must complete an average of 31 units per year (which could include Winter and Summer sessions) to finish in four years.
   b. 128-132 Unit Programs. Students must complete an average of 33 units per year (which could include Winter and Summer sessions) to finish in four years.
   c. Programs Exceeding 132 units. In addition to an annual average of 33 units, students in these majors will be required to complete 3 to 7 additional units sometime during their four years of study.



8. Grade Point Average (GPA). The cumulative GPA, the cumulative California State University, Fresno GPA, and the GPA in a student's major all must be at or above 2.0. Students electing to repeat courses for purposes of grade substitution to improve their GPA must do so over and above the minimum articulated annual unit requirements if they expect to complete their Degree Guarantee Program within the originally planned time. *Academically disqualified students may not be able to complete their Degree Guarantee Program in four years.*
9. Registration and Fees. Students will use STAR (telephone registration) at the appropriate time window and will pay fees by the required deadlines.
10. Course Enrollment. Students will enroll and attend California State University, Fresno at those times (including evenings and weekends) when courses are offered and available. Prior approval by the student's designated Degree Guarantee Program adviser is required before registering at another institution for courses intended for transfer to California State University, Fresno.
11. Financial Aid. If eligible for assistance, students must meet the appropriate deadlines each year and meet all academic progress requirements.
12. Senior Evaluation. Students must request a "Senior Evaluation" from the Office of Evaluations upon completion of 90 or more units to ensure readiness for graduation as planned.
13. Degree Filing. Students must file their application for graduation and pay the related fees by the university deadline.
14. Accountability. Students must comply with all administrative, judicial, and academic policies and procedures as well as all aforementioned conditions of the Degree Guarantee Program.

Noncompliance with any of the conditions 1 through 14 may result in voiding the student's enrollment in the Degree Guarantee Program and the university's pledge to award the student a degree within four years. Nonetheless, it is understood that all degree requirements still must be met before the university is able to award a degree.

Enrollment in the California State University, Fresno Degree Guarantee Program is initiated by a student filing an application. Signing of this application by a student, his or her designated Degree Guarantee Program adviser, major department chair, and college/school dean confirms their mutual understanding of the respective obligations of the student/university partnership required for the achievement of a degree in four years.

Additional information about the Degree Guarantee Program may be obtained by contacting the assistant to the provost for special projects at (559) 278-4775.

Commencement

Commencement is held annually at the end of 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. For additional information, see *Kennel Bookstore*, *Student Life*, and/or *the Office of the Vice President for Student Affairs and Dean of Students.*

Certificates

Many students want to study areas not covered by traditional degree programs to increase professional competence, to acquire paraprofessional training, to change careers or to promote personal enrichment. A baccalaureate or master's degree, or second baccalaureate or second major may be inappropriate for them, yet they may still deserve recognition for their work. To meet the needs of these students the university has established three kinds of certificates:

1. *The Certificate of Completion* is awarded for successfully completing a planned educational experience (workshop, conference, short course, or seminar) designed for specific academic objectives.
2. *The Certificate of Special Study* is awarded for successfully completing a structured program of educational experiences, at least 12 semester units, determined in advance by a department or college/school, and consisting of upper-division (100-199) courses, professional (300-399) courses, and related activities.
3. *The Certificate of Advanced Study* is awarded for successfully completing an established, approved program of at least 12 semester units of graduate (200-299) courses, upper-division (100-199) courses, and professional (300-399) courses, as recommended by a department and approved by the Division of Graduate Studies.

Public School Teacher and Services Credentials

California State University, Fresno offers basic — Multiple Subject, Single Subject, and Special Education — teaching credentials as well as advanced — Specialist and Services — credentials required for employment in K-12 public schools. The School of Education and Human Development is the primary unit responsible for professional preparation and credential authorization. However, subject matter preparation required for basic credential programs and professional preparation required in some advanced credentials — school nursing, psychology, school social work, agriculture, and communicative handicapped — are provided by various academic departments. For information about credential programs, refer to the Education section of this catalog or to the appropriate academic department.

Basic Teaching

Credentials, Elementary

Multiple Subject:

- Multiple Subject, CLAD/BCLAD
- Multiple Subject, with emphasis in Early Childhood Education CLAD/BCLAD
- Multiple Subject — Internship CLAD/BCLAD
- CalState TEACH

Basic Teaching Credentials, Secondary

Single Subject:

- Agriculture
- Art
- Business
- English; English-Drama; English-E S L; English-Speech
- Foreign Languages
- Home Economics
- Industrial Technology
- Mathematics
- Music
- Physical Education
- Science
- Social Science

Single Subject, CLAD

Single Subject — Internship CLAD

Preliminary Level I Education Specialist

Mild/Moderate Disabilities (including internship)

Moderate/Severe Disabilities (including internship)

Deaf and Hard of Hearing

Specialist Teaching Credentials

Agricultural

Early Childhood

Professional Education Specialist Level II Mild/Moderate and Moderate/Severe

Reading/Language Arts

Services Credentials

Administrative in:

- Preliminary (including internship)
- Professional (including internship)

Clinical-Rehabilitative

Health (School Nurse)

Pupil Personnel in:

- School Counseling
- School Psychology
- School Social Work, Child Welfare and Attendance

Degree Programs, Majors, and Minors

California State University, Fresno offers majors for the baccalaureate degrees, minors, and graduate degree programs as indicated on these pages. Undergraduate and graduate options are listed under the programs. Requirements for approved undergraduate majors and minors, as well as graduate degrees, are listed in the appropriate college/school and department sections in this catalog. Graduate degree information is available in the *Division of Graduate Studies* section.

Aerospace Studies
- Minor

African American Studies
- B.A.
- Minor

Agricultural Business
- B.S.
- Minor

Agricultural Education
- B.S. (options: Agricultural Communications, Teacher Preparation)

American Indian Studies
- Minor

Animal Sciences
- B.S. (options: Science, Production Management)
- Minor

Anthropology
- B.A.
- Minor

Armenian Studies
- Minor

Art
- B.A. (option: Graphic Design)
- M.A.
- Minor

Asian American Studies
- Minor

Asian Studies
- Minor

Biology
- B.S. (options: Ecology and Evolutionary Biology; Molecular, Cellular, and Developmental Biology; Organismic and General Biology; Physiology and Anatomy)
- M.S.
- Minor

Business
- Minors (Entrepreneurship, General Business)

Business Administration
- B.S. (options: Accountancy, Entrepreneurship, Finance, Human Resource Management, Information Systems, International Business, Legal Environment of Business, Management, Marketing, Real Estate and Urban Land Economics)
- M.B.A.

Chemistry
- B.A.
- B.S.
- M.S.
- Minor

Chicano/Latino Studies
- Minor

Chicano Studies
- B.A.

Child Development
- B.S.

Classical Studies
- Minor

Coaching
- Minor

Communication
- B.A.
- M.A.
- Minor

Communicative Disorders
- B.A.
- M.A. (options: Education of the Deaf, Speech-Language Pathology)
- Minor

Computer Science
- B.S.
- M.S.
- Minor

Construction Management
- B.S.
- Minor

Counseling
- M.S. (option: Marriage and Family Therapy)

Creative Writing
- M.F.A.

Criminology
- B.S. (options: Corrections, Law Enforcement, Victimology)
- M.S.
- Minor

Economics
- B.A.
- Minor

Education
- M.A. (options: Administration and Supervision, Counseling and Student Services, Curriculum and Instruction, Early Childhood, Reading/Language Arts)

Educational Leadership
- Ed.D.

Engineering
- M.S. (options: Electrical Engineering, Mechanical Engineering)

Engineering, Civil
- B.S.
- M.S.

Engineering, Computer
- B.S.

Engineering, Electrical
- B.S.

Engineering, Geomatics
- B.S.

Engineering, Industrial
- B.S.

Engineering, Mechanical
- B.S.

English
- B.A.
- M.A. (options: Composition Theory, Literature, Nonfiction Prose)
- Minor

English as a Second Language
- Minor

Ethnic Studies
- Minor

Family and Consumer Sciences
- B.A.
- M.S.
- Minor

Fashion Merchandising
- Minor

Food and Nutritional Sciences
- B.S. (options: Dietetics and Food Administration, Enology — Wine Production, Food Science)
- M.S.
- Minor

French
- B.A.
- Minor

Geography
- B.A.
- M.A.
- Minor

Geology
- B.S.
- M.S.
- Minor

German
Minor

Gerontology
Minor

Health Science
B.S. (options: Community Health, Environmental Health Science/ Industrial Hygiene, Health Administration, Occupational Safety and Health)
Minor

History
B.A.
M.A.
Minor

Humanities Interdisciplinary Minor
Minor

Industrial Technology
B.S.
M.S.
Minor

Interior Design
B.A.

International Political Economy
Minor

International Relations
M.A.

Japanese
Minor

Kinesiology
B.S. (options: Athletic Training, Exercise Science, General Kinesiology, Physical Education)
M.A. (option: Exercise Science)

Latin American Studies
Minor

Liberal Studies
B.A.

Linguistics
B.A. (options: English as a Second Language, General Linguistics)
M.A. (options: English as a Second Language, Linguistics)
Minor

Marine Science
M.S.

Mass Communication
M.A.

Mass Communication and Journalism
B.A. (options: advertising, broadcast journalism, digital media, electronic media production, photojournalism, print journalism, public relations)
Minor

Mathematics
B.A.
M.A.
Minor

Military Science
Minor

Music
B.A. (options: Music as a Liberal Art, Music Education, Instrumental Performance, Vocal Performance, Composition)
M.A. (options: Music Education, Performance)
Minor

Natural Sciences
B.A.

Nursing
B.S.
M.S. (options: Clinical Specialization, Primary Care/Nurse Practitioner)

Peace and Conflict Studies
Minor

Philosophy
B.A. (options: Prelaw, Religious Studies)
Minor

Physical Education
Minor

Physical Science
Minor

Physical Therapy
M.P.T.

Physics
B.S.
M.S.
Minor

Plant Science
B.S. (options: Agronomy, Horticulture, Plant Health)
M.S.
Minor

Political Science
B.A.
Minor

Psychology
B.A.
M.A.
M.S.
Minor

Public Administration
B.A.
M.P.A.
Minor

Public Health
M.P.H. (options: Environmental and Occupational Health, Health Administration, Health Promotion)

Recreation Administration
B.S.
Minor

Rehabilitation Counseling
M.S.

Social Work
B.A.
M.S.W.

Sociology
B.A.
Minor

Southeast Asian Studies
Minor

Spanish
B.A.
M.A.
Minor

Special Education
M.A.

Special Major
B.A.
M.A.

Theatre Arts
B.A. (option: Dance)
Minor

Urban Studies
Minor

Vocational Education*
B.V.E.

Women's Studies
B.A.
Minor

* The B.V.E. is an off-campus program.

General Education

General Education

Developed by both faculty and students, the university's General Education Program is an introduction to the breadth and depth of the dynamics of human experience. It provides students with a foundation in the liberal arts and sciences and prepares them for specialized study in a particular discipline or program.

The overall objective of General Education is to create a context wherein basic skills are developed and strengthened, scholarship and disciplined thinking emerge, awareness and reflection occur, and ultimately — the *integration* of knowledge begins.

In the 1999-2000 academic year, the university introduced a major revision of the General Education program that the faculty believes is improved in content and which facilitates transfer to the university. All students enrolling in the university as first-time freshmen beginning fall 1999 and after, and all transfer students entering fall 1999 or after who elect to adopt the 1999-2000 catalog will be required to complete this new General Education Program.

Foundation, Breadth, Integration, and Multicultural/International

The General Education Program is an integrated curriculum of courses organized into four groups:

Foundation, the basic foundation of one's university education, consists of courses in fundamental skills and knowledge.

Breadth exposes students to a variety of disciplines within a structured framework that develops knowledge in four basic areas of human endeavor.

Integration ties together the Program by providing an integrative experience at the upper-division level in three of the four areas of breadth.

Multicultural/International completes the General Education Program with an upper-division experience as preparation for an international, multicultural world.

Requirements

The General Education Program requires students to complete a minimum of 51 semester units. All requirements must be met with courses of at least three semester units. The requirements include: four courses in **Foundation**, nine courses in **Breadth**, and four upper-division courses - three **Integration** courses and one **Multicultural/International** course. These four upper-division courses should be taken no sooner than the term in which 60 units of college coursework are completed. A minimum of 9 units of course work for General Education must be taken *in residence* (see *Degree Requirements*, pages 84-85) at California State University, Fresno.

Because the goal of General Education is to provide a solid foundation with a broad scope and the goal of the major is to provide depth in a specific discipline or program, the following stipulations apply:

1. The **Foundation** courses must be completed with a grade of *C* or better to satisfy the General Education requirement.
2. A maximum of two General Education courses from one department or program may be applied to satisfy **Breadth**, **Integration**, and **Multicultural/International** requirements. (However, a department or program may prohibit any General Education course from simultaneously satisfying its own departmental or programmatic requirements.) Integration and **Multicultural/International** courses used to satisfy this requirement must be taken outside the department of the student's major.

Writing in General Education Courses

The university's General Education Program requires that almost all courses in the program have substantial writing assignments.

All Foundation courses except those in Quantitative Methods (B4) and all Breadth courses will require writing assignments totaling at least 2,000 words.

All upper-division courses (IB, IC, ID, and M/I) will require writing assignments totaling at least 4,000 words.

Foundation

Purpose: An educated person must be able to read critically, communicate effectively, and think clearly.

Select one course from each of the following four categories for a minimum of 12 units. Courses available to satisfy these requirements will also be listed in the Schedule of Classes for fall and spring of the 2000-2001 academic year.

- Oral Communication – One A1 course (Area A).
- Written Communication – One A2 course (Area A).
- Critical Thinking – One A3 course (Area A).
- Quantitative Reasoning – One B4 course (Area B).

Breadth

The **Breadth** component of the General Education Program exposes students to a variety of disciplines within the structured framework of Areas B, C, D, and E.

Area B – Physical Universe and Its Life Forms.

Required: one lower-division course in each sub-area. All courses in this area include a laboratory component.

- Physical Science, Sub-Area B1 – one B1 course. (Completion of the **Foundation** Quantitative Reasoning requirement – a G.E. B4 course – is prerequisite to enrollment in all G.E. B1 courses.)

  Purpose: To understand and actively explore fundamental principles in the Physical Sciences and the methods of developing and testing hypotheses used in the analysis of the physical universe.

- Life Science, Sub-Area B2 – one B2 course.

  Purpose: To understand basic concepts of living things, the nature of scientific knowledge, and the relevance of biological knowledge to human affairs.

Area C – Arts and Humanities.

Required: three lower-division courses, at least one in each sub-area.

Notice to students enrolled under earlier catalogs:

The revised program presented in this section is different from the program which you are expected to satisfy. Please refer to the catalog under which you are enrolled for information about the requirements and the courses appropriate to those requirements.

- Arts, Sub-area C1 – at least one C1 course.

  Purpose: To develop an appreciation and understanding of and to stimulate imagination and creativity through study and participation in art, dance, music, and theatre.

- Humanities, Sub-area C2 - at least one C2 course. (Completion of the **Foundation** Written Communication requirement – a G.E. A2 course – is prerequisite to enrollment in all G.E. C2 courses.)

  Purpose: Through the study of the humanities, to understand, appreciate, and analyze the meaning of our civilization, its cultural background, and the nature and role of language. To study the humanities from a variety of historical perspectives and cultures by analyzing individual works.

Area D – Social, Political, and Economic Institutions and Behavior, Historical Background.

Required: Three courses: one lower-division course in each of the three sub-areas. (Completion of an A2 course satisfying the **Foundation** Written Communication requirement is required for enrollment in any **Breadth** Area D course.)

Purpose: To understand and analyze the basic principles underlying human social behavior.

- American History, Sub-area D1 – one D1 course.
- American Government, Sub-area D2 – one D2 course.
- Social Science, Sub-area D3 – one D3 course.

Area E – Lifelong Understanding and Self-Development.

Required: One E1 course.
Purpose: To equip human beings for lifelong understanding and development of themselves as integrated physiological and psychological entities.

Integration

Requirement: Three upper-division courses: one course in each of three **Breadth** areas. (Completion of the **Foundation** requirement and the **Breadth** requirement in the appropriate area and upper-division standing is prerequisite to enrollment in **Integration** courses.)

Purpose: The **Integration** *component of General Education is included to provide instruction at the upper-division level that integrates material from each of the Breadth areas B, C, and D.*

- Physical Universe and Its Life Forms - one IB course.
- Arts and Humanities - one IC course.
- Social Political and Economic Institutions and Behavior, Historical Background - one ID course.

Multicultural/International

Required: One upper-division MI course. (Completion of the **Foundation** requirement and the **Breadth** Area D requirement are prerequisite to enrollment in **Multicultural/International** courses.)

Purpose: The **Multicultural/International** *component of General Education is included to prepare students to live in an international multicultural world.*

G.E. Prerequisites

- A2 completion is prerequisite to C2, D1, D2, and D3
- B4 is prerequisite to B1
- A1, A2, A3 and B4 are prerequisite to IB, IC, ID, and MI

General Education in A-E Format

While the revised General Education Program is presented here in terms of FOUNDATION, BREADTH, INTEGRATION, and MULTICULTURAL/INTERNATIONAL, it relates simply to the A-E format widely used throughout the state as indicated by the course prefixes in the table:

Foundation

Oral Communication (Area A1)
- COMM 3 - Fundamentals of Public Communication
- COMM 7 - Persuasion
- COMM 8 - Group Discussion

Written Communication (Area A2)
- ENGL 1 - Composition

Critical Thinking (Area A3)
- ANTH 30 - Critical Thinking in Anthropology
- C SCI 1 - Critical Thinking & Compter Science
- COMM 5 - Argumentation
- G M E 5 - Critical Reasoning
- N SCI 4 - Science and Nonsense: Facts, Fads and Critical Thinking
- PHIL 25 - Methods of Reasoning
- PHIL 45 - Introduction to Logic
- SOC 3 - Analysis of Social Life
- W S 12 - Critical Thinking: Gender Issues

Quantitative Reasoning (Area B4)
- DS 71 - Quantitative Analysis I
- MATH 45 - What is Mathematics
- MATH 75 - Mathematical Analysis I

Breadth

Physical Universe and Its Life Forms

Physical Sciences (Area B1)
- CHEM 1A - General Chemistry
- CHEM 3A - Introductory General Chemistry
- CHEM 10 - Chemistry and Society
- GEOL 1 - Natural Disasters and Earth Resources
- GEOL 15 - The Earth and Its History
- P SCI 21 - Elementary Astronomy
- PHYS 2A - General Physics
- PHYS 4A & 4AL - Mechanics and Wave Motion
- PHYS 10 - Conceptual Physics

Life Sciences (Area B2)
- BIOL 10 - Life Science
- BIOL 15 - An Ecological Approach to Life Science
- BIOSC 1A - Introductory Biology
- BOT 10 - Plant Biology
- ZOOL 10 - Animal Biology

Arts and Humanities

Arts (Area C1)
- ARM S 20 - Arts of Armenia
- ART 1 - Art Forms
- ART 20 - Drawing
- ART 40 - Painting
- ART 50 - Beginning Sculpture
- ART H 10 - The Ancient and Primitive World
- ART H 11 - The Modern World
- CLS 9 - Chicano Artistic Expression
- DRAMA 22 - Fundamentals of Interpretation
- DRAMA 62 - Theatre Today
- ENGL 41 - Poetry Writing
- ENGL 43 - Fiction Writing
- MUSIC 9 - Introduction to Music
- MUSIC 74 - Listener's Guide to Music

Humanities (Area C2)
- ARM 1B - Elementary Armenian
- ARM 2A - Intermediate Armenian
- ARM 2B - Intermediate Armenian
- CSD 92 - American Sign Language II
- ENGL 20 - Introduction to Literature
- ENGL 30 - Masterpieces
- FREN 1B - Elementary French
- FREN 2A - French for Communication
- FREN 2B - French for Communication
- GERM 1B - Elementary German
- GERM 2A - Intermediate German
- GERM 2B - Intermediate German
- GRK 1A - Elementary Greek
- GRK 1B - Elementary Greek
- HMONG 1B - Basic Hmong

- HUM 10 - Introduction to the Humanities
- HUM 11 - Introduction to the Humanities
- HUM 15 - Classical Myth and World Humanities
- HUM 20 - Introduction to Hispanic Literature
- ITAL 1B - Elementary Italian
- ITAL 2A - Intermediate Italian
- ITAL 2B - Intermediate Italian
- JAPN 1B - Elementary Japanese
- LATIN 1A - Elementary Latin
- LATIN 1B - Elementary Latin
- LING 10 - Introduction to Language
- PHIL 1 - Introduction to Philosophy
- PHIL 2 - Exploring Religious Meaning
- PHIL 10 - Self, Religion and Society
- PHIL 20 - Moral Questions
- PORT 1B - Elementary Portuguese
- SPAN 1B - Elementary Spanish
- SPAN 2A - Spanish for Communication
- SPAN 2B - Spanish for Communication
- SPAN 3 - Reading and Writing
- SPAN 4A - Spanish for the Bilingual Student
- SPAN 4B - Spanish for the Bilingual Student

Social, Political, and Economic Institutions and Behavior, Historical Background

American History (Area D1)

- HIST 11 - American History to 1865
- HIST 12 - American History from 1865

American Government (Area D2)

- PL SI 2 - American Gov't & Institutions

Social Science (Area D3)

- AF AM 27 - Introduction to African American Culture and Image
- AG EC 1 - Introductory Agricultural Economics
- ANTH 2 - Intro to Cultural Anthropology
- ANTH 3 - Intro to Prehistory
- ARM S 10 - Intro to Armenian Studies
- ASAM 15 - Intro to Asian Americans
- CFS 31 - The Family in America
- CLS 3 - Intro to Chicano/Latino Studies
- CRIM 10 - Crime, Criminology and Justice
- ECON 25 - Intro to Economics
- ECON 40 - Principles Microeconomics
- ECON 50 - Principles Macroeconomics
- ETH S 1 - Ethnic Experience
- GEOG 2 - Introduction to Cultural Geography
- GEOG 4 - World Geography
- I T 20 - Technology and Society
- MCJ 1 - Mass Communication and Society
- PL SI 1 - Modern Politics
- PSYCH 10 - Introduction to Psychology
- SOC 1 - Principles of Sociology
- SOC 2 - Social Problems
- W S 10 - Introduction to Women's Studies

Lifelong Understanding and Self-Development (Area E1)

- A SCI 67 - Animals and Society
- ARM S 10 - The Journey of Adulthood
- ART 13 - Design
- CFS 38 - Life Span Development
- DANCE 16 - Intro to Modern Dance
- DANCE 70 - Balance BodyMind
- DRAMA 32 - Introduction to Acting
- FIN 30 - Personal Financial Planning
- GERON 10 - The Journey of Adulthood

	Foundation	Breadth	Integration & Multicultural/ International
Area A	A1, A2, A3		
Area B	B4	B1, B2	IB
Area C		C1, C2	IC
Area D		D1, D2, D3	ID, M/I
Area E		E1	

- GERON 18 - Women and Aging (same as W S 18)
- H S 90 - Contemporary Health Issues
- H S 91 - Introduction to Human Sexuality
- I E 95 - Human Factors/Ergonomics
- KINES 32 - Lifetime Fitness and Wellness *concurrent with KAC 6, 21, 24, 31, 33, 39, or 103*
- NUTR 53 - Nutrition & Health: Realities
- PSYCH 61 - Personal Adjustment
- RLS 80 - Lifelong Learning in the Natural Environment
- W S 18 - Women and Aging (same as GERON 18)

Integration

Physical Universe and Its Life Forms (Area IB)

- ANTH 161 - Bio/Behavioral Evolution of the Human Species
- CHEM 170 - Chemistry in the Marketplace
- CHEM 171 - Fireworks, Gemstones and Dyes: The Science of Color
- GEOL 112 - Planet Earth Through Time
- GEOL 167 - Oceans and Atmosphere
- GEOL 168 - California's Earth System
- N SCI 115 - Environmental Earth and Life Science
- N SCI 120 - Biotechnology and Its Impact on Society
- N SCI 121 - Blood
- N SCI 125 - Revenge of the Killer Microbes
- N SCI 131 - Biological Bases of Neurological Disorders
- P SCI 131 - Concepts of Classical Physics from Babylon to Maxwell
- PHYAN 110 - Human Reproductive Physiology, Aging and Death
- PHYS 100 - Concepts of Modern Physics
- PLANT 105 - Food, Society, and Environment
- PSYCH 126 - Cognitive Neuroscience

Arts and Humanities (Area IC)

- ARM 148 - Masterpieces of Armenian Culture
- DANCE 171 - Philosophy of Bases and Trends in Dance
- ENGL 103 - Masterpieces of American Literature
- ENGL 174 - Popular Fiction
- FREN 109 - French Literature, Culture and Society from the Middle Ages to Today
- FREN 149 - Voices of Africa
- HUM 104 - Humanities in the Middle Ages and Renaissance
- HUM 108 - Humanities in Classical Athens
- HUM 110 - Humanities in Republican and Imperial Rome
- MUSIC 170A - Music of the Americas: Latin American
- MUSIC 171 - Introduction to the World's Music
- PHIL 150 - Foundation of Knowledge
- PHIL 151 - Cognitive Science: Mind
- SPAN 129 - Mexican Culture
- MUSIC 187 - Popular Music: Jazz and Rock

Social, Political, and Economic Institutions and Behavior, Historical Background (Area ID)

- ANTH 116W - Anthropology of Religion
- ANTH 145 - Cultural Resource Management
- CRIM 101 - Crime and Violence in America
- CRIM 153 - Psychology of Crime
- ECON 146 - Economics of Crime
- ECON 167 - Contemporary Socioeconomic Challenges
- ECON 176 - Economic Themes in Film
- ECON 183 - Political Economy of the Middle East
- KINES 111 - Olympic Games
- MCJ 178 - New Information Technologies
- PSYCH 123 - Developmental Psycho Biology
- PSYCH 173 - Environmental Psychology
- S SCI 110 - California Studies

Multicultural/International

(Area M/I)

- ANTH 120 - Ethnic Relations and Cultures
- ASAM 110 - Asian American Communities
- B A 104 - Global Business
- COMM 164 - Intercultural Communication
- CSD 139 - Deaf Culture
- ECON 181 - Political Economy of Latin America
- GEOG 167 - People and Places - A Global Perspective
- HIST 186 - American Immigration and Ethnic History
- MCJ 175 - Multicultural Mass Communication and Media Stereotypes
- PHIL 132 - Religion in the Margin
- PL SI 120 - International Politics
- S SCI 180 - Diversity in the United States
- S WRK 136 - Cultural Diversity and Oppression
- SOC 111 - Sociology of Race and Ethnicity
- W S 110 - Representations of Women
- W S 120 - Women of Color in the United States
- W S 135 - Women in Other Cultures

Travel
into
Tomorrow

Course Prefixes, Symbols, and Terms

Course Prefixes, Symbols, and Terms

The following chart is a guide to the appropriate prefixes used in this catalog for the university's departments and programs of study.

A ETH	Applied Ethics
A I S	American Indian Studies
A SCI	Animal Sciences
A SP	Aerospace Studies
ACCT	Accountancy
AF AM	African American
AG BS	Agricultural Business; Graduate
AG EC	Agricultural Economics
AG ED	Agricultural Education
AGRI	Agriculture; Graduate
ANTH	Anthropology
ARM	Armenian
ARM S	Armenian Studies
ART	Art
ART H	Art History
ARTDS	Art and Design
ASAM	Asian American Studies
ATHL	Athletics
B A	Business Administration
BIOL	Biology
BIOSC	Biological Science Core
BOT	Botany
BUS	Business
BVE	Bachelor of Vocational Education
C E	Civil Engineering
C R P	City and Regional Planning
C SCI	Computer Science
CFS	Child and Family Sciences
CHEM	Chemistry
CHIN	Chinese
CLS	Chicano and Latin American Studies
COMM	Communication
COM S	Community Service
CONST	Construction Management
COUN	Counselor Education
CR SC	Crop Science — Agronomy and Vegetable Crops
CRIM	Criminology
CSB	Craig School of Business
CSD	Communicative Sciences and Disorders
CSH	Consumer Science and Housing
CST	CalState TEACH
CTET	Curriculum, Teaching, and Educational Technology
DANCE	Theatre Arts
DRAMA	Theatre Arts
DS	Decision Sciences
E E	Electrical Engineering
E S L	English as a Second Language
EAD	Educational Administration
ECE	Electrical and Computer Engineering
ECOL	Ecology
ECON	Economics
EDL	Educational Leadership
EDU	Education
EHD	Education and Human Development
ENGL	English
ENGR	Engineering
ENOL	Enology
ENTR	Entrepreneurship
ERF	Educational Research, Foundations
ETH S	Ethnic Studies
F L	Foreign Language
F M	Fashion Merchandising
FCS	Family and Consumer Sciences
FIN	Finance
FN	Food and Nutrition
FREN	French
FSC	Food Science
FSM	Food Systems Management
G M E	Geomatics Engineering
G S	Graduate Studies
GD	Graphic Design
GENET	Genetics
GEOG	Geography
GEOL	Geology
GERM	German
GERON	Gerontology
GPA	Graduate Public Administration
GRK	Greek
H EC	Home Economics Education
H S	Health Science
HEBR	Hebrew
HHS	Interdisciplinary Health and Human Services
HIST	History
HMONG	Hmong
HONOR	Honors
HRM	Human Resource Management
HUM	Humanities
I E	Industrial Engineering
I S A	International Studies Abroad
I S C	International Studies Course
I T	Industrial Technology
ID	Interior Design
INTD	Interdisciplinary
INTD (number) NEX	Nexus General Education
IPC	Interprofessional Collaboration
IS	Information Systems
ITAL	Italian
JAPN	Japanese
KINES, KAC	Kinesiology
LATIN	Latin
LEE	Literacy and Early Education
LING	Linguistics
M COM	Mass Communication
M E	Mechanical Engineering
M S	Military Science
M SCI	Marine Science
MATH	Mathematics
MBA	Master of Business Administration
MCJ	Mass Communication and Journalism
ME AG	Mechanized Agriculture
MGT	Management
MICRO	Microbiology
MKTG	Marketing
MUSIC	Music
N SCI	Natural Science
NURS	Nursing
NUTR	Nutrition
OH	Ornamental Horticulture
P E	Physical Education
P SCI	Physical Science
PAX	Peace and Conflict Studies
PH	Master of Public Health
PH TH	Physical Therapy
PHIL	Philosophy
PHYAN	Physiology/Anatomy/ Development
PHYS	Physics
PL SI	Political Science
PLANT	Plant Science
PLT H	Plant Health
PORT	Portuguese
PSYCH	Psychology
R E S	Revising and Editing Skills
RLS	Recreation and Leisure Studies
S C	Solutions Center
S SCI	Social Science
S WRK	Social Work
SKT	Sanskrit
SOC	Sociology
SPAN	Spanish
SPED	Special Education
SW	Soil and Water
UNIV	University
VTF	Viticulture/Tree Fruit
W S	Women's Studies
ZOOL	Zoology

General Education

A1	G.E. FOUNDATION
A2	G.E. FOUNDATION
A3	G.E. FOUNDATION
B1	G.E. BREADTH
B2	G.E. BREADTH
B4	G.E. FOUNDATION
C1	G.E. BREADTH
C2	G.E. BREADTH
D1	G.E. BREADTH
D2	G.E. BREADTH
D3	G.E. BREADTH
E	G.E. BREADTH
IA	G.E. INTEGRATION
IB	G.E. INTEGRATION
IC	G.E. INTEGRATION
MI	G.E. MULTICULTURAL/ INTERNATIONAL

Course Numbering System

1-99
Lower-division courses are designed for first- and second-year students.

100-199
Upper-division courses are designed for third-, fourth- and fifth-year students; 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; these courses are designed for use in the first year of two-year master's degree programs; they consist of an intensive combination of material normally offered at the undergraduate level.

200-297
Graduate-level courses are designed for use in master's degree, credential, certificate of advanced study, and doctorate curricula. Access to these courses is limited to those who have been officially admitted to a graduate degree, advanced certificate, or credential program. Last-semester undergraduate seniors wanting to enroll in 200-level courses must meet all criteria listed on the Undergraduate Petition to Enroll in Graduate (200-level) Courses available from the Division of Graduate Studies.

290
Independent study, graduate

298
Graduate Degree Project. Enrollment is restricted to graduate students having received official notification by the Division of Graduate Studies of approval for advancement to candidacy. For complete eligibility requirements, see *Criteria for Thesis and Project* under Graduate Studies, page 476-477. Project schedule numbers are obtainable through the student's department. Failure to meet the eligibility requirements may result in cancellation of such enrollment. Project enrollment is not available through Extension or Open University.

299
Graduate Degree Thesis/Dissertation. Registration in this course is restricted to graduate students who have officially been notified of their advancement to candidacy by the Division of Graduate Studies and who have filed an approved thesis committee assignment form with the Division of Graduate Studies. Thesis enrollment is not available through Extension or Open University. For complete eligibility requirements, see *Criteria for Thesis and Project* under Graduate Studies, page 476-477. Thesis schedule numbers are obtainable through the student's department. Failure to meet eligibility requirements may result in cancellation of such enrollment.

300-399
Designed to meet professional needs that 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 undergraduate major. They may be used as part of the 40-unit upper-division requirement for the B.A. 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 or a joint doctoral degree.

400-499 are upper-division courses in CSU system programs administered by California State University, Fresno. Enrollment provisions listed for courses numbered 100-199 apply to these courses as well.

600-699 are graduate courses in CSU system programs administered by California State University, Fresno. Enrollment provisions listed for courses numbered 200-299 apply to these courses as well.

Course Numbering Symbols

A-B	Two-semester course normally taken in sequence
A, B	Listed as separate courses; may be taken independently
F	Field course
H	Honors
L	Laboratory associated with another course
M	Multiple subject designation for education courses/methods designation for communication courses
N	Non-majors
R	Remedial course
S	Service Learning courses
T	Topics course, varied area subject matter, repeatable for credit with different title and description
W	Writing skills course, meets upper-division requirement for graduation
Z	Semester abroad program courses

Course Descriptions. 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*.

Prerequisites. Course prerequisites are designed to protect students by ensuring that they have the necessary background and preparation for success in the course. Transfer courses with equivalent content are 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 if a student has not met the prerequisites.

Permission of Instructor. The instructor has the authority to waive the stated prerequisites for a course if it is in the interest 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.

Students will not receive credit for courses in foreign language or mathematics if credit has been awarded previously for a higher numbered course for which the lower numbered course is a prerequisite.

CAN. The California Articulation Number identifies some of the transferable, lower-division, introductory (preparatory) courses commonly taught on California college campuses. The CAN (ex. CAN ECON 2) is listed parenthetically at the end of the course description.

Athletics

Office of the President

Department of Athletics

Allen R. Bohl, *Chair*

North Gym, Room 146

(559) 278-2643

Mission Statement

The Department of Athletics complements the academic mission of the university by offering students an athletic experience of high quality through broad-based, competitive sports programs for both men and women. To provide such an experience, the department is committed to integrity and excellence in both athletics and academics through a comprehensive academic support system.

As part of the collegiate experience, athletic competition provides student athletes with a wide range of opportunities to enhance their intellectual, physical, personal, and social development. The department's goal is to help students develop skills, attain graduation, become productive citizens, and succeed in life.

In the interest of gender equity and ethnic diversity, the department intends to stand as a leader in providing opportunities for all student athletes, coaches, administrators, and staff, complemented by facilities to showcase their talents and abilities.

Since competition is the trademark of intercollegiate athletics, the Department of Athletics is committed to achieving the full potential of each team and each athlete while maintaining compliance with the rules and regulations set forth by the Western Athletic Conference, the National Collegiate Athletic Association for Division IA membership, and the rules and procedures established by California State University, Fresno. Dedication to athletic and academic excellence will be reflected in the performance of all university teams.

As the major public university in the San Joaquin Valley, the department strives to develop strong local, regional, and national recognition for its team and foster a sense of community among its constituencies, i.e., the student body, the faculty and staff, the alumni, and the general public. This recognition will be achieved not only through outstanding athletic performance, but also through the civility with which we conduct ourselves both on and off the playing field.

Athletic Academic Services

The Athletic Academic Services Office provides tutoring, academic advising, individual consultations, and NCAA eligibility monitoring for more than 530 student athletes on a year-round basis. It offers a "Strategies for Academic Success" class, works with NCAA in providing a Life Skills Development program that emphasizes personal, career, community service and athletic development, and advises the Student Athlete Advisory Board. The board, with representatives from every sport, serves as a communication link between student athletes, the Athletics Department administration, and the campus community on matters of student athlete welfare.

Each spring the department hosts its Torch of Excellence Dinner to recognize the academic achievements of student athletes who have maintained at least a 3.0 GPA or have received other academic honors. The office also assists qualified student athletes with fifth year scholarships (available after athletic eligibility is completed) and in applying for a variety of athletically-related postgraduate scholarships.

COURSES

Athletics (ATHL)

10. Strategies for Academic Success (3)
Restricted to intercollegiate athletes. Designed to help entering students make a smooth transition into the university, as well as increase knowledge of policies, procedures, resources, and graduation requirements especially pertaining to student athletes. Introduces techniques to improve learning strategies and provides students with awareness about relevant drug and health issues. *CR/NC* grading only.

INTERCOLLEGIATE*
(Courses may be repeated)

100. Conditioning of Athletes (1)
Prerequisite: must be enrolled in a varsity team sport (ATHL 176-199). Refer to current *Schedule of Courses* for appropriate section and schedule number.

176. Baseball (2)
Men only.

177. Basketball (2)
Men only.

178. Basketball (2)
Women only.

180. Cross Country (2)

181. Equestrian (2; max total 8)
(Same as A SCI 187.) Women only.

182. Football (2)

183. Golf (2)
Men only.

185. Soccer (2)
Women only.

186. Soccer (2)
Men only.

187. Softball (2)
Women only.

189. Swimming and Diving (2)
Women only.

191. Tennis (2)
Men only.

192. Tennis (2)
Women only.

193. Track and Field (2)

196. Volleyball (2)
Women only.

199. Wrestling (2)
Men only.

*Students majoring in kinesiology may count a maximum of 12 units of dance technique, kinesiology activity courses, and intercollegiate courses toward the total units required for the bachelor's degree; other students may apply a maximum of 8 units to the total degree requirement.

Faculty

Allen R. Bohl, *Chair*

Tonya Alleyne
John Baxter
Bob G. Bennett
Dan Brown
David A. Chesler
Kevin M. Coyle
Valerie Curtis
Dennis A. DeLiddo
Tanya Ehlert
Gene L. Estes
Edward L. Ferreira
Robert E. Fraley
Ken Greene
Irene H. Harris
Michael P. Hegarty
Kim M. Hill
Pat Hill
Daniella J. Irle
Scott Johnson
Britt S. King
Robert G. Knudsen
Ruth Lawanson
Andy Ludwig
Megan McGee
Trent Miles
Diane Milutinovich
Peter Reynaud
Michael L. Rupcich
Paul M. Schechter
John Settle
Les Snyder Jr.
Danny Tarkanian
Jerry Tarkanian
Linda L. Vivas
Dennis Wagner
L. Michael Watney
John Welch
Marjorie A. Wright

The College of Agricultural Sciences and Technology

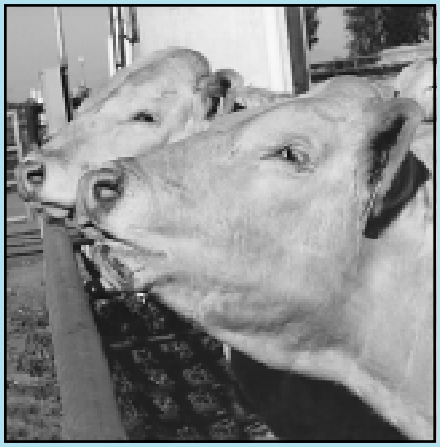
Agricultural Sciences Building, Room 102
Daniel P. Bartell, *Dean*, (559) 278-2061
http://www.csufresno.edu/CAST/

The Mission of the College

The College of Agricultural Sciences and Technology is dedicated to improving the environment and quality of life through education, research, and public service in the areas of agriculture, food, technology, and the family. The college has received national recognition for outstanding programs in agricultural business, irrigation technology, and viticulture, while also achieving accreditation by national organizations for programs in dietetics and industrial technology. Educational opportunities in the college emphasize problem solving through the application of basic scientific principles, up-to-date technology, and the latest management techniques.

The college has dedicated faculty and staff to help you achieve your educational goals. Our faculty members will help you network with students who have similar interests in numerous on-campus clubs, as well as with industry professionals in various state and national organizations. The faculty and staff will involve you in applied research, service activities, and industry internships. You can benefit from production projects on the 1,083-acre University Farm Laboratory. You may choose to work on a clinic project, which features a faculty mentor, a team of students, and an industry liaison working to solve a real-world problem. Excellent facilities and equipment, tremendous industry support, and a committed faculty make California State University, Fresno the ideal place to invest in your career preparation.

Our alumni hold important positions in agribusiness, manufacturing, education, research, human services, and government around the world. You will be recognized for your solid basic science foundation, your experience in applied research, your hands-on problem-solving skills, and your global view of the world.



The College of Agricultural Sciences and Technology includes the departments of Agricultural Economics; Animal Sciences and Agricultural Education; Child, Family, and Consumer Sciences; Food Science and Nutrition; Industrial Technology; Plant Science; and Viticulture and Enology. The 1,083-acre University Farm Laboratory and the California Agricultural Technology Institute are integral parts of the college.

Agricultural Economics

College of Agricultural Sciences and Technology

Department of Agricultural Economics
John R. Shields, *Interim Chair*
Geri Simmons, *Administrative Support Coordinator*
Leon S. Peters Building, Room 302
(559) 278-2949 FAX: (559) 278-6536
http://cast.csufresno.edu/agecon

B.S. in Agricultural Business

Minor in Agricultural Business

Emphasis in Agricultural Business (Graduate MBA Program)

Agricultural Economics

Join the leader in science, technology, and management. The award-winning Agricultural Business Program at California State University, Fresno is a pacesetter — having been recognized in 1985 as a national model by the Agribusiness Education Project, sponsored by the U.S. Department of Agriculture and comprised of agricultural industry leaders and higher education scholars from around the country.

The agricultural business curriculum is a comprehensive and integrative program of economic analysis and business applications with a problem-solving orientation and a practical experience emphasis.

Degree Programs

The B.S. in Agricultural Business combines core undergraduate courses in agricultural economics (AG EC) with basic business management and agricultural science foundation courses. This undergraduate major allows you to emphasize a career specialty, such as agribusiness management, agricultural finance, agricultural marketing, farm management, and food industry management.

Certified Minor Programs. The Minor in Agricultural Business is available for students majoring in agricultural sciences, business, and other fields.

Complementary Fields of Study. Agricultural business students wishing to enhance their major with a technical field should consider a minor in such closely allied disciplines as Animal Science, Family and Consumer Sciences, Food and Nutritional Sciences, and Plant Science. A supplementary Minor in General Business is available through the Sid Craig School of Business.

Ag One Grants for academic fees and books are available. Call (559) 278-2061 for scholarship information and application.

The Master of Business Administration (MBA) has an elective area in agricultural business combining graduate courses in agricultural business (AG BS) with core courses from business. This program is administered by the Sid Craig School of Business. It is designed for individuals seeking to advance their career by enhancing their business management and economic analysis skills with an emphasis on agricultural sector applications. Contact the graduate business adviser at (559) 278-2107.

Instructional Facilities

Modern Computing Facilities. Labs are used to teach students computerized farm accounting systems, agricultural enterprise spreadsheets, agribusiness simulations, commodity trading programs, and to expose them to planning and decision-making aids as part of their professional expertise.

Marketing News Center. Students have access to a computerized database system through the statewide Advanced Technology Information Network (ATI-NET) established by the college's California Agricultural Technology Institute (CATI).

Center for Agricultural Business (CAB). Organized to promote the economic efficiency, profitability, and competitiveness of California agriculture, CAB uses faculty expertise and student assistance to address problems and opportunities in farm management, agribusiness finance, commodity marketing, agricultural trade, natural resources, and labor management. Seminars are held periodically on topics of concern to farmers and agribusiness managers. An annual Agribusiness Management Conference is co-sponsored with industry to explore current issues and report the economic outlook of the state's agricultural sector.

Career Opportunities

Graduates of the Agricultural Business Program can choose from more than 150 professional occupations in California's agricultural sector and related industries. Ask your faculty adviser for the agricultural business career opportunities list.

Professional Preparation

Students establish credibility with prospective employers by participating in the following occupationally related activities.

- Agricultural Business Club. Students plan field trips, invite industry speakers to meetings, organize the annual alumni dinner, hold a newcomer picnic, support a campus job fair, and sponsor career preparation workshops.
- Industry Internships. Opportunities exist for many career positions through management training programs with agricultural business firms and support institutions. The department awards internships on a competitive basis and grants

academic credit in the major for this supervised experience (AG EC 194).

- University Farm Laboratory Project. Students gain farming experience through participation in the faculty supervised, student project program and concurrent enrollment in an Enterprise Management course (PLANT, A SCI, ENOL 196). Such a course is highly recommended and can be used in the major.
- Clinic Program Team Project. Students earn academic credit (S C 197) for participation in a faculty advised team charged with solving a problem or exploiting an opportunity faced by a real world client that has partnered with the College of Agricultural Sciences and Technology.
- National Agri-Marketing Association (NAMA) student chapter offers professional contacts with industry leaders, an annual scholarship, and involvement in the annual national marketing competition for academic credit (AG EC 168).

Faculty

John R. Shields, *Interim Chair*
Herbert O. Mason,
Director Center for Agricultural Business
James H. Cothern
John W. Hagen
Dwight D. Minami
Dennis L. Nef
Carl L. Pherson
David K. Smith
R. Lynn Williams

Faculty members are broadly trained with advanced degrees from top ranked universities across the nation, and are highly experienced as teachers, consultants, and researchers. They bring practical insight to the classroom by being professionally active in service to California farms and agribusinesses, industry organizations, government agencies, and professional associations. Forming a strong advisee/adviser relationship with any one of the faculty can help you match your career goals with appropriate coursework.

Bachelor of Science Degree Requirements

Agricultural Business Major *Units*

General Education 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)
FOUNDATION
Area B4: DS 71 or MATH 75 (required)
BREADTH
Area B1: CHEM 3A (required)
Area B2: BIOL 10, BOT 10, or ZOOL 10 (required)
Area D3: AG EC 1 (required)
INTEGRATION
Area IB: PLANT 105 (recommended)

Major 60
(including 20 upper-division units)
Agricultural Science
Foundation ..... (9)
(Select three courses from the below areas. No more than 6 units may be taken in one area. Courses listed are recommended.)
A SCI: A SCI 1
FSC/NUTR: FSC 50, NUTR 54
ME AG: ME AG 1 or 20
PLANT: CR SC 1, PLANT 1, OH 1, or PLT H 1
SW: SW 1 or SW 2
VIT/ENOL: VTF 1, ENOL 15
Business Management
Base ..... (18)
AG EC 2
AG EC 28 or B A 18
AG EC 31 or ACCT 4A
AG EC 32 or ACCT 4B
AG EC 71 or DS 73
AG EC 76 or IS 50
Agricultural Economics
Core ..... (21)
AG EC 100, 110, 120, 130, 150, 160, 170
Career Specialty ..... (12)
A required concentration of approved courses (including a minimum of 9 upper-division units in agricultural economics) is selected to match the student's career goal in consultation with the student's assigned faculty adviser. (See major program of study advising check sheet for course listings by concentrations in various disciplines.)

Additional requirements 1-3
Upper-division writing skills by exam or writing course (PLANT 110W, IS 105W, ECON 102W recommended)
Agricultural Business majors must take the following courses, which also satisfy General Education requirements.
FOUNDATION
Area B4: DS 71 or MATH 75
BREADTH
Area B1: CHEM 3A
Area B2: BIOL 10, BOT 10, or ZOOL 10
Area D3: AG EC 1

Electives 13-15
Courses supplementary to the major are strongly recommended.

Total requirements 128
(including 40 upper-division units)

Advising Notes

1. New students should request the Advising Information brochure that includes a program of study check sheet and advising notes for the major.
2. All students should acquire and read the department's Agricultural Advising Handbook before they make an appointment with their assigned academic adviser prior to registration each semester.
3. Community college transfer students should consult their academic adviser to determine which California State University, Fresno AG EC courses are articulated for lower-division credit as equivalent to their community college courses.
4. Credits earned for articulated community college courses do not count toward the minimum requirements of 20 upper-division units in the major and 40 upper-division units for the degree.
5. Students intending to pursue graduate study in agricultural economics or agribusiness should include approved courses in intermediate macroeconomic theory, differential and integral calculus, inferential statistics, and linear regression in their bachelor's degree program.
6. A dual major of agricultural business with animal sciences, food and nutritional sciences, or plant science must have 36 mutually exclusive units (including a minimum of 18 upper division). A dual major requires the approval of the department chairs administering these programs of study. General Education and elective units may be applied (i.e., double counted) toward a second major or a minor. (See *Dual Major* or *Minor* in this catalog

and consult with the appropriate department adviser.)

Agricultural Business Minor

This minor field of study is principally designed for agricultural science and business majors. Those students majoring in animal, plant, and food sciences may seek to complement their technical knowledge with competencies in agricultural business for professional advancement. Students majoring in one of the business degree options may anticipate staying in the San Joaquin Valley where they will most likely become involved with and require an understanding of the agricultural sector as employees, clients, or customers of agribusiness firms. The minor also provides a foundation for graduate study in agricultural business or agricultural economics.

You should consult with your faculty adviser in the Agricultural Economics Department to plan your program. The adviser and the department chair must approve the minor program of study before it can be certified by the school dean, filed with the Office of Evaluations, and recorded on your transcript.

The minor consists of 24 units, of which equivalent courses are acceptable for 12 units.

	Units
Core Requirements	
Intro Microeconomics: AG EC 1	**3**
Financial Accounting: AG EC 31	**3**
Financial Principles: AG EC 130	**3**
Organizational Behavior: AG EC 120	**3**
Production Operations: AG EC 110N/110 or AG EC 124	**3**
Agricultural Marketing: AG EC 160	**3**
Government Policy: AG EC 150	**3**
Focus Elective	**3**
Agricultural Science Majors: Agricultural Economics (upper division)	
Business/Other Majors: Ag Science (PLANT 105 recommended)	
Total	**24**

Advising Notes

1. University policy states that courses fulfilling requirements for a minor may be counted toward General Education.
2. The department waives the anticipated General Education requirements of AG EC 1, 31, 130, and 120 for students who have already received credit for ECON 40, ACCT 4A, FIN 120, and MGT 104 or 110 respectively. Such course waivers correspondingly reduce the unit requirement for the minor from the maximum of 24 to a possible 12 — the minimum allowable under the Title 5 code. This adjustment accommodates the university policy that "courses in a major cannot be applied toward a minor unless designated as 'additional requirements' to the major."
3. Concerning the course selections to satisfy the production operations core requirement and the focus elective, consult with the minor adviser about which choices match your career plans.
4. All courses in the minor must be taken for a letter grade; *CR/NC* grading is not acceptable.
5. Successful completion of this minor requires a 2.0 GPA for all courses in the program and for all courses taken at California State University, Fresno.

Notice of Discontinuance

The Master of Science degree program in Agricultural Business has been discontinued. Students interested in the agricultural business elective area under the Master of Business Administration program should contact the Graduate Business Office at (559) 278-2107.

COURSES

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

Note: Cost to the student of extended field trips will vary each semester depending upon itinerary. The student should ask the course instructor.

Economic Principles (AG EC)

1. Introductory
Agricultural Economics (3)
Microeconomic principles of resource allocation, production, cost analysis, and market price equilibrium with primary application to farms and agribusiness firms; supply and demand in commodity pricing under perfect and imperfect competition; survey of agricultural management and marketing problems and issues. G.E. Breadth D3.

2. Agricultural Sector Analysis (3)
Domestic and international forces affecting industry profitability of farm input suppliers, agricultural producers, commodity processors, food marketers; government fiscal, monetary, trade policies interaction with agricultural credit, price support, food subsidy programs; impact on agribusiness asset values, debt accumulation, income levels.

100. Intermediate
Agricultural Economics (3)
Prerequisites: AG EC 1 and intermediate algebra. Microeconomic theory of agricultural production in factor-product, factor-factor, product-product decisions; production costs and economies of size; consumer choice theory; price and output determination under imperfectly competitive markets; marginal productivity theory and the derived demand for agribusiness inputs.

Farm Management (AG EC)

110N. Introductory
Farm Management (3)
Prerequisite: AG EC 1. Survey course for non-agricultural business majors. Introduction to applied economics and farm business management topics: farm accounting, financial statement analysis, management principles, computer assisted decision aids, animal and crop enterprise budgeting, farm business planning, tax management, investment analysis, agricultural finance. (2 lecture, 3 lab hours)

110. Farm Management (3)
Prerequisite: AG EC 100. Production economics and management techniques for analysis of efficient farm resource use, planning and organization; analysis of budgeting and optimization techniques, and computer applications for developing farm management plans. (2 lecture, 3 lab hours)

114. Advanced Farm Management (3)
Prerequisite: AG EC 110. Design, computerization, and analysis of profit maximizing; cost minimizing and multiperiod linear programming models; risk and uncertainty; data and information requirements for decision making; optimizing the level and mix of crop livestock enterprises; development of farm management plans.

117. Agricultural
Labor-Management Relations (3)
Prerequisite: AG EC 1. 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.

Agribusiness Management (AG EC)

28. Introductory Agricultural Law (3)
Fundamentals of agricultural business law including historical sources and development; legislative laws; administrative regulations, judicial decisions affecting agriculture; express and implied contracts with remedies for their breach in agricultural situations; real and personal property law plus secured transactions in agriculture.

120. Agribusiness Management (3)
Prerequisite: AG EC 1. Organizational forms and management functions of agribusiness firms; human resource management systems; management science principles for optimizing plant location, equipment replacement, inventory control, and sales volume; operations research techniques, including probability-based network and decision models, for solving agribusiness problems.

122. Agricultural
Cooperative Management (3)
Prerequisite: AG EC 120. Philosophical, historical, and legislative evolution of U.S. agricultural cooperatives; uniqueness of cooperative organization, planning, direction and control functions vis-a-vis standard corporations; legal, financial, and tax considerations in managing input-supply and marketing cooperatives; case studies and field trips to cooperatives.

124. Food and Fiber
Industry Management (3)
Prerequisite: AG EC 1. Production management of farm input manufactures, agricultural commodity processing, food/fiber product distribution; functional approach to transformation/value-added operations including planning, organizing, directing, coordinating, controlling; case applications to materials handling, product development, food packaging, quality control, transportation logistics, inventory management.

128. Advanced Agricultural Law (3)
Prerequisite: AG EC 28 or B A 18. Case applications of agricultural business law; torts covering trespass, negligence, liability for farm livestock and chemicals; surface and mineral property rights; water law; farm labor law; agribusiness firm incorporation; agricultural cooperative regulation; state and federal marketing orders; farm estate taxation.

Financial Planning (AG EC)

31. Farm Accounting (3)
Basic concepts and principles of financial accounting systems applied to farm operations; mechanics of recording single and double entry transactions under cash and accrual accounting methods; preparation and analysis of enterprise records and financial statements to generate management information.

32. Agribusiness
Managerial Accounting (3)
Prerequisite: AG EC 31 or ACCT 4A. Application and analysis of accounting information for farm and agribusiness management; integration of economic, and financial principles in preparing business plans; equipment cost control and crop enterprise accounting methods; capital investment and profit performance; introduction to computerized farm accounting systems.

130. Agricultural Finance (3)
Prerequisites: AG EC 1 and AG EC 31 or ACCT 4A. 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; insurance, tax, and farm estate planning.

131. Agricultural Capital Markets (3)
Prerequisites: AG EC 2, 130. Public and private financial intermediaries as sources of agricultural capital; the Cooperative Farm Credit System; credit management policies and practices; government policy, the regulatory environment, and competitive financial markets; legal requirements of financial instruments; external equity capital; and lease financing. (Formerly AG EC 185T)

136. Farm and Ranch Appraisal (3)
Prerequisites: AG EC 1; AG EC 110 or 110N (recommended). Principles of agricultural appraisal; physical and economic factors affecting land values; estimation of real estate value using income, cost, and market data approaches; case studies and field problems involving the valuation of local farm and ranch properties.

Agricultural Development (AG EC)

140. Agriculture and International
Development (3)
Comparative agricultural development in low-, middle-, high-income countries; structural, institutional, technological, investment, trade strategies for modernizing food production/processing/distribution into technically sustainable, culturally compatible, economically viable farming systems; multidisciplinary policy/programs addressing poverty, malnutrition, overpopulation, underemployment, environmental degradation.

Public Policy (AG EC)

150. Agricultural and Food Policy (3)
Prerequisite: AG EC 1. Analysis of public policies affecting the economics of U.S. and California agriculture; government programs influencing agricultural production, commodity distribution, market prices, farm income; environmental and natural resource issues; nutrition, food safety and biotechnology concerns; food industry regulation; international agricultural trade.

153. Agricultural Trade (3)
Prerequisite: AG EC 150. Comparative advantage, trade models, protectionist barriers and balance of payments; world agricultural trade patterns and international commodity agreements; domestic farm programs and foreign trade policies; surplus food aid and concessionary sales overseas; trade liberalization versus preferences issue and economic development.

155. Environmental and Natural
Resource Economics (3)
Prerequisite: AG EC 1 or ECON 40. Economic analysis of public policies governing land use, water management, energy generation, mineral exploitation and forest administration; review of population pressures and resource conservation; examination of externalities, property rights issues, resource use planning, agricultural zoning, environmental regulations, and reclamation law.

Product Marketing (AG EC)

66. Agricultural Communications (3)
Agricultural news and information gathering and dissemination to food producers and consumers through print/broadcast media and computer networks; formulation of promotional programs, advertising campaigns, and public relations for agricultural industries and institutions; mass communications writing, editing; simulated videotape presentations. (Formerly AG EC 166)

160. Agricultural Market Analysis (3)
Prerequisite: AG EC 1. Commodity transformation and product flow through processing and distribution channels; market structure, conduct and performance; marketing system efficiency and marketing bill components; over supply, marketing orders, grading and standards, and price stabilization; price forecasting, futures market trading, and risk management.

162. Commodity Futures Trading (3)
Prerequisite: AG EC 160. Speculation and the price discovery process; fundamental analysis and long-run decisions to hedge; technical analysis and short-run timing of crop/livestock sales; trend line charts utilizing moving averages; trading mechanics, price projection and development of futures trading plans.

163. Agricultural Export Marketing (3)
Prerequisite: AG EC 160. Determination of potential overseas markets for U.S. agricultural products through export marketing studies; foreign business environment and distribution channels; product preparation and transportation abroad; cultural-specific promotional and advertising programs; international sales agreements, financial transactions, plus banking and shipping documentation.

164. Agribusiness
Sales Management (3)
Prerequisite: AG EC 1. Marketing management strategies for stimulating business and consumer demand for agricultural goods and services; food and fiber merchandising using institutional, functional, value approaches; sales program organization and staff development for effective communication of product information and timely completion of transactions.

168. Agricultural Marketing
Management Project (1-3; max total 3)
Prerequisites: AG EC 71, 164 (or equivalent) and permission of instructor. Marketing management principles in preparing marketing plan for annual National Agri-Marketing Association intercollegiate competition; strategic planning for product development, sales projections, distribution channels, pricing tactics, promotion/advertising, market share analysis; focus group, survey research, oral/audio-visual team presentation. (2 activity hours per unit)

Decision Analysis (AG EC)

71. Agricultural Business Statistics (3)
Prerequisites: ELM requirement. Study of statistical techniques and formal reasoning applications to management and social and agricultural sciences. Calculation, interpretation, critical evaluation, and historical relevance of quantitative tools, data analysis, and results including graphical presentations, descriptive and inferential statistics, hypothesis formulation and testing, and regression.

76. Agribusiness
Microcomputer Applications (3)
Prerequisite: intermediate algebra. Applied microcomputing for agribusiness management. Evaluation of alternative microcomputing systems and software. Use of an electronic spreadsheet and database management programs; applications to farm accounting, crop and livestock enterprise management, and agricultural financial planning. (2 lecture, 3 lab hours)

78. Agribusiness
Quantitative Analysis (3)
Prerequisite: ELM requirement met. Functional relationships, marginal analysis and decision-making models in agribusiness; logic and probability in diagnosing problems, designing operations and achieving objectives; identification of procedures for efficient resource utilization.

170. Advanced Agribusiness
Applications (3)
Prerequisites: senior standing or permission of instructor; AG EC 71, 76, 100, 120, 130, 160; upper-division writing skills requirement. Research methods applied to agricultural business; problem definition, hypothesis formulation, research design, data collection, and results analysis using descriptive and inferential statistics. A culminating project includes proposal, research, written report, and oral presentation of findings.

Special Topics (AG EC)

80. Undergraduate Research
(1-4; max total 4)
Prerequisites: AG EC 1 and permission of instructor. Directed study or research on particular problems in the field of agricultural economics and business. Consult department policies and procedures governing undergraduate research. Approved for *SP* grading.

85T. Topics in Agricultural
Business (1-3; max total 6)
Agricultural economics, farm management, agribusiness management, financial planning, agricultural development, public policy, product marketing, and decision analysis. Topics may require lab hours.

180. Undergraduate Research
(1-4; max total 4)
Prerequisites: AG EC 170 and permission of instructor. Directed study or research on particular problems in the field of agricultural economics and business. Consult department policies and procedures governing undergraduate research. Approved for *SP* grading.

185T. Topics in Agricultural Business (1-3; max total 9)
Prerequisite: AG EC 1. Agricultural economics, farm management, agribusiness management, financial planning, agricultural development, public policy, product marketing, and decision analysis. Topics may require lab hours.

Industry Relations (AG EC)

192. Agricultural Business Field Studies (2)
Prerequisite: AG EC 1. 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) (Field trip fee, up to $75)

194. Agribusiness Internship
(1-3; max total 6)
Prerequisites: 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. Only 3 units of internship allowable in the major. *CR/NC* grading only.

GRADUATE COURSES

(See *Course Numbering System and Eligibility*.)

Agricultural Business (AG BS)

200. Seminar in Agricultural Business (1; max total 4)
Prerequisite: permission of instructor. Written and oral reports concerning recent literature on current problems and issues related to agricultural business.

210. Farm Management Analysis (3)
Prerequisite: classified standing or permission of instructor. Integration of production economics theory with management science techniques to develop farm management plans; analysis of farm management decisions under uncertainty using programming models, statistical analysis, and other operations research methods.

225. Food Processing and Distribution Management (3)
Prerequisite: classified standing or permission of instructor. Analysis of strategic management decisions involving pricing relationships, processing and packaging systems, transportation modes and distribution logistics for agricultural products in domestic and global markets; application of modern management tools to food industry case problems including operations of international food marketing firms.

240. Agricultural Sector Planning (3)
Prerequisite: AG EC 130 or FIN 120, AG BS 250. Economic policies, incentive structures, and resource constraints affecting agricultural development; rural development theories, growth models and sector strategies for increasing farm productivity; design, implementation, and evaluation of technical assistance programs; economic and financial appraisal of public and private investment projects.

250. Agricultural Policy Analysis (3)
Prerequisite: classified standing or permission of instructor. Exploration of policy-making processes; evaluation of government farm and food programs; determination of industry responses and firm adjustments to changing market structures and public policies; investigation of agricultural sector problems, issues, and linkages with the national and international economies.

260. Agricultural Marketing Analysis (3)
Prerequisite: classified standing or permission of instructor. Examination of demand and supply functions underlying market price determination; review of farm-retail marketing margins; analysis of spatial and intertemporal price equilibrium models; application of econometric techniques to empirical cases; preparation of marketing studies; development of distribution/merchandising strategies.

280T. Topics in Agricultural Business (3; max total 6)
Prerequisite: upper-division agricultural economics courses appropriate to the topic. Fields of study include: farm management, agribusiness management, financial planning, agricultural development, public policy, and product marketing.

290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (3-6; max total 6)
Prerequisite: prior advancement to candidacy; see *Criteria for Thesis and Project*. Management audit of an operating agricultural business firm, replicated feasibility study, computer model, system simulation or similar professional problem-solving activity with extensive written documentation. Public presentation of proposal and seminar, plus final oral defense required. Approved for *SP* grading.

299. Thesis (3-6; max total 6)
Prerequisite: prior advancement to candidacy; see *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System*.)

Agriculture (AGRI)

300. Topics in Agriculture
(1-3; max total 6)
Topics may require lab hours. In-service professional training in selected areas of agriculture.

Animal Sciences and Agricultural Education

College of Agricultural Sciences and Technology

Department of Animal Sciences and Agricultural Education

Arthur A. Parham, *Chair*

Vicki Fisher, *Administrative Support Coordinator*

Agriculture Building, Room 232

(559) 278-2971

http://cast.csufresno.edu/ansci/

B.S. in Animal Sciences

Options:

- Science
- Production Management

B.S. in Agricultural Education

Options:

- Agricultural Communications
- Teacher Preparation

M.A. in Special Major

Animal Science

Minor in Animal Sciences

Agricultural Specialist Credential

Animal Sciences and Agricultural Education

Prepare for the future in agricultural sciences, technology, and management with a degree in animal sciences or agricultural education. The Department of Animal Sciences and Agricultural Education offers options in agricultural communications, teacher preparation, science, and production management. The science option has career specialization in the areas of basic animal science and preveterinary medicine. The production management option offers career specialization in the areas of dairy science, equine science, meat technology and livestock business management. Courses integrate animal evaluation, behavior, disease, environmental management, genetics, health, marketing, muscle biology, nutrition, physiology, production, and reproduction.

The agricultural education major is designed to prepare students for positions as agricultural communication specialists and vocational agriculture teachers. Specializations may be developed in animal sciences, plant sciences, or mechanized agriculture.

Instructional Facilities

Instruction in the animal science disciplines is enhanced through practical application at the various farm laboratory units. The Beef, Dairy, Horse, Meats, Poultry, Sheep, and Swine units are maintained to support this educational purpose. In addition, veterinary and physiology laboratories are utilized to complement on-campus education. A 4,300-acre livestock and range management facility and another 800 acres of rangeland in the Sierra foothills are available.

Career Opportunities

Students specializing in animal science prepare for careers in the livestock industry where they may be engaged in consultation, management, production, research, teaching, or other professional services as well as careers in business, government and foreign service. Students specializing in agricultural education may pursue a variety of challenging careers in the educational field.

The courses offered in the programs listed in the copy that follows provide the necessary background to prepare students for careers in the agricultural industry.

Agricultural Communications. Combines courses in agriculture with a journalism core and a specialty in advertising, news-editorial, photo communications, public relations, or radio-television designed to train students for employment opportunities in the field of communication.

Basic Animal Science. Provides a science oriented curriculum in the disciplines of animal science. Prepares students for postbaccalaureate study or careers related to science, research, and the technical aspects of animal science.

Dairy Science. Prepares students for commercial and registered dairy herd management, breed association representatives, artificial breeding services, dairy sanitation, milk quality control, and other dairy-related occupations.

Equine Science. Prepares students for careers in the equine industry by combining coursework in horse production, advanced horse management, equine nutrition and other related subjects with hands-on experience and internships at our on-campus Quarter Horse Unit and at local horse farms. Courses in equitation and horsemanship at our Student Horse Center compliment the major and provide vocational opportunities to students as well.

Meat Technology. Prepares students for employment in the meat industry by offering courses in the areas of meat science, muscle biology, food science and nutrition, food chemistry, and marketing.

Preveterinary Medicine. Provides a structured program of courses in animal science and related biological/physical sciences which prepares students for admission to schools of veterinary medicine and for employment in the animal health industry.

Livestock Business Management. Provides a curriculum designed to support a strong core of animal science with specialized training in agricultural business. Students who select this option may wish to consider a Minor in Agricultural Business.

Teacher Preparation. Prepares students for positions as vocational agriculture teachers. (See *Agricultural Education Major*.)

Faculty

Arthur A. Parham, *Chair*

Anne V. Rodiek, *Graduate Coordinator*

Richard A. Rogers, *Agricultural Education Credentialing Coordinator*

Randy C. Perry

Jon D. Robison

Michael W. Thomas

Scott A. Williamson

The faculty members represent diverse specializations in the disciplines of animal science and teacher training. With doctoral degrees from many of the nation's outstanding agricultural universities, the faculty have combined philosophies of undergraduate education, research, curriculum development, industry relations, and career placement into a unique program. Their experience combines the practical and theoretical aspects of the animal sciences to provide an education second to none. Students are assigned an adviser who assists in both academic and career planning on an individual basis. The faculty place a high priority on strong adviser-advisee relationships.

Bachelor of Science Degree Requirements

Animal Sciences Major

Choose one option and one specialization under that option.

Options: Science, Production Management.

Units

General Education 51
(including 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed)

BREADTH
(see Additional Requirements area for department required G.E. courses for the following Breadth areas: B1, B2, D3, E)
Breadth Sub-area C2: ENGL 20 (recommended)

INTEGRATION
Sub-area 1B: CHEM 170 or N SCI 120 or PLANT 105 (recommended)

Program requirements 62-88
Animal Science Core .....(42)
A SCI 1, 35, 65, 101, 125, 135, 145, 155, 165, 171, 186
Select two from the following: A SCI 21, 31, 41 51**, 61**, 91
Select one from the following: A SCI 180, 181, 190, 194

Production Management Option
Career specialization *(choose one)*

Livestock Business Management Specialization ..... (22-23)
A SCI 11, 81, 156
Select 12 units from: A G EC 28 or B A 18; AG EC 31 or ACCT 4A; AG EC 110*** or 110N or 120; AG EC 117, 130; AG EC 160 or 164
Select one of: A SCI 121, 131, 151, 161, 172

Dairy Science Specialization ..... (20-23)
AG EC 110N or 117 or 120; A SCI 61**, 146, 156, 161, 162, 163
Select 3 units from: AG EC 31, 110***, 130, 160, 162; FSC 3

Equine Science Specialization ..... (13-17)
AG EC 110N or 117 or 120

Choose two of: A SCI 52, 53, 54, 55, 187
A SCI 51**, 151, 156, 185T (topics related to equine)

Meat Technology Specialization .....(19)
A SCI 11, 172, FSC 110, 125, 178
CHEM 8; 150

Additional requirements ...(7-23)
(for all Production Management Specializations)
AG EC 1; 76 or C SCI 101 or IS 50; A SCI 67; MICRO 20 or 140; BIOL 10 or ZOOL 10; CHEM 3A

Science Option
Career specialization *(choose one)*

Basic Animal Science Specialization ..... (15-16)
A SCI 156
Choose one of: A SCI 121, 131, 151, 161, 172
BIOSC 1B; CHEM 8, 150

Additional requirements ....(16)
AG EC 76 or C SCI 101 or IS 50; MICRO 20 or 140; BIOSC 1A; CHEM 1A

Preveterinary Medicine Specialization ..... (23-27)
A SCI 68; BIOSC 1B; CHEM 1B, 8 or 128A/B, 108*** or 129A, 150; PHYS 2A

Additional requirements ....(19)
AG EC 76 or C CSI 101 or IS 50; A SCI 67; MICRO 20 or 140; CHEM 1A; BIOSC 1A

Electives* 0-15

Total minimum requirements 128

* It is anticipated that 13 units required for the major will also satisfy General Education requirements

** Equine specialization majors are required to take A SCI 51. Dairy specialization majors are required to take A SCI 61 from the core requirements.

*** This course has a prerequisite course not listed among the requirements.

Advising Notes

1. Mandatory advising is required of all students in the degree program. See the administrative support coordinator for the name of your assigned adviser.
2. New students should request an option advising check sheet from the department office.

3. All students should make an appointment with their assigned faculty adviser prior to registration each semester.
4. *CR/NC* grading is not permitted for courses included in the major unless the courses have been designated *CR/NC* grading only.
5. Fifty-one units of General Education may be exceeded depending upon the selection of courses.
6. Some General Education courses may be double counted to simultaneously satisfy major as well as General Education requirements. Consult your adviser for clarification.
7. The upper-division writing skills requirement can be met by passing the university examination (UDWE) or by taking an approved upper-division writing skills course, to be taken no sooner than the term in which 60 units are completed. One unit of credit in ENGL 100W may be earned for passing the exam if requested by the student; three to four units of credit will be earned by obtaining a letter grade of *C* or higher in an approved course.
8. One semester prior to graduation make an appointment with your faculty adviser to prepare an official Certification of Major Requirements form.
9. Preveterinary medicine students should consult their faculty adviser regarding entrance requirements and admissions procedures to veterinary school. Total number of units will exceed 128 if a student chooses to meet all of the Veterinary Medicine entrance requirements. Additional courses such as PHYAN 135 and PHYS 2B may be required.

Bachelor of Science Degree Requirements

Agricultural Education Major

Options: Agricultural Communications, Teacher Preparation

Units

General Education 51
(including 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed)
15 units of G.E. requirements are included among Additional Requirements in G.E. areas as noted in brackets [ ].

Major 54-59
(including 20 upper-division units)
Select *Teacher Preparation* or *Agricultural Communications*

Teacher Preparation Core .... (36)
Agricultural Economics..... (6)
AG EC 31, 110N or 120
Animal Science ..... (9)
A SCI 1, 11; select one of the following: A SCI 21, 31, 41, 61, 91
Plant Science ..... (12)
CR SC 1; OH 1; SW 100; VTF 110
Mechanized Agriculture ..... (9)
ME AG 1, 50, 114

Teacher Preparation Career Specialty ..... (18)
Select one: Animal Science, Mechanized Agriculture, or Plant Science (see *Teacher Preparation Option check sheet available in the department office.*)

Agricultural Communications Core ..... (47)
Agricultural Economics ..... (6)
AG EC 66, 153
Agricultural Education..... (3)
AG ED 150
Mass Communication and Journalism..... (11)
MCJ 1, 10, 104
Plant Science ..... (12)
CR SC 1; OH 1; SW 100; VTF 110
Mechanized Agriculture ..... (3)
ME AG 20
Food Science and Nutrition..... (3)
FSC 3
Animal Science ..... (9)
A SCI 1, 11, 21 or 31 or 41 or 51 or 61 or 91

Agricultural Communications Career Specialty ..... (14-16)
Select one: Advertising, News-Editorial, Photo Communications, Public Relations, Radio and Television (see *Agricultural Communications Option check sheet available in the department office.*)

Additional requirements 20-36
CHEM 3A [B1]; BOT 10 or ZOOL 10 [B2]; ENGL 20 [C2]; AG EC 1 [D3]; A SCI 67 [E]

Teacher Preparation ..... (19)
Upper-division writing skills
Teacher Education requirements: AG ED 135, 150, 187, 189; EHD 50; H S 121

Agricultural Communications ..... (3)
Upper-division writing skills (MCJ 102W required)

(*Note*: It is anticipated that some of the aforementioned courses will also meet General Education requirements.)

Electives 2-11
Courses supplementary to the major are strongly recommended.

Total minimum requirements 128
(including 40 upper-division units)

Advising Notes

1. See *Advising Notes 1-8* following animal sciences major.
2. Teacher preparation majors seeking a Single Subject Teaching Credential are urged to take the Upper-Division Writing Examination (UDWE) at least once. Those who pass the examination may receive one unit of credit. (For details consult the Office of Testing Services.)
3. Contact the Admissions Office of the School of Education and Human Development for requirements related to the California Basic Educational Skills Test (CBEST).
4. Agriculture courses titled *Tours* or *Lectures* may be used to satisfy upper-division unit requirements but may not be counted to satisfy agricultural education core or specialized field requirements in the major.
5. Candidates for the Agriculture Specialist Credential must possess 3,000 hours or two years of occupational experience in agriculture. (For details, consult the agricultural education credentialing coordinator.)
6. Agricultural communications students must take and pass the Language Qualification Examination. A screening examination administered by the Mass Communication and Journalism Department must be passed before permission is given for enrollment in MCJ 10 and in

most of the other journalism writing and editing courses. (See prerequisites for each course before attempting to enroll.) Students who do not pass the Language Qualification Examination may retake it the following semester.

Single Subject Credential Waiver Program

Completion of the Bachelor of Science degree in Agricultural Education meets the requirements of the Single Subject Waiver Program. The Single Subject Credential authorizes the holder to teach *general agriculture* in grades 7-12. Students with a B.S. degree in another agricultural major may obtain a Single Subject Credential by completing the remaining coursework required for the B.S. degree in Agricultural Education.

Credential candidates must pass examinations in reading, writing, and mathematics in addition to other numerous state of California and California State University, Fresno requirements. Consult the agricultural education major adviser and the School of Education and Human Development for details; file an official program of study.

Agricultural Specialist Credential Program

The Agricultural Specialist Credential, which authorizes holders to teach secondary school vocational agriculture, is offered jointly by the College of Agricultural Sciences and Technology and the School of Education and Human Development. It requires completion of the Single Subject Waiver Program (see above), professional education courses (see *Education — Single Subject Credential — Program Requirements, Professional Preparation*), and an approved fifth-year program of 30 postgraduate units including AG ED 135, 150, 187, 189; EHD 155B; CTET 161; and AGRI 280, 281.

Animal Sciences Minor

This program is designed for agricultural business majors. Students in other majors who desire additional technical and animal management skills may also opt for this minor. Additional livestock knowledge and experience will help the manager or consultant relate to and communicate with employees or clients.

Students should consult with a faculty adviser in the Animal Sciences Department to plan the minor. The adviser and department chair must approve the minor program before it can be certified by the school dean. It is then filed with the Evaluations Office and recorded on the transcript.

A Minor in Animal Sciences consists of a minimum of 21 units. Nine of the units must be upper division.

	Units
Core Requirements	
Intro Animal Sciences: A SCI 1	**3**
Livestock Evaluation: A SCI 11	**3**
Animal Nutrition: A SCI 35	**3**
Farm Animal Environment: A SCI 101	**3**
Focus Areas	
Animal Science Principles	**3-6**
Production and Management	**3-6**
Total	**21**

Advising Notes

1. Obtain Animal Sciences Minor advising sheet from a faculty adviser for selection of courses in each of the focus areas.
2. Courses in a major cannot be applied toward a minor unless designated as additional requirements.
3. All courses in the minor must be taken for a letter grade. *CR/NC* grading is not acceptable.
4. A minor may be earned only at the time a student earns the first baccalaureate degree.

Master of Arts Degree Program

The Master of Arts in Special Major is a program of advanced study in animal science available through a specially constructed M.A. in Special Major. This program is a 30-unit degree program designed to extend professional competence in animal research, production, and agricultural education, and to provide the first graduate degree for students anticipating advanced graduate work in the animal sciences. Coursework in animal science includes animal nutrition, meats, physiology, breeding and genetics, management, and health. Appropriate coursework in agricultural education, chemistry, biology, food science or business may also be taken with approval to meet the needs of individual student programs. Full-time graduate students may earn the degree within two years when working closely with an adviser. To accommodate part-time students, graduate courses are offered in the late afternoon or evening.

Admission Requirements. The Master of Arts in Special Major with a focus on Animal Science assumes preparation equivalent to a bachelor of science degree in animal science or agricultural education from an accredited institution. The preparatory baccalaureate degree must include the following courses or their equivalents:

- A SCI 35 and three of the following five courses: A SCI 125, 135, 145, 155, 165;
- BIOSC 1A or ZOOL 10;
- CHEM 1A or 3A;
- two of the following courses: CHEM 8, 150; MICRO 20, PHYS 2A and 2B; and
- two animal science production courses.

The above courses or equivalents must be completed prior to enrollment in courses which will be applied to the master's program.

Admission to unclassified postbaccalaureate standing by the university does not imply acceptance in the Master of Arts in Special Major program.

Applicants whose preparatory education was principally in a language other than English must earn a minimum TOEFL score of 550.

Admission Materials. To be considered for admission to the graduate program, the candidate must submit the following materials: evidence of a baccalaureate degree in animal science or agricultural education, or a related field with appropriate preparatory coursework from an accredited institution; official transcripts of all college work; scores from the Graduate Records Examination General Test (GRE); an application for graduate/post baccalaureate admission; three letters of reference from employers or faculty at the university attended most recently; and a statement of 500 words or less indicating reasons for pursuing a master's degree.

Admission Criteria. Candidates for admission will be evaluated using the following criteria: undergraduate coursework; grade point average of 3.0 or better (last 60 semester units); recommended GRE scores (480V/580Q are equivalent to the 50th percentile); 500-word statement of professional goals; and three letters of recommendation. Students lacking in any area with compensating strengths in other areas are encouraged to apply.

Classified standing will be granted to students who meet all of the admission criteria. Conditional classified standing may be granted to applicants with a 2.75-2.99 GPA (last 60 semester units) and/or those required to complete prerequisite coursework. Prerequisite coursework is not included in the 30-unit master's program. Students must request classified standing in the program by the semester in which a maximum of 10 units to be used toward the degree are completed.

Prerequisite Requirements. PLANT 99, AG EC 71 or MATH 101 (one course), and BOT 130, CHEM 105, 109, 151, or FSC 115 (one course), are required.

Program Requirements

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

	Units
Core	**12**
AGRI 200, 201 (or BIOL 274), 220, 229 (1+1+1)	
Electives	**14**
100-200 level courses with prior approval of adviser and thesis committee. Courses may be chosen from the following: AGRI 240T, 241, 242, 246, 247, 248, 290	
AG ED 280, 281	
CHEM 150, 151, 153, 156	
Courses in agriculture, business, food science, biology, or other	
Culminating experience	**4**
AGRI 299	
Total minimum requirements	**30**

Graduate Advising Notes

1. Several of the 200-level and approved elective courses have prerequisites other than courses listed as admission requirements.
2. Students must request specific information concerning the program from the department office.
3. Upon admission, students should see the graduate coordinator for assistance in program planning, selection of graduate adviser, and selection of a thesis committee.
4. To progress through the graduate program, the student must:
   a. Maintain a minimum 3.0 GPA
   b. Complete all prerequisite coursework
   c. Attain classified standing
   d. Meet university graduate writing requirement
   e. File for advancement to candidacy
   f. Complete the program requirements
   g. File a master's thesis committee assignment form
   h. Formally present and defend the thesis research results
5. Advancement to candidacy requires the completion of 9 program units in residence (minimum GPA of 3.0), meeting the university graduate writing skills requirement, departmental requirements, and filing a petition of advancement to candidacy no later than one semester prior to enrollment in thesis and by the deadline.
6. The student shall meet the graduate writing proficiency requirement by earning a *B* or better in AGRI 220.
7. The student may apply a maximum of 2 units of independent study to the master's program.
8. A maximum of 9 units of 100-level courses may be used to meet degree requirements.
9. See *Division of Graduate Studies* in this catalog for university requirements.

COURSES

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

Note: Cost to the student of extended field trips varies each semester depending upon itinerary. The student should ask the course instructor.

Animal Science Principles (A SCI)

1. Introduction to Animal Science (3)
Overview of the livestock and poultry industry; types and breeds, world distributions, foods and products from farm animals, reproduction, genetics, nutrition, and marketing. (2 lecture, 2 lab hours)

35. Feeds and Feeding (3)
Prerequisite: CHEM 3A. Principles of nutrition; nutrients and their metabolism; comparison of qualitative nutrient requirements of non-ruminant and ruminant animals and formulating diets to meet these requirements. (2 lecture, 3 lab hours)

65. Introduction to Animal Health (3)
The stockman's approach to animal health and disease control in domestic animals. Classification of animal diseases, their causes and appropriate treatments with emphasis on preventative medicine. (2 lecture, 3 lab hours) (Formerly A SCI 65A)

67. Animals and Society (3)
Philosophical, ethical, and scientific investigation of the human/animal bond and the significance of animals in our society. Importance of animals in wellness, rehabilitation/convalescence, and stress management. Interdisciplinary investigation of controversies in animal research and human disease. G.E. Breadth E1.

101. Environmental Management of Farm Animals (3)
Prerequisite: A SCI 1. Basic principles of environmental management as applied to domestic farm animals. Special emphasis given to animal behavior, animal welfare, and animal performance. The optimal animal environment will be studied in detail.

125. Animal Genetics (3)
Prerequisite: A SCI 1. Genetic principles and application to livestock production; basic inheritance, qualitative genetics, variation in economic traits of livestock, quantitative inheritance, selection progress; current methods of genetic livestock improvement.

135. Animal Nutrition (3)
Prerequisite: A SCI 35. Principles of nutrition and metabolism; digestive physiology of farm animals.

145. Anatomy and Physiology of Farm Animals (3)
Prerequisite: BIOL 10 or ZOOL 10. General structures of farm animals and physiological functions of organs in the animal body. (Formerly A SCI 145A)

146. Physiology of Lactation (3)
Fundamentals of anatomy, physiology, and endocrinology of milk synthesis and secretion; milking machine systems and management; pathological and environmental factors affecting lactation.

155. Animal Reproduction (3)
Prerequisite: A SCI 145. Principles of reproductive physiology, associated endocrine hormones, and their application to domestic animals.

156. Artificial Insemination — Embryo Transfer (1)
Prerequisites: A SCI 145, 155 (or concurrently). Basic principles of artificial insemination and embryo transfer with emphasis on application to cattle. (3 lab hours)

163. Dairy Cattle Nutrition (3)
Prerequisite: A SCI 135. Principles of dairy cattle nutrition. Nutritional requirements of the dairy calf through the mature cow. Special emphasis on computerized diet formulation and feed inventory control.

165. Infectious Diseases of Domestic Animals (4)
Prerequisite: BIOL 10 or ZOOL 10. Microbiological concepts related to bacterial, viral, and fungal diseases in domestic animals with emphasis on specific diseases of veterinary importance. (3 lecture, 3 lab hours)

Production and Management (A SCI)

11. Livestock Selection and Evaluation (3)
Prerequisite: A SCI 1 or concurrently. Basic factors involved in selection and evaluation of livestock; relationships of live market animal traits to carcass cutability and quality. (2 lecture, 3 lab hours)

21. Beef Cattle Production (3)
Prerequisite: A SCI 1 or concurrently. Overview of world and United States beef production. Evaluation of the structure of the beef industry (consumer, packer, retailer, feedlot, seedstock, commercial cow-calf, stocker). Discussion of genetics, nutrition, reproduction, and meat science as applied to beef cattle. (2 lecture, 3 lab hours)

31. Swine Production (3)
Prerequisite: A SCI 1 or concurrently. Management principles and practices of purebred and commercial pork production. Nutrition, reproduction, environmental management, health, marketing, selection, and records are studied. (2 lecture, 3 lab hours; field trips)

41. Sheep Production (3)
Prerequisite: A SCI 1 or concurrently. Management of purebred, commercial, and small farm flocks; principles and practices in breeding, feeding, care of ewes and lambs, and marketing of lamb and wool. (2 lecture, 3 lab hours)

51. Horse Production (3)
Prerequisite: A SCI 1 or concurrently. Not open to students with credit in A SCI 152A. Breeds selection, care, and feeding of light horses. (2 lecture, 3 lab hours)

52. Beginning English Equitation (2)
Basic horsemanship skills including haltering, grooming, saddling, and bridling; beginning English riding skills including proper body position at the walk, trot, and canter and simple use of aids to cue the horse; basic care of horse. (Two 2-hour activities) (Course fee, $150)

53. Intermediate English Equitation (2)
Prerequisite: A SCI 52 or equivalent. Development of a functional position to control and balance the horse at all three gaits (hunt seat style); beginning jumping; care and use of tack and equipment. (Two 2-hour activities) (Course fee, $150)

54. Beginning Western Horsemanship (2)
Basic horsemanship skills including haltering, grooming, saddling, and bridling; beginning Western riding skills at the walk, jog, and lope and simple use of aids to cue the horse. (Two 2-hour activities) (Course fee, $150)

55. Intermediate Western Horsemanship (2)
Prerequisite: A SCI 54 or equivalent. Western horsemanship skills to control and balance the horse at all three gaits and to perform other movements basic to the Western horse; care and use of tack and equipment. (Two 2-hour activities) (Course fee, $150)

61. Dairy Cattle Production (3)
Prerequisite: A SCI 1 or concurrently. Principles and practices of milking, feeding, breeding, evaluating, housing, health, behavior, and management of dairy cattle. (2 lecture, 3 lab hours)

68. Pre-Vet Orientation (1)
Detailed information for students preparing for veterinary school including course requirements, admission policies, application procedures, interview sessions, and career opportunities in vet medicine. (Formerly A SCI 185T)

81. Introduction to Livestock and Dairy Evaluation (3)
Introductory course in evaluating livestock for breeding and market purposes. Utilizes visual and performance data in establishing the economic value of animals representing the beef, sheep, swine, dairy, and horse industries. (2 lecture, 3 lab hours)

91. Poultry Production (3)
Prerequisite: A SCI 1 or concurrently. Management principles and practices of commercial poultry production. Nutrition, reproduction, environmental management, health, and processing of broilers and layers. (2 lecture, 3 lab hours) (Formerly A SCI 185T section)

121. Advanced Beef Management (4)
Prerequisite: A SCI 21. Prevailing and alternative management systems and techniques of beef production in the United States and California including economic analysis. (3 lecture, 3 lab hours) (Formerly A SCI 121A)

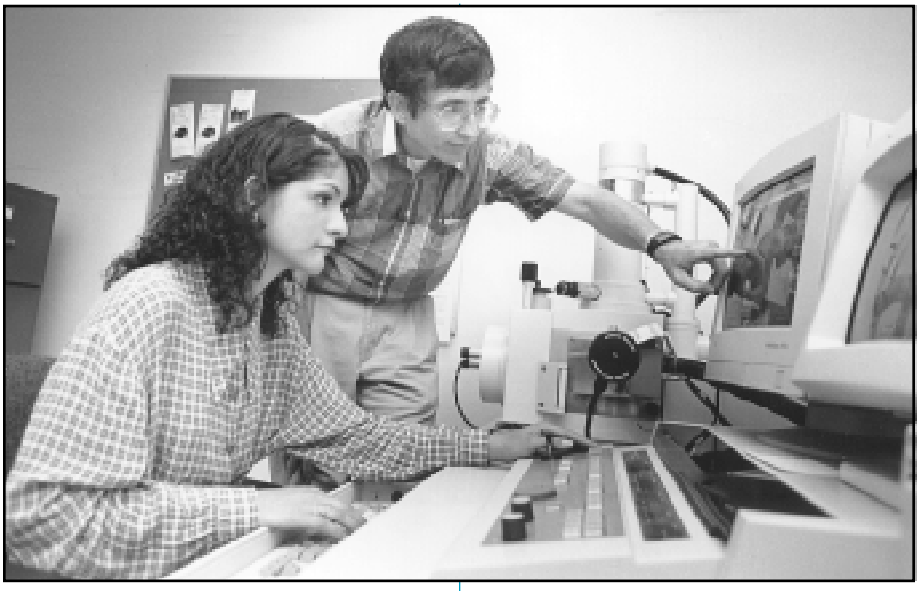
131. Advanced Swine Management (4)
Prerequisite: A SCI 31. A comprehensive study of the swine industry. Laboratory exercises designed to improve the management decision ability of students. (3 lecture, 3 lab hours; field trips) (Formerly A SCI 131A)

151. Advanced Horse Management (3)
Prerequisite: A SCI 51. Advanced principles of horse management, reproduction, breeding systems, nutrition, facilities, business aspects, exercise physiology, training colts. (2 lecture, 3 lab hours)

161. Advanced Dairy Farm Management (4)
Prerequisite: A SCI 61. A comprehensive study of daily industry management strategies and practices. Exercises involve recognition of problems and recommendation of solutions associated with managing commercial dairy operations. (3 lecture, 3 lab hours; field trips)

162. Dairy Systems Management (3)
Prerequisite: A SCI 61. A comprehensive study of technological systems employed in commercial dairies. Exercises involve analysis of systems for application in various facilities. The impact of these systems on the animal, on environment, and on economic viability is considered. (2 lecture, 3 lab hours)

171. Meat Science (4)
Prerequisite: A SCI 1 or concurrently. Basic meats course: inspection, factors that affect quality and quantity of meat, selection and preparation of meats and meat products, and safety regulations and requirements. Two lab sections offered: Lab A includes slaughtering and processing; Lab B is consumer



oriented processing without slaughtering. (3 lecture, 3 lab hours) (Formerly A SCI 171A)

172. Meat Technology (3)
Prerequisite: A SCI 171. Fabricating and pricing of wholesale and retail meats; technology of fresh and processed meat; sausage manufacturing; quality control. (2 lecture, 3 lab hours)

Special Topics and Industry Relations (A SCI)

94. Agri Internship (1-6; max total 6)
Prerequisite: minimum GPA of 2.0 and instructor approval. Emphasis on acquisition through experience of practical animal production skill integrated with basic principles acquired in the classroom. This course is for on-campus internships at animal science related units only. *CR/NC* grading only.

180. Undergraduate Research
(1-4; max total 4)
Open to juniors and seniors. Exploratory work on a suitable agricultural problem in animal science. Approved for *SP* grading.

181. Advanced Livestock and Dairy Evaluation (3; max total 6)
Prerequisite: A SCI 11 or 81 or permission of instructor. Detailed analysis of animal form related to functional efficiency, economic value, and sound livestock production management. Written and oral defense of judgments (dairy, horse, livestock, meats). (2 lecture, 3 lab hours; field trips)

182. Livestock Marketing and Show Management (1-2; max total 4)
Development of skills in the organization, administration, and operation of livestock activities at a district fair level. Emphasis on practical application of skills. (2 lab hours per unit)

183. Issues and Opportunities in Animal Sciences (2; max total 4)
Prerequisite: A SCI 1. Invited speakers provide insight on current industry issues. Comprehensive study of career opportunities available in animal science. Field experience is offered in specific areas.

185T. Topics in Animal Science
(1-4; max total 4 per discipline if no topic repeated)
Prerequisites: junior standing and permission of instructor. Anatomy, physiology, pathology, nutrition, genetics, livestock management. Topics may require labs.

186. Animal Science Seminar (1)
Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Latest developments in research; assigned papers in animal science to be presented in both oral and written form.

187. Women's Equestrian
(2; max total 8)
(See ATHL 181.)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

194. Agricultural Internship
(1-8; max total 8)
Prerequisites: junior or senior standing and approval of internship committee. This course to be used by students doing off-campus, industry-related internships only. Emphasis on development of decision-making ability through industrial experience integrated with basic principles acquired in the classroom. *CR/NC* grading only.

196. Enterprise Management
(1; max total 6)
Prerequisites: A SCI 21, 31, or 41; ME AG 3; or permission of instructor; concurrent participation in project program required. Theory and field application of management principles in beef, sheep, swine, and other appropriate animal science enterprises.

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. Approved for *SP* grading.

115. FFA Activities (2; max total 4)
Organization and administration of various FFA activities. Parliamentary procedure and meeting organization; committee work and structure.

135. Introduction to Agricultural Education (3)
Survey of agricultural education in California, including qualifications for teaching agriculture, structure and content of vocational agriculture programs. Supervision of vocational youth organizations.

150. Agricultural Resources and Computer Applications (3)
Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Development and application of techniques for obtaining and using resource materials including government documents, university and experiment station reports. Development of computer skills utilized in agricultural education. (2 lecture, 2 lab hours)

160T. Topics in Agriculture
(1-4; max total 6 per discipline if no topic repeated)
Prerequisites: junior standing and permission of instructor. Agricultural education. Topics may require lab hours.

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. Approved for *SP* grading.

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. Education in Agricultural Mechanics (3)
Prerequisites: ME AG 1; junior standing. Strategies for organizing, teaching, and administering educational programs in agricultural mechanics for youth and adults.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

The following courses are open to students who have been accepted into the graduate program. Students who are not in graduate standing should contact the department graduate coordinator prior to enrolling.

Agriculture (AGRI)

200. Biometrics in Agriculture (3)
Prerequisite: PLANT 99, AG EC 71, or MATH 101, or permission of instructor. Advanced concepts in the design of agricultural experiments. Emphasis is placed on the selection of appropriate designs to meet the objectives of well-planned experiments. Relative merits of various designs and topics in analysis, interpretation, and regression are covered.

201. Agricultural Laboratory Techniques (3)
Prerequisite: One of the following courses: BOT 130; CHEM 105, 109, 151; FSC 115. Agricultural problem solving through the application of advances in laboratory technology, crop management, foods, nutrition, soil and water quality. Theory and practice operation of scientific instruments and techniques are taught. Student-defined project and report required. (2 lecture, 3 lab hours)

220. Research Methodology and Communications (3)
Critical literature review, quantitative and qualitative research design, scientific writing, questionnaire design and use, and presentation of research results. Ethical research issues examined. Approved for *SP* grading.

229. Seminar (1; required total 3)
Prerequisite: permission of instructor. Students investigate and present current research problems. Observation and evaluation of additional assigned seminars. Oral and written reports required. (Formerly AGRI 260)

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 145; permission of instructor. A study of environmental factors affecting domestic animals under field and controlled conditions.

246. Ruminant Nutrition (3)
Prerequisite: A SCI 135, CHEM 150. Ruminant physiology of digestion, absorption, and metabolism and nutrients, and the relationship of enzymes and hormones.

247. Concepts in Non-Ruminant Nutrition (3)
Prerequisite: A SCI 135 or equivalent, graduate standing or consent of instructor. Digestion, absorption, nutrient utilization, and interrelationships in poultry, swine, and other non-ruminants.

248. Meat Science and Muscle Biology (3)
Prerequisite: A SCI 171, graduate standing or consent of instructor. Evaluation of muscle as meat; biological characteristics, growth and development of skeletal muscle, glycogen metabolism, and factors affecting quality of meat.

280. Seminar in Agricultural Education
(1-3; max see below)
Maximum total credit 9 units in any given area or any combination of the three areas. Prerequisite: permission of instructor; admission to teacher preparation program; bachelor's degree in agriculture. Advanced problems in agriculture; research and experimentation in a selected area: animal science, plant science, or agricultural mechanics. Approved for *SP* grading.

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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

299. Thesis (2-4; max total 4)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System*.)

Agriculture (AGRI)

300. Topics in Agriculture
(1-3; max total 6)
Topics may require lab hours. In-service professional training in selected areas of agriculture.

Child, Family, and Consumer Sciences

College of Agricultural Sciences and Technology

Department of Child, Family, and Consumer Sciences
Nina J. Dilbeck, *Chair*
Belinda Rossette, *Administrative Support Coordinator*
Family and Food Sciences Building, Room 204
(559) 278-2283
http://cast.csufresno.edu/cfcs/

B.A. in Family and Consumer Sciences
Programs of study:
- Child and Family Sciences
- Clothing and Textiles
- Consumer Science
- Fashion Merchandising
- General Family and Consumer Sciences
- Home Economics Teacher Education

B.S. in Child Development

M.S. in Family and Consumer Sciences

Minor in Family and Consumer Sciences

Minor in Fashion Merchandising

Certificate of Special Study in Fashion Merchandising

Child, Family, and Consumer Sciences

The Department of Child, Family, and Consumer Sciences is dedicated to improving the environment and quality of life through education, research, and public service in the areas of family and consumer sciences. The department is housed in the Family and Food Sciences Building on the west side of the campus. Two well-equipped laboratory rooms as well as several showcases facilitate learning for students in the clothing and textiles, fashion merchandising area.

Child care laboratory facilities serving infants, toddlers, and preschool children are maintained for instruction purposes. Students study child behavior and development under the supervision of faculty and laboratory teaching staff.

Career Opportunities

Career opportunities for family and consumer sciences professionals are available in the concentrations of child and family sciences, clothing and textiles, consumer science, fashion merchandising, general family and consumer sciences, and home economics teacher education. Students may qualify for these career opportunities by selecting appropriate electives in their special areas of interest. Students must consult with a departmental academic adviser in selecting appropriate courses for their special areas of interest. Appropriate selection of courses offered in the concentrations listed in the copy that follows provide the necessary background to prepare students for careers in family and consumer sciences.

Child and Family Sciences. Courses focus on individual and family development through the life cycle with analysis of the forces affecting personal and family development and relationships. Career possibilities include: elementary teacher (this requires a credential), child care consultant, child advocate, administrator of family services, counseling, and child care program administrator.

Clothing and Textiles. Courses prepare students for careers such as textiles technician, product and research evaluator, product promoter, industry or trade association representative, museum costume curator, textile conservator, textile sales representative, and cooperative extension agent.

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 advisers, consumer representatives in business and consumer relations specialists. Other opportunities include work in product testing and research, debt counseling, government agencies, cooperative extension service agents or specialists, 4-H youth agents, communications, and equipment consultant services.

Fashion Merchandising. Courses focus on the many facets of the apparel industry, display techniques, social and psychological aspects of clothing, clothing construction, and fashion analysis, as well as practical application through working in the industry. Computer-aided design is utilized in teaching merchandising and design principles. Career opportunities are found in retail, wholesale, and private apparel industries.

General Family and Consumer Sciences. Courses prepare students for such careers as cooperative extension service agents or specialists, and 4-H youth agents.

Home Economics Teacher Education. Courses under the credential program focus on the preparation of teachers, who will teach in public schools and professionals who will serve as consultants in business and government.

Faculty

Nina J. Dilbeck, *Chair*
Jackie Adamson
Richard D. Berrett
William R. Fasse
Carolyn B. Jackson
Marianne Jones
Michele M. Kilner
Eugene Wm. Krebs
Kathie Reid
Kennon Rider

The faculty members are highly qualified professionals with advanced degrees from universities across the nation. They bring practical insights and experience to the classroom through local and national professional activities: owning and directing child development centers, operating counseling centers, consulting, serving on advisory boards, and conducting research. Students find departmental faculty vitally helpful in guiding them through their academic experience as well as helping them pursue career goals.

Bachelor of Arts Degree Requirements

Family and Consumer Sciences Major — *Units*

General Education 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)

Major 48
(including 24 upper-division units)

Department Core ..... (18)
CSH 113, 116; CFS 131; F M 120; FCS 1; NUTR 53

Career Specialty ..... (30)
Select one:

Child and Family Sciences
CFS 32, 37, 39, 133S, 134, 135; CSH 115; plus 9 upper-division units in consultation with adviser

Clothing and Textiles
F M 20, 22, 24, 26, 121, 123, 124, 126; ID 70; plus 5 upper-division units in consultation with adviser

Consumer Science
CSH 114, 115, 117, 118, 171; plus 15 upper-division units in consultation with adviser

Fashion Merchandising
F M 20, 22, 24 or 26, 124, 126, 127, 128, 129; ART 13; plus 2 upper-division units in consultation with adviser

General Family and Consumer Sciences
Minimum 6 units from each discipline: CFS, CSH, F M, FSC or FSM or NUTR, ID (selection of courses in consultation with adviser)

Home Economics Teacher Education
(See *Single Subject Credential Waiver Program*)

Additional requirements 0-21
Upper-division writing skills (by examination or course)

Child and Family Sciences
BIOL 10

Clothing and Textiles
CHEM 3A, 3B

Consumer Science
ECON 40 or AG EC 1, and ECON 50 or AG EC 2

Fashion Merchandising
ACCT 3 or 4A; AG EC 1 or ECON 40, and ECON 50; MGT 104 or 106 or 110 (HRM 150 may be substituted for MGT 104, see adviser), MKTG 100, 103, 130

General Family and Consumer Sciences
No additional requirements

Home Economics Teacher Education
CHEM 3A, 3B; BIOL 10; PSYCH 10; AG EC 1 or ECON 40

(*Note*: It is anticipated that some of the aforementioned courses will also meet General Education requirements.)

Electives* 10-28
Courses supplementary to the major are strongly recommended.

Total requirements 124
(including 40 upper-division units)

*It is anticipated that 6-9 units required by the major will also count toward General Education.

Single Subject Credential Waiver Program

Students who successfully complete the Single Subject Credential Waiver Program are not required to take the Praxis Series Multiple Subject Assessment for Teachers (see *Education — Curriculum, Teaching, and Educational Technology*, General Requirements for Initial Admission and Requirements for Admission to Student Teaching). The Child, Family, and Consumer Sciences Single Subject Credential Waiver Program in home economics consists of Core: ART 13, CFS 38, 131, 136; CSH 113 or 115, 114; F M 20, 24 or 26; FCS 1; FSC 50; ID 70; NUTR 54; Breadth: CFS 135, 139; CSH 116 or 171; FSC 152. Additional requirements by the Commission on Teacher Credentialing include: CTET 101, 159, 161; EHD 50, 155A, 155B; ERF 151, 152; H EC 148; H S 121; LEE 156; and SPED 120.

Undergraduate Advising Notes

1. New students should request a program of study check sheet from the department.
2. All students should make an appointment with an assigned academic adviser prior to registration each semester. Check with department for academic adviser assignment.
3. *CR/NC* grading is not permitted in courses used to fulfill major requirements.
4. Upper-division units (i.e., 100 level courses) may not be applied toward the 40 upper-division unit degree requirement until 45 units have been completed.
5. The upper-division writing skills requirement can be met by passing the university examination or by taking an approved upper-division writing skills course, to be taken no sooner than the term in which 60 units are completed. One unit of credit (i.e., English 100W) may be earned upon request for passing the examination; by obtaining a letter grade of *C* in an approved course the student meets the university writing skills requirement.
6. One semester prior to graduation make an appointment with an assigned academic adviser to prepare and file an official certification of major requirements.

Bachelor of Science in Child Development

The Bachelor of Science degree in Child Development is ideally suited to students interested in career opportunities based on work with children. This degree provides an excellent foundation for those who wish to enter teaching at the infant-toddler, preschool, or elementary levels, or who are interested in working with high-risk, special needs, or adult education populations.

The major consists of a core of 11 courses, plus 15 units of approved electives.

Note: CFS 39, PSYCH 101, and CFS 140 are prerequisites to some of these courses. See course descriptions in this catalog. CFS 37 and 139 may not be taken concurrently.

	Units
Major requirements	**48-51**
Required courses	(33)
CFS 37, 39, 40, 131, 133S, 134, 135, 139, 140	
either CFS 136 or 137	
COUN 150	
Elective clusters	(15)
Infant Toddler/Preschool/School-age	
CSD 95, CFS 138, NUTR 160, DRAMA 136, MUSIC 153	
Counseling	
COUN 174, PSYCH 166, RLS 113, PAX 110, COMM 164	
College Teaching	
SOC 148, COMM 114, COMM 164, W S 105, S WRK 135	
Victim Services	
Choose one course from each A-D below:	
A. CRIM 175	
B. CRIM 140; EHD 107; W S 108, 109, 116	
C. EHD 108, CRIM 176, S WRK 128	
D. EHD 109, CRIM 177, CRIM/W S 126	
One additional 3-unit course related to cluster	

Note: Completion of the victim services cluster may lead to the Certificate in Victim Services. See Criminology Department adviser for approval.

General Education	**51**
Electives and remaining degree requirements (see *Degree Requirements*); may be used toward a minor	**22-25**
Total	**124**

Child Development Advising Notes

1. Students seeking teaching credentials should see a child development adviser for program planning before enrolling in any classes in the major.
2. Under the restrictions of the major, students may make approved adaptations in their programs to fulfill specific needs and career objectives in consultation with their faculty adviser.
3. *CR/NC* grading is not permitted in the major.
4. No General Education Integration course offered by the Department of Child, Family, and Consumer Sciences may be used to satisfy the General Education requirements for majors in the department.
5. Upper-division units (e.g., 100-level courses) may not be applied toward the 40 upper-division unit degree requirement until 45 units have been completed.

Family and Consumer Sciences Minor

A Minor in Family and Consumer Sciences consists of 21 units of which 9 must be upper division. At least 12 units must be taken in a particular department and/or discipline. The minor program must be certified by the department chair and school dean. The certified minor program is filed with the university's Office of Evaluations.

Fashion Merchandising Minor

F M 20 Beginning Textiles	**3**
F M 22 Fashion Analysis	**1**
F M 120 Soc/Psy Aspects of Clothing	**3**
F M 127 Fashion Merchandising	**3**
F M 128 Fashion Display Techniques	**3**
Electives (8-units in fashion merchandising in consultation with an adviser)	**8**
Minimum total	**21**

Fashion Merchandising Certificate of Special Study

Requirements:

F M 127 Fashion Merchandising	**3**
F M 130 Fashion Study Tours	**3**

Electives:

(Select 6-8 units from the following)

F M 126 History of Costume	**3**
F M 128 Fashion Display Tech	**3**
F M 129 Fashion Merchandising Practicum	**3**
F M 131 Fashion Entrepreneurship	**2**
F M 132 Textile Care	**3**
F M 133 Textile/Apparel Economics	**3**

Master of Science Degree Program

The Master of Science in Family and Consumer Sciences is a 30-unit program designed to increase the competencies of family and consumer science professionals and to provide the foundation that will qualify some to pursue the doctoral degree. It is a flexible program. With adviser assistance, through appropriate choice of courses, students may focus a major part of their program in the following areas: child development, family science, fashion merchandising, clothing and textiles, consumer science, or home economics education. Graduate courses are offered in the late afternoon or evening to accommodate part-time students. Full-time graduate students may earn their degree within two years when working closely with an adviser.

Admission Requirements. The Master of Science degree in Family and Consumer Sciences assumes preparation equivalent to a bachelor's degree in family and consumer sciences; 3.0 GPA (last 60 semester units); 480V/580Q GRE score; completion of all prerequisite coursework; separate school application; three letters of reference, and a statement of 500 words or less indicating reasons for pursuing a master's degree. Students lacking in any area with compensating strengths in other areas are encouraged to apply.

Students who have a bachelor's degree in family and consumer science or a related field (e.g., child development, nutrition, etc.) may need to take appropriate prerequisite courses in preparation for their individual career goal. These prerequisites will be determined by the department Graduate Admissions Committee. Please see the department graduate coordinator.

Students who have not completed a bachelor's degree in family and consumer sciences or a related field (e.g., child development, nutrition, etc.) are required to select appropriate prerequisite courses in consultation with the department graduate coordinator.

Admission by the university does not imply acceptance in the Master of Science in Family and Consumer Sciences program.

All students who are accepted in the Master of Sciences Program in Child and Family Sciences must see an adviser prior to enrolling in any graduate courses.

Applicants whose preparatory education was principally in a language other than English must earn a minimum TOEFL score of 550.

Classified standing will be granted to students who meet all of the admission criteria. Conditional classified standing may be granted to petitioning applicants with a 2.5 to 3.0 GPA (last 60 units); GRE scores on file with the university; separate school application; three letters of reference; a statement of 500 words or less indicating reasons for pursuing a master's degree; and a minimum of 18 units of prerequisites completed (consult with your graduate coordinator for specific prerequisite foundation courses). Prerequisite coursework is not included in the 30-unit master's program. Students must request classified standing in the program by the semester in which a maximum of 10 units to be used toward the degree are completed.

Prerequisite Requirements. An introductory statistics course, such as MATH 11, SOC 25, or PSYCH 42.

Program Requirements for Family and Consumer Sciences

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

	Units
Core	**9**
FCS 203, 205 and 207	
Electives	**15**
(in consultation with an adviser) FCS 200-series courses in a specialized area (3 units), 100-200 level (12 units) courses in family and consumer sciences or related areas, with a maximum of 9 units at 100 level	
Culminating Experience	**6**
Project or Thesis: FCS 298 or 299	
Total minimum requirements	**30**

Graduate Advising Notes

1. Several of the 200-level and approved elective courses have prerequisites other than courses listed as admission requirements.
2. Students must request specific information concerning the Master of Science degree or program advising sheet from the department office.
3. Upon admission, students should see the department graduate coordinator for aid in program planning, selection of graduate adviser, and selection of a thesis committee.
4. To progress through the graduate program, students must:
   a. Maintain a minimum of 3.0 GPA
   b. Complete all prerequisite coursework
   c. Attain classified standing
   d. Meet university graduate writing requirement
   e. File for advancement to candidacy
   f. Complete the program requirements
   g. File a master thesis or project committee assignment form
   h. Formally present and defend the thesis/project research results
5. Advancement to candidacy requires the completion of 9 program units in residence, minimum 3.0 GPA, meeting the university writing skills requirement and filing a Petition for Advancement to Candidacy a minimum of one semester prior to enrollment in thesis/project and within the deadline.
6. The student shall meet the university's graduate writing proficiency requirement. Consult with the graduate adviser for current requirements.
7. See *Division of Graduate Studies* in this catalog for university requirements.

COURSES

Family and Consumer Sciences (FCS)

1. Contemporary Family and Consumer Sciences (3)
Family and Consumer Sciences 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. (Formerly H EC 1)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly H EC 190)

192. Readings and Conference (1-3; max total 6)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged) Approved for *SP* grading. (Formerly H EC 192)

193. Cooperative Education (1-6; max total 6)
Prerequisites: completion of at least 45 units, good academic standing and permission of the department. Combines study with paid work experience in a supervised career-related position. Reports and conferences required. *CR/NC* grading only. (Formerly H EC 193)

Consumer Science and Housing (CSH)

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.

113. Economics for Consumers (3)
Prerequisite: ECON 50 recommended. Consumer spending related to social and psychological factors influencing consumers. Legislation that protects and relates to the consumer on local, state, and federal levels.

114. Child, Family, and Consumer Sciences (3)
Prerequisites: senior standing or permission of instructor; 12 upper-division units in the major. Integrated field experience in various phases of child, family, and consumer sciences; seminar. (6 lab hours)

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.

116. Consumer Aspects of Home Ownership (3)
Emphasis on benefits and obligations of home ownership. Analysis of the consumer processes of selecting, buying, and maintaining a home.

117. Resource Management of Aging (3)
(Same as GERON 117.) 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.

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.

171. Housing and Society (3)
An analysis of housing alternatives for individuals, families, and special groups. Social, legal, and economic factors affecting the housing market. Special shelter considerations for the elderly, disabled, single parent, and shared households are explored in lecture and field trips. (2 lecture, 2 lab hours)

Fashion Merchandising (F M)

20. Beginning Textiles (3)
Fiber classification, yarn construction, fabric construction and production. Selection, use and care of fabrics in relation to consumer needs. (CAN H EC 6)

22. Fashion Analysis (1)
Analysis of the characteristics and nature of fashion; color, line, texture and principles of design applied to fashion. Selection guidelines for individual and family needs. Wardrobe needs for the professional as well as quality evaluation of apparel is included.

24. Clothing Construction I (3)
Pattern and fabric selection; basic construction techniques, use of commercial patterns; relationship between materials, construction methods, and apparel quality. (6 lab hours) (CAN H EC 10)

26. Clothing Construction II (3)
Prerequisite: F M 24 or experience in clothing construction. Individualization of basic and designer patterns: alteration principles; techniques of handling new fabrics. (6 lab hours)

120. Social and Psychological Aspects of Clothing (3)
Prerequisite: F M 22 recommended. The psychological, social, and economic aspects of clothing related to the individual, family, and society.

121. Tailoring (3)
Prerequisites: F M 22 and 26. Tailoring a suit or coat using various techniques. (6 lab hours)

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.

123. Pattern Design (3)
Prerequisites: F M 22 and 24 or 26. Application of pattern making methods to apparel design. Computer-aided design (CAD) skills as applied to pattern making. (6 lab hours)

124. Textile Finishing (3)
Prerequisite: F M 20. Finishing, dyeing and printing techniques, material and equipment. Evaluation through standard laboratory tests. (2 lecture, 2 lab hours)

126. History of Costume (3)
Important periods of costume; their relationship to political, social, and economic conditions of the times and their importance in evolution and inspiration of modern dress.

127. Fashion Merchandising (3)
Aspects of fashion marketing and fashion related careers. Computer application as applied to store layout and merchandising. Resource personnel and field trips. (2 lecture, 2 lab hours)

128. Fashion Display Techniques (3)
Prerequisite: F M 127. Design fundamentals applied to the aesthetic arrangement of promotional and institutional displays in the retail store. Resource personnel and local field trips. (2 lecture, 2 lab hours)

129. Fashion Merchandising Practicum (3; max total 6)
Prerequisites: senior standing or permission of instructor; 12 upper-division units in the major including F M 127. Integrated field experience in various areas of fashion merchandising; seminar.

130. Fashion Study Tours (3)
An in-depth study of industrial, retail, and wholesale sites in California. Field experiences are included to ensure optimum learning opportunities. (1 lecture, 4 lab hours) (Course fee, $130)

131. Fashion Entrepreneurship (2)
Prerequisite: F M 127. Investigation of start-up procedures, location, financing, supplies, legal implications, target customers, record keeping, promotion, and customer relations are covered.

132. Textile Care (3)
Prerequisite: F M 124. The technology of home laundry, laundry aids and equipment, dry cleaning, and commercial laundry. Care methods for apparel, furs, upholstery, and carpet are investigated. Industry resource personnel and field trips.

133. Textile/Apparel Economics (3)
Prerequisites: F M 20, ECON 40 (recommended). Organization and development of the textile and apparel industries. Aspects of production, consumption, and international trade. Analysis of current problems facing the industry and industry's response.

Child and Family Sciences (CFS)

31. The Family in America (3)
Interdisciplinary introduction to American families, their place within society, and their influence on human behavior. Topics include historical development, social functions, methods for studying, cultural and subcultural influence and meaning, family types, parenting, family violence, and the impact of race, class, and gender. G.E. Breadth D3.

32. Intimacy (3)
An exploration of personal, relationship, and social aspects which contribute to loving relationships. Barriers to loving will also be discussed. Topics include the nature of love, awareness, emotional needs, fears, communication, conflict, values, beliefs, expectations, freedom, and responsibility.

37. Introductory Child Development Practicum (3)
An interdisciplinary study in a laboratory setting of the physical, social, emotional, and intellectual development of toddler and preschool children. Children's relationships to family, peers, community, and culture will be a primary focus. Antibias curriculum will be explored through principle and practice. (2 lecture, 3 lab hours)

38. Life Span Development (3)
A balanced study of basic theories, research, applications, and principles of physical, cognitive, and psychosocial development from conception to death, presented in an integrated manner in the context of the family in a diverse society. Includes behavior, sexuality, nutrition, health, stress, environmental relationships, and implications of death and dying. G.E. Breadth E1.

39. Introduction to Child and Adolescent Development (3)
The interdisciplinary study of physical, social, emotional, and intellectual development from conception through adolescence. The family and broader cultural environments provide the context for the study. Topics include historical views of children, developmental theories, research methodology, and patterns of growth. (CAN H EC 14)

40. Adulthood (3)
Introduction to theories, research, and principles of physical, intellectual, social, and emotional development in young adulthood (ages 20-40) middle age (ages 40-65) and late adulthood (ages 65 and over) in the context of the family, culture, gender and socio-economic status.

130. Supervising Adults Working in Child Care (3)
Principles and methods of engaging, managing, and evaluating adults who work or volunteer in child development programs. Includes the role of the supervisor, adult development, learning styles, respecting diversity, building relationships, effective communication, building reflective practice, evaluation, and self-review. Meets the California Child Development Permit requirement for coursework in Adult Supervision.

131. Family Relationships (3)
An examination of the varieties of family relationships in pluralistic societies. Topics include marriage and families over time, gender roles, love, mate selection, sexuality, nonmarital lifestyles, parenting, work and family roles, violence and abuse, divorce, remarriage, and the future of the family.

132T. Topics in Child Development and Family Relationships (1-4; max total 12 if no topic repeated)
Prerequisites: CFS 39 and/or 131. Topics relating to child development and family relationships. Some topics may have labs.

133S. Children and Families in Crisis (3)
Crises experienced by children and their families. Child abuse, separation, dissolution, divorce, remarriage, and the consequent formation of step-relationships. Death, alcoholism, drug abuse, and living with a child with special needs. (Formerly CFS 133)

134. Multicultural Perspectives on Children and Families (3)
Prerequisites: CFS 38 or 39. Exploration of the challenges families face in living in a diverse society. Includes a survey of research on how children develop identity and attitudes about gender, ethnicity, and disability. An approach that facilitates healthy self identity and positive attitudes toward diversity.

135. Parenting (3)
Prerequisite: CFS 38, 39, or PSYCH 101. Study of the significant impact of adult-child relationships upon the developing person. Topics include guidance and discipline theories, attachment, self-esteem, trust, encouragement, communication, consequences, rewards, punishment, abuse, and children with special needs.

136. Middle Childhood and Adolescence (3)
Theories, research, and principles of physical, intellectual, social, and emotional development in middle childhood and adolescence. Emphasis on the child in the family and educational environments, peers, sexual development, search for identity, vocational choice, interpersonal relations, self-esteem, and youth at risk.

137. Infant in the Family (3)
Prerequisite: CFS 38, 39, or PSYCH 101. Interdisciplinary study of physical, social, emotional, and intellectual development from birth to three years in a diverse society. Topics include attachment, significance of play, communication, importance of early relationships, principles of care giving, fostering language development, and impact of the environment.

138. Program Plans for Children (3)
Study of contemporary management theory and practices in administration of child development programs. Topics include regulations, guidelines and quality standards, aspects of planning, implementation and evaluation, professionalism, advocacy, and career opportunities. Meets California's 3-unit requirement for administration and supervision.

139. Advanced Child Development Practicum (3)
Prerequisites: senior standing or permission of instructor; 12 upper-division units in the major; CFS 37. Comprehensive study of the young child and ways to foster physical, social, emotional, and intellectual development. Students will plan developmentally appropriate learning episodes, conduct observations, and employ assessment techniques. (2 lecture, 3 lab hours)

140. Advanced Child Development Theories and Play (3)
Prerequisites: CFS 39 or PSYCH 101. In-depth study of major child development theories with implications for play for children from infancy through adolescence. Course considers ethological and cultural perspectives, gender differences, special populations, and common play problems.

141. Effective Relationships in the School Setting (3)
Prerequisites: CFS 131 and 133S. In-depth examination of the interrelationship of home and school experiences and their influences on a child's success, including concepts and strategies for building effective teacher-student and teacher-parent relationships in the school setting.

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 12 if no topic repeated; max 3 in one area)
Topics include consumer science resources; organization and management of food and nutrition; clothing and textiles and fashion merchandising; housing and interior environment; child development and family relations. Some topics may have labs.

GRADUATE COURSES

The following graduate courses are open only to students who have been accepted into a graduate program. Students who are not in graduate standing, should contact the graduate coordinator prior to enrolling.

Family and Consumer Sciences (FCS)

203. Trends and Issues in Family and Consumer Sciences (3)
A study of the history and current status of family and consumer sciences. An examination of trends and issues pertaining to child and family sciences, clothing and textiles/ fashion merchandising, consumer science and housing, food and nutrition, and interior design. (Formerly H EC 241, FCS 241)

205. Survey of Family and Consumer Sciences Research (3)
Prerequisite: FCS 203. Examination of current research in each area of family and consumer sciences. Abstract writing, formulation of annotated bibliographies and research presentations. (Formerly H EC 201, FCS 201)

207. Research Methods in Family and Consumer Sciences (3)
Prerequisites: FCS 205 or equivalent; a statistics course, MATH 11 or SOC 25 or equivalent; completion of the university graduate writing skills requirement. Methods and techniques of research, such as research design, review of professional literature, preparation of research proposal, collection and interpretation of data, scientific writing and presentation of research results. (Formerly H EC 243, FCS 243)

210T. Seminar in Consumer Sciences 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, socioeconomic, age level and ethnic and community groups. Topics may include aspects of aging, cultural aspects of management, home and community relationships, and ergonomics — aspects of work simplification. (Formerly H EC 210T)

220T. Seminar in Clothing, Textiles, and Fashion Merchandising (3; max total 6 if no topic repeated)
Prerequisite: permission of instructor. 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. (Formerly H EC 220T)

230T. Seminar in Child and Family Sciences (3; max total 12 if no topic repeated)
Prerequisite: permission of instructor. Research, methodology, and issues in family relationships and child development. Topics may include parenting, families in transition, relationship patterns, infancy, early childhood, and family diversity. (Formerly H EC 230T)

240T. Seminar in Family and Consumer Sciences Education (3; max total 6 if no topic repeated)
Prerequisite: permission of instructor. Applied research; current and future trends of the multilevel areas of family and consumer sciences education. Topics may include curriculum development, administration, evaluation, supervision, and incorporation of business and industry. (Formerly H EC 240T)

242. Community College Teaching in Family and Consumer Sciences (3)
Strategies for implementing family and consumer sciences curriculum in community colleges. Study of instruction techniques, procedures, resources, problems and responsibilities in the community college setting.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly H EC 290)

292. Readings in Family and Consumer Sciences (2-3; max total 6 if no topic repeated)
Prerequisite: 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. Approved for *SP* grading. (Formerly H EC 292)

298. Project (2-6; max total 6)
Prerequisite: prior advancement to candidacy. See *Criteria for Thesis and Project*. The project is a significant undertaking of an approved pursuit appropriate to the applied arts, e.g., extensive curriculum design, development of new consumer products or similar professional endeavors with written documentation. Abstract required. Approved for *SP* grading. (Formerly H EC 298)

299. Thesis (2-6; max total 6)
Prerequisite: prior advancement to candidacy; see *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading. (Formerly H EC 299)

IN-SERVICE COURSE

(See *Course Numbering System*.)

Home Economics Education (H EC)

380. Topics in Home Economics (1-3; max total 9 if no area repeated)
Special problems in home management, foods and nutrition, child care, housing and home furnishings, textiles and clothing, household equipment, family finances, marriage, and the family.

Food Science and Nutrition

Food Science and Nutrition

Join the leader in science, technology, and management. Students majoring within the Department of Food Science and Nutrition are prepared for a wide range of professions in the food industry — the largest single industry in the United States. California State University, Fresno is centered in the greatest food production and processing area in the world.

Some of the largest and best dairy and food companies cooperate with the university to provide students with a view of commercial realities in this industry. There is strong demand for dietitians and nutritionists by the health care and food service industries.

Instructional Facilities

The department facilities include the Dairy Processing Plant, Food Processing Research Laboratory, the Food Preparation and Product Development Laboratories, and the Computer Laboratory. These facilities are used by students and faculty to provide a practical education founded on science and technology.

Career Opportunities

Graduates of the Department of Food Science and Nutrition have enjoyed outstanding employment opportunities in the food industry. Historically, graduates have been placed in challenging positions with salary advancement and professional prestige envied by other industries throughout the free world. The following options are available:

Dietetics and Food Administration. Graduates are prepared for challenging and rewarding employment in dietetics, nutrition, and food service. Employment is available in hospital dietetics, nutrition consulting, school and community nutrition, education, commercial and institutional food services.

This program is developmentally accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. The American Dietetic Association can be reached at 216 W. Jackson Bvd., Chicago, IL 60606-6995 or at (312) 899-4876. By completing the requirements for this option, students meet the American Dietetic Association didactic requirements for dietetic registration and are eligible to apply to a dietetic internship. To become a registered dietitian, graduates of this program must also complete a dietetic internship and pass the dietetic registration examination.

Enology. For information about the Enology program, see page 142. Requirements for the Bachelors of Science degree, Enology — Wine Production Option begin on page 122.

Food Science. Graduates are prepared for an endless variety of employment opportunities in the food industry, including laboratory, processing, production, and governmental roles. New product development, management, distribution, and field service opportunities are present in many scientific, technological, and business endeavors.

College of Agricultural Sciences and Technology

Department of Food Science and Nutrition
Sandra Witte, *Chair*
Christine Takahashi, *Administrative Support Coordinator*
Family and Food Sciences Building, Room 119
(559) 278-2164
http://cast.csufresno.edu/

B.S. in Food and Nutritional Sciences
Options:
- Dietetics and Food Administration
- Enology — Wine Production
- Food Science

M.S. in Food and Nutritional Sciences

Minor in Food and Nutritional Sciences

Certificate of Advanced Study in Dietetics (Dietetic Internship)

Faculty

The faculty members continue to be recognized for quality hands-on education as well as scholarly contributions to their academic disciplines. Each student is assigned to a faculty adviser to maximize the student's educational experience at California State University, Fresno. The faculty are noted for cooperation and activity within each industry to prepare and place graduates in their chosen career.

Sandra Witte, *Chair*
Coordinators:
Dennis Ferris, *Food Science Program*
Mollie Smith, *Internship Director*
Sandra Witte, *Dietetics and Food Administration Program and Graduate Program*
N. Joanne Caid
Erin S. Dormedy
Joo I. Kim, *Stoller Distinguished Professor*
Elena F. Kissick

Bachelor of Science Degree Requirements

Food and Nutritional Sciences Major — *Units*

General Education 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)

Major 45
(including 20 upper-division units)
Options (select one) ..... (45)
Dietetics and Food Administration: FSC 1, 50, 150, 152; FSM 131, 133, 134; NUTR 54, 149, 153, 156, 157, 160, 166
Enology — Wine Production: ENOL 15, 45, 125, 135, 151, 163, 164, 166, 175; FSC 1, 110, 145, 178; select one of the following: FSC 50, 100, 115, 120, 144, 150; NUTR 54; plus 1-2 unit of restricted elective selected in consultation with adviser
Food Science: FSC 1, 41, 100, 112, 115, 120, 125, 141, 142, 144, 145, 178, 199; NUTR 54; plus 3 units of restricted electives selected in consultation with adviser

Additional requirements 32-37
Dietetics and Food Administration ..... (32)
ACCT 4A; CHEM 3A, 8, 150; MICRO 20; PHYAN 65; PSYCH 10, 174; approved statistics course
Enology — Wine Production ..... (36-37)
BOT 10; CHEM 1A; CHEM 1B or 105; CHEM 8, 150; I T 52; MICRO 140; PHYS 2A; VTF 101, 102
Food Science ..... (32-33)
CHEM 1A, 1B, 8, 150; MATH 11; MATH 71, 72 or MATH 70*, 75** or MATH 75, 76; MICRO 20; PHYS 2A

Electives 1-6

Total requirements 128
(including 40 upper-division units)

* MATH 70 cannot be taken after MATH 75.
** MATH 75 recommended for Food Science Option.

Advising Notes

1. Students should contact the program coordinator to schedule an academic advising appointment. Since many courses are sequential in nature, it is important for new, transfer, or returning students to contact the program coordinator one semester prior to intended enrollment.
2. The total units reflect that each of the following required courses also satisfies 3 units of the General Education requirements: Area B4: MATH 75 for Food Science; Area B1: CHEM 3A for Dietetics and Food Administration and PHYS 2A for Food Science and Enology; Area B2: BOT 10 for Enology; Area D3: PSYCH 10 for Dietetics and Food Administration. Consult your major adviser for details.
3. *CR/NC* grading is not permitted for courses included in the major and additional requirements, except work experience (ENOL 193, 194; FSC 193; FSM 193; and NUTR 193).
4. Upper-division units (i.e., 100-level courses) may not apply toward the 40 upper-division unit degree requirement until 45 units have been completed.
5. Grade Policy — all courses listed under major and additional requirements require a grade of *C* or better.
6. General Education courses designated as required by the department are prerequisite to many courses in the program of study.
7. The upper-division writing skills requirement can be met by passing the university upper-division writing examination or by taking an approved upper-division writing skills course. One unit of credit (in ENGL 100W) may be earned for passing the examination if requested by the student; by obtaining a letter grade of *C* or higher in an approved course (e.g., PLANT 110W) the student meets the university writing skills requirement.
8. One semester prior to graduation make an appointment with your academic adviser to prepare and file an official Certification of Major requirement form.

Food and Nutritional Sciences Minor

The Minor in Food and Nutritional Sciences consists of 21 units, of which 9 must be upper-division. All courses must be selected in consultation with the department chair. The minor program must be certified by the department chair and the school dean. The certified minor program will be filed with the Office of Evaluations.

Graduate Programs

The Master of Science in Food and Nutritional Sciences is a 30-unit degree program designed to provide the student with professional competence in the technology and science of food and nutrition-related disciplines: enology, food science, and nutrition.

Full-time graduate students may earn the degree within two years when working closely with an adviser. To accommodate part-time students, graduate courses are offered in the late afternoon or evenings.

Admission Materials. To be considered for admission to the graduate program, the candidate must submit the following materials: evidence of a baccalaureate degree in food science, nutrition, agricultural chemistry, or a related area from an accredited institution; official transcripts of all college work; scores from the Graduate Record Examination Aptitude Test (GRE); a university application; three letters of reference from employers or faculty at the university most recently attended; and a statement of 500 words or less indicating reasons for pursuing a master's degree.

Admission Criteria. Candidates for admission will be evaluated using the following criteria: undergraduate coursework; grade point average of 3.0 or better (last 60 semester units); GRE scores (480V/580Q are equivalent to the 50th percentile), 500-word or less statement of professional goals; and letters of reference. Students lacking in any area with compensating strengths in other areas are encouraged to apply. Admission by the university does not imply

acceptance in the Master of Science in Food and Nutritional Sciences program. Applicants whose preparatory education was in a language other than English must earn a minimum TOEFL score of 550 and a minimum score of 4 on the Test of Written English (TWE).

Classified standing will be granted to students who meet all of the admission criteria.

Conditional classified standing may be granted to applicants with a 2.75 to 2.99 GPA (last 60 semester units) and/or those required to complete prerequisite coursework. Prerequisite coursework is not included in the 30-unit master's program. Students must request classified standing in the program by the semester in which a minimum of 10 units to be used toward the degree are completed.

Master of Science Program

Food and Nutritional Sciences

Mission. The Master of Science in Food and Nutritional Sciences at California State University, Fresno provides for development of advanced level knowledge, development of research abilities, and the mentoring of future leaders.

Outcomes. The program graduates will be able to (a) use knowledge and critical thinking skills to identify innovative solutions to problems, (b) communicate research findings through professional presentations and publications, (c) advance their careers, and (d) take an active role in their profession.

This program provides a graduate-level proficiency in enology, food science, or nutrition. The degree is applicable to specializations in food research, production, processing, chemistry, and microbiology; wine production and marketing; and dietetics, nutrition, nutrition education, and food systems management.

Prerequisite Courses. The Master of Science in Food and Nutritional Sciences assumes preparation equivalent to a California State University, Fresno undergraduate major in food science, dairy science, enology, nutrition, dietetics and food administration, agricultural chemistry, or related areas.

Students with undergraduate degrees in other fields or from other institutions who need to make up course deficiencies should consult with the graduate coordinator. The following specific prerequisite foundation courses, or their equivalents, are required:

Agricultural Chemistry: ENOL 125, 164, and 166; FSC 110.

Food Science: FSC 110 or 112, 115, 125, 141, 144; NUTR 54

Nutrition/Dietetics: Completion of an ADA-approved didactic program in dietetics as evidenced by a signed verification statement.

Program Requirements

All students must complete a 12-unit common core. Under the direction of the graduate adviser, students may focus a program in a specialized area to meet their career goals. This is accomplished by the selection of a minimum of 12 units of electives. A 6-unit thesis completes the program of study. A minimum of 21 units must be taken at the 200 level.

	Units
Core	
FN 200	**3**
200-level statistics course (See *Graduate Advising Notes.*)	**3**
FN 223	**3**
FN 229	**1+1+1**
Approved Electives	
200- or 100-level courses appropriate to individually designed program; must be approved by adviser prior to enrollment	**12**
Culminating Experience	
FN 299	**6**
Total minimum	**30**

Advising Notes for M.S. in Food and Nutritional Sciences

1. Several of the 200-level and approved elective courses have prerequisites other than courses listed as admission requirements.
2. The statistics requirements may be met with any adviser approved 200-level statistics course offered by the university.
3. Students should request specific information concerning the master of science degree and the program advising sheet from the department office.
4. Upon admission, students should see the department graduate program coordinator for assistance in selection of a graduate adviser.
5. To progress through the graduate program, the student must:
   a. Maintain a minimum of 3.0 GPA
   b. Complete all prerequisite coursework
   c. Attain classified standing
   d. Meet the graduate writing proficiency requirement.
      • See graduate program coordinator for list of approved courses.
   e. File for advancement to candidacy
   f. Complete the program requirements
   g. File a master thesis committee assignment form
   h. Formally present and defend the thesis results
6. Students are required to receive a *B* or higher in FN 200 to meet the graduate writing proficiency requirement.
7. Advancement to candidacy requires the completion of 9 program units in residence, a minimum GPA of 3.0, meeting the graduate writing proficiency requirement, passing the departmental qualifying examination, and filing a petition for advancement to candidacy a minimum of one semester prior to enrollment in thesis and within the deadline.
8. Students may apply a maximum of 3 units of FN 290 and/or 292 to their program.
9. See *Division of Graduate Studies* in this catalog for university requirements.

Certificate of Advanced Study in Dietetics (Dietetic Internship)

The Certificate of Advanced Study in Dietetics is a postbaccalaureate professional program that meets the requirements for supervised practice experience for entry-level generalist dietitians. The Commission on Accreditation/Approval for Dietetics Education of the American Dietetic Association has granted developmental accreditation to the program as a dietetic internship. Students completing the program will be eligible to take the dietetic registration exam administered by the Commission on Dietetic Registration of the American Dietetic Association.

Admission Requirements. Candidates for admission will be evaluated using the following criteria: undergraduate coursework, grade point average of 3.0 or better (last 60 semester units/90 quarter units), completion of an approved didactic program in dietetics within the last five years, GRE scores (480V/580Q recommended), a personal letter of application, and letters of reference. Preference is given to those applicants with work or volunteer experience in dietetics. Applicants whose native language is other than English must earn a minimum TOEFL score of 550.

Admission Materials. Prospective students must submit an application to the university for postbaccalaureate standing, evidence of an acceptable baccalaureate degree from an accredited institution, two official transcripts of all college work, GRE scores, an application to the dietetic internship, three letters of reference from employers or faculty, a personal letter of application, and a verification statement or declaration of intent from a didactic program in dietetics. Applicants must also apply to D & D Digital Systems for enrollment in the computer matching process. For more information on computer matching, contact D & D Digital Systems at (515) 292-0490.

Program Requirements

	Units
FN 221T	**6**
FN 229	**2**
FN 290	**1**
NUTR 193	**4**
FSM 193	**3**

COURSES

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

Enology (ENOL)

15. Introduction to Enology (3)
History and development of the wine industry; mechanics of various processes and factors affecting wine quality and consumer acceptance.

45. Wine Evaluation Techniques (2; max total 4)
Parameters that determine sensory quality in wines. Wine appreciation. Critical evaluation of wines including premium varietals. Must be 21 years of age — State law. (1 lecture, 2 lab hours) (Formerly ENOL 25; ENOL 35)

102T. Topics in Sensory Evaluation of Wines (1-6; max total 6 if no topic repeated)
Prerequisites: ENOL 15 and 45; ENOL 164 recommended. Critical evaluation of selected varietal wines with regard to appellation of origin, vintage, and wine-making practices. (15-hour weekend lecture-demonstration)

105. Advanced Sensory Evaluation of Wines (3)
Prerequisites: ENOL 45 and ENOL 164 (ENOL 164 may be taken concurrently). Factors affecting the quality of wines in terms of growing region, grape maturity, harvesting, vinification, cellaring, blending, and storage practices; attributes and defects in premium varietals. Statistical concepts. (2 lecture, 2 lab hours)

125. Wine Microbiology (4)
Prerequisites: ENOL 15; MICRO 140; CHEM 150. Identification, physiology, and biochemistry of bacteria and yeasts involved in winemaking and spoilage of wines. Vinous and malolactic fermentations. Sherry organisms and other film yeasts. (2 lecture, 4 lab hours)

135. Field Studies (2; max total 6)
Prerequisite: ENOL 15 or permission of instructor. A six-day field trip during the spring recess visiting wineries to study the techniques and handling methods employed by the many vintners. Students must provide own transportation, meals, housing, and insurance.

145. Brandy Production (3)
Prerequisites: ENOL 164; CHEM 101 or 109 or I T 112 recommended. Distillation principles and practices for the production of brandy and other distilled beverages. Raw materials, aging, and sensory evaluation. Students may be required to purchase supplementary materials for class use. (2 lecture, 3 lab hours)

151. Winery Equipment (2)
Prerequisites: ENOL 15, 135 concurrently. Evaluation, use, location, operation, and repair of winery equipment. Winery safety. Safety equipment required. (1 lecture, 3 lab hours) (Formerly ENOL 165)

162T. Topics in Enology and Fermentation Science (1-4; max total 12 if no topic repeated)
Prerequisite: ENOL 15. Topics in winemaking and fermentation science. Some topics may include labs.

163. Fermentation Laboratory (2; max total 6)
Prerequisite: ENOL 15 or concurrently. Vinification/Fermentation Laboratory practice at the university's Enology Pilot Plants. Individual winemaking. Required every fall semester of all enology majors not enrolled in ENOL 164, 194, or 196. Students must supply their own grapes. (6 lab hours)

164. Wine Analysis and Production (6; max total 12)
Prerequisites: CHEM 1A; CHEM 1B or 105; CHEM 8; ENOL 151. Only open to Enology — Wine Production Option and to viticulture students. Laboratory and winery experience in winemaking operations, including harvest, scheduling, crushing, fermentation, safety, sanitation procedures, record keeping, analysis, and operation of enology facility equipment. Safety equipment required. (2 lecture, four 3-hour labs) (Formerly ENOL 100; ENOL 161)

166. Cellar Operations (2; max total 4)
Prerequisite: ENOL 164 must be taken the previous semester. Survey of cellaring operations and equipment. Analytical methods, blending, fining, ion exchange, finishing, and bottling. May be repeated once for credit. (1 lecture, 3 lab hours; local field trips)

168. Juice and Concentrate Production (2)
Prerequisites: ENOL 15 or FSC 1; VTF 1 recommended. Principles and practice of fruit juice and concentrate production. Vacuum pan operation and essence recovery. (1 lecture, 3 lab hours; field trips)

173. Wine Marketing (2)
Prerequisites: ENOL 45; AG EC 1. Marketing principles as applied to wine. Role of wholesalers, distributors, retailers, cooperatives. Advertising. Regulations. Interstate and international trade.

175. Winery Management (3)
Prerequisites: ENOL 15 and permission of instructor. Physical properties of a winery; administrative organizational setup; personnel; purchasing, packaging and shipping; local, state, and federal regulatory statutes.

180. Undergraduate Research (1-4; max total 4)
Prerequisite: ENOL 164. Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in enology. Approved for *SP* grading.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Wine Marketing Internship (2-12; max total 12)
Prerequisites: ENOL 173; ENOL 105 and AG EC 164 recommended; approval of internship committee. Emphasis on development of decision-making ability through

marketing organization experience integrated with principles acquired in the classroom. *CR/NC* grading only.

194. Enology Internship
(2-12; max total 12)
Prerequisites: 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. *CR/NC* grading only.

196. Enterprise Management
(1-6; max total 6)
Prerequisites: ENOL 166, 175; FSC 145, 178; VTF 101, 102. Application of management principles in wine production. Operation of the California State University, Fresno commercial winery. Open only to enology or viticulture students. Safety equipment required. *CR/NC* grading only.

199. Undergraduate Seminar
(1; max total 2)
Prerequisite: senior standing. Oral presentations of topics of current interest in enology, wine grapes, and fermentation science.

Food Science (FSC)

1. Introduction to Food Science and Technology (3)
Survey of specific types of industries, chemical composition, microbiological concerns, processing, and environmental risks and their control to ensure food quality and safety. Introduction to governmental regulation. Current issues in the food industry.

3. Introduction to Dairy Industry (3)
History and processing of dairy products including their composition and description with emphasis on fluid milk. Introduction to dairy chemistry and microbiology. Laboratory includes plant tours and recognizing defects in finished dairy products. (Field trips) (2 lecture, 3 lab hours)

41. Introduction to Food Processing (2)
Prerequisites: FSC 1. Introduction to the technology of processing foods with special reference to unit operations and sanitation. Laboratory includes computer applications related to food technology. (1 lecture, 3 lab hours) (Field trips)

50. Basic Foods (3)
Introduction to high quality food. Emphasis on principles of food safety, nutrition, food preparation, and sensory evaluation. (2 lecture, 2 lab hours) (CAN H EC 8)

100. Sensory Evaluation (3)
Prerequisite: adviser approved general statistics class. Analysis, measurement, and methods used in sensory evaluation of foods. (2 lecture, 3 lab hours)

110. Food Chemistry and Biochemistry (4)
Prerequisites: CHEM 1B; CHEM 150 or concurrently. Chemical and biochemical changes in foods during production, processing, and utilization.

112. Functional Properties of Food Components (4)
Prerequisites: CHEM 150 or concurrently; FSC 41. Study of the functional properties of water, dispersed systems, carbohydrates, proteins, enzymes, lipids, and colligative properties with respect to their role in processing and shelf-life. Computer applications. (3 lecture, 3 lab hours)

115. Food Analysis (4)
Prerequisites: FSC 41, 110 or 112; adviser approved general statistics class; permission of instructor. Application of analytical techniques and instrumental methods used in the analysis of food composition. Laboratory analyses include proximate, fatty acids, °Brix, titratable acidity, mineral, peroxidase, peroxide values, reducing sugars, vitamins, and filth. (2 lecture, two 3-hour labs)

120. Quality Assurance in the Food Industry (4)
Prerequisites: FSC 1 or 3; FSC 178; CHEM 1A; MICRO 20; adviser approved general statistics class; junior standing or consent of the instructor. Physical, chemical, and microbiological methods for determining quality in food processing. Total Quality Management (TQM) and Statistical Quality Control (SQC) principles utilized. Food product standards and Hazard Analysis Critical Control Points (HACCP) guidelines and applications. Computer applications. (3 lecture, 3 lab hours) (Field trips)

125. Food Microbiology (4)
Prerequisites: FSC 41, 178; MICRO 20; or consent of the instructor. Physical, chemical, and biological control of microorganisms in foods. Beneficial microorganisms used in food production. Laboratory emphasis on microbiological methods used in examining foods. Computer applications. (2 lectures, two 3-hour labs) (Field trips)

141. Fruit and Vegetable Processing (3)
Prerequisites: CHEM 8; FSC 41, 178; MATH 72; PHYS 2A; MICRO 20. Characteristics of raw fruits and vegetables. Application of storage and thermal dehydration, refrigeration/freezing, and packaging principles that influence quality. Computer applications. (2 lecture, 3 lab hours) (Field trips)

142. Dairy Processing (3)
Prerequisite: FSC 3 and A SCI 65; or FSC 115 and 125; or consent of the instructor. Manufacture of high temperature short time (HTST), ultra high temperature (UHT), and evaporated milks, cream, non fat dried milk (NFDM) powder, ice cream, butter, and cheese. Laboratory includes routine chemical and microbiological analysis of raw and finished products. (2 lecture, 3 lab hours) (Field trips)

144. Food Engineering (4)
Prerequisite: FSC 41; PHYS 2A; MATH 72; permission of instructor. The application of the engineering concepts and unit operations that include energy balance, heat transfer, fluid flow, thermodynamics, and mass transfer. (2 lectures, two 3-hour labs) (Field trips) (Formerly AET 109)

145. Food Industry Waste Management (2)
Prerequisite: PHYS 2A. Waste material, collection and transportation. Mechanical and thermal processing, composting, and energy recovery. Management, reduction and recycling in food plants. (1 lecture, 2 activity hours) (Field trips) (Formerly AET 108)

150. Advanced Foods (3)
Prerequisites: FSC 50; CHEM 1A or 3A; permission of instructor. Experimental approach to foods emphasizing sensory and objective tests, standards for high quality foods and scientific principles that affect food preparation and product development. (2 lecture, 3 lab-discussion hours)

152. Food for Health (3)
Prerequisites: FSC 50; NUTR 53 or 54; computer competency required. Planning a nutritious diet implementing the Dietary Guidelines for Americans. Cooking principles, recipe modification, and food selection at supermarkets and restaurants to increase dietary complex carbohydrates and decrease fat, sugar, and sodium. (2 lecture, 2 lab hours)

162T. Topics in Food Science
(1-4; max total 12 if no topic repeated)
Prerequisites: FSC 50; NUTR 54. Topics relating to food science. Some topics may have labs.

178. Food Laws, Regulations, Inspection, and Grading (2)
Prerequisites: FSC 1. Federal and state laws and regulations pertaining to the food industry. Federal Register, Code of Federal Regulations, United States codes, California state codes, and other government documents as they pertain to the FDA, USDA, EPA, and other agencies. Grading and inspection of food products. (1 lecture, 2 activity hours)

180. Undergraduate Research
(1-4; max total 4)
Prerequisites: junior or senior standing and permission of instructor. Exploratory work on a suitable problem in food science. Approved for *SP* grading.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Readings and Conference
(1-3; max total 3)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged)

193. Supervised Work Experience (1-6; max total 6)
Prerequisites: second semester junior standing and permission of instructor. Supervised work experience in food science. *CR/NC* grading only.

199. Senior Seminar (1)
Prerequisites: permission of instructor. Faculty, student, and industry presentations of current food science topics. Discussion of topics of practical importance to graduating students.

Food Systems Management (FSM)

131. Introduction to Food Systems Management (3)
Prerequisite: FSC 50. A managerial and systems approach to foodservice operations. Impact of legislation, labor relations, and marketing on industry.

133. Quantity Food Production (4)
Prerequisites: FSM 131; FSC 150; health clearance and health and accident insurance required. Preparation and service of conventional and convenience foods in quantity foodservice operations. Menu planning, recipe standardization, equipment and layout, production controls, work simplification, and quality assurance. *Serv Safe* certification. (3 lecture, 3 lab hours)

134. Cost Analysis in Food Systems Management (3)
Prerequisites: FSM 133; ACCT 4A; computer competency required. Advanced concepts of planning, analyzing, decision-making and reporting procedures unique to food systems management. Cost analysis and control, computer applications, and purchasing in food service. (2 lecture, 2 lab hours)

135. Institutional Experience (3)
Prerequisites: FSM 134; health clearance and health and accident insurance required. Supervised work experience in food systems management. (1 lecture, 4 lab hours)

162T. Topics in Food Systems Management
(1-4; max total 12 if no topic repeated)
Prerequisites: FSC 50; NUTR 54. Topics relating to food systems management.

180. Undergraduate Research
(1-4; max total 4)
Prerequisites: junior or senior standing and permission of instructor. Exploratory work on a suitable problem in food systems management. Approved for *SP* grading.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Readings and Conference
(1-3; max total 3)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged)

193. Supervised Work Experience
(1-6; max total 6)
Prerequisites: second semester junior standing and permission of instructor. Supervised work experience in food systems management. *CR/NC* grading only.

Nutrition (NUTR)

53. Nutrition and Health: Realities and Controversies (3)
Optimal nutrition to reduce the risk of cancer, heart disease, allergies, obesity, and other diseases. Social, psychological, and cultural dictates that affect food selection and health. Personal strategies to develop a nutrition plan for better health. G.E. Breadth E1.

54. Elementary Nutrition (3)
Application of chemical and biological principles to carbohydrates, proteins, fats, vitamins, minerals and water in human nutrition; recommended nutrient allowances and dietary evaluation; determination of energy needs; and relationship of nutrition to health and disease.

147. Nutrition and the Athlete (3)
Prerequisite: PHYAN 33 or 65. Physiological principles underlying the normal nutritional requirements and the application of these principles to athletic performance. Role of diet in training.

149. Food and Nutrition Communication (4)
Prerequisites: FSC 50; NUTR 153; computer competency required. Integrating and translating food and nutritional science concepts into easily understood consumer messages. Activities include developing instructional materials, writing lesson plans, and making presentations to a target audience.

153. Advanced Nutrition (3)
Prerequisites: NUTR 54; CHEM 150. Relationship of nutrients to maintenance of homeostasis. Factors affecting the nutrient demands with interpretation of biochemical indices. Structural and functional properties of nutrients. Gross and microscopic structures related to cell metabolism, digestion, bone mineralization and body composition.

156. Nutrition Assessment (3)
Prerequisites: NUTR 153; PHYAN 65. Assessment of nutritional status emphasizing dietary evaluation, nutrition care planning, and intervention. Application of dietary standards and principles for disease prevention and control. Methods for monitoring quality of nutritional care. (2 lecture, 3 lab hours) (Formerly NUTR 157A)

157. Medical Nutritional Therapy (4)
Prerequisite: NUTR 156. Advanced concepts of nutritional therapy in disease. Identification of goals of nutritional therapy, principles of dietary modification, and meal planning for specific conditions. Calculation of diet prescriptions. Application of nutrition counseling skills to therapeutic diets. (3 lecture, 3 lab hours) (Formerly NUTR 157B)

160. Nutrition across the Life Cycle (3)
Prerequisite: NUTR 54 or equivalent. The influence of nutrition on age, growth, and normal development. Nutrition recommendations from conception through late adulthood. Socioeconomic, cultural, and psychological factors influencing food and nutrition behavior. The role of exercise throughout the life cycle.

161. Professional Issues in Dietetics (1)
Prerequisite: permission of instructor. Promotion of food and nutrition services and programs. Identification of ethical and legislative issues in dietetics. Development of individual career plan. Preparation for dietetic internships. (1 lecture)

162T. Topics in Nutrition
(1-4; max total 12 if no topic repeated)
Prerequisites: FSC 50; NUTR 54. Topics relating to nutrition. Some topics may have labs.

166. Community Nutrition (3)
Prerequisite: NUTR 54. Survey of nutrition programs created to improve community health. Development and examination of public health nutrition policy. Proposal writing.

180. Undergraduate Research
(1-4; max total 4)
Prerequisites: junior or senior standing and permission of instructor. Exploratory work on a suitable problem in nutrition and dietetics. Approved for *SP* grading.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Readings and Conference
(1-3; max total 3)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged)

193. Supervised Work
Experience (1-6; max total of 6)
Prerequisites: second semester junior standing and permission of instructor. Supervised work experience in dietetics and nutrition. *CR/NC* grading only.

GRADUATE COURSES

(See *Course Numbering System*.)

The following graduate courses are open to students who have been accepted into the graduate program. Students who are not in graduate standing should contact the department graduate coordinator prior to enrolling.

Food and Nutrition (FN)

200. Research Methods
in Food and Nutrition (3)
Prerequisite: permission of instructor. Quantitative and qualitative research design in food and nutritional sciences. Methods of data collection and analysis. Evaluation of research design and outcomes. Reporting research results. Students will develop a research proposal.

204. Food Carbohydrates
and Sweeteners (3)
Prerequisites: CHEM 150 and FSC 110 or 150. Advanced studies in the chemical and biochemical changes of food carbohydrates during processing and storage; quality control; nutritional aspects. (Formerly AGRI 204)

205. Food Lipids (3)
Prerequisites: CHEM 150 and FSC 110 or 150. Advanced studies in the chemical and biochemical changes of food lipids during processing and storage. Mechanisms of formation and degradation. Importance in flavor and texture; quality control; and nutritional aspects. (Formerly AGRI 205)

206. Proteins (3)
Prerequisite: CHEM 150. Advanced studies in the chemical and biochemical properties of protein. Synthesis and catabolism of tissue proteins. Protein quality. Functional properties of proteins in foods. (Formerly AGRI 206)

209. Vitamins and Biocatalysts (3)
Prerequisite: CHEM 150. Mechanisms of action of vitamins, coenzymes, and cofactors in biological transformations involving food processing and human nutrition. Emphasis on the fundamental nature of biochemical reactions related to food science and nutrition. (Formerly AGRI 209)

221T. Topics in Food Science
and Nutrition (3; max total 9)
Prerequisites: upper-division food science and nutrition course appropriate to study topic; permission of instructor. Advanced studies in a given area of food science and nutrition. Some topics may require lab hours. (Formerly AGRI 221T)

223. Food, Nutrition, and Health (3)
Prerequisite: CHEM 150. Review and discussion of the recent scientific literature relating to food consumption, nutrient intake, and human health. (Formerly AGRI 223)

229. Seminar (1; required total 3)
Prerequisite: permission of instructor. Students investigate and present current research problems. Observation and evaluation of additional assigned seminars. Oral and written reports required. (Formerly AGRI 229)

290. Independent Study
(1-3; max total 3)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly AGRI 290)

292. Readings in Food Science
and Nutrition (1-3; max total 3)
Prerequisite: 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. Approved for *SP* grading.

299. Thesis (2-6; max total 6)
Prerequisite: prior advancement to candidacy. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading. (Formerly AGRI 299)

Industrial Technology

College of Agricultural Sciences and Technology

Department of Industrial Technology

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Karin Johnson, *Department Administrative Assistant*
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http://www.csufresno.edu/indtech

B.S. in Industrial Technology

Programs of Study:

- CAD/CAM Systems Management
- Industrial Control Systems Management
- Quality Systems Management
- Transportation Systems Management
- Teacher Credential Program (Single Subject Waiver)

Bachelor of Vocational Education

M.S. in Industrial Technology

Minor in Industrial Technology

Teacher Credential Program

Certificate in Computer Process Control Network Administration

Industrial Technology

Industrial Technology (I T) at California State University, Fresno is preparing today's and tomorrow's leaders of industry. I T equips the graduate to use and manage 21st century technology. All of the courses in Industrial Technology's B.S. program cover state-of-the-art principles and use lab experiences to illustrate their applications. Computer software is used both as a tool and to stimulate processes. Four technical concentrations build on a common core of technology and management. Our faculty members are dedicated educators who have the industrial experience necessary to do an outstanding job in the classroom.

Enrichment opportunities abound for I T students. Professional societies active in the program include Epsilon Pi Tau (EPT), the National Association of Industrial Technology (NAIT), American Society of Quality (ASQ), American Production and Inventory Control Society (APICS), Automation Society of America (ISA), and American Society of Automotive Engineers (ASAE). Through participation in one or more of these groups, students learn more about their profession and interact with working professionals in their field. Internships are also available to provide on-the-job experience to interested students.

I T graduates get technically oriented jobs with an average starting salary of $35,000 in the San Joaquin Valley. A recent survey of alumni indicates that after eight years on the job, the typical graduate is making $55,000 and is in a technical management position.

The Fresno State Industrial Technology program is fully accredited by the National Association of Industrial Technology (NAIT).

The Master of Science in Industrial Technology program prepares graduates to assume positions of leadership and management. The program consists of a common core of 18 units of technical management courses and 12 units of elective courses, depending on the individual's educational and career objectives.

Instructional Facilities

The department's laboratory facilities are some of the most extensive and modern in the California State University system. The Industrial Technology Department continues to receive equipment and financial support from a number of California industries. Some facilities supported include the computer-aided design (CAD) lab, digital and analog electronics lab, hydraulics lab, process control/programmable logic controller lab, materials and fuels testing lab, robotics/computer numerical control (CNC)/computer integrated manufacturing (CIM) lab, motors and controls lab, and computer network lab.

Industrial and Technology Education Teachers. Teachers are in short supply. The need will become even greater as new curriculum programs emerge in industrial and technological education. This demand is attributed to emerging technologies and expanded applications for industrial and technological education.

Clinic Program

The Clinic Program is a hands-on program designed to answer research questions for business or industry and to expose students to the reality of professional practice. The program involves cooperative teams, comprised of three to five students, a faculty adviser, support staff, and a company liaison working on projects identified and funded by a business or industry. Some of the clinic projects which have been completed include the Hughes Aircraft Project, Grundfos Manufacturing Project, Duncan Enterprise Project, Raytheon Systems and Wawona Foods, and Raytheon Systems.

Faculty

Tony M. Au, *Chair*

Coordinators:
Norman A. Gullickson, *Teacher Education*
Matthew M. Yen, *Graduate*

Merle S. Adrian
Clift C. Cullen
Edward A. Gaiser
Gary E. Grannis
Norman A. Gullickson
Kenneth D. Moshier
Gary B. Paglierani
Gary H. Winegar

Bachelor of Science Degree Requirements

Industrial Technology Major

	Units
General Education	**51**
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)	
Major	**71-72**
(including 18 upper-division units)	
Industrial Technology Core	(38-39)
I T 52, 74, 92, 102, 104, 107, 114, 115, 117, 118, 199 or S C 197; ACCT 4A or AG EC 31; MGT 106	
Technical Specialty	(33)
Select one:	
CAD/CAM Systems Management	
I T 53, 112, 116, 131, 134, 144, 147, 148, 156, 158, 177	

*See Advising Note 3

Industrial Control Systems Management
I T 53, 110, 112, 116, 131, 133, 148, 156, 158; plus 6 units approved by your adviser

Quality Systems Management
I T 112, 116, 137, 148, 177, 184, 194; MGT 126; plus 9 units approved by your adviser.

Transportation Systems Management
I T 12, 53, 110, 112, 116, 120, 121, 122, 127, 129, 131

Additional requirements 17-20
Upper-division writing skills: I T 198W (recommended); PHYS 2A; PHYS 2B; MATH 45 or DS 71; C SCI 1; I T 20 (*Note*: Courses required above satisfy four G.E. area requirements [A3, B1, B4, and D3.])

Electives 0-1

Total requirements 128
(including 40 upper-division units)

Advising Notes

1. All courses (except I T 194) required for the major must receive a letter grade, including additional major requirements in General Education.
2. Students must pass the upper-division writing exam or complete I T 198W with a grade of *C* or higher (to be taken no sooner than the term in which 60 units are completed).
3. I T 52 may be waived if equivalent work experience and/or training is demonstrated.
4. The General Education requirement of 51 units may be exceeded depending upon the selection of courses.
5. Students must take two science courses to meet the NAIT standards.

Bachelor of Vocational Education Degree Requirements

Units

General Education 51

Major 73
Swan Bill/Electives ..... (28-34) (upper division)
Required Courses ..... (39-45)
BVE 170, 172, 174, 175, 176, 178; H S 121; SPED 120; I T 92, 102, 117
Technical/Professional Electives (7-13 units). *To be approved by B.V.E. adviser.*

Additional requirements 0-4
upper-division writing skills

Total requirements 124-128
(including 40 upper-division units)

*According to California Legislature's Swan Bill, up to 40 upper-division units can be granted to vocational instructors toward a baccalaureate degree; however, generally between 28-34 units are earned.

Industrial Technology Minor

The Minor in Industrial Technology consists of 20 units of which 9 must be upper-division. At least 12 units must be taken in one of these specialized areas of study: CAD/CAM systems management, industrial control systems management, quality systems management, or transportation systems management.

Certificate in Computer Process Control Network Administration

The Certificate in Computer Process Control Network Administration consists of 15 units in industrial technology coursework. The student is required to take I T 112, 117, 133, and 158. In addition, 3 units must be selected from the following: I T 116, 134, 156, 177, 190, or 194.

Teacher Credential Program

The requirements for the Single Subject Waiver Program in Industrial and Technology Education include the following:

1. General Education courses required for the B.S. in Industrial Technology.
2. All I T Core courses required for the B.S. in Industrial Technology.
3. Education Core: I T 12, 41, 52, 60, 80.
4. 9 units each (in consultation with department adviser) in two different specializations, i.e.:
   - CAD/CAM Systems Management
   - Industrial Control Systems Management
   - Quality Systems Management
   - Transportation Systems Management

For additional requirements, see *Curriculum, Teaching, and Educational Technology — Single Subject Credential Program* requirements section in this catalog.

Master of Science Degree Requirements

The Master of Science in Industrial Technology is a 30-unit program which offers graduate study in both industrial and educational related professional and technical fields. Emphasis is directed toward the attainment of advanced competency in the areas of industrial and technology education as well as manufacturing technology. Through selected courses, within the department and other disciplines, knowledge and experience can be acquired in research and development, management and administration, technological studies, and educational studies that are related to all areas of the field.

Admission Requirements. The Master of Science degree program in Industrial Technology assumes preparation equivalent to a CSU undergraduate major in technology education (industrial arts), industrial technology, or a related field. Students who have not completed a degree in technology education or industrial technology are expected to have completed the following courses or their equivalents prior to enrollment in courses to be applied toward the master's program: I T 41, 52, 60, 74, 102, 114, 115; MATH 11 or DS 71; PHYS 2A; ERF 153 or DS 123.

Applicants whose preparatory education was principally in a language other than English must earn a minimum TOEFL score of 550.

Classified Standing. A baccalaureate degree is required and an undergraduate major in technology education, industrial technology, or a related field; a 3.0 GPA (last 60 semester units); a 450V/430Q GRE score; separate school application; three letters of reference from employers or faculty at the university attended most recently; a personal statement of 500 words or less indicating reasons for pursuing a master's degree; a preadmission consultation session with the department graduate program coordinator. Students lacking in any area with compensating strengths in other areas are encouraged to apply.

Conditional classified standing may be granted to petitioning applicants with a 2.5 to 2.99 GPA (last 60 semester units); GRE scores on file with the university; separate school application; three letters of reference; and a personal statement of 500

words or less. Students must request classified standing in the program by the semester in which a maximum of 10 units to be used toward the degree are completed.

Program Requirements. Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

Specific Requirements	*Units*
Required courses	**15**
I T 223, 280, 282, 283, 285	
Electives in industrial technology or related field	**12**
(approved electives appropriate to individually designed program; a maximum of 9 units may be 100-level courses)	
Culminating Experience	**3**
I T 298 or 299	
Total minimum requirements	**30**

Graduate Advising Notes

1. Several of the 200-level and approved elective courses have prerequisites other than courses listed as admission requirements.
2. Students should request specific information concerning the Master of Science degree and the program advising sheet from the department office.
3. Upon admission, students should see the department graduate program coordinator for aid in program planning.
4. To progress through the graduate program, students must:
   a. Maintain a minimum 3.0 GPA
   b. Complete all prerequisite coursework
   c. Attain classified standing
   d. Meet the graduate writing skills requirement
   e. File for advancement to candidacy
   f. Complete the program requirements
   g. File a master's thesis or project committee assignment form
   h. Formally present and defend the thesis or project results
5. Classified standing must be achieved by the semester in which students take the 10th program unit. All admission requirements must be met. Students must maintain a 3.0 GPA.
6. Advancement to candidacy requires the completion of 9 program units at California State University, Fresno, a minimum GPA of 3.0, meeting the graduate writing skills requirement, and filing a Petition for Advancement to Candidacy a minimum of one semester prior to enrollment in thesis or project and by established deadline.
7. Students should demonstrate graduate writing proficiency by earning a *B* or better grade in the graduate course I T 280, Research Methodology. Students are also encouraged to publish their works in relevant journals or professional publications.
8. See *Division of Graduate Studies* section in this catalog for university requirements.

COURSES

Industrial Technology (I T)

10. Technology, Civilization, and Environment (3)
Insights of technology in key industries: telecommunication, agriculture, health care, and manufacturing automation. Contemporary issues including the Internet, genetic engineering, technology transfer, environmental impact, education, future trends, and social implications. Understanding and harnessing technology, career planning, and life adaptation with technological changes.

12. Basic Vehicle Systems (3)
Design, construction, and mechanical functions of vehicle engines, fuel systems, electrical systems, power transmission, brakes, and wheel suspension; proper use and safety of tools and equipment. (2 lecture, 3 lab hours)

15. Technological Opportunities for Humanity (3)
Opportunities for new technology in daily life. Role of technology in manufacturing, agriculture, medicine, communication, information systems, and transportation. Criteria for technological advances to be useful and wanted by individuals. Understanding and harnessing of technology. Career planning and life adaptation with technology and technological changes.

20. Technology and Society (3)
Critical relationship between society and technology. Technology, as it applies to contemporary issues such as technology and gender, the fate of skill and labor's power under changing conditions, technology and war, the problem of technocracy, technology and consumer culture, and technological relations to the natural environment. G.E. Breadth D3.

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. Introduction to CAD. (6 lab hours)

45. Industrial Technology Exhibits and Competitions (3)
Provides a structure for students to be involved in various industrial technology exhibits and competitions, industrial technology research and development, project management, and team work. *CR/NC* grading only. (6 lab hours) (Formerly I T 145)

52. Basic Electricity (3)
(Same as ME AG 53.) Introduction to electricity including fundamentals of electrostatics, alternating and direct current electrical circuits, electrical calculations, magnetics, circuit applications, electrical measuring, and test equipment. (1 lecture, 4 lab hours) (Course fee, $5) (Formerly AET 53)

53. Electronic Devices and Circuits (3)
Fundamentals of direct and alternating current circuits, electric calculations, schematics, and wiring diagrams. Measuring and testing equipment, electromagnetism, principles of motors and generators, standards and codes, and concepts of analog and digital devices. (2 lecture, 2 lab hours) (Course fee, $5)

60. Basic Graphic Arts (3)
Introduction to the graphic arts; letterpress, photo offset lithography, screen printing; layout, composition, imposition, presswork, bindery. (6 lab hours; field trips) (Course fee, $6)

71. Metallurgical Processes (3)
(Same as ME AG 50.) 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. (2 lecture, 3 lab hours) (Course fee, $7) (Formerly AET 50)

74. Manufacturing Processes (3)
Material removal by turning and milling operations on aluminum, brass, steel, plastic and wood. Material fusing and severing operations on metals and plastics. Nonferrous metal casting and thin gauge metal and plastic forming operations. (6 lab hours) (Course fee, $7)

80. Wood Processing Technology (3)
Wood properties, materials, finishing; hand, portable electric, and machine tool processing; design, production planning; safety, adhesives, and cutting principles; machine design and use. (6 lab hours) (Course fee, $10)

92. Industrial Safety Management (3)
Principles of safety management in an industrial environment; safety legislation and programs; management/supervisory and employee responsibilities and attitudes; physical hazards associated with chemicals, equipment, fire, compressed gases; other topics include eye, stress, drugs, lifting, office, and noise safety.

102. Industrial Computer Concepts and Applications (3)
Introduction to industrial computer systems. Comprehensive view of the components of a modern industrial information processing system and the parts each component plays in the processing of data. (2 lecture, 2 lab hours)

104. Product Design (3)
Prerequisite: I T 74 and 115 or permission of instructor. Elements, principles, and methods of design. Emphasis will be placed on the development of models and prototypes with attention to standard components, productivity, and packaging. (2 lecture, 2 lab hours)

106. 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. (2 lecture, 2 lab hours; field trips)

107. Facilities Planning (3)
Facility planning techniques as applied to facility location, zoning, building codes, line balancing, shipping-receiving, offices, material handling, storage, project scheduling, and computerized layout.

110. Fluid Power (3)
Prerequisite: I T 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. (6 lab hours; field trips) (Course fee, $5)

112. Industrial Process Control and Instrumentation (3)
Process control principles; components and principles; transducers, actuators, sensors, and instrumentation; computer interface software, terminologies, standards, and trends in control technnologies. Programmable logic controller principles, hardware, and software. (2 lecture, 2 lab hours)

114. Industrial Materials (3)
Chemical and physical properties of metals, polymers, ceramics, composites. Atomic structure and phases of matter emphasizing crystalline and amorphous solids. Mechanical properties, strength and testing of materials including impact, hardness, and tensile. Metallographic, microscopic inspection of electronic, and metallic specimens. (2 lecture, 2 lab hours)

115. CAD Principles and Methods (3)
Prerequisites: I T 102. Computer-aided design applications. Special emphasis in manufacturing, construction, and interior design applications. Exposure to CAD software packages. (2 lecture, 2 lab hours)

116. Applied Visual Programming (3)
Contemporary computer language used in office automation and manufacturing industry; basic concepts on structural programming, object-oriented language, programming mechanics, user interface development, and Internet applications. (2 lecture, 2 lab hours)

117. Quality Assurance (3)
Prerequisites: I T 102; MGT 106. Quality assurance principles and practices in industry: quality assurance systems, acceptance sampling, testing, source surveillance; probability and statistical concepts, process control techniques and measurement procedures as applied to quality.

118. Production Operations (3)
Prerequisites: I T 102, 104; MGT 106. 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)

119. Computer-Integrated Manufacturing Concepts (3)
Prerequisites: a computer programming language; I T 118 or equivalent. Strategies on how to implement Computer-Integrated Manufacturing (CIM) for a complete manufacturing enterprise. Focuses on CIM systems, opportunities, concerns and solutions; design, development, implementation, and operations; and employees' educational programs. Team efforts and management are emphasized. (2 lecture, 3 lab hours)

120. Vehicle Engine Systems (3)
Prerequisites: I T 12, 53 or concurrently. Advanced study of vehicle engines and support systems. Includes engine theory, fuel and electrical systems, turbochargers, LPG, diesel, computerized emission and engine controls, and dynamometer testing analysis. (6 lab hours; field trips)

121. Automotive Engine Machining (3)
Prerequisites: I T 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. (6 lab hours; field trips) (Course fee, $6)

122. Vehicle Chassis Analysis (3)
Prerequisite: I T 12. Advanced study of vehicle chassis components including power transmission, brake systems, wheel suspension, air conditioning, body repair and refinishing, computer controls and diagnostics. (6 lab hours; field trips)

127. Vehicle Design and Development (3)
Design and mechanical development of vehicles for intercollegiate competition events. Students will select one or more vehicle research projects: innovative future fuels, supermileage, mini baja, formula, aero design, walking robot. (6 lab hours)

129. Vehicle Diagnostic Procedures (3)
Prerequisites: I T 12, 53 or concurrently. Laboratory study and analysis of mechanical, electrical, and computer control problems. Technical reports. (6 lab hours) (Course fee, $5)

131. Digital Circuits and Systems (3)
Prerequisites: I T 52 and 53. Number systems, Boolean logic, and fundamentals of digital devices; basic applications of logic devices in computers and control systems. (1 lecture, 4 lab hours; field trips) (Course fee, $5)

133. Programmable Logic Controllers (3)
Prerequisites: I T 131; I T 112 recommended. Programmable logic controller principles and equipment; programming languages, procedures, and documentation; equipment and software selection and application. (2 lecture, 2 lab hours)

134. Industrial Robotics (3)
Prerequisite: a high-level programming language. Study, analysis, and evaluation of robotics systems. APT programming language for numerical control and application languages for robots. Use of robot vision and the geometry of computer vision applications. (2 lecture, 3 lab hours)

135. Computer-Aided Process Planning (3)
Prerequisites: I T 115, 177. Group technology, CAD/CAM integration, computer-aided methods for process planning, Flexible Manufacturing Systems. Production planning and control of cellular manufacturing. (2 lecture, 2 lab hours)

137. International Quality Standards (3)
Prerequisite: I T 117. ISO 9000 and related international quality systems. Implementation process. Conformance standards, quality system requirements, and the registration and audit processes.

144. Tool Design Graphics (3)
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. (6 lab hours; field trips)

146. Multimedia Development (3)
Integration of a variety of media types: graphics, animation, digital video, and sound. Emphasis placed on development and creation of multimedia as applied to various CAD/CAM projects, the process of bringing live interactivity to the Internet, Web page development, and desktop publishing. (Formerly I T 191T)

147. Advanced CAD Applications (3)
Prerequisites: I T 115. CAD as a tool to facilitate design activities. An overview of design processes and methods. Solid modeling techniques are introduced. A team approach in system design is emphasized. (2 lecture, 2 lab hours)

148. Manufacturing Systems Analysis and Development (3)
Prerequisite: I T 115. Computer-Integrated Manufacturing (CIM) systems utilized in manufacturing industries, systems development cycle, systems analysis, justification, benchmarking, personnel, and facilities planning.

156. Electric Motors and Controls (3)
Prerequisite: I T 52. Study and analysis of the characteristics and industrial applications of electric motors. Major emphasis is placed on programmable, solid state, and electromechanical motor controllers. (1 lecture, 4 lab hours; field trips) (Course fee, $4)

158. Applied Computer Networking (3)
Prerequisite: I T 102. Internet, intranet, local area network concepts, protocols, architectures, and implementation issues. Data communication in office technology and manufacturing automation. (2 lecture, 2 lab hours; field trips)

160. Graphic Communication Developments (3)
Prerequisite: I T 60. An investigation of the graphic reproduction processes including laboratory experiences, practical application, and frequent industrial trade tours. In-depth study of individually selected topics resulting in written and oral research reports. (6 lab hours; field trips) (Course fee, $10)

161. Photo Offset Lithography (3)
Prerequisite: I T 60. Photo offset lithography techniques and processes: design, layout, cold type composition, and paste-up, line, and half-tone copy, imposition, multicolor printing. (6 lab hours; field trips) (Course fee, $20)

177. Computer Numerical Control (3)
Prerequisite: I T 102. Computer numerically controlled hardware including milling and turning centers and flexible manufacturing systems. Programming in languages common to computer numerically controlled machine tools. Computer-controlled machining of industrial materials including aluminum, brass, steel, plastic, expanded foam, and wax. (2 lecture, 3 lab hours)

184. Advanced Manufacturing Technology (3)
Prerequisite: I T 74. Production processing, using metallic and nonmetallic materials, including product design, work cells, tooling, capacity planning, material handling, scheduling and flow chart. (6 lab hours; field trips) (Course fee, $10)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Course fee variable)

191T. Technical Topics in Industrial Technology (1-3; max total 6)
Prerequisite: permission of instructor. Investigation and analysis of selected subjects in industrial technology. (2-6 lab hours)

194. Cooperative Education in Industrial Technology (1-4; max total 12)
Prerequisites: courses appropriate to the work experience; permission of department cooperative education coordinator; junior standing. Integration of work experience with academic program, individually planned through program adviser. *CR/NC* grading only.

198W. Technical Writing (3)
Prerequisites: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement; to be taken no sooner than the term in which 60 units are completed. Preparation of technical reports, research proposals, specifications, resumes, and correspondence using effective writing techniques, formats, and styles. Meets upper-division writing skills requirement for graduation.

199. Senior Problem in Industrial Technology (2)
Prerequisite: successful completion of Upper-Division Writing Exam or I T 198W. Approved problem or research project, with seminar, in the area of the student's option and emphasis. Approved for *SP* grading.

Bachelor of Vocational Education (BVE)

170. Technology and Society (3)
Historical development of technology and its impact on people and their institutions. Emphasis will be placed on people and their institutions, the consequences of rapid technological change as it relates to education and training, and work environment and environmental concerns.

172. Foundation for Occupational Education (3)
Presents concepts of vocational education and how they relate to other subject areas. Covers history, traditions, delivery systems, funding, practices, current issues, initiatives and policies. Looks at implications of the Swan Bill. (Career experience credit.)

174. Learning, Instruction, and Classroom Management in Vocational/Adult Education (3)
Exploration of individual traits and differences during stages of development that affect the way students learn. Covers instructional procedures and classroom organization and management. Looks at stoical development of technology and its impact on people and their institutions.

175. Student Diversity in Adult/ Vocational Education (3)
An overview of the diversity of student populations, the adult learning process, and interpersonal relations. Specifically addresses the identification of special needs populations and the application of learning strategies, activities, and materials with these students.

176. Curriculum Development and Evaluation in Vocational Education (3)
Preparation of unit plans that include goals, objectives, topical outlines, strategies, activities, safety considerations, and materials. Assessment of student skills and knowledge. Program evaluation including follow-up of students, employers, and advisory committees. Articulation agreements.

178. Leadership and Program Development (3)
Prerequisite: recommend completion of BVE 170. Introduction, definition, and discussion of leadership concepts. Importance of leadership as a quality characteristic for employability, success, and career advancement. Techniques for identifying, initiating, and implementing vocational education programs.

179. Supervisor's Role in the Administration of Vocational Education Programs (3)
Prerequisite: BVE 178. Covers responsibility and authority of supervisors in vocational education, including personnel procedures and laws concerning selection, training, development, and evaluation. Also covers employee morale and productivity using mission approach. Includes budgeting, funding, and legislative actions related to vocational programs.

GRADUATE COURSES

(See *Course Numbering System.*)

The following graduate courses are open only to students who have been accepted into a graduate program. Students who are not in graduate standing should contact the department graduate coordinator prior to enrolling.

Industrial Technology (I T)

223. Management of New Technology (3)
Study of new technology and its impact on people and their institutions. Topics focus on rapid technological changes as they relate to adoption, implementation, management strategies, and social issues.

280. Research Methodology (3)
Prerequisites: ERF 153. Seminar in research procedures in industrial education and technology; basic bibliography, research form and methods.

282. Advanced Communication Concepts and Visual Presentations (3)
Prerequisite: I T 115. Preparation and use of agendas, memoranda, business letters, electronic mail, fax communications. Video development and slide and transparency preparation and the incorporation of these media into presentations. Interview techniques, resume evaluations, dictation skills, professional relations with personnel, business etiquette.

283. Advanced Materials and Processes (3)
Prerequisite: I T 114. Chemical and physical properties of metals, polymers, ceramics and composites. The atomic structure and phases of matter emphasizing crystalline and amorphous solids. Materials technology of metallic, polymeric, ceramic, and advanced composites are stressed.

284T. Topics in Industrial Technology (2-3; max total 9 toward master's degree if no area repeated)
Advanced study in technical areas; current industrial practices, developments and trends related to design, materials, and processes.

285. Advanced Manufacturing Systems (3)
Prerequisites: I T 74, 115. A comprehensive study of modern manufacturing systems. Topics include plant layout, material control and transfer, operations measurement, transfer lines, CNC and DNC, machine tool network, computer-integrated manufacturing, flexible manufacturing systems, group technology, robotics, and manual assembly systems.

290. Independent Study (1-3; max total 6 if no area repeated; max combined total with I T 270 is 12)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (2-4; max total 4)
Prerequisites: I T 280; prior advancement to candidacy. See *Criteria for Thesis and Project*. Completion of an approved project appropriate to the candidate's area of specialization involving the development of a physical prototype or other similar professional problem-solving activity with extensive written documentation. Abstract required. Approved for *SP* grading.

299. Thesis (2-4; max total 4)
Prerequisites: I T 280; prior advancement to candidacy. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Industrial Technology (I T)

341. Problems in Industrial Technology (2-3; max total 6 if no area repeated)
Prerequisite: permission of instructor. Intensive analysis of a selected area in industrial technology. Research paper, project, or reports.

Plant Science

College of Agricultural
Sciences and Technology

Department of Plant Science
Mahlon M. S. Hile, *Chair*
Marlene Miyasaki, *Administrative Support Coordinator*
Agriculture Building, Room 222
(559) 278-2861
FAX: (559) 278-7413
http://cast.csufresno.edu/PlantSci

B.S. in Plant Science
Options:
- Agronomy
- Horticulture
- Plant Health

Emphases:
- Production Management
- Science and Technology

M.S. in Plant Science

Minor in Plant Science

Plant Science

Join the leader in science, technology, and management. The Department of Plant Science offers programs in production with classes in science and technology and in business management. Within the production or science emphasis, students select an option in agronomy (CR SC and SW courses), horticulture (OH, VTF and some CR SC courses), or plant health (PLT H, CR SC, OH, and VTF courses).

Courses offered by the department integrate physiology, soils and nutrition, cultural practice, protection against plant pests, marketing, storage and handling practices, and mechanization to provide students with a well-balanced background for positions in plant/soil sciences, and crop production. In addition, courses in areas such as micropropagation, plant improvement, and seed technology provide students with a background for further studies in plant biotechnology.

Each degree option integrates departmental curricula with the basic sciences (e.g., biology, chemistry, mathematics, physics) and management skills to build a well-balanced foundation.

The irrigation and viticulture programs have received the Western Region and National Awards for Excellence in Agricultural Technology Instruction respectively. These prestigious awards are sponsored by the National Association of State Departments of Agriculture and R. J. Reynolds Industries Inc.

For information about laboratory units and supervised projects, contact the department office.

Career Opportunities

The courses offered within each of the disciplinary areas in the department provide the required background and experience to qualify graduates of these programs for many exciting, well-paying careers. For a list of career opportunities, contact the department office.

Faculty

Mahlon M. S. Hile, *Chair*
Arthur J. Olney, *Graduate Coordinator*
Daniel P. Bartell
Sharon E. Benes
Earl H. Bowerman
Philip H. Jost
Charles F. Krauter
Mark A. Mayse
Michael Spiess, *Lecturer*

The faculty hold advanced degrees in their fields of specialization from leading agricultural institutions and universities in the United States. They are well-qualified teachers who, through extensive research and interaction with major agricultural industries, bring a wealth of basic and practical information into the classroom. A faculty academic adviser is assigned to work with each student to plan and design an individualized program of study to meet the student's educational and career objectives.

Most of the faculty are involved in one or more of the California Agricultural Technology Institute Centers — the Center for Irrigation Technology and the Viticulture and Enology Research Center — and the San Joaquin Experimental Range. The centers offer excellent opportunities to undergraduate and graduate students who gain experience by participating in applied research projects that address and help solve problems faced by California's agricultural industry.

Bachelor of Science Degree Requirements

Plant Science Major
Production Management Emphasis
Options: Agronomy, Horticulture, Plant Health

Recommended curriculum for students interested in agronomy (crop science and soil and water courses), horticulture (ornamental horticulture, viticulture/tree fruit and some crop science courses), and plant health.

Plant Science

Units

General Education 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)
Note: Consult your departmental adviser for other G.E. courses that are recommended for the plant science major.

Major 51-52
(including 20 upper-division units)
Plant Science Core ..... (25)
PLT H 103, 105, 106; PLANT 107, 150; SW 2, 100, 100L; ME AG 3
Option ..... (26-27)
Minimum of 15 units, including 12 upper-division units, from one of the following option categories ..... (15)
Agronomy
All from CR SC and/or SW courses
Horticulture
All from OH, VTF and/or CR SC 111, 112 courses
Plant Health
9 units from PLT H courses and 6 units from a production area (CR SC, OH, VTF, not to include VTF 110)
Complement the option by choosing one course from three of the following four sets. No double counting of courses is permitted within the major ..... (9-10)
Set A: SW 101, 104, 111
Set B: PLT H 107, 108, 109
Set C: CR SC 104, OH 101, PLANT 102, VTF 114
Set D: ME AG 20, 114, 120
Select 2 units of research or crop project courses from PLANT 180, 190, or 196 ..... (2)

Additional requirements 16-26
CHEM 3A*, 3B; BOT 10*, 130
Management courses
AG EC 31; select two from: AG EC 110N, 117, 120, 130, 160, 164

Electives 0-9
Courses supplementary to the major, selected in consultation with your department faculty adviser, are strongly recommended.

Total requirements 128
(including 40 upper-division units)

* These 7 units — CHEM 3A and BOT 10 — are requirements for the major that also satisfy part of the General Education requirements.

Advising Notes

1. During the Add/Drop period of their first semester, students are required to attend a department undergraduate orientation session. Alternatively, they are required to meet with the department chair. In either case, they will be assisted in selecting an appropriate faculty adviser and be given the curriculum checksheet(s) from which to select a catalog year.
2. Meet with your academic adviser prior to registration each semester.
3. General Education courses designated as required by the department are prerequisites to many courses in the program of study. The General Education requirement of 51 units may be exceeded depending upon your selection of courses.
4. *CR/NC* grading is not permitted for courses included in the major.
5. Upper-division G. E. courses (i.e., 100-level courses) should not be attempted prior to the semester in which 60 lower-division units toward the degree have been completed.
6. The upper-division writing skills requirement can be met by passing the university Upper-Division Writing Examination (UDWE) or by taking an approved upper-division writing skills course. One unit of credit (i.e., ENGL 100W) may be earned for passing the exam; 3 units of credit is earned by obtaining a letter grade of *C* or higher in an approved course, i.e., PLANT 110W. In either case, the requirement will have been met.
7. One semester prior to graduation, contact your academic adviser to prepare and file an official Certification of Major Requirements form. Your Application for Graduation cannot be processed by the Evaluations Office until this form has been submitted.
8. Students interested in becoming Certified Professional Agronomists, Crop Scientists/Specialists or Soil Scientists/Specialists should consult with their department faculty adviser for additional requirements for certification.

Plant Science Major
Science and Technology Emphasis

Options: Agronomy, Horticulture, Plant Health

Recommended curriculum for students interested in agronomy (crop science and soil and water courses), horticulture (ornamental horticulture, viticulture/tree fruit and some crop science courses), and plant health. Also recommended for students planning to pursue graduate study in plant science and for those who wish to become certified professional agronomists, crop scientists/specialists, horticulturists, or soil scientists/specialists.

Units

General Education 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)
Note: Consult your departmental adviser for other G.E. courses that are recommended for the plant science major.

Major 51-52
(including 20 upper-division units)
Plant Science Core ..... (22)
PLT H 103, 105, 106; SW 2, 100, 100L, ME AG 3
Select one: PLANT 102 or 107
Option ..... (29-30)
Minimum of 15 units, including 12 upper-division units, from one of the following option categories ..... (15)

Agronomy
All from CR SC and/or SW courses
Horticulture
All from OH, VTF and/or CR SC 111, 112 courses
Plant Health
9 units from PLT H courses and 6 units from a production area (CR SC, OH, VTF, not to include VTF 110)
Complement the option by choosing one course from each of the following four sets. No double counting of courses is permitted within the major .....(12-13)
Set A: SW 101, 104, 111
Set B: PLT H 107, 108, 109
Set C: CR SC 104, OH 101, PLANT 102, VTF 114
Set D: ME AG 20, 114, 120
Select 2 units of research or crop project courses from PLANT 180, 190, or 196 ..... (2)

Additional requirements 16-33

Science courses
BOT 10*, 130; CHEM 3A*, 8; and either CHEM 150 or both CHEM 4 and 105; GENET 120; PLANT 99; MICRO 20 or equivalent

Electives 0-9
Courses supplementary to the major, selected in consultation with department faculty adviser, are strongly recommended. ZOOL 10 recommended for Plant Health Option.

Total requirements 128
(including 40 upper-division units)

* These 7 units — CHEM 3A and BOT 10 — are requirements for the major that also satisfy part of the General Education requirements.

Advising Notes
See *Advising Notes*, Plant Science Major, Production Management Emphasis.

Plant Science Minor

Options: Agronomy, Horticulture, Plant Health

The 21 units of courses will constitute a basic background in plant science. The program is similar to the major core and provides students with an introduction to the broad spectrum of plant science. Other majors in the College of Agricultural Sciences and Technology, particularly the Agricultural Business and Education majors, require students to be knowledgeable of plant science in order to pursue their careers or teach the subjects of agricultural production. This minor would be a way in which students could acquire those courses they need and get credit for completing a program of study rather than only a series of courses.

Units

Select from the following 3
PLANT 107: Plant Propagation
PLANT 196: Crop Project* (ME AG 3 and permission of instructor and appropriate production course)
PLANT 150: Crop Improvement* (BOT 10 or BIOL 10)

Select from the following 6
PLT H 103: Economic Entomology* (BOT 10 or BIOL 10 or ZOOL 10)
PLT H 105: Weeds* (BOT 10 or BIOL 10 and CHEM 3A)
PLT H 106: Plant Pathology* (BOT 10 or BIOL 10)

Select from the following 3
SW 2: Agricultural Water
SW 100: Soils* (CHEM 3A)

Select from one of the option areas in Plant Science (at least 6 units must be upper division) **9**

Total 21

* Course requires a prerequisite.

Master of Science Degree Requirements

The Master of Science degree in Plant Science is a 30-unit program designed to provide advanced studies and in-depth knowledge in the fundamentals of plant physiology and experimental design, as well as technical writing and formal presentation of research reports.

This degree is for individuals seeking career advancement in agronomy, agricultural research and development, plant physiology, pest management, plant pathology, and soils and irrigation. Graduate courses are offered in the late afternoon or evening permitting students to earn their degree within two years when working closely with an adviser.

Admission Requirements. The Master of Science degree in Plant Science assumes preparation equivalent to a Bachelor of Science in Plant Science. The following courses or equivalents are expected to be completed prior to enrollment in courses to be applied to the master's program: BOT 10, 130; CHEM 3A, 8; GENET 120; PLT H 103, 105, 106; PLANT 99; SW 2, 100, 100L.

Students are required to submit in one complete packet the following materials to the Department of Plant Science, Ag Building, Room 222:

- one complete set of transcripts of all prior college or university work
- school application to the master's degree program
- 500-word statement of purpose by the candidate
- three letters of recommendation from persons in a position to make an evaluation in support of program entry, and
- one copy of the Institutional Score Report of GRE scores

All graduate applicants whose native language is not English, regardless of citizenship, must demonstrate English language proficiency through an official TOEFL report showing a minimum score of 550, unless they have a baccalaureate degree from an institution of higher education in which English is the language of instruction.

The packet of materials must be delivered to the Department of Plant Science by the following deadlines:

Desired Semester of Enrollment	Submit Packet by
Spring	October 25
Fall	March 15

Incomplete packets of materials will be returned to students for resubmission the following semester. Required application materials are available in the Department of Plant Science, Ag 222, (559) 278-2861.

A committee of department faculty will review all complete applications which were received by the stated deadline. Written notification will be sent, no later than the 15th day of the next succeeding month, regarding whether or not admission has been granted. Admission to the M.S. in Plant Science degree program is contingent upon admission to California State

University, Fresno. Students who have been denied admission to the graduate program in plant science must appeal the decision in writing to the department's graduate coordinator no later than two weeks following the date of the letter of denial in order to be reconsidered by the faculty for admission during the semester for which the application was originally submitted.

Admission as a classified student will be based on consideration of a combination of all the following criteria:

1. GRE scores, which must be submitted with application (suggested minimum scores of 480 verbal and 580 quantitative)
2. grade point average for the last 60 units (minimum 2.75 GPA)
3. college transcript verifying completion of prerequisite courses and that bachelor's degree was conferred
4. completed College of Agricultural Sciences and Technology "Graduate Programs Admission Application"
5. three letters of reference, and
6. a typewritten statement of 500 words explaining the applicant's professional goals.

Conditional classified standing may be granted by the department to applicants who have a minimum GPA of 2.5 (last 60 semester units) and who have 9 or fewer units of prerequisite courses to complete. Students must achieve a 3.0 GPA on prerequisite coursework.

Students must achieve classified standing in the program by the semester in which a maximum of 10 units to be used toward the master's degree are completed.

Students are not normally accepted into the Master of Science in Plant Science degree program if they have more than 10 units of prerequisite courses to complete. Prerequisite coursework cannot be used to fulfill the 30 unit master's program requirements. Potential graduate students who have 10 or more units of prerequisite courses to complete are encouraged to enroll as unclassified postbaccalaureate students in plant science at California State University, Fresno and apply to the master's program when they have 9 or fewer units of prerequisite courses to complete. Students must achieve a 3.0 GPA on prerequisite coursework.

Students completing prerequisite coursework, following admission as unclassified postbaccalaureate students in plant science, must achieve a grade of *C* or better in required prerequisite coursework to qualify for admission to the master's degree program.

Program Requirements

All students must complete a 13-unit common core. Students must also complete 9 units of additional requirements, including one course from each of three sets of courses, as well as 5 units of approved electives. Each student is also expected to complete a 3-unit thesis in consultation with a thesis committee.

	Units
Core	**13**
AGRI 200, 201, 220; PLANT 257, 270	
Additional requirements	**9**
Three courses, one from each of three sets:	
Set A: PLANT 252, 254, 255	
Set B: PLANT 258, 261	
Set C: PLANT 253, 256	
Electives	**5**
In consultation with their advisers, students select additional courses from the three sets listed above, and/or from the department's approved electives list.	
Culminating experience	**3**
PLANT 299	
Total minimum requirements	**30**

Graduate Advising Notes

1. Several of the approved elective courses have prerequisites other than courses listed as admission requirements.
2. To obtain the required school application form and more specific information concerning the Master of Science in Plant Science degree, interested students should call or write the department office. Upon acceptance in the Master of Science in Plant Science program, students should obtain the *Graduate Student Handbook* from the department office.
3. Upon acceptance into the M.S. in Plant Science program, students will be assigned an initial faculty adviser by the department chair. Students may subsequently select a faculty adviser upon obtaining his/her approval and notifying the department office of that selection.
4. Elective courses are selected in consultation with the student's faculty adviser from the three sets of courses listed under additional requirements. They may also be selected from the department's list of approved electives, consisting of chemistry, biology and plant science courses.
5. To progress through the graduate program, the student must:
   a. Maintain a minimum GPA of 3.0
   b. Complete all prerequisite coursework
   c. Attain classified standing
   d. Meet the university graduate writing requirement
   e. File for advancement to candidacy
   f. Pass the department qualifying examination
   g. Complete the program requirements
   h. File a master's thesis committee assignment form
   i. Satisfactorily present and defend the thesis research results
6. Advancement to candidacy requires the completion of 9 program units in residence, meeting the university graduate writing requirement, and filing a Petition for Advancement to Candidacy a minimum of one semester prior to enrollment in thesis and within the deadline.
7. Graduate writing proficiency must be demonstrated by taking and passing AGRI 220 with a grade of *B* or better.
8. All students must successfully complete the department qualifying examination, which is taken as soon as possible after completing AGRI 200, 201 and PLANT 257. Information on the department qualifying examination is included in the *Graduate Student Handbook.*
9. See *Division of Graduate Studies* section in this catalog for university requirements.

COURSES

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

Note: Cost to the student of extended field trips varies each semester depending upon itinerary. The student should ask the course instructor.

Plant Science (PLANT)

1. Introduction to Plant Science (3)
Principles of plant structure, heredity, physiology and climate in relation to growth, adaptation and management of crops. Emphasis is placed on food and fiber crops.

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. Approved for *SP* grading.

99. Introduction to Biometrics (3)
Prerequisite: satisfactory completion of an intermediate algebra course or ELM. Introduction to experimental methods and statistical procedures with particular emphasis on applied biological systems. Design of experiments; statistical analysis and interpretation. (2 lecture, 3 lab hours)

102. Micropropagation (3)
Prerequisites: BOT 10 or BIOL 10; and BOT 130 or CHEM 150 or permission of instructor. 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)

105. Food, Society, and Environment (3)
Prerequisites: General Education Areas B1, B2, and D completed (or concurrent enrollment). Linkages among food production systems, human social behavior, and environmental quality. Basic principles of environmental and agricultural sciences as applied to interrelationships among social value systems, agricultural activities and environmental resources. G.E. Integration IB.

107. Plant Propagation (3)
Prerequisite: BOT 10 or BIOL 10. Principles and practices of propagating plants, sexual and asexual. Seeds, cuttings, layering, grafting, budding, and tissue culture. Propagation media and rooting aids. (3 lecture, 3 lab hours; field trips)

110W. Dimensions in Agriculture (3)
Prerequisites: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement, to be taken no sooner than the term in which 60 units of coursework are completed. Current agricultural problems and developments; nature of agricultural industries in a changing world. Interrelationships among agriculture, government, labor, and the public. Meets the upper-division writing skills requirement for graduation.

115. Computer Applications in Plant Science (4)
Overview of computer hardware. Basics of PC operating systems. Software applications for plant science. Word processing, spreadsheet analysis and modeling, database management, geographic information systems, remote sensing, surveying, and scientific data visualization technologies related to plant science. Hands-on instruction. (3 lecture, 3 lab hours) (Course fee, $15) (Formerly PLANT 12)

134. Microclimatology (3)
(See GEOG 114.)

150. Crop Improvement (3)
Prerequisite: BOT 10 or BIOL 10. Application of genetic, cytological and environmental principles to improvement of plants; heredity and variation in plants, effects of environmental factors, biotechnology, self- and cross-fertilization, principles and results of selection and hybridization in plant improvement.

170T. Topics in Plant Science (1-4; max total 6 per discipline if no topic repeated)
Prerequisite: junior standing. Selected topics in plant science, 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. Approved for *SP* grading.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

194. Agricultural Internship (1-8; max total 8)
Prerequisite: junior standing; approval of faculty adviser and department chair. Field experience in your career specialty that integrates with classroom instruction. Written reports of knowledge and experience gained are required. *CR/NC* grading only.

196. Crop Projects (1; max total 4)
Prerequisite: ME AG 3 or equivalent, appropriate production course and permission of instructor. Knowledge gained from classroom instruction applied to field conditions. Students will participate in cultural practices using the University Farm Laboratory in growing and marketing a crop.

Crop Science — Agronomy and Vegetable Crops (CR SC)

1. Introduction to Crop Science (3)
Not open to students with credit in upper-division CR SC courses. Principles of production for cereal, row, forage and vegetable crops. Culture, insect and disease control, harvesting, storage, and marketing.

101. Row Crops (3)
Prerequisites: BOT 10 or BIOL 10, CR SC 1. The culture of beans, cotton, sugar beets, and other fiber and oil crops; varieties, nutrition, insect, disease, and weed control; harvest, storage, uses, and marketing. (2 lecture, 3 lab hours)

102. Cereal Crops (3)
Prerequisites: BOT 10 or BIOL 10, CR SC 1. The culture of barley, corn, grain sorghum, oats, rice, rye and wheat; varieties, nutrition, insect disease, and weed control; harvest, storage, uses, and marketing. (2 lecture, 3 lab hours) (Two 1-day field trips)

103. Forage Crops (3)
Prerequisites: BOT 10 or BIOL 10, CR SC 1. The culture of alfalfa, silage, irrigated pasture and range related to livestock feed enterprises; varieties, nutrition, insect, disease and weed control; harvesting, uses, and marketing. (2 lecture, 3 lab hours)

104. Seed Production and Technology (3)
Prerequisites: BOT 10 or BIOL 10, CR SC 1. The principles of specialized agronomic seed production; harvesting, mechanical conditioning, storage, treatment and viability testing. (2 lecture, 3 lab hours) (2-3 day field trip fee, $65)

105. Range Management (3)
Prerequisites: BOT 10 or BIOL 10, CR SC 1. 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)

111. Warm Season Vegetables (3)
Prerequisites: BOT 10 or BIOL 10, CR SC 1. 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) (2-3 day field trip fee, $65)

112. Cool Season Vegetables (3)
Prerequisites: BOT 10 or BIOL 10, CR SC 1. 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) (2-3 day field trip fee, $65)

Ornamental Horticulture (OH)

1. Introduction to Ornamental Horticulture (3)
Planting and maintenance of the home landscape; selection, planting, fertilization, and pruning of plants; lawn planting and care. (2 lecture, 3 lab hours)

4. Floral Design (3)
Principles and rules of design and color using plants as a media; European and Japanese influences; emphasis on American linemass and contemporary designs. An assortment of arrangements are made in lab. (2 lecture, 3 lab hours) (Course fee, $25)

101. Greenhouse Management (3)
Prerequisites: BOT 10 or BIOL 10, OH 1. The construction, operation and management of greenhouses; cultural and environmental techniques used in the production of greenhouse crops. Foliage plant identification. (2 lecture, 3 lab hours; field trips)

105. Nursery Management (4)
Prerequisite: OH 1. Practices and principles in planning and managing a retail nursery, flower shop, or garden center; includes some aspects of production and construction of occasional floral designs. (3 lecture, 3 lab hours; field trips)

107. Landscape Design (4)
Prerequisites: OH 1, 109. History and development of landscape design. Landscapes for the modern home, with consideration of effect on microenvironment. Graphic techniques used in developing landscape designs. Analysis and solution of landscape design problems of residential and commercial structures. (3 lecture, 3 lab hours; field trips)

108. Ornamental Trees (3)
Prerequisites: BOT 10 or BIOL 10, OH 1. Trees grown in California for landscaping, shade and ornamentation; identification, habits of growth, cultural requirements, landscape use. (2 lecture, 3 lab hours; field trip)

109. Plant Identification and Botanical Gardens (3)
Prerequisites: BOT 10 or BIOL 10, OH 1. Identification, growth habits, culture and landscape use of shrubs, vines and ground covers. Botanical gardens of the U.S. and California with particular emphasis on their history and design. (2 lecture, 3 lab hours; 2 Saturday field trips)

110. Turfgrass Production and Management (3)
Prerequisites: BOT 10 or BIOL 10, OH 1. 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; field trip)

Plant Health (PLT H)

1. Introduction to Plant Health (3)
Not open to students with previous credit in upper-division PLT H courses. Origin, history, and evaluation of protective measures (chemical, biological, and cultural) for management of insects, diseases, weeds, and rodents in the field and around the home. (Formerly PL PR 1)

102. Pesticides (3)
Prerequisite: CHEM 3B or 8. Modes of action and effective application of insecticides, herbicides, fungicides, rodenticides, nematocides and plant growth regulators. Emphasis on effective and safe use of agricultural chemicals by reading labels and following laws/regulations. (2 lecture, 3 lab hours) (Formerly PL PR 102)

103. Economic Entomology (3)
(Same as ZOOL 122). Prerequisite: BOT 10 or ZOOL 10. Biology, ecology, management and taxonomy of economically important arthropods, with special emphasis on agricultural ecosystems in California. (2 lecture, 3 lab hours) (Formerly PL PR 103)

105. Weeds (3)
Prerequisites: BOT 10 or BIOL 10, CHEM 3A. Vegetation management in California. Identification of common weeds. Fundamentals of preventive, cultural, biological, physical, and chemical weed control methods. (2 lecture, 3 lab hours) (Formerly PL PR 105)

106. Plant Pathology (3)
Prerequisite: BOT 10 or BIOL 10. Study of the causal agents, disease cycles, and control of plant diseases. (2 lecture, 3 lab hours) (Formerly PL PR 106)

107. Biological Control (3)
Prerequisite: PLT H 103. Study of the action of parasites, predators, and pathogens on the population dynamics of their host/prey organisms; focus on arthropods, with additional emphasis on microorganisms, weeds, nematodes, and vertebrates. (2 lecture, 3 lab hours) (Formerly PL PR 107)

108. Integrated Pest Management (3)
Prerequisite: PLT H 103. 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) (Formerly PL PR 108)

109. Diagnosis of Plant Diseases (3)
Prerequisite: PLT H 106 or concurrently. Techniques for the diagnosis of specific diseases in field, greenhouse, and laboratory settings. Students will practice diagnostic techniques for the major plant diseases occurring in California. (2 lecture, 3 lab hours) (Formerly PL PR 109)

Soil and Water (SW)

1. Introduction to Irrigated Soils (3)
Prerequisites: introductory chemistry and/or physics. Interpretation of physical and chemical properties of biological and mineral matter for the management of soils in irrigated agriculture. Emphasis on soil/plant and plant/water relationships. (2 lecture, 3 lab hours) (Formerly SI 1)

2. Agricultural Water (3)
Water resources and problems in California; water requirements for agricultural and ornamental crops; irrigation scheduling and application methods. (2 lecture, 3 lab hours) (Formerly SI 2)

100. Soils (3)
Prerequisites: CHEM 3A, intermediate algebra. Physical, chemical, and biologic properties of soils as a medium for plant growth and as a natural body, factors that influence soil formation; food and fiber production; fertilizer and soil amendment use and environmental impact; soil's role in the biosphere. (Formerly SI 100)

100L. Soils Lab (1)
Prerequisite: SW 100 or concurrently. Physical, chemical, and biological analysis. Interpretation of field and laboratory data. (3 lab hours) (Saturday field trip) (Formerly SI 100L)

101. Crop Nutrition (4)
Prerequisite: SW 100. Evaluation of nutrient elements in soils; application of fertilizers and organic waste to meet nutrient requirements; soil and plant tissue analysis and interpretation; fertilizer recommendations for different crops. (3 lecture, 3 lab hours) (Formerly SI 101)

102. Soil Classification and Conservation (3)
Prerequisite: SW 100. Influence of environmental factors on soil development; description of soil profiles; interpretation of soil maps; conservation practices relating to irrigation, drainage and erosion control. Saturday field trips required. (2 lecture, 3 lab hours) (Formerly SI 102)

104. Soil and Water Management (4)
Prerequisites: SW 2, 100 (may be taken concurrently). Management of irrigated soils with particular emphasis on crop water requirements, irrigation scheduling, salinity, and other physical and chemical soil problems of field crops, permanent crops and landscapes. (3 lecture, 3 lab hours) (Formerly SI 104)

111. Irrigation Systems (3)
Prerequisite: SW 2. Principles of planning, installation and evaluation of irrigation systems for field crops, permanent crops and ornamental horticulture. Pressurized systems (sprinkler and drip irrigation)

emphasized. This course may be supplemented with optional labs in agricultural systems (SW 111AG) or landscape systems (SW 111OH). (Formerly SI 111)

111AG. Agricultural Irrigation Lab (1)
Prerequisite: SW 111 or concurrently. Field experience in planning, installing, and evaluating irrigation systems for agricultural applications. (3 lab hours) (Formerly SI 111AG)

111OH. Ornamental Horticulture Irrigation Lab (1)
Prerequisite: SW 111 or concurrently. Field experience in planning, installing, and evaluating irrigation systems for landscape and other ornamental horticultural applications. (3 lab hours) (Formerly SI 111OH)

114. Pumps and Motors (3)
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) (Formerly SI 114)

Viticulture/Tree Fruit (VTF)

1. Introduction to Grape and Tree Crops (3)
Not open to students with credit in upper-division VTF courses. Origin and distribution of grape and tree fruit crops. Botanical and commercial classification of grapes and tree fruits and their culture in California.

101. Principles of Viticulture (4)
Prerequisite: BOT 10 or BIOL 10 or VTF 1. Current status and future of the grape industry. Characteristics and identification of leading raisin, table, wine and rootstock varieties. Growth and physiology of the grapevine. Climatic and soil requirements for grape growing. Principles and practices of vineyard fertilization, irrigation and pruning. (3 lecture, 3 lab hours)

102. Advanced Viticulture (3)
Prerequisite: VTF 101. Planning of new vineyards. Vine propagation, planting and training. Recent developments in viticultural practices, with emphasis on table and wine grape production. (2 lecture, 3 lab hours)

103. Raisin Production and Processing (2)
Prerequisite: BOT 10 or BIOL 10 or VTF 1. Principles and practices of raisin production; sun drying, mechanical dehydration, on-the-vine drying; new raisin processes to produce new products. (1 lecture, 3 lab hours)

105. Production and Marketing of Table Grapes (2)
Prerequisite: VTF 101. An overview of the table grape industry in California. Major table grape growing regions in the world, U.S., and California. Varietal adaptation to climate and soils. Cultural practices and vineyard management. Post-harvest technology and marketing strategies. Field trips. (1 lecture, 3 lab hours) (Formerly PLANT 170T)

106. Winegrape Production (2)
Prerequisite: VTF 101. Advanced viticulture course in the science of winegrape production. Covers the basics and advanced technology of winegrape growing for wine production. (1 lecture, 3 lab hours) (Formerly PLANT 170T)

110. Fruit Species of California (3)
Prerequisite: BOT 10 or BIOL 10 or VTF 1. Fruit and nut species common to California, their adaptation and uses.

112. Principles of Pomology (3)
Prerequisite: BOT 10 or BIOL 10 or VTF 1. Pruning, fruit and vegetative development, pollination, rootstocks; propagation, and nutrition. Crop cultural practices. (2 lecture, 3 lab hours)

113. Subtropical and Tropical Fruits (3)
Prerequisite: BOT 10 or BIOL 10 or VTF 1. Geographic distribution, climatic and soil adaptation of subtropical and tropical fruit crops. Fruit and vegetative development and cultural practices for globally important fruit crops. Emphasis on citrus, avocado, banana, mango, olive, and pineapple. (2 lecture, 3 lab hours)

114. Postharvest Handling of Perishable Crops (3)
Prerequisite: BOT 10 or BIOL 10. Physiological aspects of fruit maturation and ripening. Principles of postharvest handling of fruit and vegetables for the fresh market as they apply to harvesting, packaging, storage, and transportation. (2 lecture, 3 lab hours) (2-day field trip fee, $75)

Mechanized Agriculture (ME AG)

Note: Suitable eye protection is required in many ME AG laboratory classes.

1. Introduction to Agricultural Mechanics (3)
Selection, care, and use of common farm tools, projects of wood and metal; mechanical skills in the field of agriculture. (2 lecture, 3 lab hours) (Course fee, $25) (Formerly AET 1)

3. Farm Tractors and Equipment (3)
Operation and maintenance of farm tractors; operation of farm tractors and equipment under field conditions; service, maintenance and minor repair of engines of wheel and crawler type. (2 lecture, 3 lab hours; 5 hours field operation) (Formerly AET 3)

5. Power Equipment Safety (1)
Safety training for operation of power equipment. Meets requirements of Senate Bill 198 and University Farm Laboratory (UFL) for classroom safety instruction on using tractors and similar power equipment. Satisfactory completion meets safety training portion requirement of the UFL Tractor License. (16 hours, meets four consecutive times) *CR/NC* grading only. (Formerly PLANT 170T)

20. Farm Machinery and Equipment (3)
The study of basic functions and applications of farm machinery and equipment. Operation, adjustment and maintenance of farm machinery common to the San Joaquin Valley under field conditions will be emphasized. Equipment will be evaluated for efficiency and effective performance. (2 lecture, 3 lab hours)

50. Metallurgical Processes (3)
(Same as I T 71.) 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. (2 lecture, 3 lab hours) (Course fee, $7) (Formerly AET 50)

53. Basic Electricity (3)
(See I T 52.)

103. Electro-Hydraulics (3)
Prerequisites: ME AG 3. Theory and practice in the operation, service, adjustment, and function of the component parts of fluid power systems. Design application of systems to agricultural equipment. Major emphasis is on computerized electronic controls of hydraulic systems. (2 lecture, 3 lab hours) (Formerly AET 103)

112. Power Systems Technology (3)
Prerequisite: ME AG 3. Principles of the internal combustion engine; overhauling, repairing, and adjusting of gasoline, diesel, and LPG farm engines. Practices in repair technology and engine replacement as well as cost analysis decisions. (2 lecture, 3 lab hours) (Formerly AET 112)

113. Power Transmissions (3)
Prerequisite: ME AG 3. Theory and operation of electro-hydraulic assist transmis-

sions, synchronized transmissions; gear transmissions; clutches; brakes; final drives, selecting devices, mechanical front wheel drives, four wheel drive, and rubber/steel track drives. (2 lecture, 3 lab hours) (Formerly AET 113)

114. Small Gasoline and Diesel Engines (3)
Prerequisite: ME AG 1. Theory of operation, maintenance, and repair of small gasoline and diesel internal combustion engines. (2 lecture, 3 lab hours) (Formerly AET 114)

120. Advanced Farm Machinery (3)
Prerequisite: ME AG 3. Theory, operation, and management economics of planters, tillage tools, harvesting and spraying equipment. Managerial responsibilities under State and Federal mandates will be emphasized. (2 lecture, 3 lab hours)

GRADUATE COURSES

The following graduate courses are open to students who have been accepted into the graduate program. Final semester senior undergraduate students may petition the Division of Graduate Studies to enroll in graduate courses. The petition form, which is available in the department office, must be accompanied by GRE scores to be considered.

Agriculture (AGRI)

200. Biometrics in Agriculture (3)
Prerequisites: PLANT 99, AG EC 71, or MATH 101, or permission of instructor. Advanced concepts in the design of agricultural experiments. Emphasis is placed on the selection of appropriate designs to meet the objectives of well-planned experiments. Relative merits of various designs and topics in analysis, interpretation, and regression are covered.

201. Agricultural Laboratory Techniques (3)
Prerequisite: One of the following courses: BOT 130; CHEM 105, 109, 151; FSC 115. Agricultural problem solving through the application of advances in laboratory technology, crop management, foods, nutrition, soil and water quality. Theory and practice operation of scientific instruments and techniques are taught. Student defined project and report required. (2 lecture, 3 lab hours)

220. Research Methodology and Communications (3)
Critical literature review, quantitative and qualitative research design, scientific writing, questionnaire design and use, and presentation of research results. Ethical research issues examined. Approved for *SP* grading.

Plant Science (PLANT)

250T. Topics in Plant Science (3; max total 12)
Prerequisites: 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.

252. Plant Nutrition (3)
Prerequisite: BOT 130. 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)

253. Soil-Water Relationships (3)
Prerequisite: SW 2. Effect of irrigation water quality on soil properties and plant growth. Management alternatives for salinity and toxicity problems. Suitability of using waste waters for irrigation. (2 lecture, 3 lab hours)

254. Plant Hormones and Regulators (3)
Prerequisites: BOT 130, 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 (A.B.A.), ethylene, and other hormones. Agricultural impacts of growth regulators. (2 lecture, 3 lab hours)

255. Advanced Plant Breeding (3)
Prerequisites: BIOSC 140A-B; GENET 120. 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 130. 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 Plants (3)
Prerequisite: BOT 130. 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: PLT H 106. Principles of 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)

261. Advanced Pest Management (3)
Prerequisite: PLT H 108 or permission of instructor. Comprehensive study of anthropod, disease, and weed pest problems in important California cropping systems. Examination of complex relationships among crop plants, herbivores, and other components of these agro-ecosystems leads to design of management programs that are both economically viable and ecologically sound.

270. Seminar in Plant Science (1; max total 4)
Prerequisite: permission of instructor. Reviews of published and/or original research in the broad areas of crop science, soil and water relations, and plant health.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

299. Thesis (3)
Prerequisite: prior advancement to candidacy. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Oral defense of thesis required. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Agriculture (AGRI)

300. Topics in Agriculture (1-3; max total 6)
Topics may require lab hours. In-service professional training in selected areas of agriculture.

Viticulture and Enology

College of Agricultural Sciences
and Technology

Department of
Viticulture and Enology
Robert L. Wample, *Chair*
Viticulture and Enology Research Center
2360 E. Barstow Ave, M/S VR89
(559)278-2089
FAX: (559)278-4795
http://cast.csufresno.edu/ve

B.S. in Plant Science
Horticulture Option

B.S. in Food
and Nutritional Sciences
Enology — Wine Production Option

The Department

The Department of Viticulture and Enology is in its first year of existence. Its goal is to be a world class center of excellence that can effectively meet the needs of students and the broader community. The department will eventually offer courses in viticulture (currently offered in the Department of Plant Science) and enology courses (currently offered in the Department of Food Science and Nutrition.)

At present, students may select a Bachelor of Science degree in Plant Science (the Horticulture Option), or in Food and Nutritional Sciences (the Enology — Wine Production Option). Each degree option integrates viticulture and/or enology offerings with the basic sciences (e.g., biology, chemistry, mathematics, physics) and management skills to build a well-balanced foundation.

While degree programs presently remain in the Department of Plant Science and the Department of Food Science and Nutrition, it is anticipated that new degrees in viticulture and enology will be approved in the near future. Students can take courses prescribed in the existing degree programs and, when new degrees are approved, faculty will work to ensure that no coursework is lost.

Academic Excellence

California is recognized both nationally and internationally as the foremost leader in enology. California State University, Fresno is one of only two universities in the country to offer a full program of study in enology. The enology program has the first commercial winery of any school in the United States.

The viticulture program at Fresno State has received a National Award for Excellence in Agricultural Technology Instruction from R.J. Reynolds Industries Inc.

The formation of the new department has been greeted with enthusiasm by the viticulture/wine industry. It is anticipated that graduates will be able to choose from many exciting, well-paying careers. To discuss career opportunities available in this field, call the department office and schedule an appointment to meet with a faculty member.

Faculty

In their fields of specialization, faculty members hold advanced degrees from leading universities in the United States. They bring a wealth of basic and practical information into the classroom. Faculty work with each student to plan and design an individualized program of study that meets the student's educational and career objectives. Faculty members are involved in research and public service through the Viticulture and Enology Research Center, one of four centers in the California Agricultural Technology Institute. The center offers excellent opportunities for students to gain experience by participating in applied research projects that address and help solve problems faced by California's grape and wine industries.

Robert L. Wample, *Chair*
Sayed A. Badr, *Viticulture Coordinator*
Sanliang Gu, *Ricchuitti Chair*
Carlos Muller, *Enology Coordinator*

Bachelor of Science Degree Requirements

Students completing the B.S. in Plant Science in preparation for a career in viticulture may select either the Production Management or the Science and Technology Emphasis. In either case, the student will complete the Horticulture Option. For degree requirements and advising notes, see *Department of Plant Science*, pages 134-141.

Students completing the B.S. in Food and Nutritional Sciences in preparation for a career in enology should select the Enology — Wine Production Option. For degree requirements see the *Department of Food Science and Nutrition*, page 122.

Students completing either of these degrees are strongly encouraged to meet with their academic adviser in the Department of Viticulture and Enology prior to enrolling in courses each semester.

The College of Arts and Humanities

Music Building, Room 186
Luis F. Costa, *Dean*, (559) 278-3056

The Mission of the College

The study of the arts and humanities provides a foundation in vision, depth, and discernment for all areas of knowledge. From the "Know thyself" of philosophy to the "Get it right" of journalism, the arts and humanities illuminate everything from self to society.

Art, music, telecommunications, and theatre offer opportunities to participate in and absorb the full range of creative and interpretive experience. English and communication, letters and language, sum up the best that has been thought and said. Foreign languages and linguistics do all of that and more. Besides providing culture, in the Germanic sense of the term, knowledge of foreign languages offers insights into whole new worlds of people. Linguistics offers the same opportunity through the English language, but from the opposite end of the telescope.

Journalism is best equipped to report on, comment on, and analyze the wisdom and folly of today. Philosophy deals with the wisdom of the ages — a heavy phrase for a discipline that teaches us how remarkable and timelessly "modern" the human mind has always been, from apple to Apple.

Given the broad spectrum of human concerns in the arts and humanities, it should come as no surprise that the classical studies and the humanities interdisciplinary minors are also housed in the college.

The College of Arts and Humanities includes the departments of Art and Design, Communication, English, Foreign Languages and Literatures, Linguistics, Mass Communication and Journalism, Music, Philosophy, and Theatre Arts. Armenian Studies, Classical Studies, Interdisciplinary Humanities, Summer Arts, and the London Semester are integral programs of the college.

The CSU Summer Arts festival in the visual and performing arts, creative writing, media art, and art education offers a selection of topics courses. See CSU Summer Arts catalog for topics offered. Audition or portfolio review by CSUSA is required for enrollment. Special course fees may be required. Each topics course may be repeated for a total of 12 units. ***See page 466.***

Armenian Studies

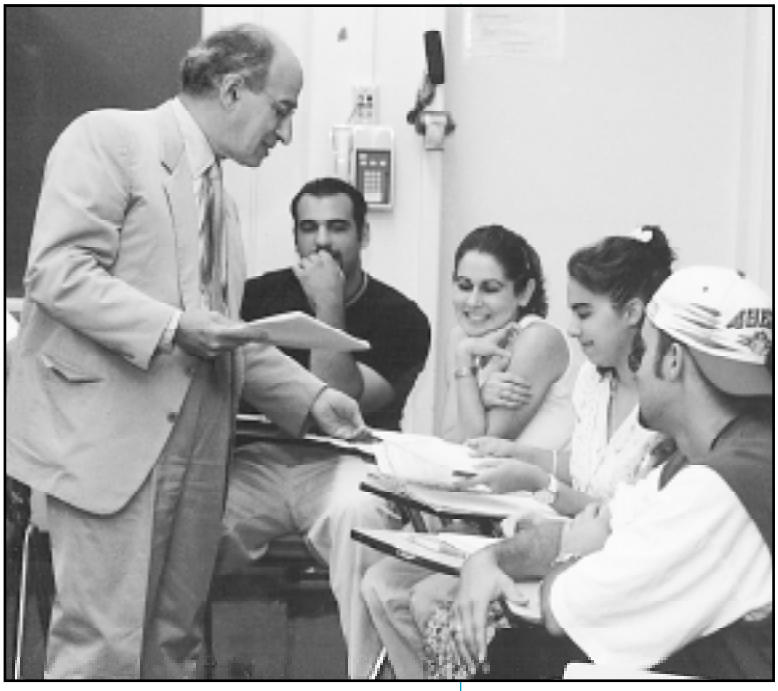
Office of the Dean
College of Arts and Humanities

Armenian Studies Program
Dickran Kouymjian,
Haig and Isabel Berberian Professor of Armenian Studies; Coordinator, Armenian Studies Program; Director, Center for Armenian Studies

Frances C. Ziegler,
Program Administrative Assistant

Peters Business Building, Room 384
(559) 278-2669 • FAX: (559) 278-2129
e-mail: dickrank@csufresno.edu
http://www.csufresno.edu/ArmenianStudies/

Minor in Armenian Studies



Armenian Studies

The Armenian Studies Program offers courses on Armenian history, literature, art and architecture, film, William Saroyan, the Genocide, and contemporary issues. Courses in Armenian language and literature and in Armenian history and immigration are also offered under the Department of Foreign Languages and Literatures and the Department of History.

The Minor in Armenian Studies prepares students for teaching careers in one of the 25 Armenian schools in the United States, for administrative positions in Armenian cultural, social, and benevolent organizations, for study and volunteer work in the Armenian Republic, or for graduate work in Armenian doctoral programs at UCLA, Harvard, Columbia, Tufts, the University of Michigan, or Oxford University.

The Haig and Isabel Berberian Chair of Armenian Studies. The Berberian Endowed Chair provides financial support for a distinguished Armenologist. The endowment honoring the Berberians was established by their son-in-law and daughter, Dr. Arnold H. and Dianne Gazarian. Other friends have made significant contributions to this endowment.

The Henry S. Khanzadian Kazan Visiting Professorship in Armenian Studies. This specially designed endowment allows the Armenian Studies Program to invite for one semester each year an internationally recognized scholar in contemporary Armenian affairs. The distinguished professor will teach a single course on a subject related to modern Armenian history, including the Genocide of 1915 and the formation of the Armenian Republic. In addition, the scholar will present three public lectures on a single topic; these will be published as a volume in the Kazan Armenian Studies series.

The M. Victoria Karagozian Kazan Endowment Fund for the Armenian Studies Program. Thanks to a generous donation by Henry and the late Victoria Kazan, the university has received a special endowment to support general Armenian Studies Program activities and to provide financial resources for research, publications, and conferences related to Armenian studies.

Pete P. Peters Endowment. Mr. Pete Peters, a long-time supporter of Armenian Studies, in 1998 offered the university a substantial endowment exclusively for helping with the program's outreach activites. For the first few years proceeds from the endowment will be used for student scholarships.

The program supports the Armenian Students Organization, the student and program newspaper *Hye Sharzhoom*, and the Armenian Studies Program Lecture Series.

Thanks to an exchange agreement between Fresno State and Yerevan State University, qualified students can study up to one year in Armenia while registering and paying tuition in Fresno.

Scholarships. Students working toward a minor or simply enrolling in Armenian courses are eligible for scholarships administered by the program. These include the Charles K. and Pansy Pategian Zlokovich Scholarship; the Nerces and Ruth Azadian Memorial Scholarship; the Yervant, Rose, and Hovannes Levonian Educational Grant; the Pete P. Peters Endowment; Koren and Alice Odian Kasparian Scholarship; and the Alice Peters Scholarship. Annual renewals are assured for students who continue to enroll in Armenian studies courses. In addition to these, full tuition scholarships and research-assistant grants are also available.

The Harry and Mary Topoozian Armenian Studies Merit Scholarship Fund was recently established by a gift from Mr. Harry Topoozian. An Outstanding Achievement Scholarship will be awarded to a student who has excelled in scholarship, leadership, and community service. Any student enrolled in Armenian Studies courses is eligible.

The Armenian Studies Program Dickran Kouymjian Writing Award. In 1997 the Armenian Studies Program Advisory Board decided to establish an endowment fund for excellence in writing from the proceeds of the 20th Anniversary Banquet honoring

Professor Kouymjian. Each year a prize will be given for the best student essay, term paper, or literary work in any discipline on a topic related to Armenia or the Armenians.

Faculty

Dickran Kouymjian, *Armenian Studies Program Coordinator, Haig and Isabel Berberian Professor of Armenian Studies*

Barlow Der Mugrdechian
Isabel Kaprielian, *History Department*

Armenian Studies Minor

	Units
ARM 1A, 1B, 2A, 2B	**6-8**
ARM S 45 or ARM 148	**3**
ARM S 10 and 20	**6**
ARM S 121 or 123	**3**
ARM S/HIST 105 or 106 and ARM S/HIST 108A or 108B	**6**
Total	**24-26**

COURSES

Armenian Studies (ARM S)

10. Introduction to Armenian Studies (3)
Introduction to the historical and contemporary experience of Armenians in American society. Examines issues of identity, ethnicity, immigration, genocide, and cultural heritage in the United States. G.E. Breadth D3.

20. The Arts of Armenia (3)
An introduction to Armenian architecture, painting, sculpture, ceramics, metal work, and textiles. All lectures are illustrated with slides. G.E. Breadth C1.

45. William Saroyan (3)
The ethnic experience in America, especially the San Joaquin Valley, through the writings of William Saroyan. The author's major literary successes will be read and compared with films made of these same works. Writing assignments of at least 2,500 words.

50T. Studies in Armenian Literature (3)
Various masterpieces of Armenian literature: David of Sassoun, Saroyan, historical literature, modern literature, Armenian American authors.

105. Armenian Genocide in Comparative Context (3)
(See HIST 105.) Review of theory and characteristics of genocide. Study of the

Manuscript painting of entry to Jerusalem, 1211 A.D.

Armenian Genocide as an example and comparison with other genocides in the 20th century. Discusses the role of international constituencies and prevention and lessons of genocide. (Formerly ARM S 120T section)

106. Armenians in North America (3)
(See HIST 106.) Study of six waves of Armenian migration to North America from 1870-1995. Topics discussed include entry, settlement, work, family, community organizations, church, politics, culture, and integration in U.S. society. (Formerly ARM S 120T section)

108A. Armenian History I: Ancient and Medieval (3)
(See HIST 108A.) History of Armenia and Armenians from prehistoric times to the beginning of the modern era. The historical process will be considered from Armenia's point of view as well as from that of its neighbors: Assyria, Iran, Rome, Byzantium, the Arabs, the Seljuk Turks, the Crusades, the Mongols, and various Turkic dynasties.

108B. Armenian History II: Modern and Contemporary (3)
(See HIST 108B.) Overview of modern and contemporary Armenian history, including Armenia's relations with Persian, Turkish, and Russian empires, the Armenian Renaissance, the "Armenian Question," the Genocide, the Armenian Republic, Soviet Armenia, the Second Armenian Republic, and diasporan communities in America, Europe, and the Middle East.

120T. Topics in Armenian Studies (1-3; max total 6)
Specialized topics in Armenian history, art, and culture, not normally covered in other Armenian Studies courses. Topics include the Armenian church, minor arts, film, the Diaspora, and the Genocide.

121. Armenian Painting (3)
History and development of Armenian painting with special concentration on the art of manuscript illumination and the origins of Christian art. All lectures are illustrated with slides.

123. Armenian Architecture (3)
History and development of Armenian architecture is presented in the context of early Christian architecture. There will be a survey of monuments from the fourth to the 17th centuries. All lectures are illustrated with slides.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Etchmiadzin Cathedral Belltower 1658 A.D.

Art and Design

College of Arts and Humanities

Department of Art and Design
Nancy K. Brian, *Chair*
Conley Art Building, Room 105
(559) 278-2516

B.A. in Art
Areas of Emphasis:
- Drawing/Painting
- Ceramics/Sculpture
- Printmaking/Photography
- Crafts/Design
- Art History

Option:
Graphic Design

B.A. in Interior Design

M.A. in Art
Areas of study:
- Art Education
- Art History
- Interior Design
- Studio Art

Minor in Art

Single Subject Credential

Art and Design

The Department of Art and Design offers a B.A. in Art, a graphic design option, and a B.A. in Interior Design. The department's academic programs also include a minor in art, a secondary single subject waiver credential in art, and a master's degree with areas of study in studio, art education, interior design, or art history.

The department's program of study is derived from an educational conviction that a foundation in the crafts of art and design is an essential prerequisite to the production of works exhibiting sophistication both conceptually and visually.

Art. Courses offered in the history of art examine, identify, and appreciate the visual arts from prehistory to the present. This is implemented in a manner that reflects the department's commitment to a humanities perspective based on a belief in the fundamental unity of the arts and the ideas that give them form.

The studio classes offer the student of art a variety of complementary disciplines to explore. Selected areas of concentrated study lead toward skilled applications and projects that demonstrate proficiency in graphic experimentation and expression.

The variety of offerings in studio art, art education, and the history of art encourage individualized strategies for formulating coherent programs. This results in a unique opportunity for occupational preparation in a variety of careers in the visual arts.

Graphic Design. Through a combination of traditional drawing and rendering techniques and state-of-the-art computer applications, the graphic design program prepares students for careers in the graphics and advertising fields, including graphic design, advertising, publishing, film, and television.

Courses explore the many aspects of design, typography, illustration, computer graphics, Internet design, the professional practices commonplace in the field, and the history of graphic design.

Graduates have gone on to successful careers locally and nationally, and have been the recipients of numerous awards and honors.

Interior Design. The interior design major is accredited by the Foundation for Interior Design Education Research (FIDER). Interior design combines an excellent foundation of color, drafting, design — including computer-aided design (CAD) — professional practice, space planning, and presentation skills with unique strengths in architecture, building systems, and materials.

Graduates have been placed in residential, contract, and institutional interior design firms, architectural firms, art galleries, set design, and contract and residential sales. Our students are actively involved in national and West Coast interior design competitions and are recipients of numerous awards.

Faculty and Facilities

The faculty of the department offer diverse, skilled, and professional approaches to art and design education. The methods of teaching reflect distinctive yet complementary ways and means of introducing their disciplines while guiding students through the program with a sense of dedication and commitment to the education of artists, designers, and scholars.

The facilities of the department not only include the requisite studios, computer labs, and support facilities, but include an art gallery and a lecture hall in a contemporary art building complex.

Career Opportunities

Completion of the art major — or interior design major — enables graduates to pursue advanced study leading to careers in fields such as:

- Fine Arts
- Studio Production
- Art History
- Graphic Design
- Interior Design
- Art Education

Prospective students should contact faculty in their area of interest to further explore specific career opportunities.

Faculty

Nancy K. Brian, *Chair*

Lawrence L. Anderson
Jennifer Bracy
Richard Delaney
Paulette S. Fleming
Charles F. Gaines
Ed Gillum
Patricia L. Hennings
Thomas McDougall
Richard McQuone
William E. Minschew Jr.
Daniel G. Nadaner
Raphael X. Reichert
Diana S. Seah
Charles Shields
Gina Strumwasser

Bachelor of Arts Degree Requirements

Art Major *Units*

Major requirements (See *Note 1*)..... **51**
Art and Design Core ..... (18)
ART H 10 and 11 ..... (6)
ART 13 ..... (3)
ART 20 or ID 43 ..... (3)
ART 24 or 30 or 40 ..... (3)
ART 50 or 60 or 70 ..... (3)
Computer Imaging requirement
ART 37 or GD 40
or ART 107 or 117 ..... (3)
Theory requirement
ART 101 ..... (3)
Art Gallery requirement
ART 112 ..... (3)
Art History requirement
ART H 132 or 136, plus
an additional 3 upper-
division units ..... (6)
Area of Emphasis
(I, II, III, or IV) ..... (9)
I. Drawing/Painting
ART 120, 121, 140, 141
II. Ceramics/Sculpture
ART 152, 153, 155, 160, 161, 165
III. Printmaking/Photography
ART 125, 126, 127, 130, 133,
182, 183, 185
IV. Crafts/Design
ART 113, 116, 166, 170, 175
Art and Design upper-division
electives ..... (9)
General Education 51
Electives and remaining
degree requirements* 22-28
(See *Degree Requirements*); may
be used toward a dual major
or minor.
Total 124

*Six units of General Education requirements may be met by any two of the following courses required by the major: ART H 10, 11; ART 1, 13, 20, 40, 50.

Advising Notes

1. Upper-division requirements for students emphasizing art history include: ART 101, ART H 136, and at least 3 units from each of the following areas:
   - Primitive, Pre-Columbian
   - Renaissance, Baroque
   - Modern, Contemporary
2. No General Education Integration course offered by the Department of Art and Design may be used to satisfy the General Education requirements for majors in the department.
3. *CR/NC* grading is only permitted in ART 198, Internship.
4. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.

Bachelor of Arts Degree Requirements

Art Major
Graphic Design Option *Units*

Major requirements 65
Art and Design Core ..... (18)
ART H 10 and 11 ..... (6)
ART 13 ..... (3)
ART 20 or ID 43 ..... (3)
ART 24 or 30 or 40 ..... (3)
ART 50 or 60 or 70 ..... (3)
Lower-division requirements ..... (12)
GD 40, 41, 42; I T 60
Upper-division requirements ..... (35)
ID 111; GD 135, 140, 141,
142, 143, 146, 147, 148, 149;
ART 116; MCJ 142
General Education 51
Electives and remaining
degree requirements* 5-11
(See *Degree Requirements*); may
be used toward a dual major
or minor.
Total requirements 124

*It is anticipated that the following courses required by the major will also meet General Education requirements: ART H 10, 11; ART 13, 20, 30, 40, 50, 60, 70.

Advising Notes

1. All courses required for the major must receive a letter grade.
2. Student work may be retained for a limited period for display and accreditation visits.
3. The upper-division writing skills requirement can be met by passing the university examination or by completing a *W* course with a letter grade of *C* or higher, to be taken no sooner than the term in which 60 units are completed.
4. The General Education requirement of 51 units may be exceeded depending upon the selection of courses; such excess units may be counted under the Electives category toward the 124-unit degree.

Credential Program

The Single Subject Matter Preparation Program in Art at California State University, Fresno complies with the preconditions for the approval in the following ways.

1. The program includes (a) 33 semester units of core coursework in art subjects and related subjects that are commonly taught in departmentalized classes in California public schools and (b) 24 semester units of coursework that provide breadth and perspective to supplement the essential core of the program. These requirements are elaborated under 2 and 3 below.
2. The 33 units of core courses include courses in art, art history, crafts, ceramics, design, painting, and drawing.

   ART H 10 and 11: The Ancient and Primitive World and The Modern World

   ART 13: Design

   ART 21: Figure Drawing

   ART 24, 25, 26, 27, 109T, 126, or 127: Printmaking

   ART 40: Painting

   ART 50: Sculpture

   ART 60: Beginning Ceramics

   ART 70: Crafts
   or ART 127, 160, 175, and/or 166

   ART 30, 182, 183, 185 or 37, 107, 117: Photography or Computers

   ART 120: Drawing (advanced)
3. The 24 units of breadth coursework required by the program include courses that provide breadth and perspective to supplement the essential core of the program.

   ART H 136: Contemporary Art

   ART H 120, 122, 124, 126, or 109T: Renaissance, Baroque, or Heroines in Art

   ART H 160, 170, 173, or 175: Africa, Native North American, Pre-Columbian, or Pre-Columbian Andes

   ART 101: Content and Form

   ART 113, 171 or 175: Design (advanced), Crafts (advanced), Metal Design

ART 140: Intermediate Painting

ART 152, 155, or 160: Intermediate Sculpture, Sculpture: Foundry, Intermediate Ceramics

ART 179: Development of Artistic Expression

Art Minor

The Art Minor consists of a minimum of 21 units of which 9 must be upper division. Six units of *CR/NC* grading will be accepted.

	Units
ART H 10 and 11	**6**
ART 13 and 20	**6**
ART H elective (upper division)	**3**
ART H or studio electives (upper division)	**6**
Total	**21**

Graduate Program

The Master of Arts in Art provides the opportunity for highly motivated art students to pursue study at an advanced level and attain a level of accomplishment in the visual arts and design. The graduate program emphasizes self-direction and focus within a specific area. The program is based upon the equivalent of the undergraduate major in art at California State University, Fresno. The program provides specifically for certain areas of interest: art education, crafts, computer art, interior design, drawing, painting, ceramics, photography, 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.*

The Master of Arts degree program in Art assumes preparation equivalent to the undergraduate major in art at California State University, Fresno. Applicants must first complete university requirements for admission to the Division of Graduate Studies, including the Graduate Record Examination Aptitude Test. Applicants must also pass the Department of Art and Design Classified Standing Screening Review.

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

Graduate courses in art are open to holders of the B.A. degree in Art who have been conditionally classified by the Department of Art and Design. Interior Design majors must meet an art major undergraduate equivalency specific to their area. All other majors must meet a standard art major undergraduate equivalency.

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*)	21-30
Approved courses in art or related fields in the 100- or 200-series	0-9
Total	**30**

Specific Requirements. ART 230 or 260 (3 units) and ART 298 or 299 (2-6 units). Before being allowed to exhibit, candidates expecting to participate in ART 298 are required to have completed ART 112 or the equivalent approved by the gallery director.

For studio areas, additional units (3-9) in ART 240 or 220T are specifically recommended.

For art history areas, ART 230 and additional units (3-9) in ART 260 are specifically recommended.

Classified Standing. Concurrently with the departmental review and evaluation for classified standing, the student will submit a tentative program outline for approval by the screening committee.

Graduate Writing Skills Requirement. Before advancing to candidacy, the student must have completed the graduate writing requirement. This is satisfied by completing at least one semester of ART 230 or 260. Please note that the prerequisites for these courses may change according to the subject covered. Admission to the course is by permission of instructor.

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 and Design (ARTDS)

9T. Studio Topics in Art and Design
(1-3; max total 9 if no topic repeated)
Specific introductory studio processes not covered in regular course offerings. Areas offered may be drawing, painting, ceramics, sculpture, photography, printmaking, design, crafts, motion picture, art education, computer graphics, graphic design, and interior design.

10T. Lecture Topics in Art and Design
(1-3; max total 9 if no topic repeated)
Specific lecture area not normally covered in regular course offerings in art, graphic design, or interior design. Topics may include African American art, aesthetics of electronic imagery, careers in art and design, portfolio preparation, interior design, and graphic design.

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 mid-14th century. G.E. Breadth C1. (CAN ART 2)

11. The Modern World (3)
An introductory survey of Western art from the Renaissance through the 19th century, including Mannerism, Baroque, Rococo, Neoclassicism, and Impressionism from the mid-14th century to the end of the 19th century. G.E. Breadth C1. (CAN ART 4)

109T. Topics in Art History
(1-3; max total 3 if no topic repeated)
Specific areas in art history not normally covered in the regular course offering. Possible topical areas include Arts of the South Pacific, 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.

WESTERN ART SURVEYS

120. Italian Renaissance (3)
Artistic revival of classical antiquity in Italy between 1300-1550.

122. Northern Renaissance (3)
Painting and sculpture from the Netherlands, France, and Germany between 1300-1550.

124. Italian Baroque (3)
Baroque art from its conception in Rome to its dispersal throughout Italy from 1600-1750.

126. Northern Baroque (3)
Diffusion of Italian Baroque art to the Netherlands, France, Spain, Germany, and Austria between 1600-1750.

131. Nineteenth Century Modern Art (3)
A more developed critical look at modern art in its relationship to the needs of the social political context of the 19th century.

132. Twentieth Century Modern Art (3)
A more developed critical look at modern art in its relationship to the needs of the social political context of the 20th century, up to the mid-1950s.

134. America (3)
Art from colonial times to 1945.

136. Contemporary Art (3)
A comprehensive survey of contemporary art focusing on the issue of postmodernism from the mid-1950s onward.

PRIMITIVE ART SURVEYS

160. Africa (3)
Sculpture, painting, architecture, festivals, and personal adornment of sub-Saharan Africa.

ART OF THE AMERICAS SURVEYS

170. Native North American (3)
Arts of the indigenous North American cultures from the Arctic to the American Southwest.

173. Pre-Columbian Mexico (3)
Art of the Olmec through the Aztec cultures.

175. Pre-Columbian Andes (3)
Art of the Chavin through the Inca cultures.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Studio (ART)

1. Art Forms (3)
Slide lecture-discussion. An introduction to art/seeing and appreciating the visual world around us. G.E. Breadth C1. (Course fee, $5)

13. Design (3)
Exploration of basic art concepts through two- and three-dimensional design problems. Field trips may be required. G.E. Breadth E1. (6 lecture-lab hours)

20. Drawing (3)
Introductory experiences in drawing using observation, imagination, and expressive means. Fundamentals of form, space, techniques, and composition will be studied. G.E. Breadth C1. (6 lecture-lab hours) (CAN ART 8)

21. Figure Drawing (3)
Introductory course in the basic concepts of figure drawing problems and techniques. Drawing from the nude model, both male and female, is basic to this course. (6 lecture-lab hours) (Course fee, $25)

24. Printmaking (3)
Introduction to the printmaking processes of intaglio, lithography, and woodblock printing. (6 lecture-lab hours) (Course fee, $15) (CAN ART 20)

25. Lithography (3)
Studio class offering in printing of drawings created on stone and metal plates in the planographic process. Printing in black ink as well as color will be covered. (6 lecture-lab hours) (Course fee, $15)

26. Intaglio Processes (3)
Studio class offering in printing in the intaglio process using such techniques as etching, drypoint, aquatint, and soft-ground on metal plates. Printing in black ink as well as color will be covered. (6 lecture-lab hours) (Course fee, $15)

27. Screenprinting (3)
Investigation into techniques of printing with a screen. Paper, film, tusche, and glue techniques for creating printing stencils will be covered. (6 lecture-lab hours) (Course fee, $15)

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) (Course fee, $25) (CAN ART 18)

37. Macintosh Art (3)
Not open to students with credit in ART 137. Introduction and exploration of some of the Macintosh computer applications that are fundamental to visual arts. May include HyperCard™ animation, Adobe Illustrator™, and Adobe Photoshop™. (6 lecture-lab hours) (Formerly ART 137)

40. Painting (3)
Introduction to painting processes through creative experiences and critiques. Emphasis on concepts and processes of contemporary painting. G.E. Breadth C1. (6 lecture-lab hours) (CAN ART 10)

45. Watercolor (3)
Introduction to techniques in watercolor painting with emphasis on transparencies. (6 lecture-lab hours)

50. Beginning Sculpture (3)
Introductory course in the experiential application of the methods and materials of sculpture. Creative expression and exploration of sculptural form through ideas and aesthetic concepts. Studio safety. G.E. Breadth C1. (6 lecture-lab hours) (CAN ART 12)

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. (6 lecture-lab hours) (Course fee, $15) (CAN ART 6)

70. Crafts (3)
Fundamental exploration of several media (may include any of fiber, wood, leather, clays, paper) with emphasis on understanding the potential of the various materials for crafts. Field trips may be required. (6 lecture-lab hours)

100T. Topics in Art
(1-3; max total 3 if no topic repeated)
Specific lecture area not normally covered in regular course offerings or in art history. Topics may include but are not limited to: African American art, Chicano art, cinema art, urban aesthetics, formalism in art, economics of art, careers in art, portfolio preparation.

101. Content and Form (3)
Introduces students to the problems of the modern/postmodern debate through first, a historical analysis of structuralism and poststructuralism, and second, the application of these ideas to art production.

103. Guest Artists (3; max total 9)
Seminar with experienced guest artists.

106. Art Tours (3; max total 6)
Explore the extraordinary art and artistic experience in California by touring museums and galleries in Los Angeles and San Francisco. Two weekend trips include exposure to diverse collections of art in the state. (Course fee, $190)

107. 2-D Computer Art (3; max total 9)
Prerequisite: ART 20 or equivalency. ART 13 and ART 40 recommended. Introductory 2-dimensional computer art integrating painting, drawing, and design graphics. (6 lecture-lab hours) (Course fee, $20)

109T. Topics in Studio Art
(1-3; max total 3 if no topic repeated)
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, computer graphics. (6 lecture-lab hours) (Course fee variable)

112. Gallery Techniques (3; max total 9)
Introduction to museum practices related to exhibition selection, design, and installation techniques. Field trips, lectures, projects, and critiques. (6 lecture-lab hours)

113. Design (3; max total 9)
Prerequisite: ART 13. Continuation of the exploration of two- and three-dimensional design problems. (6 lecture-lab hours)

116. Interaction of Color (3)
Interaction of color as developed by Joseph Albers; basic design principles in connection with color work. (6 lecture-lab hours)

117. 3-D Computer Art (3; max total 9)
Prerequisite: ART 107. Introductory 3-dimensional computer art integrating video-animation, sculpture, and design. Selected emphasis will be determined by instructor. (6 lecture-lab hours) (Course fee, $20)

120. Drawing (3; max total 9)
Prerequisite: ART 20. Investigation of advanced concepts through the techniques of the drawing medium. (6 lecture-lab hours)

121. Figure Drawing (3; max total 9)
Prerequisite: ART 21. The human figure and its relevancy to advanced drawing concepts and techniques, emphasis on individual exploration in studio problems. Drawing from the nude model, both male and female, is basic to this course. (6 lecture-lab hours) (Course fee, $25)

125. Lithography (3; max total 9)
Prerequisite: ART 24 or 25. Studio class designed for advanced work in stone and metal plate printing in both black as well as color inks. Emphasis placed on imagery development. (6 lecture-lab hours) (Course fee, $15)

126. Intaglio Processes (3; max total 9)
Prerequisite: ART 24 or 26. Studio class designed to offer advanced work in intaglio printing processes such as etching, drypoint, and aquatint in black ink as well as color. Multiple plate printing will also be covered. Emphasis placed on imagery development. (6 lecture-lab hours) (Course fee, $15)

127. Screenprinting (3; max total 9)
Prerequisite: ART 27. Investigation into techniques of screenprinting. Paper, film, tusche, glue, and photo techniques for creating printing stencils will be covered. Emphasis placed on imagery development. (6 lecture-lab hours) (Course fee, $15)

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)

133. Alternative Imagery in Photography (3; max total 9)
Prerequisite: ART 30. Approaches to nontraditional photography. Emphasis on producing personal imagery. (6 lecture-lab hours)

135. History of Graphic Design (3)
Prerequisites: ART H10 and 11. A survey of characteristic design approaches, solutions, materials, and technologies, their relationship to popular culture and trends, and their social and political history. Course includes lectures and studio projects. (2 lecture and 2 lab hours)

140. Intermediate Painting (3)
Prerequisite: ART 40. Individual investigation of advanced aesthetic concepts; continued search into personal direction. (6 lecture-lab hours)

141. Advanced Painting (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)

145. Watercolor (3; max total 9)
Prerequisite: ART 45. Painting with emphasis on transparencies. (6 lecture-lab hours)

152. Intermediate Sculpture (3)
Prerequisite: ART 50. Continued investigation in the experiential application of selected methods and materials of sculpture. Emphasis on promoting a greater awareness of sculptural form and development of ideas and aesthetic concepts. (6 lecture-lab hours)

153. Advanced Sculpture
(3; max total 9)
Prerequisite: ART 152. Individual involvement in the studio practice of sculpture. Emphasis focused on conceptual development, refinement of technique, choice of materials, professional presentation, and portfolio. (6 lecture-lab hours)

155. Sculpture: Foundry
(3; max total 9)
Prerequisite: ART 50 or permission of instructor. Foundry techniques: mold-making, wax sculpting, metallurgical technology, and patination. Research of historical and contemporary approaches to the art of metalcasting. (6 lecture-lab hours) (Course fee, $50) (Formerly ART 151)

160. Intermediate Ceramics
(3; max total 9)
Prerequisite: ART 60. 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. (6 lecture-lab hours) (Course fee, $15)

161. Advanced Ceramics (3; max total 9)
Prerequisite: ART 160. Advanced study in ceramic art. Individual projects in selected ceramic areas with emphasis on showing and portfolio presentation of work. (6 lecture-lab hours) (Course fee, $15)

165. Ceramic Glazes (3; max total 9)
Prerequisites: 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. (6 lecture-lab hours) (Course fee, $25)

166. Glass Blowing Studio
(3; max total 9)
Prerequisites: ART 13, 20, and 60, or permission of instructor. A course in studio glass blowing techniques with technical information on glass compositions, furnace design, and construction. (6 lecture-lab hours) (Course fee, $50)

170. Crafts (3; max total 9)
Prerequisite: ART 70. Advanced design in a variety of materials. Study of contemporary designer craftsmen. (6 lecture-lab hours)

171. Textile Design: Dyeing and Printing (3; max total 9)
Design relating to fabrics, tie dye, batik, and silk screen. Field trips may be required. (6 lecture-lab hours) (Course fee, $15)

175. Jewelry and Metalsmithing
(3; max total 12)
Designing and fabricating articles of adornment and function using copper, brass, pewter, nickel-silver, sterling, and gold. Forging, fabricating, fusing, raising, enameling, electroplating, stone setting, and casting. Design, technique, and craftsmanship emphasized. (6 lecture-lab hours) (Course fee, $20)

179. Development of Artistic Expression (3; max total 9)
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. Field trips may be required. (6 lecture-lab hours) (Course fee, $15)

182. Large Format Photography (3; max total 9)
Prerequisite: ART 30 or equivalent and permission of instructor. Study of the large format camera and its creative application. Emphasis on individual assistance in both field and laboratory work. Introduction to selective exposure and development control, optical effects, and applied compositional design. (2 lecture, 3 lab hours) (Course fee, $25)

183. Field Studies in Photography (3; max total 12)
Prerequisite: ART 30 or equivalent and permission of instructor. Individual formulation of exploratory multi-image essays produced on location. Emphasizes individual conceptual goals and acquiring communicative skills appropriate to medium. Introduction to photographic theory and its practical application to individual creative objectives. (2 lecture, 3 lab hours) (Course fee, $25)

185. Color Photography (3; max total 9)
Prerequisite: ART 30 or equivalent and permission of instructor. Study of unique attributes of color in design and production of photographic prints. Multiformat color printing. Directed exploration of color both conventional and experimental. Monochromatic and multichrome printing utilizing the camera and other printmaking sources. (2 lecture, 3 lab hours) (Course fee, $25)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Course fee, $30)

198. Internship in Art (1-6; max total 6)
Prerequisites: permission of instructor and sponsoring agency. Experience in art related professions with agency under the Department of Art and Design supervision. Maximum credit toward an art major, 6 units. *CR/NC* grading only. (Minimum of 3 field hours per unit)

GRADUATE COURSES
(See *Course Numbering System.)*

Art (ART)

220T. Topics in Studio Processes (3; max total 9)
Prerequisite: permission of instructor. Investigation of advanced studio topics selected by the department. Coursework includes studio productions, their critiques and evaluations.

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. Meets the graduate writing skills requirement.

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.

241. Graduate Painting (3; max total 6)
Prerequisite: ART 141 or portfolio for review. Studio course in painting for graduate students. Selected concepts and problems in contemporary painting. Emphasis on individual exploration and development of personal direction. (6 lecture-lab hours)

253. Graduate Sculpture (3; max total 9)
Prerequisite: ART 153 or submission of portfolio for review. Faculty guided independent research and studio practice. Includes consultation, critiques, and portfolio development. Relates sculptural form to ideas, aesthetic concepts, and contemporary issues. Emphasis on professionalism and personal direction. (6 lecture-lab hours)

260. Seminar in Art History (3; max total 9)
Prerequisites: 6 units of upper-division art history and permission of instructor. Research problems applicable to art history students or studio artists. Meets the graduate writing skills requirement.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Course fee, $30)

298. Project (2-6; max total 6)
Prerequisite: permission of the Art and Design Department graduate coordinator; see *Criteria for Thesis and Project*. Preparation, production, design, and installation of original works produced while engaged in the graduate program. Exhibit committee must approve of the work, location, and quality of installation. Abstract required. Approved for *SP* grading. (Course fee, $30)

299. Thesis (2-6; max total 6)
Prerequisite: permission of the Art and Design Department graduate coordinator; see *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE
(See *Course Numbering Systems.*)

Art (ART)

343. Contemporary Approaches in Art (1-3; repeatable for credit)
Advanced processes not normally offered in regular courses. Areas may include art education, drawing, painting, ceramics, sculpture, photography, printmaking, design, crafts, and motion picture.

COURSES

Graphic Design (GD)

40. Graphic Design: Computer Imaging (3)
Introduction to computer and mechanical skills necessary in the area of graphic design. Includes projects encompassing the basic skills of working with Photoshop and Illustrator, scanning and placing images, typography and page layout, and mounting and presenting artwork. (6 lab hours) (Formerly GID 63, GID 40)

41. Typography (3)
Prerequisites: I T 60, GD 40. Typographic principles, elements, and techniques. Type classification, selection, design, and layout. Computer projects. (6 lab hours) (Formerly GID 141, GID 165)

42. Graphic Design (3)
Prerequisites: ART 13, GD 41. Advertising and graphic design projects taken through steps from thumbnail sketches through rough layouts to computer-generated comprehensive presentations. Emphasis on evaluation of market and audience and development of aesthetic solutions to communication problems. (6 lab hours) (Formerly GID 142)

135. History of Graphic Design (3)
Prerequisites: ART H 10 and 11. A survey of characteristic design approaches, solutions, materials, and technologies, their relationship to popular culture and trends, and their social and political history. Course includes lectures and studio projects. (2 lecture and 2 lab hours)

140. Internet Design (3)
Prerequisite: GD 42. Internet design for graphic designers focusing on Web site structure that communicates and navigates easily. Emphasis on professionally designed, visually integrated Web sites utilizing contemporary software for Web design, image creation, and manipulations. (6 lab hours)

141. Advanced Typography (3)
Prerequisites: GD 41. Advanced principles of typography, including design of typefaces utilizing contemporary software. Exploration of sophisticated typographical projects incorporating commercial and handmade fonts. Emphasis is placed upon typographical experimentation. (6 lab hours)

142. Advanced Graphic Design (3)
Prerequisites: GD 42, ART 116. Advanced projects in advertising and graphic design from concept to finished computer-generated files. Emphasis on professional solutions to common graphic design problems such as corporate identity, packaging, advertising, and brochure design. (6 lab hours)

143. Rendering (3)
Prerequisite: ID 43, ART 116. Advanced assignments exploring limited and full color illustrations. Emphasis on development of professional presentation and skills. (6 lab hours) (Course fee, $5) (Formerly GID 143)

146. Advanced Rendering
(3; max total 6)
Prerequisite: GD 143. Advanced rendering for industrial design, architecture, interior design, commercial art, and illustration. Includes limited and full color problems with emphasis on professional presentation. Individual exploration encouraged. (6 lab hours) (Formerly GID 146)

147. Advertising Illustration (3)
Prerequisite: ID 43, ART 116. Illustration as it applies to advertising situations. Composition and techniques designed for quick reading and ease of execution. Black and white and limited color. (6 lab hours) (Course fee, $5) (Formerly GID 147)

148. Advanced
Advertising Design (3; max total 6)
Prerequisite: GD 142. Advanced advertising/graphic design from conceptual to finished art. Includes problems and more advanced approaches relating to various advertising media. Emphasis on production procedures, professionalism, and building a strong portfolio, including critiques. (6 lab hours) (Formerly GID 148)

149. Professional Practices (3)
Prerequisite: GD 142. Advanced exploration of graphic and advertising design as well as standards and practices common in advertising agencies and design studios. Covers workplace structures, time and record keeping, estimating, self-promotion, copyright law, and working with vendors and employees. (6 lecture-lab hours) (Formerly GID 132T)

Bachelor of Arts Degree Requirements

Interior Design Major

	Units
Major requirements	**80**
Art and Design Core	(15)
ART H 10 or 11	(3)
ART 13	(3)
ART 20 or ID 43	(3)
ART 24 or 30 or 40 or GD 40	(3)
ART 50 or 60 or 70	(3)
Interior Design requirements	(65)
ID 7, 70, 71, 77, 110, 111, 112, 113, 114, 115, 116 or I T 115; ID 130, 131, 133, 134 or 145, 137, 138, 149, 150, 152, 155; F M 20; I T 115	
General Education	**51**
(including 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed) Consult the *Schedule of Courses* for a current list of approved General Education courses.)	
Additional requirement	**0-4**
Upper-division writing skills by examination or *W* course	
Total requirements	**124-131**
(including 40 upper-division units)	

Advising Notes

1. All courses required for the major must receive a letter grade.
2. Student work may be retained for a limited period for display and accreditation visits.
3. The upper-division writing skills requirement can be met by passing the university examination or by completing a *W* course with a letter grade of *C* or higher, to be taken no sooner than the term in which 60 units are completed.
4. The General Education requirement of 51 units may be exceeded depending upon the selection of courses.

COURSES

Interior Design (ID)

7. Drafting for Interior Design (3)
Interior drafting techniques for complete working drawings in plan and elevation, interior millwork, introduction to codes, standards, ink and lettering. (6 lab hours) (Formerly GID 7)

43. Visualization and Illustration (3)
An introductory course in 3-dimensional sketching. Rapid visualization as a means of quick visual communication for the artist, illustrator or designer. Illustration techniques include projects in pencil, pen, shading, and water color. (6 lab hours) (Course fee, $5) (Formerly GID 43)

70. Introduction to Interior Design (3)
Aesthetic and functional aspects of interior design. Integration of design principles: color, space planning, furniture selection, creative expression, product information, and design process. (Formerly GID 70)

71. Residential Interior Design (3)
Prerequisite: ID 7, 70 (or concurrently). Introductory residential interior design of living spaces, kitchens, baths, and support spaces. Studio work, creative aesthetics, spatial arrangements, design process programming. (6 lab hours) (Course fee, $5) (Formerly GID 71)

77. Interior Graphics (3)
Prerequisites: ID 43, 71 (or concurrently). Introduction to basic black and white interior graphic communication techniques including one- and two-point perspective sketch techniques, graphic charts, material representation, plan and elevation graphics; emphasis on composition, shade, shadow, lighting, and texture. (6 lab hours) (Formerly GID 37, ID 37)

110. Basic Building and
Mechanical Systems and Codes (3)
Prerequisite: ID 71. Not open to students with credit in CONST 50 or 162. Fundamentals of building systems and codes as related to interiors, including construction products and techniques, acoustics, electrical, plumbing, heating, ventilating, and cooling. On site projects. (Field trips) (6 lab hours) (Formerly GID 110)

111. Design Presentation Techniques (2)
Prerequisites: ID 43, 70 or ART 13. Creative design presentation and technique, architectural graphics, product presentation boards, three dimensional model design problems, and use of color media. (4 lab hours) (Course fee, $5) (Formerly GID 111)

112. Space Planning (3)
Prerequisites: ID 7, 43, 70, 71; and 110 (or concurrently). Introduction to interior space planning for typical residential and commercial projects. Design considerations, schematic planning, code application, and anthropometrics. Design for special populations: children, aged, and physically challenged. (6 lab hours) (Course fee, $5) (Formerly GID 112)

113. 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. (6 lecture-lab hours) (Course fee, $150) (Formerly GID 113)

114. History of Architecture and Interiors: Ancient World to Baroque Period (3)
Prerequisite: ART H 10 or 11. A stylistic survey of characteristics common to each historical period of architectural and furniture design. (Formerly GID 114)

115. History of Architecture and Interiors: Baroque to Modern (3)
Prerequisite: ART H 10 or 11. A stylistic survey of characteristics common to each historical and modern period of architectural and furniture design. (Formerly GID 115)

116. AutoCAD for Interior Design (3)
Prerequisite: ID 7, 112; GD 40. An introduction to the application of AutoCAD as a design tool for the interior designer or architect. Students will produce 2-D and basic 3-D modeling and drawing using AutoCAD. Excel will be introduced for creating finish, furniture, and lighting schedules. (Formerly GID 132T, ID 132T)

130. Interior Lighting (3)
Prerequisites: ID 70, 110. Introduction to lighting of residential, commercial, and institutional interiors. Laboratory testing and lighting calculations. (2 lecture, 2 lab hours) (Course fee, $10) (Formerly GID 130)

131. Interior Design Materials and Specifications (4)
Prerequisites: ID 70, 111; F M 20, COMM 3. Selection, specifications, and computations for interior design materials available for residential, commercial, and institutional design. Lecture, small group research, product display, and field trips. (2 lecture, 4 lab hours) (Course fee, $10) (Formerly GID 131)

132T. Topics in Interior Design (1-4; max total 12 if no topic repeated)
Topics related to interior design. Some topics may have labs. (Formerly GID 132T)

133. Professional Interior Design Practices (3)
Prerequisites: ID 70, 131; 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) (Course fee, $10) (Formerly GID 133)

134. Restoration and Preservation (3)
Prerequisites: ID 112, 114, 115, and permission of instructor. Principles and methods of restoration, case studies of the restoration and preservation of historically significant structures in the United States. Working drawings, details, and specifications. (6 lab hours) (Course fee, $5) (Formerly GID 134)

136. Contemporary Furniture and Millwork (3)
Prerequisite: ID 7, 112; ART 13. Furniture, cabinet, and millwork design and construction drawings for residential, commercial, and institutional installations. Studio work to include free standing and built-in units. Plans, elevations, sections and millwork detailing using a variety of materials. (6 lab hours) (Formerly GID 174, GID 136, ID 136)

137. Interior Architectural Graphics and Models (3)
Prerequisites: ID 77, 111; and 112 (or concurrently). Three dimensional interior architectural models and graphic techniques integrating color and composition and its impact on design communication; media to include illustration board, balsa wood, photography, markers, color pencil, pastel, and watercolor. (6 lab hours) (Formerly GID 137)

138. Advanced Residential Interior Design (3)
Prerequisites: ID 111, 114 (or concurrently); 130, 131; I T 115 or ID 116, 137 (or concurrently). Creative design solutions for residential environments including new construction and remodeling for diverse clients and budgets. Hand and AutoCAD working drawings, presentations, and specifications. (6 lab hours) (Course fee, $10) (Formerly GID 138)

145. Healthcare Interior Design (3)
Prerequisite: junior standing in interior design or health related field. Aspects of aging, illness, and wellness as they impact the interior environment for acute, ambulatory, and long-term care design. (Formerly GID 132T section, GID 156)

149. Advanced Commercial Design I (4)
Prerequisites: ID 137, 138. A series of creative, advanced studio projects in commercial, hospitality, and institutional design. Pre-professional level application of office systems, space planning, building and fire codes, lighting design and specifications. Presentation format in AutoCAD 14 or 2000. (8 lab hours) (Course fee, $10) (Formerly GID 135, GID 139)

150. Design Exhibits and Competitions (3)
Prerequisites: ID 149; permission of instructor. Provides a structure for students to participate in creative design shows, design competitions, exhibits, and senior portfolio reviews. (6 lab hours) (Course fee, $10) (Formerly GID 150)

152. Interior Design Practicum (3; max total 6)
Prerequisites: senior standing; ID 131, 133, 149, or 155; permission of instructor. Supervised professional practice in interior design related business or industry. Participation in Senior Portfolio Review required. (Formerly GID 152)

155. Advanced Commercial Design II (4)
Prerequisites: ID 149, 152. Comprehensive design solutions based on the NCIDQ examination pre-test and a large-scale national interior design competition. Interior space in excess of 20,000 square feet. Professional level competition format requirements. AutoCAD Release 15 or 2000. (8 lab hours) (Formerly GID 155)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly GID 190)

Classical Studies - Interdisciplinary Minor

College of Arts and Humanities

Department of Foreign Languages and Literatures

Victor D. Hanson
Peters Building, Room 452
(559) 278-6437

Bruce S. Thornton
Peters Building, Room 437
(559) 278-7037

Minor in Classical Studies

Greek and Roman Studies

Although the university does not offer a bachelor's degree program in classical studies, the College of Arts and Humanities has coordinated a variety of courses in several disciplines that allow comprehensive study of the Greek and Roman world. For students interested in classical studies, two alternatives are available.

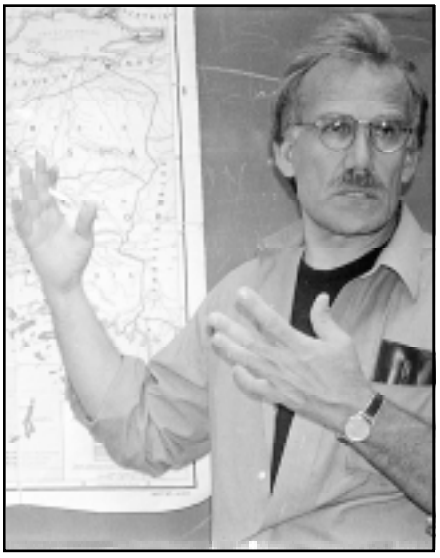
First, a student may petition for a special major based on the program approved by the campuswide Committee on Classical Studies, available from the coordinator of classical studies. Students are strongly urged to read carefully the policy for the special major for the Bachelor of Arts degree. (See *Degree Requirements — Special Major for the Bachelor of Arts Degree*.) Second, the university offers a classical studies minor with three areas of interest.

Classical Studies Minor

The Classical Studies Minor is designed for students 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 allows for three areas of interest: Latin, Greek, and Classics (Greek and Latin).

Latin	*Units*
HIST 112 or HUM 110	3
LATIN 1A, 1B	6
LATIN 131T (2)	6
Electives	9
Total	**24**



Greek	*Units*
HIST 111 or HUM 108	3
GRK 1A, 1B	6
GRK 131T (2)	6
Electives	9
Total	**24**

Classics	*Units*
HIST 111 or HUM 108, HIST 112 or HUM 110	6
LATIN 1A, 1B	6
GRK 1A, 1B	6
LATIN 131T or GRK 131T	3
Electives	3
Total	**24**

Course Electives

The following list includes the courses most directly concerned. For further information, consult Victor D. Hanson or Bruce S. Thornton, Engineering East, Room 218.

Art History:

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

Drama:

DRAMA 185	History of the Theatre and Drama (3)

Humanities:

HUM 108	Humanities in Classical Athens (3)
HUM 110	Humanities in Republican and Imperial Rome (3)

English:

ENGL 112	World Literature: Ancient (4)

Foreign Language:

GRK 1A, 1B	Elementary Greek (3, 3)
GRK 131T	Greek Literature (3; max total 12 if no topic repeated)
GRK 190	Independent Study (1-3)
LATIN 1A, 1B	Elementary Latin (3, 3)
LATIN 131T	Latin Literature (3; repeatable with different topic)
LATIN 132	Classical Mythology (3)
LATIN 190	Independent Study (1-3)

History:

HIST 1	Western Civilization I (3)
HIST 103	History of Early Christianity (3)
HIST 110	Ancient Near East (3)
HIST 111	Ancient Greece (3)
HIST 112	Ancient Rome (3)
HIST 116	Greek and Roman Religion (3)
HIST 119T	Studies in Ancient History (1-3; max total 6 if no topic repeated)
HIST 190	Independent Study (1-3)

Philosophy:

PHIL 101	Ancient Philosophy (3)
PHIL 108	Roman Philosophy (3)

Physical Science:

P SCI 106	History and Philosophy of Physical Science (3)

Kinesiology:

KINES 111	The Olympic Games (3)

Political Science:

PL SI 110	Seminar in History of Political Thought to Macchiavelli (3)

Communication

The Department

Our aim is to prepare you to compete in, understand, and provide leadership in a communication-oriented society. We offer a balance of humanistic and scientific instruction in communication skills people need to function effectively in teaching, business, law, the communication professions, public service and administration, the ministry, public relations, politics, and management. You have an opportunity to explore the full range of human communication.

Our major and minor are well grounded in interpersonal skills, problem-solving and decision-making methods, group and organizational leadership, and intercultural interaction. We study issues such as how we perceive events, express ourselves verbally and nonverbally, and how communication influences human behavior and social change. We develop competence in oral and written communication, statistics and research methods (including using computers), and how to employ these skills in specific career areas.

The Communication Skills for Professionals Certificate program recognizes development in such areas as presentational speaking, problem solving and decision making, leadership, and interpersonal communication.

Our program offers a variety of exciting activities to enrich your educational experience. We have a fine intercollegiate forensics program, which includes the Professional Communication Association, and a national communication conference each spring that brings scholars and students from around the country.

We offer you personalized advising. Our major builds on a sound core of foundation courses and is completed by courses selected to meet your needs and career objectives. Our major requirements are flexible and easily integrated into a host of minors. We think your choice of an adviser is an important decision, and we encourage our students to pick their own adviser.

Career Opportunities

In the new millennium, a degree in communication opens a great number of career doors. Increasingly, we see a wide variety of job descriptions across professional disciplines which list *competence in communication* as the highest priority. An essential goal for us is to help you develop as a competent communicator.

In addition, we try to provide an educational base for our majors and minors for specific careers requiring competencies in oral and written communication and in interpersonal and managerial situations.

Communication graduates are employed as public relations consultants, personnel managers, political campaign directors, management analysts, teachers, counselors, lawyers, ministers, human resource specialists, and marketing representatives. We offer students a discipline widely suited to today's uncertain job market. National placement studies reveal that communication majors are finding jobs with reasonably high job satisfaction and above average pay rates, and that their rate of promotion is significantly faster.

The pursuit of a career is of great concern to students today, but it is important to recognize that the quality of your education will determine your success in life as well as how to make a living. More than half of college graduates do not enter fields directly tied to their majors.

As you begin making decisions about your life and what you want to do with it, remember that we will be happy for you to join us in the most exciting and fundamental discipline of all — the study of human communication.

College of Arts and Humanities

Department of Communication
Vincent L. Bloom, *Chair*
Speech Arts Building, Room 15
(559) 278-2826
FAX: (559) 278-4113
http://www.csufresno.edu/comm/

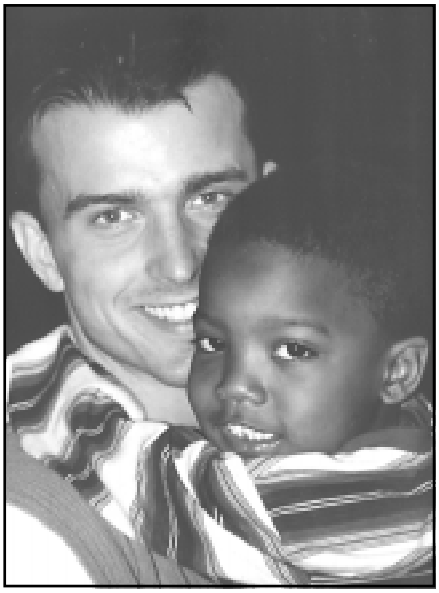
B.A. in Communication

M.A. in Communication

Minor in Communication

Single Subject Teaching Credential in Speech/English

Communication Skills for Professionals Certificate



Faculty

Vincent L. Bloom, *Chair*

Katherine L. Adams
Melanie M. Bloom
Hal W. Bochin
John A. Cagle
Carl W. Carmichael
Connie J. Conlee
George E. Diestel
Daniel S. Fox
Douglas Fraleigh
L. Ralph Hennings
Scott D. Moore
Robert G. Powell
David F. Quadro
Kathleen M. Torrens
W. Richard Ullmann

Bachelor of Arts Degree Requirements

Communication Major

The communication major is designed to develop broad-based competencies not only in oral and written communication, in critical analysis, and in statistics and research methods, but also emphasizes how to employ these skills in specific contexts such as business management, political persuasion, or public relations.

	Units
Major requirements	**42**
Fundamental communication processes and skills	(6)
Select two from COMM 3, 4, 5, 7, 8	
Core competencies	(12)
COMM 100, 140, 142, 166	
Personal and professional communication	(18)
Select two courses in each area	
Personal and relational settings: COMM 108, 120, 150, 162, 164	
Advocacy in public settings: COMM 15/115, 103, 105, 146, 148, 149, 163, 170	
Organizational and professional settings: COMM 165, 167, 168, 171, 176, 179	
Electives in major	(6)
Select two upper-division courses from settings above and/or COMM 106, 107, 114, 115, 116, 160, 169, 188T, 189, 190	
General Education	**51**
Electives and remaining degree requirements	**31**
Total	**124**

Advising Notes

1. Major courses cannot double-count for General Education.
2. No more than 3 units from COMM 15 and 115 can count toward fulfillment of the communication major.
3. *CR/NC* grading is not permitted in the communication major with the exception of COMM 179 (Internship).
4. No more than 6 units of COMM 179 (Internship) may be applied toward completion of the communication major.
5. Students are allowed only 3 units of COMM 190 and no more than 6 units toward the baccalaureate degree.

Teaching Credential Program Speech/English*

The following 52-unit course of study, referred to as the Speech/English Single Subject Waiver Program, will be accepted by the department as a major in communication. Teacher education students will take the following courses:

	Units
Lower Division Core**	
COMM 3, 4, 8; DRAMA 22	**12**
Core Courses	
COMM 5, 7, and 114 (CTET 158); ENGL 189, 183T or 193T; LING 100, 146	**23**
Electives	
ENGL 161, 163, or 164; ENGL 154 or 155; ENGL 112, 113, 114, 146, 147, 150, 151, 152, 153, 154, 155, 156, 167, 168, 169, 183T, 193T, or 194; LING 138, DRAMA 131 or 136	**15**
Breadth Courses	
COMM 100 or 115; COMM 160 or 164; COMM 108 or 162; and any upper-division speech course not used not used in previous electives	**12**

* This program of study is recognized as the Single Subject Waiver for a Speech/English credential. Total units may vary from 55-61 depending on General Education courses.

** It is anticipated that COMM 3, 4, and 8, which are required by the major, will also meet General Education requirements and thus the number of electives may vary from 33-39.

See *School of Education and Human Development* for additional professional education requirements for a credential.

Students wishing to pursue a course of study leading to a teaching credential should see the departmental director of teacher education for advising early in their programs as state requirements change frequently.

Communication Minor

Increasingly, oral and written communication, problem solving and decision making, leadership, and conflict resolution skills are being recognized as vital skills for professionals in all fields of work. The Communication Minor is designed to develop these competencies in order to help students better meet their particular career goals. While a specific minor is recommended, you may wish to consult with your department adviser about designing a minor to suit your special objectives.

	Units
Core requirements	**15**
COMM 5, 7, 8, 100, 140	
Electives	**6**
Approved upper-division communication courses	
Total	**21**

Communication Skills for Professionals Certificate

Proficiency in communication skills is essential in virtually any professional career. The Communication Program offers a structured sequence of courses leading to a certificate of special study recognizing the focused development of professional communication skills in such areas as presentational speaking, problem solving and decision making, leadership, and interpersonal communication. Upon completion of the certificate requirements, the department will award a certificate.

Certificate Prerequisites: upper-division standing and completion of the General Education basic speech requirement.

Certificate Requirements. Check with department prior to beginning certificate requirements regarding program status.

	Units
Communication Theory: COMM 100	**3**
Professional Writing Skills: IS 105W, ENGL 164, 166, MCJ 10	**3-4**
Business and Professional Speaking: COMM 170	**3**
Communication Training and Development: COMM 176	**3**
Elect 6 units from COMM 103, 108, 162, 167, 168, 169	**6**
Total	**18-19**

The new Communication Skills for Professionals Certificate Program is designed to enable students to achieve recognition of development in such areas as presentational speaking, problem solving and decision making, leadership, and interpersonal communication.

Graduate Program

The Master of Arts degree program in Communication is designed to be a comprehensive program reflecting the history and breadth of the communication discipline. Four objectives serve as measures for competent M.A. graduates of the program. First, all graduates will have a comprehensive understanding of the historical and philosophical assumptions of the communication discipline, as well as the various theoretical perspectives underlying scholarship in the discipline. Second, all graduates will recognize and be able to use appropriate communication strategies in formal, informal, professional, and personal contexts. Third, all graduates will understand quantitative and qualitative methods of research in communication. Fourth, all graduates will understand various communication perspectives and will have a clear understanding of their own personal perspective and ideologies.

Master of Arts Degree Requirements

The graduate program in communication is designed to extend the competencies of students in the study of human communication. Graduate assistantships in forensics and a teaching assistantship program for teaching provide students with opportunities for financial assistance and additional educational experiences.

The graduate program in communication assumes undergraduate preparation equivalent to a California State University, Fresno major or minor in communication. The Communication Department offers a 30 unit Master of Arts degree with coursework in three areas of human communication: rhetoric and public address, communication, and applied communication. Coursework in these areas provides preparation for a variety of career opportunities including teaching and doctoral work in communication and rhetoric,* business and industry, public service, law, and government.**

Program Requirements

Admission Requirements for Classified Standing. See *Admission to Graduate Degree Programs with Graduate Standing* in the *Division of Graduate Studies* of this catalog.

	Units
COMM 241 and 262	**6**
COMM 205, 214, 215, 242M, 243, 244, 262, 263, 264M, 265, 266, 268, 276 or 290	**12**
Electives	**3-9**
Culminating experiences	**3-6**
Select one of the following:	
A. *Comprehensive Examination* (take at least 3 units of approved communication electives)	
B. *COMM 298: Graduate Project* (3-6 units; additional approved communication electives if needed)	
C. *COMM 299: Thesis* (3-6 units; additional approved communication electives if needed)	
Minimum total	**30**

* For those individuals pursuing careers in teaching and doctoral work, the Communication Department highly recommends selecting 12 units from among the following core requirements: COMM 205, 215, 242M, 243, 244, 214, 263, 264M, 265, and 266.

** For those individuals pursuing professional careers such as business and industry, public service, law, and government, the Communication Department highly recommends selecting 12 units from among the following core requirements: COMM 214, 215, 263, 264M, 265, 266, 268, and 276.

Advising Notes

1. At least 21 units in the student's program of study must be in 200-level (seminar) courses.
2. One methods seminar (COMM 242M or 264M) is required in every program.
3. Successful completion of one of these classes also fulfills the graduate writing skills requirement: COMM 241, 242M, 262 or 264M.
4. At least 3 units of electives must be an upper-division or seminar course in a department other than communication. Any other elective requirements can be met by any approved communication seminar, upper-division communication course, or appropriate course outside the department. Elective requirements are approved by the graduate student's graduate committee.

COURSES

Communication (COMM)

AR. Study Skills Development (2)
Development of communication skills necessary for successful learning in a university, including reading, library research, control of anxiety, critical analysis, listening, oral and written reports. *CR/NC* grading only; not applicable toward baccalaureate degree requirements. (Formerly SPCH AR)

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. G.E. Foundation A1. (CAN SPCH 4) (Formerly SPCH 3)

4. Introduction to Interpersonal Communication (3)
Introduction to various theories of interpersonal communication; participation in experiences designed to enhance competence in interpersonal relationships. (CAN SPCH 8) (Formerly SPCH 4)

5. Argumentation (3)
Logical analysis, evidence, reasoning, and proof used in arriving at rational decisions as demonstrated through presentation of public speeches and debates. G.E. Foundation A3. (CAN SPCH 6) (Formerly SPCH 5)

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. G.E. Foundation A1. (Formerly SPCH 7)

8. Group Discussion (3)
Communication in group thinking and problem solving through preparation and presentation of panels and symposia on public issues. G.E. Foundation A1. (Formerly SPCH 8)

10T. Topics in Communication (1-3; max total 9)
Contemporary problems and issues in communication; sections include such topics as freedom of speech, parliamentary procedure, special communication skills, rhetoric of protest and response, and communication processes. (Formerly SPCH 10T)

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. (Formerly SPCH 15)

100. Theories of Human Communication (3)
Survey of major theories of human communication, philosophical issues, and applications; theories include interpersonal, group, organizational, intercultural, linguistic, and persuasion. (Formerly SPCH 100)

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. (Formerly SPCH 103)

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. (Formerly SPCH 105)

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. (Formerly SPCH 106)

107. Critical Thinking in the Age of Information (3)
Examines the relationships between communication and critical thinking in the age of information. Topics include the relationship between communication and cognition, models of argument, the media and critical thinking, and methods for enhancing critical thinking competence. (Formerly SPCH 107)

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. (Formerly SPCH 108)

114. Communication and Learning (3)
(Same as CTET 158.) The nature of communication and its relationship to learning and instruction; management of oral communication strategies in the educational setting. (Formerly SPCH 114)

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. (Formerly SPCH 115)

116. Communication and Humor (3)
Develop your sense of humor and learn to incorporate humor into your world by examining humor theories, social and personal functions of humor. Focuses on (1) stand-up comedy, writing, and presentation, or (2) application of techniques for management, sales, marketing, teaching, and health related fields. (Formerly SPCH 116)

120. Gender Communication (3)
Exploration of gender variables that affect human communication behaviors, focusing on behaviors that have some mythical or factual bases in sex similarities and differences. (Formerly SPCH 120)

140. Rhetorical Theory (3)
An examination and analysis of significant theories and theorists of rhetoric from the classical to the modern period. Emphasis on preparation of research papers reflecting rhetorical principles of communication. (Formerly SPCH 140)

142. Communication Criticism (3)
An examination of historical and contemporary communication events using principles of critical evaluation from rhetorical, artistic, and media perspectives. Written papers and presentations of analyses utilizing critical principles from these perspectives. (Formerly SPCH 142)

146. British Political Communication (3)
A systems approach to the study of British institutions and communication. Study of government, press, broadcasting, education, and the criminal justice system to facilitate instruction in the evaluation of political messages. Emphasis given the 18th, 19th, and 20th centuries. (Formerly SPCH 146)

148. American Public Address (3)
An examination of significant American speakers and speeches set in an environment of social and political history. The course is designed to acquaint students with the role of public address within the forces of American history. (Formerly SPCH 148)

149. Freedom of Speech (3)
Examines the tradition of freedom of speech and expression in the American democracy. Focuses upon the First Amendment to the Constitution and major case laws which impact contemporary standards for public discourse, politics, broadcast, and journalism. (Formerly SPCH 149)

150. Communication and Aging (3)
(Same as GERON 150.) Focusing on the communication aspects of the aging process, organized around the major communication components of intrapersonal, interpersonal, and mass communication with addition of such topics as attitudes, stereotypes, nonverbal, and the communication aspects of health care. (Formerly SPCH 150)

160. Meaning, Language, and Communication (3)
A review and analysis of the various approaches to the study of human symbolic behavior, with focus on such theories as: General Semantics, Psycholinguistics, Sociolinguistics, Epistemology, and other philosophical and scientific enquiries into the nature of language and meaning. (Formerly SPCH 160)

162. Interpersonal Communication (3)
An examination, analysis, and application of communication theories and variables involved in interpersonal contexts such

acquaintanceships, courtships, friendships, and families. Attention is given to communicative practices involved in the effective management of interpersonal relationships over time. (Formerly SPCH 162)

163. Social Influence and Attitude Change (3)
Seminar on the nature and effects of social influence, with special emphasis on attitude formation and change, conformity, behavior, "brain washing," prejudice, and propaganda as functions of communication. (Formerly SPCH 163)

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. G.E. Multicultural/International MI. (Formerly SPCH 164)

165. Computer Applications in Communication (3)
Survey of information technologies and computer applications in human communication professions, including word processing, spreadsheets, graphics, presentation visuals, e-mail, and Internet. Advanced techniques for creating Web pages, reports, training, presentations, brochures, and newsletters. (Formerly SPCH 165)

166. Communication Research Methods (3)
Application of behavioral research principles to problems in quantification, design, and analysis of data in communication research. (Formerly SPCH 166)

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. (Formerly SPCH 167)

168. Communication in Organizations (3)
Examination of organizational communication from a multiple discipline perspective. Through the study of theory and experiential learning in simulations, students develop skills necessary for planning, staffing, developing, decision-making, and problem-solving in organizations. (Formerly SPCH 168)

169. Communication and Conflict (3)
Examination of the role of communication in conflict in interpersonal, small groups, organizational, and societal settings. Through experiential learning, case study analyses, and practice of intervention skills, students address conflict styles, strategies, tactics, third-party intervention, and mediation techniques. (Formerly SPCH 169)

170. Business and Professional Speaking (3)
Development of communication skills necessary for success in business, government, and the professions. Includes theory and practice of interviewing, job instruction training, work group leadership, and proposal presentations. Class activities are adapted to students' career goals. (Formerly SPCH 170)

171. Communication and Planning Change in the Social System (3)
Provides students with an understanding of the communication processes involved in the evolution of social systems. Students will examine a full range of social settings (small groups, organizations, cultures, etc.) from a variety of theoretical and analytical perspectives. (Formerly SPCH 171)

176. Communication Consulting and Training (3)
Development of skills necessary for effective communication consulting in business, government, and the professions. Includes theory and practice of needs assessments, planning and conducting training activities, and evaluation of educational activities; topics relating to adult education and client-consultant relationships. (Formerly SPCH 176)

179. Internship (1-6; max total 12)
Prerequisites: major in communication, at least 75 units completed and permission of instructor. Supervised work experience in government, business, social agencies, or nonprofit organizations. *CR/NC* grading only. (Formerly SPCH 179)

188T. Topics in Communication (1-3; max total 9)
Selected topics in communication. (Formerly SPCH 188T)

189. Projects in Communication (1-3; max total 6)
Prerequisite: permission of instructor. Projects in communication. (4 hours activity) (Formerly SPCH 189)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly SPCH 190)

GRADUATE COURSES

(See Course Numbering System.)

Communication (COMM)

205. Seminar in Argumentation (3)
Prerequisite: COMM 105, 140, or permission of instructor. Examination of traditional and contemporary argumentation theory and research. Analysis of argument fields, theories of argument, argument as epistemic, argument and persuasion, argument and critical thinking. (Formerly SPCH 205)

214. Seminar in Instructional Communication (3)
An examination of the relationships of learning theories to communication study and research. Research in instructional communication, teaching strategies in communication education, and techniques for applying these concepts in educational and training settings. (Formerly SPCH 214)

215. Seminar in Communication Arts (3; max total 9)
Research and individually directed work within one area of specialization. Approved for *SP* grading. (Formerly SPCH 215)

241. Seminar in Rhetorical Theory (3)
Prerequisite: COMM 140, equivalent, or permission of instructor. A seminar which deals with the development of specific principles by selected theorists. (Formerly SPCH 241)

242M. Seminar in Contemporary Criticism (3)
Prerequisite: COMM 142, equivalent, or permission of instructor. The role of rhetorical criticism in contemporary society. (Formerly SPCH 242M)

243. Seminar in the History of American Public Address (3)
Prerequisite: COMM 142, 146, 148, equivalent, or permission of instructor. A detailed study of selected men and women who have influenced political, religious, and social problems in American history. (Formerly SPCH 243)

244. Seminar in
Contemporary Public Address (3)
Prerequisite: COMM 142, 146, 148, equivalent, or permission of instructor. The study of contemporary figures in public address who have influenced political, religious, economic, and social problems in the 20th century. (Formerly SPCH 244)

262. Seminar in Communication
Theory and Research (3)
Prerequisite: COMM 100, equivalent, or permission of instructor. 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. (Formerly SPCH 262)

263. Seminar in
Group Communication (3)
Prerequisite: COMM 108, equivalent, or permission of instructor. 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. (Formerly SPCH 263)

264M. Seminar in
Strategies and Applications
of Communication Research (3)
Prerequisite: COMM 106, 166, equivalent, or permission of instructor. Application of quantitative and qualitative methodologies to a variety of problems studied in human communication. Discussion of design, instrumentation, and analysis of quantitative and qualitative data. (Formerly SPCH 264M)

265. Seminar in
Interpersonal Communication (3)
Prerequisite: COMM 162, equivalent, or permission of instructor. An examination of current quantitative and qualitative theory and research in interpersonal communication. Implications and applications to various kinds of human relationships and various aspects of those relationships, e.g., stages, relational communication, attraction, conflict, self-disclosing. (Formerly SPCH 265)

266. Seminar in
Intercultural Communication (3)
Prerequisite: COMM 164, equivalent, or permission of instructor. An examination of current quantitative and qualitative theory and research in intercultural communication. Implications and applications to various kinds of human relationships and various aspects of those relationships, e.g., interpersonal, organizational, national, international, communication competence, and acculturation. (Formerly SPCH 266)

268. Seminar in
Organizational Communication (3)
Prerequisite: COMM 168, equivalent, or permission of instructor. Theory and application of organizational communication, including interpersonal and group communication in planning, staffing, development and decision making in complex organizations; organizational systems and environments; recognizing, diagnosing, and solving organizational problems. (Formerly SPCH 268)

276. Seminar in Communication
Training and Development (3)
Prerequisite: COMM 176, equivalent, or permission of instructor. In-depth view and application of approaches to training in communication skills in organizations including needs assessment for training, workshop and seminar development, and evaluation of interventions. (Formerly SPCH 276)

290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly SPCH 290)

298. Project (2-6; max total 6)
Prerequisite: prior advancement to candidacy, appropriate methodological tools (COMM 242M or 264M), equivalent, or permission of student's committee. See *Criteria for Thesis and Project*. Preparation, design, conduct, and evaluation of project applying rhetorical and communication theories; e.g., communication campaign for public agency, communication audit of corporate organization, extensive consulting or training activities, etc. Requires scholarly report similar in format to thesis and final oral defense. Approved for *SP* grading. (Formerly SPCH 298)

299. Thesis (2-6; max total 6)
Prerequisite: appropriate methodological tools (COMM 242M or 264M), equivalent, or permission of student's committee. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading. (Formerly SPCH 299)

Note: Students must have earned at least a *C* in all courses considered as meeting the prerequisite requirements.

IN-SERVICE COURSE

(See Course Numbering System.)

Communication (COMM)

303. Topics in Communication
(1-3; max total 12; repeatable
with different topics)
Prerequisite: permission of instructor. Application of the theories in communication. (Formerly SPCH 303)

English

The Department

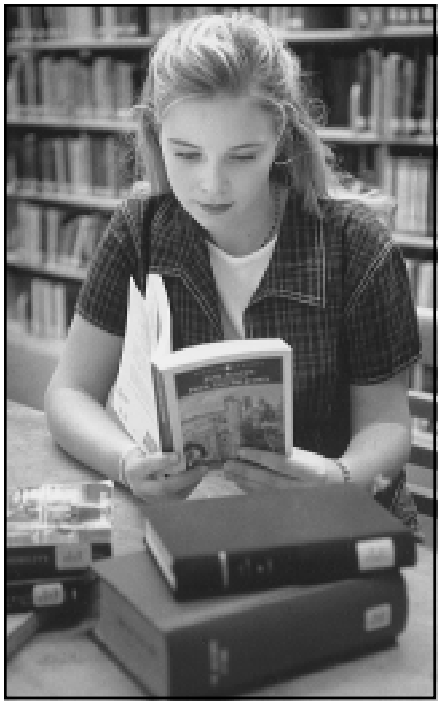
English is a general major or minor designed to give proficiency in skills that traditionally have been among the most highly prized by society: an ability to read with comprehension and critical judgment; to communicate accurately and clearly both orally and in writing; to grasp difficult ideas and think logically; to do research and organize materials; to make ethical and moral judgments from an historical and humanistic framework; and to appreciate literature and the arts.

The core of the English major consists of four basic kinds of courses in the upper division: literary history courses, literary genre courses, literary seminars, and writing courses. The masterpiece courses apply to the minor and may meet General Education requirements. The department also offers courses in mythology and folklore, methods of research, film, and women's studies.

The Single Subject Waiver Program for teaching credential candidates contains a number of specific prerequisites and special required courses, some of which are outside the Department of English. For specific program requirements, consult with the credential coordinator each semester.

Faculty and Facilities

The English Department consists of 30 full-time faculty whose teaching fields cover every area of literary studies and the humanities, including film and folklore. Most of the faculty have published books, textbooks, and articles in their disciplines, five have received outstanding teaching awards at the university, and one has received an outstanding teaching award for the entire CSU system. In addition, the faculty includes a number of lecturers, part-time instructors and teaching assistants, and the department operates an English writing lab staffed by tutors trained to work with students on an individual basis.



Career Opportunities

English has a broad application to a variety of vocations: teaching, law, journalism, editing and publishing, business management, data processing, public office, professional careers in writing, and many others. English majors and minors are being looked upon today with special favor by employers in professional and industrial fields because of their skills in writing and thinking, their ability to communicate clearly to others, and their general knowledge of people and experiences gained from the study of literature.

The English Department maintains an Internship Program whereby our majors and minors, while working toward a degree, are placed in vocational positions requiring English skills. Job opportunities through this program have included positions with such organizations as the American Cancer Society and Older Americans Organization, businesses such as computer software firms and publishers of national trade newsletters, and such various employers as local congressmen, assemblymen, charitable organizations, and arts centers.

College of Arts and Humanities

Department of English
Andrew Simmons, *Chair*
Peters Business Building, Room 382
(559) 278-2553

B.A. in English

M.A. in English
Options:
- Composition Theory
- Literature
- Nonfiction Prose

M.F.A. in Creative Writing

Minor in English

Credential Program

Certificate of Advanced Study in Composition

Faculty

Andrew M. Simmons, *Chair*
Richard T. Hansen, *Credential Coordinator*
Linnea M. Alexander
Craig Bernthal
Cheng Lok Chua
William H. Cowling
Kim Donehower
Lillian Faderman
Magdalena Gilewicz
Kathleen Godfrey
Corrinne Hales
John R. Hales
Charles G. Hanzlicek
F. Andrew Hart
Laurel Hendrix
Chris Henson
Ruth Y. Jenkins
J. Lyn Johnson
Martin T. Paul
Jean E. Pickering
Judith A. Rosenthal
Reuben M. Sanchez Jr.
Scott Stevens
Michael G. Tate
Clare-Marie Wall
James Walton
Lisa Weston
Liza Wieland
Steve Yarbrough

Bachelor of Arts Degree Requirements

English Major *Units*

Major requirements 40
Lower-division requirement
ENGL 20 ..... (4)
Upper-division requirements
ENGL 105 ..... (4)
Two English courses before 1865* ..... (8)
ENGL 193T and/or 194T .... (8)
Approved upper-division English electives (see adviser) .... (16)

General Education 51

Electives and remaining degree requirements 33-36**
(See *Degree Requirements*); may be used toward a dual major or minor.
The English Department requires two college-level courses in a foreign language for the English major.

Total 124

* Definition of a course before 1865 — ENGL 112, 113, 115W, 116, 146, 147, 150, 151, 153, 184, 187, 189, or any "T" course with all course material before 1865.

** This figure anticipates that 3 units of ENGL 20 may meet General Education requirements.

Advising Notes

1. No General Education Integration course offered by the Department of English may be used to satisfy the General Education requirements for English majors.
2. *CR/NC* grading is not permitted in the English major with the exception of 4 units total of ENGL 175T and 186.
3. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4. 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.
5. English majors are advised to select a course in English history as one of their upper-division electives.
6. English majors considering eventual graduate degrees should consult the graduate adviser.

English Minor

Students in many vocational fields often realize that special skill in writing may be of great use in their future work — and such skill can best be obtained through an English minor. The English Minor requires 20 units above ENGL 1, at least 12 of which must be upper division, and 4 of these units must be from 189 or 193T/194T. ENGL 160W does not apply to the English Minor. Courses taken as *CR/NC* may not apply to the minor with the exception of 4 units total of 175T and 186.

Units

ENGL 189, 193T, or 194T **4**
Other upper-division English courses (not including ENGL 160W) **8**
Other English courses (not including ENGL 1) **8**

Total 20

Credential Program

Single Subject Waiver Program: English

(Literature/Composition option)

Prerequisites
ENGL 20 or equivalent ..... (4)
ENGL 41, 43, 44 or equivalent . (4)

Core Courses (choose the required number of units from each group) **31**
ENGL 182 (taken concurrently with EHD 155A) ..... (l)
ENGL 182 (taken concurrently with EHD 155B) ..... (l)
ENGL 189 ..... (4)
ENGL 193T or 194T ..... (4)
LING 100 ..... (3)
LING 146 ..... (3)
ENGL 161 or 163 or 164 ..... (4)
ENGL 154 or 155 ..... (4)
ENGL 105, 112, 113, 114, 115W, 116, 146, 147, 150, 151, 152, 153, 154, 155, 156, 167, 168T, 169T, 181, 183T, 184, 187, 193T, 194T ..... (4)
LING 132 or 138 or COMM 140 or DRAMA 131 ..... (3)

Breadth Courses (choose the required number of units from each group) **15-17**
ENGL 105, 112, 113, 114, 115W, 116, 146, 147, 150, 151, 152, 153, 154, 155, 156, 161, 163, 164, 167, 168T, 169T, 181, 183T, 184, 187, 193T, 194T, 250T, 261, 263, 265 ..... (6-8)
DRAMA 22, 33, 34, 134A-B, 139, 185, 186; HIST 150, 151; LING 148; MCJ 107W; PHIL 120; COMM 105, 108, 114, 140, 142, 162 ..... (9)

Total 46-48

Note: 28 upper-division units in English including ENGL 189 and 193T or 194T are required for the B.A.

Credential candidates should take one unit of ENGL 182 concurrently with student teaching (EHD 155B and 1 unit before beginning student teaching or concurrently with EHD 155A). CTET 161 must be completed before beginning student teaching (EHD 155B). It is normally offered only in the fall semester. For program planning consult the English Department's credential coordinator each semester.

Students fulfilling the competency requirement by taking the National Teachers Examination should obtain a description of additional requirements from the credential coordinator.

For credential programs with emphasis in speech, drama, and English as a second language, see the listings under Communication, Theatre Arts, and Linguistics.

Graduate Program

The Master of Arts program in English language and literature serves several categories of students: those teaching high school and community college; those anticipating doctoral studies; those studying creative or expository writing; and those simply interested in extending and intensifying the knowledge acquired in their undergraduate studies.

Admission to the Master of Arts program in English language and literature assumes preparation equivalent to an undergraduate major in English or a related field in the liberal arts. Courses which do not count toward the English major may not be used for the M.A. degree. To reach classified standing, both English and non-English majors must achieve a GPA of 3.0 or better in their major and submit GRE scores.

(Foreign students must also submit TOEFL scores.) In the Literature, Composition Theory and Nonfiction Prose options, the advanced GRE is required for diagnostic purposes only. In addition, all candidates must submit a writing sample to the graduate committee, whose approval is necessary for admission to the program.

Consult the graduate adviser every semester for program planning.

(See also *Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, Foreign Language Requirements,* and *Criteria for Thesis and Project.)*

Master of Arts Degree Requirements

Literature Option

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
ENGL 250T and/or 280T	**12**
Other courses in English (see specific requirements)	**4**
ENGL 299 (Thesis)	**2**
Approved electives in English or other fields	**12**
Total	**30**

No more than 8 upper-division units will count toward the graduate degree.

Specific Requirements. The following areas must be covered by graduate or undergraduate courses (may be satisfied in undergraduate preparation): English literature (2 courses), American literature, world literature, Shakespeare, and Chaucer (1 course each).

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 a review by the graduate committee of the work already completed.

An interdisciplinary 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.

Nonfiction Prose Option

	Units
ENGL 250T and/or ENGL 280T	**8**
ENGL 265 (Expository Writing)	**8**
ENGL 299 (Thesis)	**2**
Approved electives in English or other fields	**12**
Total	**30**

No more than 8 upper-division units will count toward the graduate degree.

In addition to the general Graduate Division requirements, advancement to candidacy requires a reading knowledge of one foreign language, to be demonstrated by passing an examination, completion of at least one ENGL 250T or 280T course with a grade of *B* or above, and a review by the graduate committee of the work already completed.

Composition Theory Option

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
ENGL 250T or 280T	**12**
ENGL 265	**4**
ENGL 270	**4**
ENGL 281	**4**
LING 237 (LING 132, 134, 135, or 146 may be substituted with prior approval by the department)	**3**
ENGL 299 (Thesis — writing theory or pedagogy)	**2**
ENGL 282	**1**
Total	**30**

No more than 8 upper-division units will count toward the graduate degree.

Teaching Requirement. At some period before the completion of the M.A. degree composition option, the candidate must be engaged in teaching or co-teaching a course with a strong writing component. While most candidates would be teaching in the English Department, other teaching assignments will apply with prior approval of the departmental graduate adviser. Enrollment in ENGL 282 should take place in the same semester that the student is fulfilling the teaching requirement.

In addition to the general Graduate Division requirements, advancement to candidacy requires a reading knowledge of one foreign language, to be demonstrated by passing an examination, completion of at least one ENGL 250T or 280T course with a grade of *B* or above, and a review by the graduate committee of the work already completed.

Master of Fine Arts in Creative Writing

The M.F.A. in Creative Writing offers advanced degree training to talented students who wish to gain expertise in the writing of poetry or fiction. It assumes that, as in music or the visual arts, the best education for the artist includes: training in the history and traditions associated with the student's discipline, training in theoretical and formal approaches to the craft, and extensive practice with critique of student work by peers and faculty writers. The program combines studio and academic approaches, providing the student with substantial critical workshop experience and a solid background in theory and literature.

Admission Requirements

Admission to the Master of Fine Arts in Creative Writing program requires: a baccalaureate degree from an accredited institution with a GPA of 3.0 or better in the undergraduate major; a score of at least 500 on the verbal section of the GRE (foreign students must also score 600 or better on the TOEFL); three letters of recommendation from teachers, editors, or others familiar with the applicant's writing and academic skills; and a writing sample of the student's creative work (up to ten poems and/or two short stories) to be evaluated by the creative writing admissions committee. The advanced GRE is not required.

Degree Requirements

In consultation with the M.F.A. adviser, each student prepares and submits a coherent program individually designed within the following framework:

	Units
ENGL 261 or 263	**16**
ENGL 241 and 243	**8**
ENGL 250T or 280T	**12**
Approved electives (upper-division or graduate level courses)	**12-14**
ENGL 299 (Thesis)	**4-6**
Total	**54**

Note: At least 70% (38 units) of coursework must be at graduate (200) level.

Specific Requirements

Thesis. The thesis for the M.F.A. in Creative Writing consists of a single book-length manuscript — of fiction or poems which work together to make a unified body of work. The thesis committee works closely with the student on style as well as content; it adheres to a high standard of publishable quality work. In lieu of a formal defense, the graduating student is required to give a public reading from his or her work.

Language Requirement. In addition to the general Graduate Division requirements, advancement to candidacy requires a reading knowledge of one language other than English. This may be demonstrated either by passing an examination supervised by the Department of Foreign Languages, or (with prior approval) by completing an acceptable translation of poetry or prose.

Subject Examination. In addition to the general Graduate Division requirements, students are required to pass the M.F.A. exit examination with a grade of *B* or above. Each student works with his or her adviser to create a reading list which will be approved by a three member committee. The exam consists of essay questions that allow the student to demonstrate a theoretical and critical knowledge of the craft, through using texts from his or her approved reading list.

Certificate of Advanced Study in Composition

The certificate in composition is a course of study to accompany a M.A. in English.

	Units
LING 237	3
ENGL 270	4
ENGL 281	4
ENGL 282	1

Teaching Requirement. At some period before the completion of the Certificate in Composition, the candidate must be engaged in teaching or co-teaching a course with a strong writing component. While many candidates would be teaching in the English Department, other teaching assignments will apply with prior approval of the departmental graduate adviser. Enrollment in ENGL 282 should take place in the same semester that the student is fulfilling the teaching requirement.

COURSES

English (ENGL)

A. Fundamental Writing Skills (1-3; max total 3)
All students enrolling in ENGL A must have taken the CSU English Placement Test. Concurrent enrollment in English ARL may be required. Instruction and supervised practice in fundamental problems of writing. Intended primarily for students who need more elementary composition work before attempting ENGL 1 or more advanced courses. Approved for *SP* grading. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

ARL. Fundamental Writing Skills Center (1-2; max total 2)
May be taken concurrently with English A. Writing tutorial for students who need individualized help with their writing. *CR/NC* grading only; not applicable toward baccalaureate degree requirements. (2-4 hours)

RS. Writing Skills Application (1-3; max total 3)
Covers fundamental composition elements to aid the development of basic writing skills; not applicable toward baccalaureate degree requirements. *CR/NC* grading only.

1. Composition (3)
Prerequisites: Any one of the following test scores or successful performance in ENGL A; CSU English Placement Test, T151 or E8 or above; SAT I-Verbal, through March 1995: 470, April 1995 and later: 550; CSU English Equivalency Examination, satisfactory score; English Composition Examination of College Board Advanced Placement Program, 3; ACT English Usage Test, 22 or above (taken prior to October 1989); enhanced ACT English, 25 or above (taken October 1989 or later); College Board Achievement Test in English Composition with essay, 600 or above. Concurrent enrollment in ENGL 1L may be required.

Theory and practice of composition for students with college-level competence in written English. Themes, chiefly expository or analytical, including one paper based on an investigation of a selected topic. A grade of *C* or better is required to satisfy the university's English composition requirement. G.E. Foundation A2. (CAN ENGL 2)

1L. Writing Center (1)
May be taken concurrently with ENGL 1. Writing tutorial for students who wish to receive individualized help with their writing. *CR/NC* grading only. (2 hours)

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.

20. Introduction to Literature (4)
Prerequisite: ENGL 1. Introduction to literary appreciation and criticism through reading and close written analyses of short stories, novels, drama, and poetry from diverse Western and non-Western cultures. G.E. Breadth C2. (CAN ENGL 4)

21. Critical Reading and Thinking (4)
Critical reading and written analyses of various kinds of writing. Practice in close analysis with attention to the adequacy and accuracy of evidence, the logical structure of argument and definition, common fallacies, persuasive and expressive language, and language as culture.

30. Masterpieces (4)
Prerequisite: ENGL 1. Introduction to literary appreciation and criticism through discussion and written analyses of widely influential poetic, dramatic, and fictional works by British, American, and world authors (Western and non-Western), including the cultural contexts for those works. G.E. Breadth C2.

41. Poetry Writing (4)
Beginning workshop in the writing of poetry; appropriate reading and analyses. G.E. Breadth C1.

43. Fiction Writing (4)
Beginning workshop in the writing of fiction; appropriate reading and analyses. G.E. Breadth C1.

44. Prose Writing (4)
Prerequisite: ENGL 1. Beginning workshop in forms of creative nonfiction prose writing; appropriate readings and analysis.

50T. Studies in Literature (1-4; max total 8 if no topic repeated)
(Same as W S 50T.) Prerequisite: ENGL 1. Sections designated as emphasizing certain writers, types, or themes, e.g., Shakespeare, The Poem, Literature of Protest, Women in Novels. Appropriate readings and analyses.

60. Introduction to
Asian American Literature (4)
Prerequisite: ENGL 1. Introduction to literary appreciation and criticism through discussion and written analysis of fiction, poetry, drama, and autobiography by representative Asian Pacific American writers. The interplay of Asian and American elements and contexts will be analyzed.

65. Literature of the Central Valley (4)
Prerequisite: ENGL 1. Exploration of literature about California's Central Valley and by authors from the Valley, with attention to social and historical context and diversity of culture. Reading, discussion, and written analyses of fiction, poetry, and nonfiction.

100W. Writing Skills (1)
Credit obtained only by passing the Upper-Division Writing Skills Examination and upon request. *CR/NC* grading only.

101. Masterpieces
of World Literature (4)
Discussion and written analyses of influential poetry, drama, fiction, and nonfiction (in translation) from throughout the world, including historical and cultural contexts. Not applicable to the English major.

102. Masterpieces
of English Literature (4)
Discussion and written analyses of influential poetry, drama, fiction, and non-fiction by British authors as well as colonial and post-colonial works influenced by English literature. Historical and cultural contexts of literary works. Not applicable to the English major.

103. Masterpieces
of American Literature (4)
Discussion and written analyses of influential drama, fiction, and nonfiction by American authors and representing the cultural diversity of the nation. Historical and social contexts of literary works. Not applicable to the English major. G.E. Integration IC.

104. Children's and Adolescent
Literature (4)
Survey of the major forms and genres of children's literature. Designed primarily for future elementary school teachers. May not be used for credit toward the English major.

105. Introduction
to Literary Analysis (4)
The theory and practice of literary analysis. Examination of the concept of literary tradition; consideration of research methods; application of critical theory to textual analysis and the writing of literary criticism. Required for English majors.

112. World Literature: Ancient (4)
Greek and Latin literature in translation. Discussion of major works of Greek and Latin literature such as Homer, Sophocles, Euripides, Aeschylus, Aristophanes, Alcaeus, Theocritus, Virgil, Ovid, Catullus, Lucretius, Juvenal. Course includes written analyses of various themes expressed in the individual work.

113. World Literature:
Medieval and Renaissance (4)
Discussion and written analyses of authors and works (in translation). Selections may include Dante, Rabelais, Cervantes, Murasaki, Boccaccio, the Petrarchan tradition, Tu Fu, Basho, troubadour poetry, epic, romance, fabliau. Noh drama, Lope de Vega, Erasmus, Montaigne, Castiglione.

114. World Literature: Modern (4)
Major movements in world literature from the Renaissance to the present. Discussion and written analyses of works by such authors as Voltaire, Goethe, Dostoyevsky, Ibsen, Mann, Kafka, Dinesen, Mishima, Borges, Garcia Marquez, and Achebe.

115W. Literature of
the New Testament (3)
(See PHIL 133W.) Meets the upper-division writing skills requirement for graduation.

116. Literature of the
Old Testament (4)
(See PHIL 134.)

146. Beowulf to Malory (4)
The literature of Medieval England, including the works of Malory and Chaucer; narrative poetry (Beowulf, Piers Plowman, Sir Gawain and the Green Knight); drama; and lyric poetry. Discussion, lectures, and written analyses (papers, tests).

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)
Discussion and written analyses of British literature from 1660 to 1800. 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 political and intellectual history and the arts.

151. 19th Century Romantics (4)
A study of the Romantic movement in England during the early decades of the 19th century. Authors to be read include Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. Written analyses on selected topics will be required.

152. Dickens to Hardy (4)
Discussion and written analyses of 19th century English literature including poetry (Tennyson to Hopkins), the novel (Dickens to Hardy), the essay (Carlyle to Pater). Possible topics: Utilitarianism, Evangelicalism, Darwinism, the Pre-Raphaelites, the Decadents, 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 World War I (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.

155. 20th Century
American Literature (4)
Discussion and written analyses of selected poems, plays, and fiction from World War I to the present by such authors as Frost, Eliot, Anderson, Hemingway, O'Neill, Faulkner, Fitzgerald, Steinbeck, Stevens, Williams, and post-World War II writers.

156. 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-World War II writers.

160W. Writing Workshop
(4; max total 8)
Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement. 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 or minor. 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 Prose Writing
(4; max total 8)
Prerequisite: ENGL 1. Workshop in all forms of nonfiction prose writing; appropriate readings and analyses. Designed for majors in all fields who want to develop their writing.

166. Technical Writing (4; max total 8)
Prerequisite: ENGL 1. Workshop in writing of specialized information. Designed for students interested in career-related writing skills.

167. Mythology and Folklore (4)
Discussion and written analyses of the structure, content, and function of myth and folklore in world literature, with particular emphasis on the relationships among language, myth, and culture.

168T. Women and Literature
(4; max total 8 if no topic repeated)
(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; max total 8 if no topic repeated)
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. Discussion and written analyses are required.

171. Biography and Autobiography (4)
Reading, discussion, and written analyses of selected biographical or autobiographical works, including such topics as literary biography, the autobiographical essay, memoirs, and issues of gender and ethnicity in biographical form.

174. Popular Fiction (3)
Survey of major types of popular genre fiction (detective, horror, spy, science fiction, Western, fantasy, etc.) Discussion; writing. Examination of works in cultural and historical context and as literary and commercial art. G.E. Integration IC.

175T. Lectures in Literature
(1-4; max total 8 if no topic repeated)
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 if no topic repeated)
(Same as W S 176T.) Discussion and close written analyses of selected topics, including such types as comedies, musicals, horror films, westerns, etc.

181. Literary Theory and Criticism (4)
A survey of literary theory, including Marxism, feminism, psychoanalysis, deconstruction, structuralism, and post-structuralism. Topics also include the history of literary criticism and the practice of interpretation. Discussion, lectures, written analyses.

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. *CR/NC* grading only.

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 majors. Seminar in an aspect of literary history, type, period, movement, individual author. Reports and written analyses required.

184. Chaucer (4)
Reading, discussion, and written analyses of the major works of Geoffrey Chaucer.

185. English Internship Seminar (2)
Prerequisite: permission of instructor. Seminar to be taken concurrently with ENGL 186 during the first semester of enrollment in program. Group and individual analyses of writing done in internship assignments. Discussion of the rhetorical problems of writing for public agencies, magazines and journals, and private industry.

186. Internship in English
(2-6; max total 6)
Prerequisite: permission of instructor. No more than 2 units of ENGL 186 may apply to the English major. See also ENGL 185. Supervised work experience in public agencies and private industry to provide an opportunity to develop professional writing skills. Approved for *SP* grading. *CR/NC* grading only.

187. Milton (4)
Reading, discussion, and written analyses of the major works of John Milton.

189. Shakespeare (4)
(Same as DRAMA 194.) Reading and written analyses of the major works of Shakespeare.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191T. Supervised
Independent Reading (1-4;
max total 4 if no topic repeated)
Reading works from a literary period (for example, Beowulf to Marlowe, American Literature to Whitman, World Literature: Ancient and Medieval) and discussion in individual conferences.

192. Projects in English
(1-4; max total 8)
Not applicable to 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; max total 8 if no topic repeated)
No more than 12 units of ENGL 193T-194T may be applied to the English major. Sections designated by topic. Individual projects; reading, discussion, and writing of papers 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. ENGL 193T should ordinarily not be taken until 3 upper-division courses in English have been completed.

194T. Seminar in Women and Literature (4; max total 8 if no topic repeated)
(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 Archetypes of Women. ENGL 194T should ordinarily not be taken until 3 upper-division courses in English have been completed.

GRADUATE COURSES

(See *Course Numbering System.*)

English (ENGL)

241. Seminar in Form and Theory: Poetry (4; max total 12)
Prerequisite: normally limited to students enrolled in the graduate creative writing program; others admitted by permission of instructor. Seminar in literary craft designed primarily for the graduate writing student to provide intensive study of current and traditional formal, stylistic, and technical issues and controversies in the genre (for example, traditional prosody, non-traditional poetics, and contemporary lyric).

243. Seminar in Form and Theory: Fiction (4; max total 12)
Prerequisite: normally limited to students enrolled in the graduate creative writing program; others admitted by permission of instructor. Seminar in literary craft designed primarily for the graduate writing student to provide intensive study of current and traditional formal, stylistic, and technical issues and controversies in the genre (for example, narrative theory and non-traditional fictional forms).

250T. Seminar in Literature (4; repeatable with different topics)
Prerequisites: 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. Seminar: Writing Poetry (4; max total 16)
Prerequisite: permission of instructor. Advanced individual projects in the writing of poetry.

263. Seminar: Writing Fiction (4; max total 16)
Prerequisite: permission of instructor. Advanced individual projects in the writing of fiction.

265. Seminar: Expository Writing (4; max total 12)
Prerequisite: permission of instructor. Advanced individual projects in expository writing.

270. Writing Workshop for Teachers (4)
Prerequisites: major or minor in English; permission of instructor. Workshop emphasizing writing theory. Study of current writing theory and pedagogical techniques will be integrated with discussions of writing produced during the course.

280T. Seminar in Critical Theory (4; max total 12 if no topic repeated)
Prerequisites: major or minor in English; permission of instructor. Seminar in literary criticism (for example, Literary Critics).

281. Current Writing Theory (4)
Prerequisites: major or minor in English; permission of instructor. Designed to acquaint the student with current key issues in composition theory and the theoretical implications for course design and pedagogy.

282. Practicum in the Teaching of Writing (1)
Prerequisite: permission of instructor. Discussion of theoretical issues as they apply to the writing classroom. Normally taken concurrently with the composition option teaching requirement. *CR/NC* grading only

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

291T. Supervised Independent Reading (1-4; max total 4 if no topic repeated)
Reading works from a literary period (for example, More to Milton, 20th Century American Literature, World Literature, Renaissance-Modern) and discussion in individual conferences. Approved for *SP* grading.

298. Project (2)
Prerequisite: See *Criteria for Thesis and Project*. Revising, amending, and editing of three original scholarly papers produced while enrolled in graduate seminars, with the goal of creating publishable journal articles. The student's committee must approve of the scope and quality of the papers. Abstract required. Approved for *SP* grading.

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

English (ENGL)

300. English Colloquium (2; max total 6)
Credit is not applicable to degrees or major requirements in credentials. Prerequisite: teaching experience. Problems in composition, literature, or linguistics in relation to teaching.

Foreign Languages and Literatures

College of Arts and Humanities

Department of Foreign Languages and Literatures
David A. Ross, *Chair*
Diane Hazeltine, *Department Administrative Assistant*
Engineering East, Room 218
(559) 278-2386
FAX: (559) 278-7878
http://www.csufresno.edu/forlang/welcome.html

B.A. in French

B.A. in Spanish

M.A. in Spanish

Minor in Classical Studies

Minor in French

Minor in German

Minor in Humanities

Minor in Spanish

Single Subject Teaching Credential in French, German, and Spanish

The Department

Because of increasing mobility in our modern world, it takes no time at all to travel to places where people speak a language other than English. Even in California scarcely a day goes by that you do not hear people conversing in a foreign language. If you visit or go to work in another country you will quickly learn the fallacy of the phrase, "Everyone speaks English there; don't worry!" You can never fully appreciate the differences between your own way of life and the life of others unless you get out and communicate with them in their own language. When you know a foreign language you can learn even more about other cultures by reading newspapers, magazines, and books.

The goal of the Department of Foreign Languages and Literatures is to prepare you for communication with other peoples, so that you may move about with greater ease in an ever-changing world. We offer the study of the humanities through foreign languages. We provide training for teaching in secondary schools and junior colleges. We offer courses specifically to prepare individuals

for bilingual/cross-cultural teaching in public schools. We provide basic foreign language training for professions such as health and agriculture. We prepare students who wish to pursue graduate studies.

The department offers a major and a minor in the modern foreign languages of French and Spanish. It also offers a minor in German. Secondary Teaching Credentials are available in French, German, and Spanish. The Master of Arts degree may be earned in Spanish. The department also offers basic courses in Italian and Portuguese.

For those interested in the study of the Classics, we have a Minor in Classical Studies with areas of interest in Latin, Greek, or Classics.

The Department of Foreign Languages and Literatures has a foreign language laboratory to provide students with additional listening and oral practice.

International Programs

Juniors and seniors have the opportunity for the invaluable experience of studying in a foreign country through the California State University International Programs. This one-year program is especially recommended for foreign language majors and minors. Other study abroad opportunities are available through the University Studies Abroad Consortium. See *International Programs (Overseas)*, pages 463-464.

Career Opportunities

Since a foreign language degree increases your ability to communicate with people, it provides a wide variety of career opportunities. In today's world of international markets and international professional exchange, the knowledge of another language and culture can be a great asset for success in any field. Many possibilities exist for employment with the U.S. government and with international organizations, airlines, shipping companies, agricultural enterprises, and multinational corporations, even though there may be strong competition for some types of positions both at home and abroad.

In California, fluency in Spanish can be a very useful adjunct to your education in the fields of social work, health, elementary or secondary school teaching, teaching English as a second language, or other public service work where ethnic understanding is important.

When your primary major is in another career area, a second major or a minor in a foreign language is a very good way to acquire and document language skills important for a job or profession.

A great number of foreign language majors aim for a teaching career. Teaching at the college level requires at least a master's degree, while teaching in the public schools requires a teaching credential. There is currently a strong demand for high school language teachers due to the foreign language admissions requirement in the University of California and California State University systems. There are many opportunities for teaching in elementary schools having bilingual/cross-cultural programs in Spanish.

Do not hesitate to visit the department office to seek advice that can help you plan the course of study that will best meet your career goals. Faculty advisers can provide you with up-to-date information on career perspectives in foreign languages.

Faculty

David A. Ross, *Chair*

Amy E. Gregory, *Graduate Adviser*
Maria Jose Martinez-Gutierrez, *Graduate Adviser*
Cosme M. Zaragoza, *Graduate Adviser*

Jacinta R. Amaral (Spanish)
Luis F. Costa (Spanish)
David G. Engle (German)
G. Ronald Freeman (Spanish)
Maurice C. Gendron (French, Italian)
June M. Gill (French)
Amy E. Gregory (Spanish)
Victor D. Hanson (Classics)
Herlinda R. James (Spanish)
Rose Marie Kuhn (French)
Maria Jose Martinez-Gutierrez (Spanish)
David A. Ross (French)
Ignacio B. Santesteban (Spanish)
Adriana N. Slaniceanu (Italian, Spanish)
Bruce S. Thornton (Classics, Humanities)
Cosme M. Zaragoza (Spanish)

Credit Allowance in Foreign Language

Students who have taken two years of a foreign language in high school may not receive credit for a 1A course in that language: they may enroll in a 1B course in that language. Students who have had three years of a foreign language in high school may enroll in a 2A course in that language. Students who have had four years of a foreign language in high school may enroll in a 2B course in that language. Students who have had five years of a foreign language in high school should consult a foreign language adviser as to appropriate placement. Students who have taken Greek and Latin in high school should consult a Department of Foreign Languages adviser for appropriate placement.

Credit by Examination

Students who have taken one or more years of a language in high school may not challenge a 1A course in that language. Students who have taken two or more years of a language in high school may not challenge a 1B course in that language. Students who have taken three years of a language in high school may not challenge 2A in that language.

Students who have *completed* the equivalent of ninth grade or more in the native country may not enroll in or challenge lower-division courses. Such students are not exempted from meeting General Education requirements.

Credit may not be awarded for a lower-division foreign language course if the student has received credit for an upper-division course in that language, other than SPAN 110T.

Foreign Language (Dual Credit) Program

Students who complete higher level language classes (third year and above) in high school, with a grade of *B* or better, *and* enroll in the next level language course at California State University, Fresno, achieving a *B* or better, are eligible to receive California State University, Fresno credit for the advanced coursework completed in high school. For details, see the appropriate departmental language adviser.

General Education Foreign Language Credit

The following courses are applicable to the General Education requirement: HUM 10, 11, 15, 20; FREN 1B, 2A, 2B, 109, 149; GERM 1B, 2A, 2B; GRK 1A, 1B; ITAL 1B, 2A, 2B; LATIN 1A, 1B; PORT 1B; SPAN 1B, 2A, 2B, 3, 4A, 4B, 129. See also *Department of Linguistics.*

Bachelor of Arts Degree Requirements

French Major — *Units*

Major requirements 30-44
(see *Advising Notes 1, 2,* and *3*)
Lower division ..... (14)
FREN 1A, 1B; select two from FREN 2A, 2B, 4, 5, 48 (see *Advising Notes 3* and *4*)
Upper division ..... (30)
FREN 103 (6 units), 109 (3 units) ..... (9)
Select three from FREN 110, 111, 112, 113 ..... (9)
Select four from FREN 120T (3-6 units), 132 (3-6 units), 149, 150, 160T (see *Advising Notes 4* and *5*) ..... (12)
General Education 51
(see *Advising Notes 2* and *5*)
Electives* 29-49
including other lower- and upper-division French courses, and remaining degree requirements (see *Degree Requirements*) may be used toward a dual major or a minor
Total 124

*This figure anticipates that a maximum of two General Education courses (6 units) from one department may be applied to satisfy French major requirements. (Consult the *Schedule of Courses* for a current list of approved G.E. courses.) The courses that meet this requirement are FREN 1B, 2A, 2B, 109, and 149. Consult a French major faculty adviser for details.

Advising Notes

1. *CR/NC* grading is not permitted for courses in the French major.
2. French majors who have studied French in high school or who by culture or experience can speak French at a certain level of proficiency must consult with a French adviser to determine which required lower-division courses, if any, may be waived. (Also see *Credit Allowance in Foreign Language*.) French majors who are able to enroll immediately in FREN 1B, 2A, 2B, 4, 5, or in an upper-division French course are not required to make up the lower-division units waived.
3. Only 3 units of courses taught in English may be applied to the French major.
4. A maximum of two courses from one department may be used simultaneously to satisfy the General Education requirement and the major requirements. If the French major is the secondary major in a dual major (see *Dual Major*), this limitation does not apply. Consult a faculty adviser for additional details.

Spanish Major — *Units*

Major requirements 36-50
(See *Advising Notes* 1, 2, and 3.)
Lower-division courses:
SPAN 1A, 1B, 2A, 2B, 3, 4A, 4B, 5 (see *Advising Note 3*) ..... (14)
Upper-division courses:
SPAN 118, 122, 140, 142, 143, 170 ..... (18)
Elect from 145, 147, 148T, 149, 150 ..... (6)
Electives (exclude SPAN 110T) ..... (12)
General Education 51
(See *Advising Note 2.*)
Electives* 23-37
remaining degree requirements

and electives including units to be used toward a dual major or a minor	
Total	**124**

*This figure anticipates that a maximum of two General Education courses (6 units) from one department may be applied to satisfy Spanish major requirements. (Consult the *Schedule of Courses* for a current list of approved G.E. courses.) The courses that meet this requirement are SPAN 1B, 2A, 2B, 3, 4A, 4B, and 129 in General Education. Consult a Spanish major faculty adviser for details.

Advising Notes

1. *CR/NC* grading is not permitted for courses in the Spanish major except for those taken Credit by Examination. Credit toward the major will be allowed only in courses in which the student receives a *C* grade or better.
2. A maximum of two courses from one department may be used simultaneously to satisfy the General Education requirement and the major requirements.
3. Spanish majors who have studied Spanish in high school or who by culture or experience can speak Spanish at a certain level of proficiency must consult with a Spanish adviser to determine which lower-division courses, if any, may be waived. (Also see *Credit Allowance in Foreign Language*.) Spanish majors who are able to enroll immediately in SPAN 1B, 2A, 2B, 3, 4A, 4B, 5 or an upper-division Spanish course are not required to make up the lower-division units waived.

Suspended Degree Programs

The Bachelor of Arts degree in German has been suspended. Students with substantial coursework in this language should consult with the Department of Foreign Languages and Literatures if they wish to pursue a degree. Interested students should also note the availability of a minor in this language.

The minor in Russian Area Studies has been suspended as of fall 1999 and will not be available until courses in Russian are reinstated.

Minors

Depending on the specific minor, the student is responsible for 21-24 units. Consult a departmental adviser for planning your program.

Armenian Studies

A minor with strong language concentration is offered under Armenian Studies.

Classical Studies

The 24-unit Classical Studies Minor allows for three areas of interest: Classics (Greek and Latin), Greek, and Latin. (See *Classical Studies*.)

French	*Units*
Lower-division courses	6-9
Upper-division courses	12-15
	21

German	
GERM 2A, 2B	0-6
GERM 101	3
GERM 50 or 150	3
German electives, upper-division, including at least one course in the series 112, 114, 116, 118A, 118B	9-15
	21

Spanish	
Elect from SPAN 2A, 2B, 3, 4A, 4B, 5	0-9
Spanish electives, upper division	12-21
	21

Credential Program

To enter the Single Subject Credential Program, students must have a cumulative GPA of 2.97. In addition, before students are eligible to do final student teaching, they must pass speaking and writing exit tests.

For Bilingual/Cross-Cultural Language and Academic Development Credentials, see *Education — Literacy and Early Education Department.*

The Single Subject Preparation Program in French consists of FREN 103, 109, 120T, 132, 150, 160T; LING 10; and 9 units selected from FREN 110, 111, 112, 113.

The Single Subject Preparation Program in German consists of GERM 101 (twice), 103T, 137, 150; four courses selected from GERM 112, 114, 116, 118A, 118B; plus 6 additional upper-division units selected from GERM 150 (a second time), 160T, 190.

The Single Subject Preparation Program in Spanish consists of SPAN 118, 122, 123, 125, 130, 137, 140, 142, 143, 170; and 6 units selected from SPAN 145, 147, 148T, 149, 150.

Graduate Program

Within the Department of Foreign Languages and Literatures, the Master of Arts degree is available only in Spanish. Students interested in graduate study in French and German should refer to the options under the Master of Arts degree in Linguistics.

The Master of Arts degree program in Spanish language and literature serves several categories of students: those anticipating doctoral studies, those teaching or preparing to teach in high school and community college, and those interested in further study beyond the baccalaureate degree. For specific requirements, consult the departmental graduate committee chair. For general requirements, see *Division of Graduate Studies.*

Master of Arts in Spanish

The Master of Arts degree in Spanish is awarded upon satisfactory completion of a 30-unit program of study. For the culminating experience, students may select either a thesis/project or comprehensive examination.

Program Prerequisites. Admission to the M.A. degree program in Spanish requires a minimum 3.0 GPA and assumes an undergraduate major in Spanish but is open to others with a bachelor's degree who show intellectual promise and ability to perform at a satisfactory level during their graduate studies. Students lacking the B.A. in Spanish will be required to make up deficiencies prior to acceptance into the M.A. program.

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

Admission Prerequisites. When making application for admission to the program, students must submit a copy of their GRE scores.

Program Requirements. In order to achieve classified standing, students must demonstrate an acceptable level of competence in Spanish by passing a written departmental examination. In addition, under the direction of the graduate adviser, students prepare a coherent program that will best meet their professional needs, within one of the following frameworks. Each student's program of study must include at least 24 units of 200-level work.

Thesis/Project Plan *Units*

Graduate seminars in Spanish **18-24**
Independent Study (SPAN 290) **0-6**
SPAN 298 and/or 299 ..... **6**
Electives ..... **0 - 6**
Elect from SPAN 137, 139, 142, 143, 145, 147, 148T, 149, 150
Approved elective in related fields **0-3**
Total 30

Comprehensive Examination Plan

Graduate seminars in Spanish **18-30**
Independent Study (SPAN 290) **0-6**
Electives **0-6**
Elect from SPAN 142, 143, 145, 147, 148T, 149, 150
Approved elective in related fields **0-3**
Total 30

Specific Requirements. The following areas must be covered by graduate or undergraduate courses and may be satisfied in undergraduate preparation: Peninsular Spanish literature (two courses including SPAN 142), Latin American literature (two courses including SPAN 143), Hispanic linguistics (one course).

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

For Chinese, Hebrew, Hmong, Japanese, and Sanskrit course listings, see *Linguistics Department*.

Armenian (ARM)

1A. Elementary Armenian (4)
Beginning course in conversational and written Armenian. Not open to students with two or more years of high school Armenian credit.

1B. Elementary Armenian (4)
Prerequisite: ARM 1A or permission of instructor. Second semester course in conversational and written Armenian. Not open to those with three or more years of high school Armenian credit. G.E. Breadth C2.

2A. Intermediate Armenian (3)
Prerequisites: ARM 1A and 1B or permission of instructor. Review of grammar and emphasis on conversation and reading. G.E. Breadth C2.

2B. Intermediate Armenian (3)
Prerequisite: ARM 2A or permission of instructor. Advanced conversation, composition, and reading. G.E. Breadth C2.

148. Masterpieces of Armenian Culture (3)
Survey of outstanding examples of Armenian culture including literary works by Naregatsi, Toumanian, Siamanto, Varoujean, and others. Survey of Christian Armenian architecture and music. G.E. Integration IC.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Foreign Language (F L)

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.

170. Community Service (1-3; max total 3)
Directed fieldwork in a project which uses language skills developed through previous study of a foreign language. Projects may include working with public school foreign language teachers and students, interpreting/translating for public/private service agencies, or other approved projects.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

French (FREN)

1A. Elementary French (4)
Beginning course in conversational and written French. Not open to students with two or more years of high school French credit. (CAN FREN 2)

1B. Elementary French (4)
Prerequisite: FREN 1A or permission of instructor. Second semester course in conversational and written French. Not open to those with three or more years of high school French credit. G.E. Breadth C2. (CAN FREN 4)

2A. French for Communication (3)
Prerequisite: FREN 1B or equivalent. Second year course that emphasizes speaking and reading, and a review of basic French grammar. G.E. Breadth C2. (CAN FREN 8)

2B. French for Communication (3)
Prerequisite: FREN 2A or equivalent. Second year course that emphasizes speaking and reading skills. G.E. Breadth C2. (CAN FREN 10)

4. Reading and Writing (3)
Prerequisite: FREN 2B or equivalent. Opportunity to increase reading and writing skills in preparation for upper-division coursework in French.

5. Conversation (3; max total 6)
Prerequisite: FREN 2A or equivalent. May be taken concurrently with FREN 2A 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

103. Advanced Grammar and Composition (3; max total 6)
Prerequisite: two semesters of Intermediate French. To be taken twice for the major. Written assignments in French on varied topics with emphasis on composition. Written exercises in French on specific points of grammar. (Fall semester) (Formerly FREN 101; FREN 102)

120T. Topics in French Civilization (3; max total 6 if no topic repeated)
Prerequisite: FREN 103 or permission of instructor. 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; max total 6)
Prerequisite: completion of one semester of FREN 103. 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.

150. Advanced Conversation (3)
Prerequisite: two semesters of Intermediate French. Intensive practice in oral expression in French. Emphasis on current affairs in France.

AREA II. Literature

48. Masterpieces of French Literature (3)
Literary masterpieces of French literature read and studied in English translation. May include works by Moliere, Voltaire, Balzac, Hugo, Camus, and other important literary figures. (Formerly FREN 148)

109. French Literature, Culture, and Society from the Middle Ages to Today (3)
Prerequisite: two semesters of intermediate French. Intellectual, cultural and social background of major literary movements and representative authors from the earliest period to the present. Selected readings. Taught in French. (Fall semester) G.E. Integration IC.

110. French Theater (3)
Prerequisite: FREN 109. Drama in France from the Renaissance to the present, with emphasis on the 17th and 20th centuries. Reading and discussion of representative works.

111. The French Novel (3)
Prerequisite: FREN 109. The novel as a reflection of French society. Analysis of major works from various periods.

112. French Prose: Essay and Short Story (3)
Prerequisite: FREN 109. Analysis of prose works by such authors as Montaigne, Voltaire, Maupassant, Camus, Sartre.

113. French Poetry (3)
Prerequisite: FREN 109. 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").

149. Voices of Africa (3)
Study of representative works by such writers as Achebe, Senghor, and Mphahlele which reveal the attitudes of modern Africans toward their land, their traditions, and their encounter with the 20th century world. Course taught in English. G.E. Integration IC.

160T. Selected Topics in French Studies (1-3; max total 6 if no topic repeated)
Prerequisite: FREN 103 or permission of instructor. 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

French (FREN)

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. Approved for *SP* grading.

290. Independent Study (3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

COURSES

German (GERM)

1A. Elementary German (4)
Beginning course. Imparts basic speaking, listening, reading, and writing abilities in German as well as introduces the cultures of Germany, Switzerland and Austria. Not open to those with two or more years of high school German credit.

1B. Elementary German (4)
Prerequisite: GERM 1A or permission of instructor. Second semester course. Develops speaking, listening, reading, and writing abilities; broadens knowledge of German, Swiss and Austrian cultures. Not open to those with three or more years of high school German. G.E. Breadth C2.

2A. Intermediate German (3)
Prerequisite: GERM 1B or permission of instructor. Third semester course. Builds reading, conversational, and writing facilities in German; develops linguistic and cultural mastering of varied, increasingly complex situations. General review of grammar syntax; cultural topics. G.E. Breadth C2.

2B. Intermediate German (3)
Prerequisite: GERM 2A or permission of instructor. Fourth semester course. Builds further reading, conversational, and writing facilities in German; develops general linguistic and cultural competence. General review of grammar and syntax; cultural topics. G.E. Breadth C2.

8T. Selected Topics in German (1; max total 2)
Prerequisite: GERM 1A or permission of instructor. Language experience outside classroom stressed in oral topics. Problem vocabulary and grammar topics. *CR/NC* grading only.

50. Conversation (3; max total 6)
Prerequisite: GERM 2B or concurrently or permission of instructor. Conversation on prepared topics, brief talks by students, short scenes from plays, sharpening of listening skills and oral expression. Preparation for "survival" in German speaking countries. (Spring semester)

AREA I: Language and Culture

101. Composition (3; max total 6)
Prerequisite: GERM 2B or permission of instructor. Development of written expression through intensive practice, vocabulary building, grammar and syntax review, cooperative work on improving composition, analysis of varying styles. To be taken twice for the major. (Fall semester)

103T. German Culture and Civilization (3; max total 6 if no topic repeated)
Studies in principal aspects of German (also Austrian and Swiss) history, thought, customs, institutions, film, arts, music, folklore, contemporary life; influence on Western civilization. Taught in English.

150. Advanced Conversation (3; max total 6)
Prerequisite: GERM 2B or concurrently or permission of instructor. Intensive practice in advanced oral German to cultivate ease within a number of speech situations. Emphasis on current affairs in Germany, Austria, and Switzerland. (Spring semester)

AREA II: Literature

48. Masterpieces of Germanic Literature (3)
Masterpieces of German, Austrian, Swiss, and Scandinavian literature read and studied in English translation. May include works by Goethe, Kafka, Mann, Brecht, Strindberg and other important literary figures. (Formerly GERM 148)

112. German Literature to 1750 (3)
Prerequisite: GERM 2B or permission of instructor. In-depth studies of German literature prior to 1750: Medieval, Renaissance, Reformation, Baroque, Enlightenment; including such authors as Wolfram, Walther von der Vogelweide, Luther, Grimmelshausen. Critical analysis of texts, lecture, discussion, student reports.

114. German Literature through the Classical Age (3)
Prerequisite: GERM 2B or permission of instructor. From the beginnings to Goethe's death in 1832, concentrating on the Classical Age (Lessing, Schiller, Goethe). Critical analysis of texts, lecture, discussion, student reports.

116. Nineteenth Century Literature (3)
Prerequisite: GERM 2B or permission of instructor. Investigates major 19th century authors such as Brentano, Tieck, Hoffmann, Büchner, Stifter, Keller, Raabe, Fontane. Critical analysis of texts, lecture, discussion, student reports.

118A. Modern Literature: 1890-1945 (3)
Prerequisite: GERM 2B or permission of instructor. Investigates Classical Modernity (1890-World War II), including such authors as Kafka, Rilke, Mann, Brecht, Musil. Critical analysis of texts, lecture, discussion, student reports.

118B. Contemporary Literature: 1945-Present (3)
Prerequisite: GERM 2B or permission of instructor. Investigates the Postmodern Age (World War II to the present), including such author as Grass, Böll, Frisch, Handke, Bernhard, Wolf. Critical analysis of texts, lecture, discussion, student reports.

160T. Topics in German Studies
(1-3; max total 12 if no topic repeated)
Intensive analysis, discussion, and evaluation of significant facets of German life through the study of specific movements, literary problems, themes, films, cultural artifacts, music, institutions, epochs, folklore, and regions.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

German (GERM)

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; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

COURSES

Greek (GRK)

1A. Elementary Greek (3)
An introduction to the fundamentals of Classical and New Testament Greek, with practice in reading and writing the Greek language. Background study: Greek culture and its relevancy to the modern world. G.E. Breadth C2.

1B. Elementary Greek (3)
Prerequisite: GRK 1A or permission of instructor. Second semester course in Classical and New Testament Greek; completion of the fundamentals of Greek grammar. Emphasis on translation practice and composition skills. Background study: Greek culture and its relevancy to the modern world. G.E. Breadth C2.

10. The Rise of Rationalism: 5th C. Athens (3)
The origins of argumentation, logic, rhetoric, inductive thinking, and the role of literature in fifth-century Athens, as reflected in selections from Plato, Thucydides, Euripides, and the orators. Discussions and lectures. Conducted in English.

131T. Greek Literature
(3; max total 12 if no topic repeated)
Prerequisite: GRK 1B. Concentration on a major Classical Greek poet or prose author. Translation and discussion. Research reports on literary, historical, and textual problems.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Italian (ITAL)

1A. Elementary Italian (4)
Beginning course in conversational and written Italian. Not open to those with two or more years of high school Italian credit.

1B. Elementary Italian (4)
Prerequisite: ITAL 1A or permission of instructor. Second semester course in conversational and written Italian. Not open to those with three or more years of high school Italian credit. G.E. Breadth C2.

2A. Intermediate Italian (3)
Prerequisite: ITAL 1B or permission of instructor. Review of grammar and syntax; composition; oral practice, reading of short stories and plays. G.E. Breadth C2.

2B. Intermediate Italian (3)
Prerequisite: ITAL 2A or permission of instructor. Oral and written composition; reading of short stories, novels, biographies. G.E. Breadth C2.

5. Conversation (3; max total 6)
Prerequisite: ITAL 1B. May be taken concurrently with ITAL 2A or 2B. Development of listening skills and oral fluency through discussion, vocabulary exercises, and conversations on assigned topics.

48. Masterpieces of
Italian Literature (3)
Literary masterpieces of Italian literature read and studied in English translation. May include works by Dante, Boccaccio, Petrarch, Boiardo, Tasso, Ariosto, Manzoni, and other important literary figures. (Formerly ITAL 148)

160T. Selected Topics in Italian Studies
(3; max total 9 if no topic repeated)
Topics chosen from Italian literature (genre, themes, movements, particular authors), from Italian culture or civilization, or from Italian cinema.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Latin (LATIN)

1A. Elementary Latin (3)
An introduction to the fundamentals of the Latin language, grammar, and its practical relation to Romance languages and English. Background study: Roman culture and its relevance to the modern world. G.E. Breadth C2.

1B. Elementary Latin (3)
Prerequisite: LATIN 1A or permission of instructor. Second semester course in Latin; completion of the fundamentals of Latin grammar. Emphasis on translation practice and composition skills. Background study: Roman culture and its relevance to modern world. G.E. Breadth C2.

131T. Latin Literature
(3; max total 12 if no topic repeated)
Prerequisite: LATIN 1B. Concentration on a major Latin poet or prose author. Translation and discussion. Research reports on literary, historical, and textual problems.

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.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Portuguese (PORT)

1A. Elementary Portuguese (4)
Beginning course in conversational and written Portuguese. Not open to those with two or more years of high school Portuguese credit.

1B. Elementary Portuguese (4)
Prerequisite: PORT 1A or permission of instructor. Second semester course in conversational and written Portuguese. Not open to those with three or more years of high school Portuguese credit. G.E. Breadth C2.

Spanish (SPAN)

1A. Elementary Spanish (4)
Beginning course in conversational and written Spanish. Emphasis on reading, writing, listening, speaking, and culture of Spanish-speaking peoples. Not open to those with two or more years of high school Spanish credit. (CAN SPAN 2)

1B. Elementary Spanish (4)
Prerequisite: SPAN 1A or permission of instructor. Second semester course in conversational and written Spanish. Not open to those with three years or more of high school Spanish credit. G.E. Breadth C2. (CAN SPAN 4)

2A. Spanish for Communication (3)
Second year course that emphasizes speaking and reading skills. Not open to those with four years of high school Spanish credit. G.E. Breadth C2. (CAN SPAN 8)

2B. Spanish for Communication (3)
Open to students with four years of high school Spanish. Second year course that emphasizes speaking and reading skills. G.E. Breadth C2. (CAN SPAN 10)

3. Reading and Writing (3)
Prerequisites: SPAN 2A or 2B. Opportunity to increase reading and writing skills in preparation for upper-division coursework in Spanish. G.E. Breadth C2.

4A. Spanish for the
Bilingual Student (3)
For the native speaker of Spanish who has intensive life experience using the Spanish language. Grammar is stressed, but speaking, reading, and writing skills are also further developed. G.E. Breadth C2.

4B. Spanish for the
Bilingual Student (3)
Prerequisite: SPAN 3 or permission of instructor. For students from a bilingual background who have previous formal study of Spanish. Emphasis on productive language skills, grammar, advanced reading comprehension, and culture using peninsular and Latin American texts. G.E. Breadth C2.

5. Spanish for Conversation (3)
Prerequisite: SPAN 2A or 2B. Emphasis on spoken Spanish; development of oral fluency through class discussion, conversation games, and vocabulary exercises.

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. *CR/NC* grading only.

10. Spanish in Context
(3 or 6; max total 6)
Prerequisites: two years of high school Spanish, SPAN 1B or permission of instructor. Intended for those who are enrolled in our summer study abroad program. Emphasizes speaking, reading, and cultural interaction with members of the community. (Summer only)

AREA I. Bilingual Studies

106T. Children's Literature
in Spanish (3)
Prerequisites: SPAN 2A, 2B or 4A, 4B. Examination of children's stories, poems, rhymes, and songs written, composed, or available in Spanish. Practice in the techniques of storytelling. Dramatizations of children's stories in Spanish. Presentation of puppet plays.

134. Spanish in Bilingual Schools (3)
Prerequisites: SPAN 118 and 122 or permission of instructor. 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. (Formerly SPAN 104)

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.

112. Reader's Theater in Spanish (3)
Prerequisite: SPAN 3 or 4B. Dramatic readings of prose and poetry selections performed by students in front of the class. Discussion focuses on a critical reading of the text and preparation of the performance. Public presentations and recordings optional.

113. Patterns of Spanish (3)
Prerequisite: SPAN 3 or 4B. Recommended as the first upper-division course. 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)
Prerequisite: SPAN 3 or 4B. 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.

118. Composition (3)
Prerequisite: SPAN 3 or 4B. Refinement of writing skills through vocabulary development, spelling exercises, and composition. Special emphasis on problems created by differences between the spoken and written language.

122. Advanced Grammar (3)
Prerequisite: SPAN 3 or 4B. Special emphasis on grammar review and development of writing skills. Analysis of grammatical constructions.

123. Advanced Conversation and Reading (3)
Prerequisite: SPAN 3 or 4B. Reading and discussion of current periodicals, newspapers, and magazines that reflect the cultural patterns of the Spanish-speaking countries.

124. Oral and Written Expression (3)
Prerequisite: SPAN 2B, 3, 4B, or 10. Systematic analysis of students' ability to express themselves, both orally and in writing. Development of vocabulary, pronunciation, and grammatical structures. (Summer only)

AREA III. Hispanic Culture

125. Hispanic Culture (3)
Prerequisite: SPAN 3 or 4B. Interdisciplinary approach to global examination of cultural productions of Spain and Latin America through readings, lectures, films, and other media.

129. Mexican Culture (3)
Prerequisite: SPAN 2B, or 3, or 4B. Interdisciplinary approach to Mexican culture. Study of geography, history, politics, the arts, aspects of daily life, and cultural patterns by means of reading assignments, lectures by the instructor and invited guests, films, and other media. G.E. Integration IC.

AREA IV. Spanish Linguistics

130. Introduction to Spanish Linguistics (3)
Prerequisite: SPAN 3 or 4B. Basic principles of Spanish linguistics, including aspects of syntax, morphology, phonetics, dialectology, and historical linguistics.

137. Applied Spanish Linguistics (3)
Prerequisite: SPAN 3 or 4B. Analysis of Spanish with emphasis on areas of phonetics, pronunciation, and grammar which cause the greatest problems in learning and teaching the language. Readings and practice in the development of instructional strategies and materials.

139. Spanish of the Southwest (3)
Prerequisite: SPAN 3 or 4B. 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

48. Masterpieces of Spanish Literature (3)
Major literary masterpieces of Spanish and Latin American literature read and studied in English translation. May include Cervantes, Lorca, Neruda, Fuentes, Borges, and other important literary figures. (Formerly SPAN 146)

140. Hispanic Fiction and Poetry (3)
Prerequisite: SPAN 3 or 4B. Readings and appreciation of Hispanic literature to familiarize the student with fiction and poetry as art forms.

142. Introduction to Spanish Literature (3)
Prerequisite: SPAN 3 or 4B. Selected readings from those literary works which have fundamentally affected the development of Spanish civilization, from El Cid to Lorca. Provides a historical framework for the study of Spanish literature.

143. Introduction to Spanish-American Literature (3)
Prerequisite: SPAN 3 or 4B. 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)
Prerequisite: SPAN 3 or 4B. Study of the works of such major Mexican literary figures as Sor Juana, Gutiérrez Nájera, Azuela, and Fuentes.

147. Twentieth Century Spanish-American Literature (3)
Prerequisite: SPAN 3 or 4B. Intensive study of selected Spanish-American works including writings of Azuela, Fuentes, Carpenter, Vargas Llosa; outstanding poets such as Neruda, Vallejo, and Paz.

148T. Major Figures in Hispanic Literature (3; max total 6 if no topic repeated)
Prerequisite: SPAN 3 or 4B. Reading and analysis of the works of one major Hispanic author such as Cervantes, Unamuno, Neruda.

149. The Golden Age (3)
Prerequisite: SPAN 3 or 4B. A study of Spanish Renaissance Man and his environment. His sociopolitical, esthetic, and literary ideas are studied through readings in Garcilaso, San Juan de la Cruz, and other authors.

150. Twentieth Century Spanish Literature (3)
Prerequisite: SPAN 3 or 4B. A study of Spanish Existential Man. His sociopolitical, esthetic, and literary ideas are studied through readings in Unamuno, Ortega y Gassett, Lorca, José Hierro, and other authors.

170. Senior Seminar
in Spanish Studies (3)
Prerequisites: senior standing, permission of instructor, 20 upper-division units of Spanish coursework 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. Satisfies the senior major requirement for the B.A. in Spanish.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System*.)

Spanish (SPAN)

201. Teaching Spanish
as a Foreign Language (3)
Strategies for implementing Spanish curriculum at post-secondary level. Study of instructional techniques, procedures, resources, and methods of assessing student performance in post-secondary settings. Practical application of second language acquisition research.

202. Literary Theory and Criticism (3)
Prerequisite: Spanish major or permission of instructor. Theory and practice of literary analysis. Application of research, bibliographical and critical methods to literary texts.

204. Spanish Syntax (3)
Prerequisite: Spanish major or permission of instructor. An analysis of the grammatical structures of the Spanish language. Includes contrastive analysis of Spanish and English syntax.

206T. Hispanic Linguistics
(3; max total 9 if no topic repeated)
Prerequisite: Spanish major or permission of instructor. In-depth analysis on *one aspect* of the Spanish language through the study of such topics as the history of the Spanish language, Spanish dialects, linguistic field studies, Spanish semantics.

210. Spanish American Short Story (3)
Prerequisite: Spanish major or permission of instructor. Study of the short story as an art form in Latin America and analysis of short stories of such writers as Quiroga, Arreola, Rulfo, Bombal, Borges and Cortázar.

214. Generation of '98 (3)
Prerequisite: Spanish major or permission of instructor. Advanced analysis of the literature of Spain written at the time of the final collapse of Spain's empire. Includes works by Azorín, Baroja, Unamuno, Valle-Inclán, Machado, Ortega, and Jiménez.

215. Hispanic Women Writers (3)
Prerequisite: Spanish major or permission of instructor. Discussion and close written analysis of poetry, novels, theater and essays written by Hispanic women from 1535 to present.

216. Masterpieces
of Hispanic Theater (3)
Prerequisite: Spanish major or permission of instructor. Discussion and close written analysis of peninsular and Spanish American theater masterpieces, historical milieu and cultural context.

218T. Topics in
Hispanic Literary Studies
(3; max total 6 if no topic repeated)
Prerequisite: Spanish major or permission of instructor. Hispanic literary topics such as Hispanic Realism, Novel and Cinema, Violence in Hispanic Literature, Novel of Dictatorship, Novel of the Indian in Latin America.

219T. Spanish Colloquium
(1; max total 3 if no topic repeated)
Prerequisite: Spanish major or permission of instructor. Forum in which professors, graduate students, and visiting lecturers will present research on a variety of Hispanic authors and topics.

222. Cervantes (3)
Prerequisite: Spanish major or permission of instructor. In-depth study of Don Quixote and selected Novelas ejemplares. Includes discussion of works, lectures, and written research.

224. Major Hispanic Novelists (3)
Prerequisite: Spanish major or permission of instructor. Research and in-depth study of the novels of a major Hispanic novelist. Discussion and written analysis of the novels of *one* of the following novelists: Vargas Llosa, Fuentes, García Márquez, Galdós, Cela, Goytisolo.

226. Major Hispanic Poets (3)
Prerequisite: Spanish major or permission of instructor. Research and in-depth study of the poetry of a major Hispanic poet. Discussion and written analysis of the poetry on *one* of the following poets: Machado, Lorca, Darío, Neruda.

290. Independent Study
(2-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (3-6; max total 6)
See *Criteria for Thesis and Project*. Writing and/or editing materials suitable for school programs from elementary through high school level, such as children's literature, original poetry, testing devices, and translations. Approved for *SP* grading.

299. Thesis (3-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the completion of the master's degree. Approved for *SP* grading.

IN-SERVICE COURSES

(See *Course Numbering System*.)

Spanish (SPAN)

301. Conversation and Composition
Review (2; max total 8
if no language repeated)
For elementary and secondary school teachers or those planning to travel abroad. Prerequisite: bachelor's degree or teaching credential; permission of instructor. Conversation and composition to improve audiolingual and writing skills in the foreign language.

304. Theory and Practice
(2; max total 8)
Prerequisite: permission of instructor. Not open to students with credit in two or more years of college Spanish. Basic elements of the language; modern methods of foreign language instruction in the elementary school; repeatable in sequence — pronunciation, methods, phonetics, advanced methods.

Humanities - Interdisciplinary Minor

The Program

The Humanities Interdisciplinary Minor surveys relationships among philosophy, literature, music, architecture, sculpture, and painting. It also makes some use of science, popular culture, contemporary events, and whatever else relevant that may come to hand in order to explore as richly as possible the interrelationships among arts and ideas. And it does so for entire cultures, subdivided, of course, into their major periods.

Humanities Interdisciplinary Minor	*Units*
HUM 10, 11, 12, or 14	**3**
INTD 104, 108, 110, or 116	**6**
INTD 123, 124, or 130	**3**
HUM 140 or 150	**3**
Electives (select from remaining humanities courses or from other pertinent courses approved by the faculty adviser)	**6**
Total	**21**

COURSES

Humanities (HUM)

1T and 101T. Topics in Humanities
(1-4; variable; max total 12 if no topic repeated)
Selected topics in the humanities not normally covered by regular course offerings.

10. Introduction to the Humanities I (3)
Interrelationships among art, literature, music, and philosophy, from Greece and Rome through the Renaissance. G.E. Breadth C2.

11. Introduction to the Humanities II (3)
Interrelationships among art, literature, music, and philosophy, from the 17th century Age of Reason to the present. G.E. Breadth C2.

14. Introduction to the Humanities: Pre-Columbian America (3)
Interrelationships among the visual arts, literature, myth, and philosophy in the Pre-Columbian civilizations of the Americas.

15. Classical Myth and World Humanities (3)
A study of classical myth and its themes and ideas in the context of modern world humanities. Study in the techniques of analyzing myth in primary works, from diverse media and cultures. Two thousand word writing requirement. G.E. Breadth C2.

20. Introduction to Hispanic Literature (3)
Reading of Hispanic fiction, poetry, and drama with the goal of understanding the close relationship between Hispanic literature and culture. Instruction in techniques of literary criticism. Taught in English using English translations of important works of Hispanic literature. G.E. Breadth C2.

104. Humanities in the Middle Ages and Renaissance (3)
An examination of art, literature, philosophy, and music and their interrelationships in European culture during the Middle Ages and Renaissance. G.E. Integration IC. (Formerly INTD 104)

108. Humanities in Classical Athens (3)
An examination of the unique cultural environment of the ancient city, its art, architecture, literature, social and political structures, and their interrelationships as manifested in fifth century Athens. G.E. Integration IC. (Formerly INTD 108)

110. Humanities in Republican and Imperial Rome (3)
An examination of the unique cultural environment of the ancient city, its art, architecture, literature, social and political structures, and their interrelationships as manifested during Republican and Imperial Rome. G.E. Integration IC. (Formerly INTD 110)

140. Tradition and Change in China and Japan (3)
(Same as ANTH 125.) Examines the current aspirations and problems of the Chinese and Japanese in terms of their traditional cultures, and explains how their histories, values, world views, and intellectual traditions affect their lifestyles and their international relations today.

150. Indic Cultures and Traditions (3)
(Same as LING 110.) Study of the cultures and traditions of the Indian Subcontinent as part of the common human heritage, and for informed perspectives on international issues. Understanding of peoples of South Asia: their lifestyles, world views, and experiences; the development of their intellectual, aesthetic, and spiritual traditions; and their current aspirations and problems.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

College of Arts and Humanities

Office of the Dean
Music Room, Room 186A
(559) 278-3056

Bruce S. Thornton, *Coordinator*
(559) 278-2386
http://www.csufresno.edu/forlang/hum/welcome.html

Humanities Interdisciplinary Minor

Interdisciplinary (INTD)

116. Humanities in the Modern World (3)
An examination of art, literature, philosophy, and music and their interrelationships in the Western world during the 19th and 20th centuries.

118. Folklore in Modern Life (3)
An examination of the role of folklore in modern life, its power to communicate critical issues through expressive culture, e.g., jokes, legends, folksongs, graphic arts, and festival; focus on the intellectual currents influencing the study of folklore provides interdisciplinary perspective.

123. The American Experience: Beginnings to World War I (3)
Survey of the principal experiences and intellectual movements that have formed the American character, as illustrated through American literature, music, and the arts, serious and popular, from the formation of the colonies to the outbreak of World War I.

124. The American Experience: World War I to the Present (3)
Survey of the principal experiences and intellectual movements that have formed the American character, as illustrated through American literature, music, and the arts, serious and popular, from World War I to the present time.

130. Latin American Cultures and Traditions (3)
A study of Hispanic cultural and aesthetic trends and practices as seen in the popular and formal arts and other styles of Hispanic thought, feeling, and expression.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Humanities (HUM)

300T. Topics in Humanities
(1-3; max total 12 if no topic repeated)
Selected areas in humanities.

Linguistics

College of Arts and Humanities

Department of Linguistics
George W. Raney, *Chair*
Peters Business Building, Room 383
(559) 278-2441

B.A. in Linguistics
Options:
- English as a Second Language
- General Linguistics

M.A. in Linguistics
Option:
- English as a Second Language
- Linguistics

Minor in Linguistics

Minor in Japanese

Minor in English as a Second Language

Subject Matter Preparation Program in English/ESL

Graduate Certificate in TESOL

The Department

Language is an essential part of our life. Nothing characterizes humanity more than the ability to use language. To understand the general nature of language, linguists analyze sounds, words, sentences, and texts. Linguists also make valuable contributions to practical fields such as K-12 teaching, second and foreign language teaching, language planning, translation, computer science, forensic linguistics, and language disorders.

Computational applications of linguistics, such as speech synthesis, speech recognition, and machine-assisted translation, have also become increasingly important in recent years.

The Department of Linguistics offers a Bachelor of Arts degree with options in General Linguistics and Teaching English as a Second Language (ESL), undergraduate minors in Linguistics and Japanese, a Graduate Certificate in Teaching English to Speakers of Other Languages (TESOL), and a Master of Arts degree in Linguistics, with an option also in ESL. In addition, a Master of Arts degree with an emphasis in French or German is offered.

Both our undergraduate and graduate programs aim to develop intellectual skills that are essential to professional careers or advanced degrees. Our courses provide students with analytical tools that can be applied to virtually any subject. They also help enhance critical thinking, satisfy broad intellectual interest, and enrich personal knowledge.

Our majors can be applied directly to various professional fields. They also serve as excellent preparation for pursuing advanced degrees in linguistics and other fields such as English, anthropology, psychology, sociology, computer science, and foreign languages. ESL is an important part of our program and especially compatible with degrees in education and liberal studies. A Japanese minor can be profitably combined with majors in such areas as business, international relations, linguistics, and literature.

A Japanese Minor is also available for students with an interest in Japanese language and culture and/or plans to pursue careers in various areas, such as international business, marketing, economics, art and literature, etc., where a knowledge of the Japanese language and culture would be useful.

Facilities

The Department of Linguistics has equipment for the analysis of speech sounds and for displaying the operation of the organs of speech. Computers are used for simulating speech and for mapping the geographical extent of language features, as well as for storing the data needed for the making of grammars and dictionaries. The Linguistics Department provides practical classroom teaching experience for qualified ESL students through employment in the American English Institute, a facility established by the department and operated under the aegis of the California State University, Fresno Foundation. A description of the American English Institute is included in the *Special Programs* section of this catalog. Also associated with the Linguistics Department is the Forensic Linguistics Institute (FLI), established by agreement with the California State University, Fresno Foundation in 1996. The purpose of the FLI is to provide analyses in linguistic stylistics to extramural clients, thereby giving Fresno State linguistics majors opportunities for work, study, research, and career preparation in a new and rapidly-developing area of applied linguistics.

Career Opportunities

Many of our B.A. students want to pursue careers in education. There are several ways to do this. Our department offers a Subject Matter Preparation Program for students who wish to teach ESL, language arts, or English composition and literature in California middle and high schools. Students can double major in linguistics and liberal studies, or minor in linguistics with a liberal studies major to lead to a Multiple Subject Credential for K-6 instruction. Students who pursue a major in linguistics by itself may enter the Multiple Subject Credential Program with satisfactory completion of the MSAT Exam. Many linguistics students find jobs teaching English overseas upon completion of the B.A. or M.A.

Students with a B.A. or M.A. in Linguistics can go on for further education in a wide variety of fields. In law or criminology, they have a special understanding of legal issues involving language or the use of language evidence in litigation (forensic linguistics). With additional work in computer science, the linguistics student can find employment in software development working with computer language or making the interface smoother between human and computer. After further training, some linguistics students work for the Central Intelligence Agency, the National Security Agency, the Peace Corps, the United States Information Agency, the military, or the State Department monitoring foreign news or doing cryptography, language instruction, or translation. Many corporations recruit linguistics majors into management, development, and marketing positions. Enterprising linguistics students have developed service-related businesses in consulting, interpretation, translation, or communication.

After the Master of Arts in Linguistics, many of our students are accepted into Ph.D. programs in the best research universities in the U.S. in applied or theoretical linguistics, ESL, education, anthropology, psychology, or other majors. The M.A. Option in ESL prepares students for Ph.D. programs or teaching/administrative positions overseas, in community colleges, and in adult schools.

Faculty

George W. Raney, *Chair*

Undergraduate Advisers:
Barbara M. Birch,
Gerald R. McMenamin

Graduate Adviser: Chris Golston
Ritva Laury
Ellen Lipp
Shigeko Okamoto
Vida Samiian
Terese Thonus
Raymond S. Weitzman
Jack B. Zeldis

Bachelor of Arts Degree Requirements

Linguistics Major

A B.A. degree with a major in linguistics requires 30 units completed in one of the options outlined below, the General Education requirement, specific course/skill requirements, and electives and remaining degree requirements totaling at least the 124 units required for a B.A. degree.

The B.A. program in Linguistics is diversified but integrated. At present, two options are available: (1) English as a Second Language and (2) General Linguistics. In each option, students receive a basic grounding in the nature and structure of human language.

	Units
Major requirements	**30**
Select one option:	
English as a Second Language	
LING 100, 134 or 146, 141, 171	(12)
Select from LING 132, 138, 147	(6)
Electives (see *note 1)*	(12)
General Linguistics	
LING 100, 134 or 146	(6)
Select from LING 142, 143, 145	(6)
Electives: LING 120, 130, 132, 138, 139, 140T, 141, 142, 143, 145, 147, 148, 155, 171 (see *note 5*)	(18)
General Education	**51**
Electives and remaining degree requirements* (See *Degree Requirements*); may be used toward a dual major or minor	**43-46**
Total	**124**

Call (559) 278-3056
or e-mail
carla_millar@csufresno.edu.

London Semester

London will become your campus as you embark on this adventure in learning. You will see stage plays, tour the world's great art museums, watch the Houses of Parliament at work, visit Stonehenge, Stratfordupon-Avon, Canterbury Cathedral and historical villages as part of your class activities. A travel week in February lets you explore more of England, Scotland, or Ireland.

The semester begins in early January and ends in mid-April. The cost is not much more than a normal semester on campus. A typical semester offers 11 courses to select from, including London Art Tours, British Theatre, Shakespeare on Stage, English Writing Workshop, and courses which may meet General Education and major and minor requirements.

Program information, fees, and costs may be obtained form the London Semester Office, College of Arts and Humanities, Music Building, Room 186.

Advising Notes

1. Contact Linguistics Department chair or adviser for approved electives. Students may not take both LING 134 and 146 for the major. LING 133, 137, and 150 are not approved as electives.
2. No General Education Integration course offered by the Department of Linguistics may be used to satisfy the General Education requirements for linguistics majors.
3. *CR/NC* grading is not permitted in the linguistics major.
4. General Education and elective units can be used toward a dual major or minor. (See *Dual Major* or departmental minor.) Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
5. A maximum of 6 elective units drawn from other subject areas which have to do with language can be applied toward the electives in the General Linguistics major with consent of a Linguistics Department adviser.

Linguistics Minor

	Units
LING 10 or 100, 134 or 146	**6**
Approved electives (see *note 1*)	**15**
Total	**21**

Japanese Minor

	Units
JAPN 1A, 1B, 2A, and 2B	**12**
Electives	**6**
Select the elective courses from JAPN 100, LING 120, LING 190 (Independent Study) or other courses approved by the Japanese minor coordinator.	
Total	**18**

English as a Second Language Minor

	Units
LING 134 or 146, 141, 171, 147	**12**
Approved electives	**6**
(See *Advising Note 1.*)	
Total	**18**

General Education Linguistics Credit

The following courses will meet General Education Area C2 requirements: JAPN 1B, LING 10.

CLAD/BCLAD

The Cross-Cultural Language and Academic Development and Bilingual Cross-Cultural Language and Academic Development

(CLAD/BCLAD) program includes two linguistics classes: LING 133 for the Multiple Subject Credential and LING 137 for the Single Subject Credential. (See *Literacy and Early Education*.)

Subject Matter Preparation Program

This program is for those who wish to become high school or middle school English as a Second Language teachers.

English/English as a Second Language

Prerequisites:

ENGL 41 or 43 (4 units)
LING 100 (3 units)

	Units
Core courses	**35**
Choose the required number of units from each group:	
ENGL 182	(2)
ENGL 189	(4)
ENGL 193	(4)
ENGL 164	(4)
LING 141	(3)
LING 138	(3)
LING 134, 146	(3)
ENGL 154, 155	(4)
ENGL 146, 147, 150, 151, 152, 156	(4)
ENGL 112, 113, 114, 115, 116, 146, 147, 150, 151, 152, 153, 154, 155, 156, 167, 168T, 169T, 183, 193, 193T, 194	(4)
Breadth courses	**18**
Choose the required number of units from each group:	
LING 132, 171	(6)
LING 139, 142, 143, 145, 147, 148	(12)
Total	**53**

Note: This program is for those who wish to become middle or high school ESL teachers.

Graduate Program

The Master of Arts degree program in Linguistics offers training in General Linguistics and in English as a Second Language. For specific requirements, see *Degree Requirements* in the copy that follows; for general requirements see *Division of Graduate Studies*.

The Master of Arts degree program in Linguistics assumes a baccalaureate degree major in an appropriate field and at least three upper-division courses in linguistics as prerequisites. Graduate students are required to complete at least 30 units of courses with a minimum of 21 units of graduate level courses, and to pass a comprehensive examination.

Graduate Level Writing Competence. California Sate University, Fresno requires that students have graduate level writing abilities before being advanced to candidacy for the M.A. Students demonstrate these abilities by taking the writing exam administered by the Linguistics Department each semester.

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

Master of Arts Degree Requirements

Up to 12 prerequisites

	Units
Core courses	**6**
LING 145; LING 242 or 243	
Select one:	**24**
Linguistics	(24)
LING 148; LING 242 or 243*; and 18 units of approved upper-division and graduate level coursework	
ESL Option	(24)
LING 237, 241, 244, and 15 units of approved upper-division or graduate level coursework of which a minimum of 3 units are in ESL-related areas	
Total	**30**

* Whichever is not taken as core.

Upon examination of the student's record other courses will be specified to produce a coherent program.

It is university policy that students select approved electives in such a way that at least 70 percent of their graduate program consists of 200-series courses.

Graduate Certificate in TESOL

Certificate of Advanced Study in Teaching English to Speakers of Other Languages. This certificate is designed to train participants in the theory and practice of TESOL, with application to a wide variety of teaching circumstances. In addition to prerequisite courses that may be needed, the 12-unit course of study will include LING 237, 241, 244, and 231T or 232T (or an approved graduate elective). Students must maintain a GPA of 3.0 or better in the program. The certificate is designed for Valley classroom teachers who need academic certification for professional advancement or for international students with limited time for TESOL training.

See graduate adviser for prerequisites.

Requirements	**12**
LING 232T (or approved graduate elective), 237, 241, 244	

COURSES

Linguistics (LING)

10. Introduction to Language (3)
The study of language — including its nature, structure, use, history, and acquisition — with the goal of imparting (1) an understanding of the importance of language in human affairs, including social and cultural functions and (2) an appreciation of its complexity and diversity. G.E. Breadth C2.

11. Introduction to Language (3)
Open to liberal studies majors only. The study of language — including its nature, structure, use, history, and acquisition — with the goal of imparting (1) an understanding of the importance of language in human affairs, including social and cultural functions and (2) an appreciation of its complexity and diversity. Special focus on the struture and function of English.

20. Language and Culture (3)
Helps students learn to understand and critically evaluate the influence of language and culture in their decisions and choices. Also helps students to respect the linguistic and cultural differences of ethnic groups in the United States and the world.

40T. Topics in Linguistics (1-4; max total 12 if no topics repeated)
Topics to be offered at the discretion of the department.

100. General Linguistics (3)
Linguistics methodology: phonology, morphology, syntax, and semantic analysis. Language history: variation and change.

110. Indic Cultures and Traditions (3)
(Same as HUM 150.) Study of the cultures and traditions of the Indian Subcontinent as part of the common human heritage, and for informed perspectives on international issues. Understanding of peoples of South Asia: their lifestyles, world views and experiences; the development of their intellectual, aesthetic and spiritual traditions; and their current aspirations and problems.

120. Japanese Language and Culture (3)
Understanding of the Japanese language in relation to the culture and society. Historical and sociocultural background, origin of Japanese, development of writing system, language variation, vocabulary, idioms and proverbs, discourse functions, levels of politeness, male-female speech, and cross-cultural communication. (Formerly LING 140T section)

130. Language and Gender (3)
An exploration of gender-based variation in language structure and usage in different languages, cultures, social classes, and ethnic groups. An overview of current research in the field and implications for linguistics and social universals.

132. Linguistics and Reading (3)
Prerequisite: LING 10 or 134. The linguistics background necessary for teaching reading in English. The English spelling system; the grammar and vocabulary of written English; preparation and evaluation of materials for teaching reading.

133. English Language Learners in the Elementary School (3)
(Same LEE 133.) Language issues, methodologies, and materials for teaching K-8 English learners. Structure and acquisition of English for first and second language learners. Basic characteristics of languages spoken by our diverse school population. Sociocultural factors for education of English language learners.

134. Structure of English (3)
An introductory survey of the structure of English: sounds, spelling, word formation, and grammar.

137. Language Minority Student in the Secondary Classroom (3)
(Same as LEE 137.) Not open to students with credit in LEE 137. Prerequisite: admission to the Single Subject Credential Program. Issues, methodologies, and materials to provide content area instruction to secondary students whose primary language is not English.

138. History of the English Language (3)
Prerequisite: LING 10, 100 or 134. 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. (2 lecture, 2 lab hours)

140T. Topics in Linguistics
(1-4; max total 12 if no topic repeated)
Topics to be offered at the discretion of the department.

141. Teaching English to Speakers of Other Languages (TESOL) (3)
Theories and methods of teaching English to speakers of other languages.

142. Phonology (3)
Prerequisite: LING 100. 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 100. Theory and practice in the description of grammatical systems. Comparison of approaches. Practical experience with data.

145. Historical Linguistics (3)
Prerequisite: LING 100. Explanation of similarities among languages; methods of reconstructing past languages and investigating relationship and grouping among languages. Comparison of approaches to language change.

146. Practical English Grammar for Language Teachers (3)
English grammar from the perspective of the teacher. Format designed to be compatible with classroom needs of language arts and ESL teachers. By analyzing English structures, students gain confidence in their ability to teach English grammar to ethnically diverse students.

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 among 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 variations.

150. The Structure, Function, and Acquisition of English (3)
Introduction to the grammatical components of English (sound, word, sentence), first and second language acquisition, the role of culture and dialect variation in language learning, and comparison of English to other languages spoken in this area. Does not count towards the linguistics major.

151. Specially Designed Academic Instruction in English (3)
Provides the knowledge base and professional skills required to give English Language Learners (ELLs) effective English language and academic subject matter instruction. Reviews foundations of effective language learning in and through English and content learning strategies in a multilingual classroom. (Formerly LING 140T section)

155. Computer Applications in Linguistics and ESL (3)
Introduction to the applications of computers in both theoretical and applied linguistics. Some minimal experience in using computers is assumed. (2 lecture, 2 lab hours)

165. Language Acquisition (3)
An examination of the psycholinguistic nature of first and second language acquisition and the biological foundations of language. Overview of current research in the field and implications for areas of applied linguistics.

171. Practicum in TESOL (3)
Prerequisite: LING 141 or concurrently. Provides practice in teaching English as a Second Language; includes class visitations and classroom demonstrations; working with non-native speakers, lesson planning, material preparation, and evaluation of current ESL texts.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

FOREIGN LANGUAGE COURSES

Chinese (CHIN)

1A-B. Elementary Chinese (3-3)
Not open to students with previous training. Beginning course in spoken and written Mandarin Chinese.

2A-B. Intermediate Chinese (3-3)
Prerequisite: CHIN 1B. Intermediate grammar, speaking, reading, and writing.

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.

Hmong (HMONG)

1A-B. Basic Hmong (3-3)
Beginning course in spoken Hmong. Covers listening comprehension and oral practice, basic grammar, vocabulary, and traditions and lifestyle of the speakers of the language. HMONG 1B is G.E. Breadth C2.

4. Beginning Literacy for Hmong Speakers (3)
For the native speaker of Hmong. Emphasis on basic reading and composition skills. Includes practice in reading and writing simple texts. Covers the traditions and lifestyles of the speakers of the language.

100. Intermediate Reading and Composition (3)
Prerequisite: HMONG 4 or equivalent. Further development of reading and composition skills. Includes practice in reading expository texts and review of grammatical structures.

101. Advanced Reading and Composition (3)
Prerequisite: HMONG 100 or equivalent. Emphasis on strategies for complex texts. Enhancement of composition fluency and grammatical accuracy.

Japanese (JAPN)

1A-B. Elementary Japanese (3-3)
Beginning course in modern Japanese. Development of communicative skills through practice of basic sentence and conversational patterns and through understanding the cultural traditions and lifestyles of the speakers of the language. Introduction to reading and writing in Hiragana characters. JAPN 1B is G.E. Breadth C2.

2A-B. Intermediate Japanese (3-3)
Prerequisite: JAPN 1B. Further development of communicative skills in conversational Japanese. Also covers reading and writing in Kana and 200 Kanji characters.

100. Advanced Japanese (3)
Prerequisite: JAPN 2B or its equivalent. Enhancement of oral communicative fluency as well as grammatical accuracy. Includes practice in reading some expository writing. Covers 150 Kanji characters.

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 lifestyle of the speakers of the language, and relationship with Greek, Latin, and Germanic languages.

English as a Second Language (E S L)

(See *Special Programs* section for English courses for speakers of other languages offered through the Linguistics Department.)

GRADUATE COURSES

(See *Course Numbering System.*)

Linguistics (LING)

231T. Seminar in Linguistics (3; max total 12 if no topic repeated)
Prerequisite: LING 100 and permission of instructor. Topics to be offered at the discretion of the department.

232T. Seminar in English Linguistics (3; max total 12 if no topic repeated)
Prerequisite: LING 100 and permission of instructor. Topics to be offered at the discretion of the department.

237. Teaching Reading and Writing to Speakers of Other Languages (3)
An overview of the theory and current research and practice in the teaching and learning of reading and writing in a second or foreign language.

238. History of Linguistics (3)
Historical survey of scientific ideas, terms, techniques, and theoretical positions in the study of language from ancient time to the present day, including traditional grammar, comparative philology, and modern linguistics. Overview of general scholarly concern and intellectual climate during each period.

241. Seminar in Teaching English as a Second/Foreign Language (3)
Prerequisite: LING 141. Overview of research in the field of ESL/EFL teaching as reflected in current publications.

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.

244. ESL Classroom Evaluation Techniques (3)
Covers classroom evaluation techniques from three perspectives: error analysis, contrastive analysis, and testing. Current thinking on these topics will first be analyzed and discussed, and then applied to the actual classroom experience.

245. Seminar in Historical Linguistics (3)
Prerequisite: LING 145. Contribution 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.

249. Field Methods in Linguistics (3)
Prerequisite: LING 142 or equivalent. Firsthand experience in eliciting linguistic data from informants; practice in analyzing and describing a language. (6 lab hours)

251. Seminar in Discourse Analysis (3)
Prerequisite: LING 100 or equivalent. Exploration and analysis of the functional and other linguistic bases for the organization of units larger than the sentence.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Mass Communication and Journalism

The Department

Contemplating an exciting career in the mass media? Check out the Department of Mass Communication and Journalism. Graduates of the program are well represented on the staffs of many of America's finest newspapers, radio and television stations, broadcast and film production companies, advertising agencies, and public relations firms.

MCJ graduates in news and photojournalism are working for newspapers such as *The Fresno Bee*, *The New York Times*, *USA Today*, the *Los Angeles Times*, the *San Francisco Chronicle*, and other major newspapers. Graduates in broadcast news are heavily represented on the staffs of Fresno radio and television stations. They also can be found at CNN, ABC, NBC, CBS, ESPN, and PBS. Graduates in advertising are working for agencies that include J. Walter Thompson, Chiat Day, Hal Riney, and Foote, Cone, and Belding. Public relations graduates have obtained jobs with American Airlines, CalTrans, Coca Cola, and other nationally known entities.

The department ranks as one of the West Coast's strongest. For 40 consecutive years, it has been accredited by the nation's preeminent evaluator of mass communication and journalism programs — the Accrediting Council on Education in Journalism and Mass Communications.

In the 1997-98 academic year, the department finished seventh in the nation in the prestigious William Randolph Hearst Foundation's intercollegiate journalism writing competitions. No other California university finished in Hearst's Top 10.

The department's advertising students regularly finish high in regional and national competitions sponsored by the American Advertising Federation. The students have drawn high praise from Hallmark and other participating corporations.

Broadcast production students have won awards in the California State University Media Arts Festival, Charleston International Film/Video Festival, the Silver State Documentary Festival, The Telly, The Communicator, and Videography Awards competitions. The campus radio station, KFSR-FM, has received a Gold record from Columbia Records, as well as various other awards.

Students have a choice of seven career options: advertising, broadcast journalism, digital media, electronic media production, photojournalism, print journalism, and public relations.

Accreditation and Affiliations

Besides being accredited for four decades by the Accrediting Council on Education in Journalism and Mass Communications, the department is a member of the Association of Schools of Journalism and Mass Communication, the Broadcast Education Association, and the California Newspaper Publishers Association.

Student organizations include chapters of the American Advertising Federation, Kappa Tau Alpha (a national journalism scholarship society), the National Press Photographers Association, and the Society of Professional Journalists.

The department hosts the annual convention for the California Journalism Association of Community Colleges and also hosts the annual high school competitions for the San Joaquin Valley Scholastic Press Association.

Faculty and Facilities

All MCJ faculty members also serve as career and academic advisers to students. Faculty members maintain close ties with the professional community and help students find internships and jobs. The faculty has substantial professional experience; several members are recognized nationally for writing textbooks and conducting research. Another faculty member hosts a weekly public affairs program on a Public Broadcasting System station.

College of Arts and Humanities

Department of Mass Communication and Journalism
D. Gregory Lewis, *Chair*
Sally A. Anshutz, *Department Administrative Assistant*
McKee Fisk Building, Room 236
(559) 278-2087
FAX: (559) 278-4995
http://www.csufresno.edu/MCJ/

B.A. in Mass Communication and Journalism
Options: Advertising, Broadcast Journalism, Digital Media, Electronic Media Production, Photojournalism, Print Journalism, Public Relations

M.A. in Mass Communication

Minor in Mass Communication and Journalism

Certificate in Marketing

The department maintains studios and laboratories for audio production; video production and editing; still photography; and computerized research, writing, and design. The department produces a student-run newspaper, *The Daily Collegian*, in both paper and on-line versions. The department also oversees a student-run campus radio station, KFSR-FM, and produces closed-circuit video programs for the campus through a student organization called B# Video.

Faculty

D. Gregory Lewis, *Chair*
Philip J. Lane, *Graduate Director*
James A. Flanery, *Roger Tatarian Endowed Chair of Professional Journalism*
Paul D. Adams
R. C. Adams
Roberta R. Asahina
Rita A. Atwood
George A. Flynn
Russell A. Hart
William N. Monson
Donald M. Priest
James B. Tucker
James R. Wilson

Bachelor of Arts Degree Requirements

Mass Communication and Journalism Major

Majors must complete 33 semester units of mass communication and journalism courses with a grade of *C* or better in each course. To ensure that students obtain a broad academic background, no more than 33 units in MCJ courses may apply toward the 124 semester units required for graduation.

The university's General Education requirement of 51 units, plus the 33 units in the major, total 84 units. The remaining units needed to reach the 124-unit graduation requirement must be taken outside the MCJ department and the content of these electives may not be primarily mass communication.

Of these outside electives, 15 units must be in "liberal arts and sciences" courses approved by the student's faculty adviser. (Courses in General Education taken beyond the 51-unit G.E. requirement automatically qualify for the department's liberal arts and sciences requirement.)

The department's requirements for study outside the major meet national accreditation standards as well as the communications industries' preference for graduates with strong grounding in the liberal arts and sciences.

Degree Summary	*Units*
General Education	51
Major requirements	33
Liberal Arts and Sciences block	15
Electives	25
Total	**124**

Specializing within the major

Each MCJ major must select an option, which is an area of specialization within the major. The options are advertising, broadcast journalism, digital media, electronic media production, photojournalism, print journalism, and public relations. The courses required for each option are listed under *Major Requirements.*

Advising Notes

In addition to the above requirements, MCJ majors must observe the following:

1. Before enrolling in any of the department's writing or editing courses, all students must have passed the Department Qualification Exam (DQE). The DQE is administered by the department and tests fundamentals of grammar, spelling, and punctuation. Students are permitted three attempts to pass the DQE. Contact the department office for exam dates.
2. MCJ majors are not permitted to enroll for *CR/NC* grading in MCJ courses applied to the major, except for courses that require such grading.
3. No General Education Integration course offered by the Department of Mass Communication and Journalism may be used to satisfy the General Education requirements for MCJ majors. Consult the *Schedule of Courses* for a current list of approved General Education courses.
4. Each option requires one additional MCJ course selected with the approval of a faculty adviser. Students must obtain an adviser's approval before enrolling in this course.
5. Seniors applying for graduation must obtain adviser approval for completion of the department's liberal arts and sciences requirement. Students will not be cleared for graduation until this approval is obtained, verified by the department chair, and sent to the Evaluations Office.

Major Requirements for the Degree

Major Requirements 33

Select one option

Advertising
- MCJ 1, 10, 142, 143, 144, 146, 148, 172, or 173 ..... (24)
- Two MCJ electives numbered between 160 and 179 ..... (6)
- One additional MCJ course selected with the approval of a faculty adviser (except MCJ 5) ..... (3)

Broadcast Journalism
- MCJ 1, 10, 102W, 124, 128, 172, 173 ..... (21)
- One course from MCJ 108, 126, 182, 188, 191 ..... (3)
- Two MCJ electives numbered between 160 and 179 ..... (6)
- One additional MCJ course selected with the approval of a faculty adviser (except MCJ 5) ..... (3)

Digital Media
- MCJ 1, 10, 104, 106, 115, 131, 132, 172 or 173 ..... (24)
- Two MCJ electives numbered between 160 and 179 ..... (6)
- One additional MCJ course selected with the approval of a faculty adviser (except MCJ 5) ..... (3)

Electronic Media Production
- MCJ 1, 10, 113, 115, 116, 119, 172 or 173 ..... (21)
- One course from MCJ 17, 112, 118, 178, 182, 188, 191 ..... (3)
- Two MCJ electives numbered between 160 and 179 ..... (6)
- One additional MCJ course selected with the approval of a faculty adviser (except MCJ 5) ..... (3)

Photojournalism
- MCJ 1, 10, 17, 102W, 132, 134, 138, 172 or 173 ..... (24)
- Two MCJ electives numbered between 160 and 179 ..... (6)
- One additional MCJ course selected with the approval of a faculty adviser (except MCJ 5) ..... (3)

Print Journalism
- MCJ 1, 10, 102W, 104, 105, 108, 172 ..... (21)
- One course from MCJ 17, 106, 132, 173, 174 ..... (3)
- Two MCJ electives numbered between 160 and 179 ..... (6)
- One additional MCJ course selected with approval of a faculty adviser (except MCJ 5) ..... (3)

Public Relations
- MCJ 1, 10, 102W, 104, 152, 158, 159, 164, 172 or 173, 191 ..... (30)
- MCJ elective numbered between 160 and 179 ..... (3)

Mass Communication and Journalism Minor

	Units
Required	**6**
MCJ 1, 10	
Minimum Electives	**12**
Any four or more courses selected with the advice and consent of a member of the departmental faculty	
Minimum Total	**18**

Certificate in Marketing

Students majoring in MCJ may earn a certificate in marketing by taking any three

or four (12 units) of the following marketing courses:

MKTG 103, 110, 130, 132, 136, 140

To earn a certificate in mass communication and journalism, marketing students may take any four courses (totaling 12 units) from the following:

MCJ 142, 144, 146, 148, 152, 158

MCJ students note: Marketing courses cannot be used in the liberal arts and sciences block, but can be used as electives.

Mass Communication Graduate Study

The department offers a flexible, professionally oriented program of study leading to the Master of Arts. The program prepares students for positions of leadership and influence in professional and academic careers. It also gives students a broadly-based understanding of mass communication in contemporary society and encourages continuing intellectual growth.

Admission. A graduate admissions committee reviews all files before admission. International students must pass the TOEFL with a score of at least 580. For more information, contact the graduate director, Dr. Philip J. Lane, at (559) 278-7028.

Writing Competence. California State University, Fresno requires that students have graduate-level writing ability before being advanced to candidacy for the master's degree. Students can satisfy this requirement by earning a passing grade in M COM 203.

Master of Arts Degree Requirements

Students take 30 units of coursework. Two core classes (M COM 201 and 203) are required, for 6 units. As a culminating experience, candidates must undertake either a thesis for 6 units or a professional project for 3 or 6 units. Students may select the remaining courses to meet their individual goals, including up to 6 units from other departments, depending on a student's area of interest. At least 21 of 30 units required must be in 200-level courses.

Students without a bachelor's degree in mass communication or significant professional experience may be required to take up to 15 units of undergraduate courses in the department before beginning the graduate program.

	Units
Required core courses	
M COM 201, 203	**6**
Selected courses in major interest area (may include up to 6 units in other departments)	**18-21**
Thesis or project	**3-6**
Total	**30**
(at least 21 units in 200-series)	

COURSES

Mass Communication and Journalism (MCJ)

1. Mass Communication and Society (3)
Examines the political, economic, cultural, and behavioral impacts of mass media in national and international contexts. Analyzes the historical factors that have shaped the structures, practices, and products of mass media industries, and assesses contemporary trends in media-society relations. G.E. Breadth D3. (CAN JOUR 4)

5. Basic Editing (3)
Open only to mass communication and journalism majors. Recommended for all majors who do not pass the Department Qualification Exam. Application of basic language skills to media writing and editing.

10. Media Writing (3)
Prerequisites: pass Department Qualification Exam, ENGL 1. Study and practice in the basics of good writing. Emphases will be placed upon grammar, factual accuracy, clarity, conciseness, media styles, fairness, human interest, and writing to length and deadline. (2 lecture, 2 lab hours) (CAN JOUR 2)

17. Beginning Photojournalism (3)
Survey and instruction in beginning photojournalism. Characteristics of the journalistic photograph and its role in publications. Instruction in use of cameras and laboratory technique for black-and-white photographs. (2 lecture, 3 lab hours)

102W. Reporting (3)
Prerequisites: pass Department Qualification Exam, MCJ 10, satisfactory completion (*C* or better) of the ENGL 1 graduation requirement, to be taken no sooner than the term in which 60 units of coursework are completed. Analysis of news sources; techniques of interviewing applied to specific reporting situations; coverage of campus and community functions in the preparation of articles for the media. Meets the upper-division writing skills requirement for graduation. (2 lecture, 2 lab hours)

104. Editing of Publications (3)
Prerequisites: pass Department Qualification Exam, MCJ 10, 70 units completed or permission of instructor. Preparation of copy, headlines, and photos for newspapers and other publications; advanced concepts of grammar and style; legal and ethical issues of publications; basic publications layout and graphic design. (2 lecture, 2 lab hours)

105. Newspaper Workshop (3; max total 6)
Prerequisites: MCJ 10, permission of instructor. Practice in editorial leadership, newspaper writing assignments, and newspaper production techniques. Department newspaper used for laboratory purposes. (1 lab hour, 10 hours arranged)

106. Desktop Publishing (3)
Survey, design, and editing of specialized publications such as newsletters, brochures, and other materials for editorial, advertising, and public relations purposes. Emphasis on computerized production techniques. (2 lecture, 2 lab hours)

107W. Magazine Feature Writing (3)
Prerequisites: pass Department Qualification Exam, satisfactory completion (*C* or better) of the ENGL 1 graduation requirement, to be taken no sooner than the term in which 60 units of coursework are completed. Writing and marketing feature material for magazines, newspaper supplements, and syndicates. Meets the upper-division writing skills requirement for graduation.

108. In-Depth Reporting (3)
Prerequisites: pass Department Qualification Exam, MCJ 10, 102W, ENGL 1, 70 units completed or permission of instructor. Advanced reporting for the media; emphasis on covering community sources and issues, including politics, local government, courts and law enforcement. (2 lecture, 2 lab hours)

112. Audio Production (3)
Lectures and laboratory experiences in the design and execution of audio-based programs, as used in the telecommunications industries. (2 lecture, 2 lab hours)

113. Video Production (3)
Lectures and laboratory experiences in the design and execution of video programs, as developed in studio environments. (2 lecture, 2 lab hours)

114. Media Operations (1; max total 2)
Not open to students with 2 units of credit in MCJ 114 and 117. Prerequisite: permission of instructor. Enrollees participate in operation of the university radio station, production of on-campus video programs, or work in the community media, on a scheduled basis and under supervision of department faculty. *CR/NC* grading only. (1 lab, 4 arranged hours)

115. Electronic Field Production (3)
Prerequisite: MCJ 113. Lecture and discussion of field-production techniques as used in ENG/EFP; preproduction planning, production execution, and postproduction processes. Field assignments required. (2 lecture, 2 lab hours)

116. Advanced Video Production and Directing (3)
Prerequisites: MCJ 113 and 115 or equivalents, with *B* or better. Development of critical and creative skills; study of production theory and practice; planning and producing for the director's role. Laboratory goal: air-worthy products for closed-circuit, cable, or broadcast distribution. (1 lecture, 4 lab hours)

118. Corporate Video (3)
Prerequisites: MCJ 113 and 115 or equivalents, with *B* or better. Advanced study of the planning, organization, and execution of video field-production techniques as used in corporate video and documentary program production; single-camera, film-style video techniques and postproduction. (2 lecture, 2 lab hours)

119. Broadcast Media Projects (3; max total 6)
Prerequisites: senior status in major, permission of instructor. Creative group projects in radio, television, film; public showing/airing or other distribution required. (6-8 arranged hours)

124. Broadcast News Writing (3)
Prerequisites: pass Department Qualification Exam, MCJ 10, ENGL 1. Gathering, writing, and editing news for the broadcast media. (2 lecture, 2 lab hours)

126. Radio-Television Performance (3)
Prerequisite: DRAMA 22 or COMM 3 or equivalents. Basic theories and techniques of broadcast and film performance. Lectures and laboratory experiences in vocal and visual aspects of performance; media characteristics and requirements; analysis and preparation of material for media performance. (2 lecture, 2 lab hours)

128. News/Public Affairs Production (3)
Prerequisites: MCJ 124 or equivalent, permission of instructor. Study of local news operations and programming, use of sources and resources, news policy, and editorial responsibility, management, and control. Planning and producing news for presentation on the university closed-circuit channel. (2 lecture, 2 lab hours)

131. Interactive Media Design (3)
Prerequisites: MCJ 106, 115, 132. Fundamentals of interactive media design and practical experience designing and producing digital media. Interactive authoring and management tools will be utilized to include elements of style, graphics, images, video, music, bookmarks, forms, worksheets, and questionnaires. (2 lecture, 2 lab hours)

132. Photo Editing and Digital Imaging (3)
Study of photographs and other visual elements in publications; principles of graphic design for mass media. Practical experience in selecting photographs and design elements for content, aesthetic values, and technical quality. Computer processing of images. (2 lecture, 3 lab hours)

134. Intermediate Photojournalism (3)
Prerequisite: MCJ 17. Study and practice of photojournalism; evaluation of photographs for publication; field and laboratory experience; emphasis on lighting, lenses, and special processing methods. (2 lecture, 3 lab hours)

138. Advanced Photojournalism (3; max total 6)
Prerequisites: MCJ 17, 134, permission of instructor. Individualized study and practice in advanced skills, including lighting, color, laboratory techniques, and electronic imagery.

142. Advertising Procedures (3)
Overview of all aspects of the field of advertising. Study of history, agent-client relationships, media, relationship to the behavioral sciences, production of copy and layouts, and advertising legislation and responsibility.

143. Newspaper Advertising Staff (3; max total 6)
Prerequisite: MCJ 142. Selling and servicing accounts and creating and producing advertisements for the university newspaper.

144. Advertising Copy Writing (3)
Prerequisites: pass Department Qualification Exam, MCJ 10, 142. Develops print and broadcast copy writing for magazine, direct mail, outdoor, newspaper, radio, television, and new advertising media. Examines the role of the copy writer, creative strategies, research target marketing, copy styles, and laws regulating advertising.

146. Advertising Media (3)
Prerequisite: MCJ 142. Media planning and buying for advertising media. Evaluating and selecting media to meet specific marketing and communication goals; designing specific media plans and making buys in various media.

148. Advertising Campaigns (3)
Prerequisites: MCJ 142 and 144 or 146. Background, research, planning, and preparation of national advertising campaign as advertising agency with client-agency set-up; marketing plan and creative execution. (2 lecture, 2 lab hours)

152. Public Relations (3)
Development of public relations practice; principles and methods; application in business, education, and other fields.

158. Public Relations Writing (3)
Prerequisites: MCJ 10, 152. Creating messages tailored to multiple groups via a range of media, including mass media and organizational media such as employee newsletters and annual reports. Practice writing news releases, opinion articles, direct mail pieces and so on. (2 lecture, 2 lab hours)

159. Public Relations Cases and Campaigns (3)
Prerequisites: MCJ 10, 152, 158, 164. Public relations teams plan a public relations campaign. Covers use of research findings, setting measurable objectives, identifying key publics, defining strategies, setting budgets, and evaluating results. Analyses and application of recent cases to solve public relations problems.

160. Investigating Media Issues (3)
Explores current issues in mass communication, emphasizing independent collection, analysis, and critical interpretation of available information. Papers required. (Formerly MCJ 101)

163. Radio/TV as Popular Culture (3)
Prerequisite: to be taken no sooner than the term in which 60 units of coursework are completed. A consideration of the media as popular cultural arts through study of development of program forms, social influences. Term paper required.

164. Applied Media Research (3)
Not open to students with credit in MCJ 167. Study of survey research methods as used in program ratings, opinion analysis and tracking, and message assessment in radio, television, advertising, and public opinion. Project participation required.

166. Film/Television Criticism (3)
Study of traditional and new critical approaches to film and their application to television; analysis and interpretation of films and television programs through humanist critical methodology.

168. Media Culture (3)
An exploration of television, film, radio, and print media as distinctive artistic forms which draw on and interact with the traditional arts. Critical examination of the cultural, aesthetic, and humanistic value of these media.

172. Media Law (3)
Study of federal and state laws and regulations that apply to the media, covering such topics as freedom of information, libel, right to privacy, fair trial-free press, copyright, obscenity and indecency, advertising regulation, and broadcast law and regulation.

173. Media Ethics (3)
Study of ethical choices in the context of the political, social, and economic structure of U.S. communications systems. Also emphasizes applying traditional ethical theories to current media issues and problems.

174. History of Mass Media (3)
Historical background of American media from colonial to modern times.

175. Multicultural Mass Communication and Media Stereotypes (3)
Explores psychological, social, economic, institutional, and political factors related to media stereotypes. Analyzes specific media stereotypes involving gender, sexual orientation, race, ethnicity, age, and physical conditions; looks at their behavioral and cultural effects. Reviews strategies for improving media portrayals. G.E. Multicultural/International MI.

176. International Mass Communication (3)
Assesses complex international forces shaping global media. Examines ways mass media of North American countries and other nations affect international relations. Focuses on impacts of international news flows, role of media in national development, effects of transnational entertainment, and advertising content.

177T. Media Topics (3; max total 6)
Prerequisite: upper-division standing. Topics explore various aspects of the relationships between media and society in national and international arenas.

178. New Information Technologies (3)
Addresses the social, political, economic, and philosophical implications of new digital media, as well as the corporate, government, and institutional forces that have shaped the new digital media landscape. Particular attention is given to uses of the technologies and the dynamic relationship linking technology, culture, and social change. G.E. Integration ID.

182. Broadcast Programming (3)
Study of strategies and practices in programming radio and television stations and cable television operations. Lecture, discussion, and analysis/evaluation are primary course methods. Term project and paper required.

186. Radio-Management Practicum (1; max total 2)
Prerequisite: MCJ 114 or permission of instructor. Enrollees participate in management of the university FM radio station with a specific, assigned responsibility for an operational element, under faculty supervision.

188. Proseminar in Broadcast Media Management (3)
Prerequisites: B A 120 and MCJ 172 or equivalents, permission of instructor. Organization, operation, and administration of radio and television stations and cable television facilities; correlation of department functions within stations; relationship to regulatory agencies and the marketplace. Term project required.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191. Internship (3)
Prerequisites: senior standing in the major with 2.5 GPA, permission of instructor. Applied practical experience in an appropriate media outlet, recording studio, production company, advertising agency, or public relations firm with on-the-job and faculty supervision/instruction. Conferences and reports required. *CR/NC* grading only.

GRADUATE COURSES

Mass Communication (M COM)

201. Mass Communication Research (3)
(Core) Introduction to media research methods, including readership and ratings surveys, content analysis, and other media research methods; evaluation of research quality and suitability; interpretation and applicability of research results. Analytic exercises and papers required.

203. Mass Media Industry and Issues (3)
(Core) Examination of the ownership structure, economics, content, and effects of mass media. Contemporary media controversies are examined from both societal and industry points of view. Papers required.

214. Media Technology and Systems (3)
Seminar in emerging communications media. Technological developments, corporate and governmental policies, and the sociopolitical implications of current and projected applications.

215. Media Ethics and Regulation (3)
Seminar in the law and ethics of mass communication, with emphasis on current social and ethical controversies and the impact of regulatory trends on media professionals.

216. Global Media and International Relations (3)
Focus on mass communication and international relations by examining global flow and impact of news, entertainment content, transnational advertising, and information technologies. Issues discussed in the context of international mass communication theory and research. (Formerly M COM 205T)

240T. Seminar in Media Industry Practices and Management (3; max total 9)
Exploration of current challenges and advanced practices in the media or management in a particular media-related industry: advertising, broadcasting, public relations, journalism, Internet.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (3-6; max total 6)
Prerequisites: M COM 201, 203, and permission of instructor; see *Criteria for Thesis and Project*. Completion of a significant project appropriate to the student's area of specialization. A written report and a presentation to the faculty are required. Approved for *SP* grading. One or two semesters, depending upon project complexity.

299. Thesis (6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

Music

College of Arts and Humanities

Department of Music
José A. Díaz, *Chair*
Music Building, Room 134
(559) 278-2654

B.A. in Music
Options:
- Music as a Liberal Art
- Music Education
- Instrumental Performance
- Vocal Performance
- Composition

M.A. in Music
Options:
- Music Education
- Performance

Minor in Music

Single Subject Teaching Credential

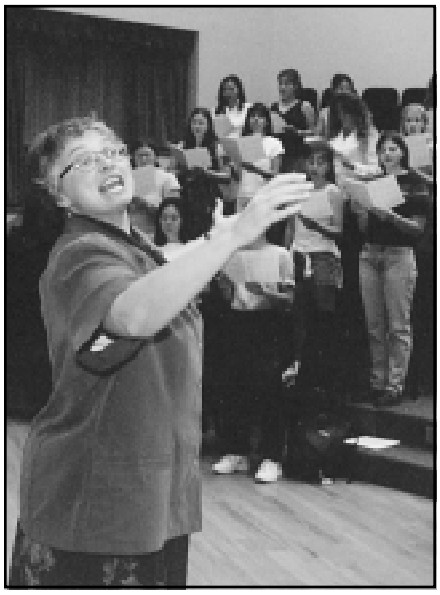
Certificate of Special Study in Music Performance

The Department

A major in music is designed to prepare students for careers in teaching, performance, or music-related fields. It enhances their knowledge of the musical art and increases their sensitivity to the musical world around them.

The Department of Music provides:

- undergraduate instruction in music for those planning professional careers as performers, composers, and studio teachers, as well as those preparing for advanced degrees in performance and composition
- state-approved subject matter preparation required for a California teaching credential in music
- graduate education for students planning professional and academic careers or seeking professional growth as K-12 teachers or junior college instructors, and
- broad acquaintance with music for the community and nonmusic major.



Two degree programs accredited by the National Association of Schools of Music are offered: the Bachelor of Arts and the Master of Arts.

Faculty and Facilities

The Department of Music faculty has backgrounds in varied areas of specialization. Many members of the faculty have national and international reputations as performing artists and teachers. Others are well known for their scholarly research, articles, and books. They are all dedicated to providing students with the best music education possible both in their classes and studios.

The music building houses recital and concert facilities, rehearsal halls, classrooms, faculty studios, offices, and student practice rooms. The building also contains recording studios, computer labs, MIDI and electronic music labs, and a tracker-action organ.

Career Opportunities

While many graduates have made successful careers as professional music performers or composers, the majority have pursued careers as music teachers in elementary and secondary schools. Those who complete master's degrees have either advanced in public school careers or have gone on to further study and careers as teachers in higher education.

Music majors and minors have also found satisfying careers in the music industry as sales representatives, instrument technicians, recording technicians, artist representatives, and artist managers. Churches employ organists and choir directors, many on a full-time basis. Early childhood teachers and those in recreation related careers also benefit from expertise in music.

Faculty

José A. Díaz, *Chair*
M. Teresa Beaman
Kathryn Bumpass
W. Ritchie Clendenin
Matthew H. Darling
Jack Fortner
George M. DeGraffenreid
Gary P. Gilroy
Anna Hamre
Thomas N. Hiebert
Miles M. Ishigaki
Helene Joseph-Weil
Wendy March
David R. Margetts
Manuel Peña
Juan Serrano
Lawrence R. Sutherland
Andreas Werz

Bachelor of Arts Degree Requirements

Music Major

Each student seeking a Bachelor of Arts degree with a major in music must fulfill the *Basic Core Requirements* and all requirements listed under the music degree option which is the student's major field of study. Students must also fulfill the university's *General Education Requirements* (51 units), including remaining music degree requirements (e.g. it is strongly recommended that vocal performance majors pass two semesters of university-level foreign language study in either French, German, or Italian) and *Other Departmental Requirements* to complete the B.A. degree (minimum 124 units). Each music major must consult with a designated music faculty adviser each semester before they may enroll in music classes.

Please note: Some degree options require auditions or have other admissions requirements. Contact the Department of Music office for specifics.

Music Major

Units

Major requirements 64-77

Core 24
(required of all music majors regardless of option)
- MUSIC 1A, 1B, 40, 41, 42, 58, 81, 161A, 161B ..... (21)
- MUSIC 20 - Convocation (8 semesters) ..... (0)
- Select one from the following: MUSIC 160T, 170A, 170B, 171, 187 ..... (3)

Options 40-53
- I. Music as a Liberal Art ..... (40)
- II. Music Education ..... (49-53)
- III. Instrumental Performance ..... (49)
- IV. Vocal Performance ..... (49)
- V. Composition ..... (49-53)

Additional requirements 9
(Option I only)

General Education 51

124-128

Degree Options

I. Music as a Liberal Art

Units

MUSIC 4A, 4B, and 4C until Piano Proficiency Exam is passed[1] **6**
MUSIC 43, 144 ..... **6**
Elect from MUSIC 140T, 141, 142, 148 (max 3), 150A-D (max 6), 160T (max 6), 170A, 170B, 171, 187, 190/191 (max 6) **12**
Four semesters in MUSIC 103 appropriate to major emphasis[2] **4**
Four semesters in MUSIC 31/131 through 39/139 ..... **4**
Other music electives (with adviser's approval) **6**
Senior Project or Recital (to be developed in consultation with the adviser) **2**

40

Additional Requirements
Electives from outside the Music Department (consult adviser) **9**

Credential Program

This is a state-approved subject matter preparation program for the Single Subject Teaching Credential authorizing students to teach music in grades K-12.

Note: Credential requirements are subject to change by state regulation. The catalog may not reflect the latest requirements. Consult the department's credential adviser to ensure complete compliance with state regulations. Also consult the School of Education and Human Development regarding the 30 units of professional education necessary for completion of the Single Subject Teaching Credential.

II. Music Education

The following 43-47 units are required of all music education majors regardless of emphasis.

Units

MUSIC 4A, 4B, and 4C until Piano Proficiency Exam is passed[1] **2-6**
MUSIC 50, 119, 122A, 124A, 126, 127A, 154, 169, 182 ..... **15**
Elect from MUSIC 43, 144, or 186 ..... **3**
MUSIC 121 ..... **4**
MUSIC 158A or B **2**
Eight semesters in MUSIC 103 appropriate to music education emphasis[2] **8**
Eight semesters in MUSIC 31/131 through 39/139 including two semesters with advanced standing[3] **8**
MUSIC 198 (Senior Recital) **1**

43-47

Select one of the following Music Education emphases:

Choral/Vocal Music Education Emphasis
MUSIC 120, 179, 179L, 185A **6**

General Music Education Emphasis
MUSIC 115, 120, 179, 179L **6**

Instrumental Music Education Emphasis
Select one from MUSIC 102CC, 102GC, 102MC, 102CS, 102WC, 103CC **1**
MUSIC 103MB (Marching Band) **2**
MUSIC 159 ..... **2**
Elect from MUSIC 102, 117, or 118 ..... **1**

6

See next page for footnotes.

III. Instrumental Performance

Units

MUSIC 4A, 4B, and 4C until Piano Proficiency Exam is passed[1] **6**
MUSIC 43 and 144 ..... **6**
MUSIC 31/131 through MUSIC 3/138 (four semesters with advanced standing)[3] **8**
Elect from MUSIC 140T, 141, 142, 148, 150A-D, 160T, 170A, 170B, 171, 186, 187 ..... **6**
Additional units in pedagogy, literature, or performance courses (not including MUSIC 31-38) [For keyboard majors: MUSIC 166 and 167. For all other instrumentalists: MUSIC 175T] **4**
Eight semesters in MUSIC 103 appropriate to major **8**
Other music electives (with adviser's approval) **9**
MUSIC 198 (Senior Recital) **2**

49

IV. Vocal Performance

Units

MUSIC 4A, 4B, and 4C until Piano Proficiency Exam is passed[1] **6**
MUSIC 43 and 144 ..... **6**
MUSIC 39 and 139 (four semesters with advanced standing)[3] **8**
MUSIC 113 ..... **2**
MUSIC 158B **2**
MUSIC 172 ..... **2**
MUSIC 185A and B **4**
Elect from MUSIC 140T, 141, 142, 148, 150A-D, 160T, 170A, 170B, 171, 186, 187 ..... **5**
Eight semesters in MUSIC 103 appropriate to major **8**
Foreign Language **4**
MUSIC 198 (Senior Recital) **2**

49

V. Composition

Units

MUSIC 4A, 4B, and 4C until Piano Proficiency Exam is passed[1] **2-6**
MUSIC 43 and 144 ..... **6**
MUSIC 48 and 148 (four semesters with advanced standing) **12**
MUSIC 34/134 (after passing Piano Jury I examination) **4**
MUSIC 141 or 142 ..... **3**
MUSIC 182 ..... **3**
MUSIC 183 or 184 ..... **3**
Elect from MUSIC 140T, 141, 142, 150A-D, 158A, 158B, 160T, 170A, 170B, 171, 186, 187 ..... **6**
Elect from MUSIC 102, 103, 117, 118 ..... **8**
MUSIC 198 (Senior Recital) **2**

49-53

Other Departmental Requirements

1. Undergraduate music majors must select a degree option from the following: *Music as a Liberal Art*; *Music Education: Choral*, *General* or *Instrumental Emphasis*; *Instrumental Performance*; *Vocal Performance*; or *Composition*. Note: All students majoring in music are automatically enrolled in *Music as a Liberal Art* until they have been officially admitted to another degree option. All entering students (freshmen and transfer) must take a diagnostic examination in music history/literature and music theory. Other degree options have audition or other admission requirements which must be fulfilled before a student is officially recognized as enrolled in that option.
2. Music education and performance degree options require students to declare a primary concentration (e.g. an instrument or voice).
3. At the close of their first year of residence, students must pass the Jury I examination in their declared area of concentration (instrument or voice) before being permitted to continue their major. Students in composition must pass an equivalent preliminary jury designed by their composition instructor. The Jury II examination must be passed for advanced standing.
4. Students majoring in music must enroll in a piano class (MUSIC 4A-4C) until the departmental piano proficiency examination has been passed. (See *Department of Music Undergraduate Student Handbook* for details.)
5. Passing of the piano proficiency examination and successful completion of MUSIC 1B are required before attempting Jury II.
6. Guitar and piano students will fulfill 50 percent of the major ensemble requirement by enrolling in Guitar Ensemble, Keyboard Ensemble, Chamber Music Ensemble, Music Accompanying, or MUSIC 130T (as specified by their studio instructor.) The remaining 50 percent must be fulfilled by enrolling in either Orchestra, Wind Ensemble, Symphonic Band, Concert Choir, or Marching Band.
7. Students in MUSIC 31 and 131 through 39 and 139 (private studio instruction) will perform in student recitals when assigned by their instructor.
8. Guitar, piano, or composition students who select the Music Education: Instrumental emphasis must pass the Level II Jury Exam in violin, viola, cello, contrabass, clarinet, flute, saxophone, oboe, bassoon, trumpet, trombone, horn, tuba, or percussion. Guitar, piano, or composition students who select the Music Education: Choral emphasis must pass the Level II Jury Exam in voice.
9. Music Education Option students must pass a conducting proficiency examination after completion of MUSIC 158. Passing MUSIC 158 does not constitute passing the proficiency examination.
10. All undergraduate students must fulfill the upper-division writing skills requirement in order to graduate. Students are expected to meet this requirement no sooner than the term in which 60 units of coursework are completed.

Music Minor

The Minor in Music is reserved for students pursuing a degree in a field other than music and requires completion of at least 21-24 units of music courses, 6 units of which must be upper division. The program must be approved by the department adviser and the department chair. Required units include: MUSIC 9, 40, and 41; 6 units of MUSIC 31/131 through 39/139; 6 to 9 units in music literature, conducting, and/or techniques and materials courses. In addition, students minoring in music must enroll in an appropriate major performing organization for at least four semesters while enrolled at California State University, Fresno, and must pass the Jury I examination in their declared area of concentration. Courses taken for the minor may count toward fulfilling General Education requirements, but will not count toward fulfilling any music major.

Certificate of Special Study in Music Performance

The Certificate of Special Study in Music Performance is intended for those persons who wish to study an instrument or voice without matriculating for a degree. A candidate for the certificate program should be qualified for advanced standing (Jury II competency) in his or her specialty prior to admission. Admission to the program requires the consent of both the major professor and the chair of the department.

The certificate program will comprise a minimum of 12 units of upper-division work, to be structured on an individual basis with the approval of both the major professor and the chair of the department. The individual program, along with the requisite approvals, will be in writing and kept on file in the department.

The general requirements for the certificate program:

- instruction in the student's major voice or instrument during each semester of residence
- at least one course in music theory or history
- at least one ensemble course, appropriate to the student's area of specialization, for each semester of study

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.

Foreign students must have achieved a minimum TOEFL score of 550 to gain entrance to the program.

Master of Arts Degree Requirements

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

The Master of Arts degree program in music requires a bachelor's degree in music or the equivalent.

All entering M.A. students must take diagnostic entrance examinations in music history and music theory. Where needed, remedial work may be required prior to graduate study. An audition and/or entrance interview is also required.

Under the direction of graduate advisers, each student prepares and submits a coherent program individually designed within the following framework:

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1 MUSIC 4A, 4B, and 4C may be waived by passing the designated Piano Proficiency Exam. (See *Department of Music Undergraduate Student Handbook* for details. Students for whom any of these courses are waived should fulfill the minimum unit requirements with elective courses.)

2 See *Other Departmental Requirements*.

3 Advanced standing designation is granted after passing Jury II.

Courses in music, including at least 21 units in 200-series

	Units
Specific requirements	**11**
MUSIC 204, 220, 1 music history or theory seminar (MUSIC 240T, 260T, 267, 277), and MUSIC 211 or another performance class by advisement	
Option (select one)	**9-12**
• Music Education	
• Performance	
Electives	**4-7**
Courses in music, or related fields, in a subject other than music (consult adviser)	
Project or thesis	**3**
Total	**30**

Students in the performance option who elect emphases in vocal performance and choral conducting must satisfy foreign language requirements in French, German, or Italian (see area adviser). Courses in addition to those in the M.A. requirements may be specified after examination of the student's record and the student's performance on the diagnostic entrance examination. A maximum of 4 units in MUSIC 102 taken after completion of the B.A. may be applied to the M.A. degree. A written qualifying examination is required for admission to project or thesis.

COURSES

Music (MUSIC)

Performing Organizations

All performing organization courses may be repeated for credit and are open to both lower-division and upper-division students. Courses involve the technical and stylistic rehearsal and study of musical literature recognized for its quality and aesthetic value. Participation is required in all rehearsals and performances of the performing organizations for which student is registered.

102. Minor Ensembles
(1; repeatable for credit; max total 6)
Study and performance of literature appropriate for ensembles such as brass ensemble (BE), community chorus (CC), chamber singers (CS), flute ensemble (FE), gospel choir (GC) guitar ensemble (GE), jazz ensemble "A" (JEA), jazz ensemble "B" (JEB), men's chorus (MC), basketball pep band (PB), percussion ensemble (PE), string ensemble (SE), women's chorus (WC), and woodwind ensemble (WWE). For MUSIC 102GC, see AF AM 21/121.

103. Major Ensembles
(1; repeatable for credit)
Study and performance of choral and/or instrumental literature appropriate for large ensembles such as concert choir (CC), orchestra (O), wind ensemble (WE), marching band (MB), and symphonic band (SB).

117. Specialty Ensemble
(1; repeatable for credit)
Study and performance of literature appropriate for non-conducted ensembles such as Bulldog Beat (BB), Scholarship Brass Quintet (BQ), Chamber Music (CM), Keyboard Ensemble (KE), and President's Quintet (PQ).

118. Instrumental/Vocal Workshops
(1; repeatable for credit)
Study and performance of music literature appropriate for groups such as band workshop (BW), opera workshop (OW), percussion workshop (PW), and vocal workshop (VW).

Instrumental and Vocal Lessons

MUSIC 31 and 131 through 39 and 139 include technical, stylistic, and aesthetic performance studies of standard literature: etudes, solo, chamber, and large ensemble music. All music majors (except students enrolled in the Music as a Liberal Art Option) are required to enroll on primary instrument until completion of senior recital. Concurrent enrollment in appropriate major ensemble required. Passing Jury II required to enroll in MUSIC 131 through 139. All courses are repeatable for credit. (All courses require a $20 course fee.)

31/131. Brass (1; max total 16)
(Formerly MUSIC 31S and 131S)

32/132. Percussion
(1; max total 16)
(Formerly MUSIC 32S and 132S)

33/133. Strings (1; max total 16)
(Formerly MUSIC 33S and 133S)

34/134. Piano (1; max total 16)
(Formerly MUSIC 36S and 136S)

35/135. Woodwinds
(1; max total 16)
(Formerly MUSIC 35S and 135S)

38/138. Organ (1; max total 16)
(Formerly MUSIC 38S and 138S)

39/139. Voice (1; max total 16)
(Formerly MUSIC 39S and 139S)

Other Music Courses

1A. Ear Training and Sight Singing I
(1; max total 2, repeatable for credit)
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. Use of computer music programs. *CR/NC* grading only. (Course fee, $15)

1B. Ear Training and Sight Singing II
(1; max total 2, repeatable for credit)
Prerequisite: 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. Use of computer music programs. *CR/NC* grading only. (Course fee, $15)

4A. Piano Class I
(2; repeatable for credit)
Music majors and minors only. Playing skills and techniques necessary to prepare for the piano proficiency examination required of all music majors. (Course fee, $20) (Formerly MUSIC 36S)

4B. Piano Class II
(2; repeatable for credit)
Prerequisite: MUSIC 4A. Playing skills and techniques necessary to prepare for the piano proficiency examination required of all music majors. Continuation of MUSIC 4A. (Course fee, $20) (Formerly MUSIC 36S)

4C. Piano Class III
(2; repeatable for credit)
Prerequisite: MUSIC 4B. Playing skills and techniques necessary to prepare for the piano proficiency examination required of all music majors. Continuation of MUSIC 4B. Continuing enrollment in MUSIC 4C is required until the piano proficiency exam is passed. *CR/NC* grading only. (Course fee, $20) (Formerly MUSIC 136S)

9. Introduction to Music (3)
Not recommended for music majors. Music theory and aesthetics for the general student. Notation of pitch and rhythm. Reading, playing, and writing melodies of pitch with choral accompaniments. Introduction to computer applications. G.E. Breadth C1. (Course fee, $15)

11. Intermediate Guitar Technique (2)
Introduction to classical guitar, major, minor, and chromatic scales, chord progression, and beginning classical guitar selections. (Formerly MUSIC 130T section)

12. Flamenco Interpretation (2)
Introduction to basic flamenco guitar techniques; rasgueados, picados, tremolos, basic rhythms, studies and interpretation of flamenco repertoire. (Formerly MUSIC 130T section)

20. Convocation (0)
Department student recitals, advising, and enrichment. Required of all music majors each semester they are registered for classes until the senior recital is completed. *CR/NC* grading only.

40. Theory and Literature I (3)
Prerequisite: MUSIC 9 or the ability to read music. Fundamentals of music: notation, scales, intervals, keys, triads, concepts of mode and meter, principles of melody writing, and species counterpoint in two voices. Analysis of appropriate examples from musical literature. Use of music notation software. (Course fee, $15)

41. Theory and Literature II (3)
Prerequisite: MUSIC 40. Figured bass and principles of voice leading. Four-part writing in choral and keyboard style. Functional harmony, triads, seventh chords, and secondary dominants. Harmonization of melodies. Principles of form in Western art music. Analysis of representative musical literature. Use of music notation software.

42. Theory and Literature III (3)
Prerequisite: MUSIC 41. Continuation of figured bass and part writing, emphasizing chromaticism, altered chords, suspensions, and extended tonality. More advanced musical forms. Study of representative musical examples. Reductive analysis of selected passages. Use of music notation software.

43. Theory and Literature IV (3)
Prerequisite: MUSIC 42. Non-tonal harmony (e.g. quartal, pandiatonic). Introduction to set theory and basic twelve-tone technique. Jazz harmony and principles of improvisation. Survey of representative compositions of the twentieth century with respect to style and structure. Use of music notation software.

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.

50. Introduction to Music Teaching and Learning (2)
Prerequisite: MUSIC 40. Orientation to role of music teacher in public schools. Observation of teacher-pupil interaction, instructional approaches, and classroom management in elementary through secondary schools. Two-hour lecture weekly, plus two-hour school site observation weekly, not including travel. *CR/NC* grading only. (Formerly MUSIC 130T)

58. Basic Conducting (2)
Prerequisite: MUSIC 41. Fundamentals of conducting and score-reading; standard patterns and stick technique.

60T. Topics in Music
(1-3; max total 6; repeatable for credit)
Special studies in ethnomusicology or music appreciation, business, education, history, literature, theory, or technology.

74. Listener's Guide to Music (3)
Exploration of a wide range of musical styles (past, present, classical, and popular) through guided practical experiences and the development of an aesthetic sensitivity for music of various cultures. G.E. Breadth C1.

81. Basic Improvisation (2)
Prerequisites: MUSIC 4B, 41. Beginning course in improvisation. Using the student's principal instrument of voice and the keyboard, students improvise musical material beginning with I-IV-V-I progressions (in three flats and three sharps) and in the basic 12-bar blues (in B flat, F, and C). (Formerly MUSIC 130T section)

110. Voice for Non-Music Majors
(1; repeatable for credit)
Acquaints the non-music major with basic principles of good singing; applies principles of good singing to different song styles; and helps the non-music major voice student develop and strengthen performing skills. (Formerly MUSIC 130T section)

111. Advanced Guitar Technique (2)
Advanced studies in classical guitar works, diatonic major and minor scales, chord progression, and interpretation of classical guitar repertoire. (Formerly MUSIC 130T section)

112. Advanced Flamenco Interpretation (2)
Special studies in flamenco guitar interpretation including advanced techniques, traditional rhythms, improvisations, and analysis of music, songs and dance. For majors and non-majors. (Formerly MUSIC 130T section)

113. Vocal Pedagogy (2)
Open to upper-division vocal performance majors only. Prerequisites: passing of Jury II, all lower-division music core courses, as well as at least one semester of music history, MUSIC 161A or 161B. Principles, teaching procedures, materials, and physiology of the voice, and historical background for teaching solo and group lessons.

115. Intermediate Guitar for Classroom Teachers (2)
Continued development of guitar skills for the general music teacher. Intermediate group instruction on the acoustic guitar with focus on techniques and materials appropriate for accompanying classroom music. Topics include chord structures, strumming, picking style, and fingering techniques.

119. Voice Techniques and Materials (1)
Prerequisite: MUSIC 41. Principles, playing and teaching procedures, and materials for teaching voice in the elementary school, high school, and community college. (Course fee, $20) (Formerly MUSIC 119Q)

120. Class Piano Techniques and Materials (1)
Prerequisites: MUSIC 41, passed piano proficiency. Study of techniques and materials appropriate for teaching class piano to beginners in elementary school, middle school, high school, and community college music classrooms.

121. Instrumental Techniques and Materials Workshop
(1; repeatable for credit)
Prerequisites: MUSIC 50, 58, 119. Concurrent enrollment in MUSIC 122A, 124A, 126, or 127A. Application of performance and teaching techniques studied in prerequisite courses as well as those being learned in concurrent enrollment courses. *CR/NC* grading only.

122A. String Techniques and Materials (1)
Prerequisite: MUSIC 41. Concurrent enrollment in MUSIC 121. Principles and physics of stringed instruments; playing procedures and materials for teaching beginning string students from elementary school through community college. (Course fee, $20) (Formerly MUSIC 119K, MUSIC 122)

124A. Woodwind Techniques and Materials (1)
Prerequisite: MUSIC 41. Concurrent enrollment in MUSIC 121. Principles and physics (including common transpositions) of woodwind instruments; playing procedures and materials for teaching beginning woodwind students from elementary school through community college. (Course fee, $20) (Formerly MUSIC 119M, MUSIC 124)

126. Percussion Techniques and Materials (1)
Prerequisite: MUSIC 41; concurrent enrollment in MUSIC 121. Principles, playing and teaching procedures, and materials for teaching percussion instruments in the elementary school, high school, and community college. (Course fee, $20) (Formerly MUSIC 119O)

127A. Brass Techniques and Materials (1)
Prerequisite: MUSIC 41. Concurrent enrollment in MUSIC 121. Principles and physics (including common transpositions) of brass instruments; playing procedures and materials for teaching beginning brass students from elementary school through community college. (Course fee, $20) (Formerly MUSIC 119I, MUSIC 127)

129. Reed Making (2)
Required for oboe and bassoon players. Individual or group supervision in all aspects of the art of reed making. Repeatable for credit until such time as student and professor mutually agree that supervision is no longer necessary. *CR/NC* grading only.

130T. Topics in Performance (2; max total 12; repeatable for credit)
Special studies in vocal or instrumental music, including topics such as accompanying, electronic instruments, mixed chamber music.

140T. Topics in Theory (3; max total 9; repeatable for credit)
Prerequisite: MUSIC 43. Analytical study of specific composers, genres, styles, and diverse approaches to music theory.

141. Seminar in Modal Counterpoint (3)
Prerequisite: MUSIC 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. Polyphony of the 17th and 18th centuries; analysis and composition of melodic lines, imitative, strict and invertible counterpoint, canon, and fugue.

144. Form and Analysis (3)
Prerequisite: MUSIC 42. Principles of musical form and analysis as applied to standard works of the 18th and 19th centuries. Includes an introduction to the Schenker method of music analysis and review of chromatic harmony as necessary.

148. Seminar in Advanced Composition (3; max total 9; repeatable for credit)
Prerequisite: MUSIC 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)
Prerequisites: MUSIC 41 and permission of instructor. A survey of the history and literature of electronic music. A systematic introduction to basic analog synthesis, and instruction in the techniques of studio recording and editing.

150B. Seminar in Electronic Music II (3)
Prerequisites: MUSIC 150A and permission of instructor. Advanced applications of analog synthesis and recording engineering. Emphasis on the individual creative process.

150C. Seminar in Electronic Music III (3)
Prerequisites: MUSIC 150B and permission of instructor. An introduction to computer applications in digital/analog synthesis. Introduction in multitrack mixing and recording.

150D. Seminar in Electronic Music IV (3)
Prerequisites: MUSIC 150C and permission of instructor. Advanced computer controlled digital/analog synthesis. Emphasis on the individual creative process.

153. Children's Music (3)
Open to nonmajors only. Introduction to song literature and singing games suitable for children. Development of in-tune singing, ear training, and sight-singing skills.

154. Music for the Elementary Classroom (3)
Music majors only. Prerequisites: MUSIC 41, passed piano proficiency. Song literature, musical games, and basic skills for the recorder and guitar appropriate for use in the elementary music classroom. Course content derived from the folk music and musical contributions of world cultures.

155. Advanced Elementary Classroom Techniques (3)
Prerequisite: MUSIC 153 for students not majoring in music. Individual research on the place and functions of music in preschool 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.

158A. Advanced Instrumental Conducting (2; max total 4)
Prerequisite: MUSIC 58. Advanced instrumental conducting and score reading; rehearsal techniques; problems in tempo, balance, style, and phrasing; mixed meters and other contemporary problems. Assigned projects in conducting.

158B. Advanced Choral Conducting (2; max total 4)
Prerequisite: MUSIC 58. Advanced choral conducting and score reading; rehearsal techniques; problems in tempo, balance, style, and phrasing; mixed meters and other contemporary problems. Assigned projects in conducting.

159. Marching Band Techniques (2)
Prerequisite: MUSIC 41. Offered fall semester only. Practical and creative aspects of producing musical shows and marching formations for athletic events, parades, and public ceremonies. Use of computer programs.

160T. Topics in Music History and Literature (1-3; max total 9; repeatable for credit)
Study of selected musical genres, composers, and other specialized topics.

161A. Survey of Western Art Music I (3)
Prerequisite: MUSIC 41. Offered fall semester only. Study of representative composers, genres, and major works. Emphasis on changing concepts of "music," development of styles, and relation of music to the history of ideas and to relevant institutions and social customs up to approximately 1800 A.D.

161B. Survey of Western Art Music II (3)
Prerequisite: MUSIC 41. Offered spring semester only. Study of representative composers, genres, and major works. Emphasis on changing concepts of "music," development of styles, and relation of music to the history of ideas and to relevant institutions and social customs from Beethoven to the present.

166. Piano Pedagogy (2)
Piano majors only. Principles, playing and teaching procedures, and materials for teaching individual and small group piano lessons to students from elementary school age through community college. (Course fee, $20) (Formerly MUSIC 119P)

167. Keyboard Literature (2)
Piano majors only. A historical survey of the standard repertoire for the piano. (Formerly MUSIC 176T section)

169. Instrumental Techniques and Materials (2)
Prerequisites: MUSIC 43, 158A or B, completion of MUSIC 121-128 course requirements. Offered spring semester only. Principles, procedures, literature, and materials for use in instrumental music programs in the public schools. (Expenses for off-campus visits will be incurred by student.)

170A. Music of the Americas: Latin America (3)
Examination of the musics of Latin America with special emphasis on art-music and its relationship to folk-popular musics as influenced by social, ideological, and political cross-currents. G.E. Integration IC.

170B. Music of the Americas: United States (3)
Representative styles and genres of music in the United States with particular attention to social contexts of repertories and music interactions between elite and popular traditions.

171. Introduction to the World's Music (3)
Exploration of selected musics of the world from the perspective of ethnomusicology or study of music as an aesthetic communication that possesses meaning only in relation to specific, situated sociocultural contexts. Study of selected musical forms and their relationship to social formations. G.E. Integration IC.

172. Vocal Literature (2)
Prerequisite: MUSIC 41. For students who major or minor in vocal music. A historical survey of the standard repertoire for the voice.

175T. Topics in Instrumental Pedagogy (2)
Principles, playing and teaching procedures, and materials for teaching individual instrumental (flute, oboe, clarinet, bassoon, horn, trumpet, trombone, tuba, violin, viola, violoncello, contrabass, harp, guitar, percussion) lessons to students of varying skill and artistic levels.

179. Choral Techniques and Materials (2)
Prerequisites: passed piano proficiency; MUSIC 43, 119, 158B. Offered spring semester only. Principles, choral techniques, literature, and materials for use in vocal music programs in the public schools. (Expenses for off-campus visits will be incurred by student.)

179L. Choral Techniques Lab (1)
Prerequisites: passed piano proficiency. Piano skills necessary for music educators. Students learn to read opera scores at the piano, lead rehearsals from the piano, play vocal exercises for choirs, and increase sightreading ability. Concurrent enrollment in MUSIC 179 required.*CR/NC* grading only.

180. Children's Choirs: Techniques and Literature (3)
Prerequisite: MUSIC 155. Basic overview of materials, techniques, and procedures applicable to the choral experience at the elementary level. Topics include conducting for the elementary school choral director, vocal pedagogy for children, and a survey of appropriate choral literature.

182. Basic Arranging (3)
Prerequisites: MUSIC 1B, 43. Basic course in scoring and arranging for band, orchestra and choral ensembles. Ranges, transposition, technical capabilities of band and orchestra instruments and the voice. Emphasis on arranging for musicians typically found in elementary and secondary schools. Use of computer notation and sequencing programs. (Course fee, $15)

183. Advanced Choral Arranging (3; max total 6; repeatable for credit)
Prerequisites: MUSIC 182, passed piano proficiency. Advanced course in scoring and arranging for various sizes and types of choral ensembles. Studies, in depth, composing and arranging in various choral idioms. Use of computer notation and sequencing programs. (Course fee, $15)

184. Advanced Instrumental Arranging (3; max total 6; repeatable for credit)
Prerequisite: MUSIC 182. Advanced course in scoring and arranging for band and orchestra instruments. Studies, in depth, problems of idiomatic writing for the instruments and sonorities. Use of computer notation and sequencing programs. (Course fee, $15)

185A. Lyric Diction I (2)
Prerequisite: MUSIC 41. For students who major or minor in vocal music. The study of the International Phonetic Alphabet and its application to singers' pronunciation of English, Italian, and Latin.

185B. Lyric Diction II (2)
Prerequisite: MUSIC 185A. For students who major or minor in vocal music. Singers' diction studies of French and German.

186. Arranging and Composing Using MIDI (3)
Prerequisite: MUSIC 182. Arranging and composing using MIDI sequencing. Students record and edit musical material in the MIDI/computer-based production facility. Finished works will be exported to music notation programs and recorded to digital audio media. Works will be performed in pubic concerts. (Formerly MUSIC 130T)

187. Pop Music: Jazz and Rock (3)
Survey of styles, trends, and the musical and cultural roots of pop music, jazz, and rock in the United States, Great Britain, and the West Indies. Guidelines for listening to and writing about music. G.E. Integration IC.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191. Readings in Music (1-3; max total 6)
Prerequisite: permission of instructor. In-depth readings and discussions in individual conferences; subjects to be selected by students and their advisers. May be preliminary research in connection with thesis topic. Approved for *SP* grading.

198. Senior Recital or Project (1 or 2)
Prerequisites: passed piano proficiency, senior standing, approval of major applied by music instructor or adviser. Preparation and presentation of a satisfactory senior recital or project.

GRADUATE COURSES

(See Course Numbering System.)

Music (MUSIC)

204. Graduate Music Theory Survey (3)
Prerequisite: graduate standing. Required of all M.A. candidates in music. A comprehensive survey of the disciplines of harmony, counterpoint, and analysis, with respect to the music of the 18th through 20th centuries, with an emphasis on review and reinforcement. Topics include species counterpoint, figured bass, voice leading, principles of Schenkerian analysis, and basic atonal and twelve-tone theory.

210. Studies in Performance
(2; max total 6; repeatable for credit)
Open only to master's degree students majoring in performance or to other master's students by permission of instructor. Prerequisite: MUSIC 220 and permission of department chair. 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. Approved for *SP* grading.

211. Graduate Performance Ensemble
(2; max total 6; repeatable for credit)
Prerequisite: graduate standing or permission of instructor. Ensemble performance of instrumental or choral music with emphasis on historical and theoretical interpretation of advanced level literature. This course includes technical, stylistic, and aesthetic elements of musical literature, rehearsal, and public performance.

219T. Seminar in Music Education
(3; max total 9 if no course repeated)
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)
Bibliography, sources, and research techniques necessary for graduate study in music. Individual projects and research; satisfies graduate writing requirement. Required of all students working for the master's degree in music.

221. Foundations
of Music Education (3)
Prerequisite: MUSIC 220. Historical, curricular, and philosophical foundations of music education. Research in learning theories, teaching strategies, and concept development. Evaluation of contemporary trends and techniques in methodology.

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. Approved for *SP* grading.

240T. Advanced Topics in Music
Theory (3; repeatable for credit)
Prerequisite: MUSIC 204. Advanced analytical study of specific composers, genres, styles, and diverse approaches to music theory.

258T. Topical Seminars in
Conducting (1-3; max 6)
Prerequisite: MUSIC 158A or 158B. Advanced studies in selected topics related to conducting. Projects with particular attention to rehearsal techniques, score preparation, and interpretation.

259T. Topical Seminars in
Vocal Music (1-3; max 6)
The study of advanced level song literature, song interpretation, and performance practice as applied to standard and special vocal repertoire.

260T. Topical Seminars in
Music History (3; max 9)
Prerequisite: MUSIC 220. Current methods, resources, and issues in music history, with application to specific topics focusing on major Western composers, major genres, landmark works or repertories, issues in musical aesthetics and criticism.

267. Seminar in
Contemporary Music (3)
Prerequisite: MUSIC 220. Critical and analytical study of the sources, selected works, and composers of the 20th century, with particular emphasis on avant-garde movements and schools. A term paper will be a central requirement for successful completion of this course.

269T. Topical Seminars in
Instrumental Music (1-3; max 6)
The study of advanced level instrumental literature, score interpretation, and performance practices as they apply to standard and special instrumental literature.

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.

279T. Topical Seminars in
Choral Music (1-3; max 6)
The study of advanced level choral literature, performance practices, interpretation, and rehearsal techniques pertinent to various choral ensembles.

290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

291. Readings in Music
(1-3; repeatable for credit)
Prerequisite: permission of instructor. Readings in depth and discussions in individual conferences; subject to be selected by students and their advisers. May be preliminary research in connection with thesis topic. Approved for *SP* grading.

298. Project (3)
See *Criteria for Thesis and Project*. Completion of an approved project appropriate to the candidate's area of specialization. To be used in place of MUSIC 299 for majors in performance, composition, and as an option for majors in music education. The graduate recital, for performance majors, will consist of an approved program containing at least one hour of music. Approved for *SP* grading.

299. Thesis (3)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSES

(See Course Numbering System.)

Music (MUSIC)

307. Musical Instrument Repair
(l; max total 3)
Maximum total credit 3 units, provided instrumental groups are not repeated. Criteria for selection; techniques for care and repair of music instruments. Instrumental grouping: brass and percussion; woodwind and strings; piano.

309T. Workshop: Vocational
and Avocational Music Topics
(1-3; max total 6)
Topics such as New State Music Textbooks, Elementary School Classroom Instruments, Folk Music and Dancing, Piano Teachers' Workshop, Brass Music, Creative Approaches to Classroom Music, Exploring Sound and Music.

Philosophy

College of Arts and Humanities

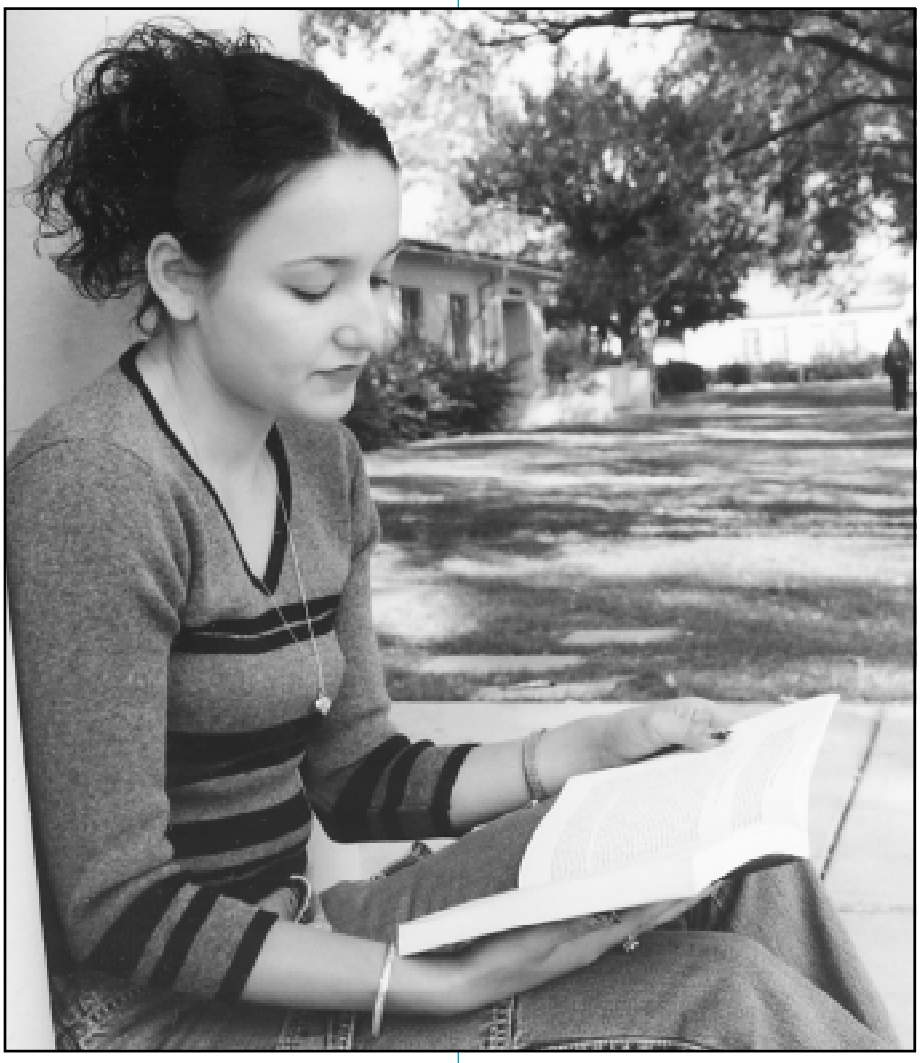
Department of Philosophy
Robert D. Maldonado, *Chair*
Music Building, Room 102
(559) 278-2621

B.A. in Philosophy
Options:
- Prelaw
- Religious Studies

Minor in Philosophy

The Department

Philosophy is one of the fundamental domains of human thought. It grows out of basic life questions, including questions of ethics, religion, politics, and science. The study of philosophy has had an historic role in the core of sound education, because it helps sharpen skills of careful, independent thinking and aids people of all ages in defining their most important values and beliefs. The examination of great philosophical ideas, and the emphasis on clear reasoning and personal development that are involved in philosophy serve as a strong foundation for life, regardless of one's career objectives.



The Department of Philosophy offers students the following opportunities for a rich and rewarding undergraduate experience: the traditional B.A. philosophy major, the prelaw option, the religious studies option, and the philosophy minor. The department provides ample opportunity for individual attention and student participation in its activities, e.g., Philosophy Club, symposia, colloquium, etc.

The Prelaw Option emphasizes analytical skills, ethics, and values courses. Law schools seek a broad general education background and do not recommend any specific major. Students who enjoy philosophy and are interested in law should find this option an excellent way to combine their interests.

The Religious Studies Option offers objective methods for exploring the vast and complex human experience known as religion. This study is done with an appreciation for the variety and diversity of religious beliefs and expressions. This option provides students with an academic approach to religion in personal, social, historical, and global contexts.

Faculty and Facilities

The department has a diverse and well-trained faculty with special interests ranging from logic and scientific method to existentialism and philosophy of religion. All members of the department share the conviction that the best way to teach philosophy is through an intense but sympathetic interchange between the teacher and the student. Our conference room is a pleasant and frequently used meeting place for students and faculty.

Career Opportunities

The undergraduate major provides an excellent foundation for a variety of professional careers as well as for graduate study in philosophy. Students who complete a major in philosophy develop analytical, critical, and communicative skills which are demanded by law schools, seminaries, and training programs in government and business. Thus, graduating majors are often in a competitive position for occupations that at first glance are not obviously related to the study of philosophy. In fact, people who have majors or minors in philosophy can be found in almost all areas of endeavor, from medicine, law, and the ministry, to teaching, social work, and fine arts.

Faculty

Robert D. Maldonado, *Chair*
Terry R. Winant, *Adviser*
Karen Bell, *Prelaw Adviser*
Ann E. Berliner, *Religious Studies Adviser*
Pedro Amaral
Donald N. Blakeley
Otávio Bueno
Warren L. Kessler
James Slinger

Bachelor of Arts Degree Requirements

Philosophy Major

Students must select from the Philosophy Major, the Prelaw Option, or the Religious Studies Option.

	Units
Philosophy Major requirements	**32**
PHIL 25, 45 or 145	(3)
PHIL 101 and 103	(6)
Select 2: PHIL 105, 146, 150, 156, or 157	(6)
Select 1: PHIL 115 or 118	(3)
Select at least 2: PHIL 190 and/or 192	(3)
PHIL 170T	(3)
Approved philosophy electives	(8)
Prelaw Option requirements	**33**

The Prelaw Option emphasizes critical thinking and analytical skills, as well as ethics and issues related to law. It also includes a law-related intern experience. Law schools do not prefer any specific major, but emphasize critical thinking and general education. (See *Preprofessional Preparation*). Students with a strong interest in philosophy as well as law may find this option valuable. Depending upon the interests of the student, courses or minors in political science, business, criminology, and a variety of social sciences would be useful electives for the Prelaw Option.

PHIL 25 or 45	(3)
PHIL 101 or 103	(3)
PHIL 115 or 118	(3)
PHIL 120 or 122	(3)
PHIL 121 or 127	(3)
Select two: PHIL 146, 150, 156 or 157	(6)
PHIL 170T	(3)
PHIL 199	(3)
Electives: ANTH 119; CRIM 20; AF AM 146; B A 18, 120; PL SI 110, 111, 170, 171; COMM 105, 149, 163, or other approved courses	(6)
Religious Studies Option requirements	**32**

The department has prepared a special program for those who wish to engage in a combined study of philosophy and religion. This option emphasizes the comparative and ecumenical study of religion. Students with a general interest in religion might consider this option. Those who wish to pursue a religious vocation or do graduate work in religious studies will find it especially valuable.

PHIL 25, 45, or 145	(3)
PHIL 130, 131	(6)
PHIL 133W and/or 134	(3-7)
PHIL 136, 137, 138	(3-6)
PHIL 170T or 172T	(3)
Select one: PHIL 101, 103, 105, 107	(3)
Select one: HIST 103, 116, ANTH 116W or other approved courses outside the Philosophy Department	(3)
PHIL 190, 192, or approved philosophy electives	(3-4)
General Education	**51**
Electives and remaining degree requirements*	**40-47**
(see *Degree Requirements*); may be used toward a dual major or minor	
Total	**124**

* It is anticipated that the following courses within the department will also meet General Education requirements: PHIL 1, 2, 10, 20, 25, 31, 45, 110, 120, 132, 150.

Advising Notes

1. *CR/NC* grading is not permitted in courses used to fulfill the philosophy major requirements.
2. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
3. Students intending to pursue graduate study in philosophy, law, or religious studies should seek a faculty adviser's help in planning adequate preparation.
4. Visit the Philosophy Department office or your faculty adviser for the list of approved *T* classes for the major.

Philosophy Minor

The Minor in Philosophy consists of 15 units in philosophy, of which at least 9 units must be upper division.

COURSES

Philosophy (PHIL)

1. Introduction to Philosophy (3)
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. G.E. Breadth C2. (CAN PHIL 2)

2. Exploring Religious Meaning (3)
Introduction to exploration of the many dimensions of religions. Topics include tools and resources of the academic study of religion, the sacred/holy, symbolism, myth, ritual, religious origin, and destiny. G.E. Breadth C2.

10. Self, Religion, and Society (3)
Conceptions of human nature; nature and varieties of religion; personal and social implications and values of religion. G.E. Breadth C2.

20. Moral Questions (3)
Introduction to ethics and its place in human experience. Ethical theory; methods of reasoning about values. Typical issues include euthanasia, privacy, work ethics, sex, happiness, capital punishment, censorship, social justice, and environment. Non-Western perspectives; materials from arts and humanities (e.g., literature, film). G.E. Breadth C2.

25. Methods of Reasoning (3)
Principles and methods of good reasoning. Typical topics: identification of argument structure, development of skills in deductive and inductive reasoning, assessing observations and testimony reports, language and reasoning, common fallacies. (PHIL 25 and PHIL 45 cannot both be taken for credit.) G.E. Foundation A3.

26. Reasoning and Religion (3)
No credit if taken after PHIL 25, 27, or 45. An introduction to principles and methods of critical thinking utilizing as source material the claims, arguments, and theories of major Western and non-Western religious traditions.

27. Reasoning About Values (3)
No credit if taken after PHIL 25, 26, or 45. An introduction to principles and methods of critical thinking, utilizing as source material claims and arguments concerning values, ethics, social, and political issues.

31. World Faiths (3)
A survey of the major world religions, their historical development, and their aesthetical expression. Studies selections of primary texts. Emphasis is given to Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity, and Islam.

45. Introduction to Logic (3)
Basic concepts and methods of logic; development of skills in deductive and inductive reasoning, with emphasis on deduction. Elementary formal techniques for propositional logic; categorical logic, fallacies, and language. (PHIL 25 and PHIL 45 cannot both be taken for credit.) G.E. Foundation A3.

101. Ancient Philosophy (3)
Development of Western Philosophy from its beginning; the emergence of critical theory, doctrines, and schools of thought in Greek culture. Topics typically include: Presocratics, Sophists, Socrates, and the works of Plato and Aristotle.

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.

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, and Ayer.

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.

108. Roman Philosophy (3)
Study of major figures and schools of philosophy in the Roman world. Special emphasis upon Epicurean, Stoic, and Skeptic traditions, with consideration of other major contributions.

110. Feminist Philosophy (3)
Introduction to feminist approaches to philosophy and to specifically philosophical approaches to gender. Several philosophical issues will be explored at some depth. These might be drawn from the following areas: personal identity; values and society; political authority; knowledge and reality.

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.

118. Social and Political Theory (3)
Examination of traditional and contemporary theories of society and government. Analysis of basic concepts such as the common good, social contract, authority, justice, and natural rights.

120. Contemporary Conflicts of Morals (3)
(Same as A ETH 100.) Introduction to ethical theory and its application to contemporary moral problems. Discussion to include: business ethics, medical ethics, sexual morality, abortion, mercy killing; drugs, and alcohol; crime and punishment, civil disobedience, revolutionary violence, rights of women and minorities.

121. Ethics in Criminal Justice (3)
Philosophical issues concerning society's treatment of criminal behavior. Topics discussed include: morality and law; punishment or rehabilitation; safe vs. repressive society, and what types of deviant behavior should be regarded as criminal?

122. Introduction to Professional Ethics (3)
(Same as A ETH 101.) Survey of ethical issues and standards facing a range of professionals in their careers, including engineering, law, medicine, the media, science, agriculture, education, and business. Introduction to basic ethical theories and methods of reasoning about moral dilemmas.

125. Issues in Political Philosophy (3)
Not open to students who take PHIL 118. Examination of prominent political philosophies and contemporary issues of politics and public policy. Policy issues may include the scope and limits of government authority, the role of government in the economy, foreign policy, health care, education, agriculture, and the environment.

127. Philosophy of Law (3)
Nature and functions of law; methods of justifying legal systems; logic of legal reasoning; analysis of fundamental legal concepts.

129. Marxism (3)
Examination of basic ideas of Marx inherent in his writings and a consideration of later developments now called "Marxist."

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.

131. Comparative Religion (3)
Survey of the major religions of the world; their history and teachings with emphasis on Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity, and Islam.

132. Religion and the Margin (3)
Exploration of elements facing religious studies that have been historically moved from the center to the side (marginalized), such as women's experience, ethnicity, gender, and class. Focus will include how religion has both supported and resisted this move. G.E. Multicultural/International MI.

133W. Literature of the New Testament (3)
(Same as ENGL 115W.) Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement. Discussion and close written analyses of selected texts from the New Testament. Meets the upper-division writing skills requirement for graduation.

134. Literature of the Old Testament (4)
(Same as ENGL 116.) Discussion and written analyses of selected texts from the Hebrew Bible. Special attention to the sources and styles of biblical literary techniques.

135. Asian Religious Traditions (3)
A study of the major beliefs and values of the Asian religious traditions, including an examination of some of the classical texts central to Asian religions.

136. Buddhism (3)
Introduction to Buddhism. Life and teachings of Gautama Siddhartha Buddha; development of Buddhism after death or mahanirvana of the Buddha.

137. Hinduism (3)
Introduction to the development and ideas of Hinduism, including an examination of classical scriptural texts, e.g., Upanishads, Bhagavad-gita, as well as modern Hindu writings.

138. Chinese Thought (3)
Introduction to the development of major ideas and systems of thought in China; emphasis on Confucian, Taoist, and Chinese Buddhist traditions.

140. Advanced Reasoning Skills (3)
Development of skills in the analysis of arguments, thinking clearly, and reasoning well. Emphasis on problems and skills involving language (e.g., clarifying meaning, handling vagueness, handling verbal component of disputes), and on inductive inferences in everyday life.

145. Symbolic Logic (3)
(Similar to MATH 110; consult department.) Prerequisite: PHIL 25 or 45 or permission of instructor. Theory of deductive inference; includes propositional logic, predicate logic, relations, identity, definite description, nature of axiom systems.

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.

150. Foundations of Knowledge (3)
Prerequisite: satisfaction of G.E. Core/Foundation critical thinking requirement. Nature, sources, and limits of human knowledge; roles of perception, reason, testimony, and intuition in acquiring rational beliefs; e.g. science, mathematics, values, the arts, religion, social issues, psychological states. G.E. Integration IC.

151. Cognitive Science: Mind (3)
The interdisciplinary study of cognition and mind: cognition includes mental states and processes such as thinking, reasoning, remembering, language understanding and generation, visual perception, learning, consciousness, emotions, self-awareness, and our place in the world. G.E. Integration IC.

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.

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.

165T. Special Topics
(1-3; max total 9 if no topic repeated)
Topics of current or interdisciplinary interest or requiring special background.

170T. Seminar in Philosophical Issues
(1-4; max total 12 if no topic repeated)
Prerequisite: one upper-division philosophy course. Intensive investigation of selected problems, major figures, or a historical period in philosophy. Extensive writing and supervised research.

172T. Seminar in Religious Issues
(1-4; max total 12 if no topic repeated)
Prerequisite: one upper-division philosophy course. Intensive investigation of selected problems, major works, or specific traditions; may involve comparative perspective. Extensive writing and supervised research.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

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.

198. Applied Ethics Internship (3)
Prerequisite: junior standing, PHIL 120, 122, or applied ethics courses and permission of instructor. Workstudy experience in community service, with a focus on ethical analysis and understanding.

199. Fieldwork in Philosophy and Law (3)
Prerequisites: senior standing, permission of instructor. Practical community workstudy experience in legal or paralegal setting. Student works under sponsorship of a law firm or law-related agency, meets periodically with instructor, and submits a written report on relevant issues in ethics, jurisprudence, or philosophy.

Theatre Arts - Drama and Dance

College of Arts and Humanities

Department of Theatre Arts
Kathleen S. McKinley, *Chair*
Speech Arts Building, Room 33
(559) 278-3987

B.A. in Theatre Arts
Option: Dance

Minor in Theatre Arts
Dance
Drama

Single Subject Teaching Credential
English/Drama

Theatre Arts

The theatre arts major offers you the opportunity to develop you skills in acting, directing, dance performance, choreography, playwriting, children's theatre, technical production, scene design, costume design, lighting design, history, literature, and teaching. After completing our program, you will have the background that will enhance your ability to pursue either an advanced degree or a professional career.

Our professionally trained instructors will guide you through a program which is not only educational but fascinating. A major or minor in theatre or dance can be one of the more exciting times in your life because it will develop communication and performing skills that will aid you no matter what career you finally decide to pursue. If theatre is what you want, then the California State University, Fresno Theatre Arts Department is ready to serve you.

The Theatre Arts Department is an accredited institutional member of the National Association of Schools of Theatre (NAST) and holds memberships with the American Theatre in Higher Education, the California Educational Theatre Association, the California Alliance for Arts Education, and the United States Institute of Theatre Technology. The department regularly participates in the American College Theatre Festival (ACTF) and the American College Dance Festival (ACDF). Our students, faculty, and productions have been awarded many regional and national honors from both ACTF and ACDF.

Our national and international award-winning Theatre Arts Department offers you educational preparation in all aspects of theatre and dance. Besides having the opportunity of being guided by an extensive curriculum and production schedule of more than 10 plays and several dance concerts, you will have the opportunity to study with guest professionals who participate in our program on a regular basis.

At California State University, Fresno you have a variety of production organizations, each providing a different kind of experience. University Theatre produces five major productions a year, cast and crewed by students. The Experimental Theatre Company (ETC) and the University Dance Theatre (UDT) are student organizations that produce their own plays and dance concerts. The Black Theatre Contingent (BTC) presents productions speaking to the African American experience. Playwrights Theatre is dedicated to the production of original plays. Theatre for Young Audiences, as its name implies, produces plays for young people, two of which tour throughout the Valley. You also have the opportunity to work with our resident dance company, The Portable Dance Troupe. As you can see, we offer a variety of opportunities for you to develop and practice your art.

Facilities

At California State University, Fresno you have the opportunity to study and practice your art with an outstanding faculty in well-equipped theatres and production facilities. Our newly renovated theatre complex consists of a 370-seat proscenium theatre and a 190-seat arena theatre. We also have a 90-seat lab theatre. You will work closely with 14 faculty members who are current in their craft and professionally active in acting, directing, dance, design, and technical production. Playwriting is a specialty of several of our faculty; all have published and two have been awarded Schubert Fellowships. As you might imagine, we encourage the production of original plays at California State University, Fresno.

Career Opportunities

Professional theatre and dance are very competitive areas especially for performers. Nevertheless, our graduates have more than held their own as actors and dancers in the professional world. As designers, production specialists, and managers, our students have readily found career opportunities. The rapid expansion in home video entertainment promises even more opportunity in the field.

Graduates have also found successful careers in related fields such as radio and television, journalism, rock performances, and touring productions. Many graduates teach in high schools, community colleges, and universities. Several former students have found their theatre training as an asset in such careers as law, theology, and politics.

Faculty

Kathleen S. McKinley, *Chair*
Kim V. Morin, *Credential Adviser*

Jeanette P. Bryon
Dan Carrion
M. C. Drake
Thomas Whit Ellis
Edward F. EmanuEl
Ruth H. Griffin
Jeffrey C. Hunter
Ronald D. Johnson
Terry C. Miller
Bradley J. Myers

Bachelor of Arts Degree Requirements

Theatre Arts Major and Minor

The theatre arts major, dance option, and minors 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 follow a track of advanced courses specializing in the areas of Acting or Design/Technology, or students may opt for advanced courses covering a broad range of study by selecting the General track. Students may also pursue a teaching credential through the Single Subject Waiver Program in English/Drama. The Theatre Arts Program offers through the dance option intensive studies in dance performance, choreography, and theory. This option provides preparation for graduate studies or a professional career.

Theatre Arts Major — *Units*

Major requirements 53
(See *note 1*)
Core: DRAMA 10, 33, 34, 110, 139, 163, 185, 186 ..... (24)
Production: DRAMA 15 and/or DRAMA 115 ..... (8)
Concentration (select one) ..... (21)
Acting
DANCE 20, DRAMA 30, 35, 41, 132, 133 ..... (18)
Approved electives: DRAMA 15/115 and 89/189 excluded (See *note 2*) ..... (3)
Design/Technology
DRAMA 180A, 181A, 182A ..... (9)
Select 9 units from the following courses: DRAMA 41, 134A, 134B, 155, 157, 180B, 181B, 182B ..... (9)
Approved electives: DRAMA 15/115 and 89/189 excluded (See *note 2*) ..... (3)
General
Select 6 units from *each* of the following course groupings:
Group 1: DANCE 20, DRAMA 30, 35, 132, 133, 138B ..... (6)
Group 2: DRAMA 41, 134A, 134B, 136, 180A, 181A, 182A ... (6)
Group 3: DANCE 160, DRAMA 130, 131, 137, 138A, 140, 151, 188T ..... (6)
Approved electives: DRAMA 15/115 and 89/189 excluded (See *note 2*) ..... (3)
General Education 51
Electives and remaining degree requirements 20-26
(See *Degree Requirements*), may be used toward a dual major or minor
Total 124

Advising Notes

1. New majors must enroll in DRAMA 10 (fall) and acting concentration students must enroll in DANCE 20 (spring) during their first year in the program.
2. Students must meet with their adviser each semester for program approval.
3. *CR/NC* grading is not permitted in the theatre arts major.

Theatre Arts Major (Dance Option) — *Units*

Option requirements 48
DRAMA 33, 34, 134B or 181B or 182A ..... (9)
DANCE 20, 70, 160, 164, 166, 168, 171 ..... (20)
Production: DANCE 115 ..... (4)
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)
MUSIC 9 ..... (3)
General Education 51
Electives and remaining degree requirements* 25-31
(See *Degree Requirements*), may be used toward a dual major or minor
Total 124

*DANCE 70 may be applied to satisfy General Education, Area E.

Advising Notes

1. Special requirements: Students seeking the dance option are required to have competency in either DANCE 117 (Modern) or DANCE 158 (Ballet) for graduation.
2. A maximum of 12 units of dance technique courses (117, 155, 158) may be credited toward the minimum B.A. graduation requirement of 124 units.
3. *CR/NC* grading is not permitted in the dance major.

Theatre Arts Minor (Drama) — *Units*

DRAMA 10, 32 or 33, 34, 163 ..... **12**
DRAMA 15 and 115 ..... **2**
Approved electives (upper division) **6**
Total 20

Theatre Arts Minor (Dance) — *Units*

DANCE 20 ..... **3**
DANCE 117A, 117B, 117C, 158A, 158B, 158C **8**
DANCE 70, 164, 166, 168 ..... **11**
DANCE 115 ..... **1**
Total 23

Credential Program

Consult the theatre arts credential adviser concerning the required course of study for the Single Subject Waiver Program in English-Drama.

COURSES

Theatre Arts (DRAMA)

10. The Art of Theatre (3)
Fundamental knowledge and skills required for study in the Theatre Arts Program which includes the literary basis, technique, visual impact, and presentation of drama.

15. Dramatic Arts Laboratory
(1-2; max total 6)
(Same as DRAMA 115.) Group laboratory experience in presentation of major productions for public performance. Not available for *CR/NC* grading.

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. G.E. Breadth C1.

30. Voice and Speech
for Performance (3)
Open to theatre arts majors and minors only. Principles of voice and speech for stage performance including the International Phonetics Alphabet, breathing, relaxation, resonance, enunciation, articulation, pronunciation, projection, expressiveness, and vocal characterization. (CAN DRAM 6)

31. Fundamentals of
Voice and Articulation (3)
Open to nonmajors only. Principles of voice and articulation with demonstration in various aspects of oral communication.

32. Introduction to Acting (3)
Not open to theatre arts majors except dance option. Open to theatre arts minors. A study of the physiological, sociological, and psychological components of acting. Includes role-paying in daily life; characterization; text analysis; diverse cultural and generational perspectives; and relaxation, voice, and body techniques. G.E. Breadth E1.

33. Fundamentals of Acting (3)
Open to theatre arts majors and minors only. Nonmajors and minors, see DRAMA 32. Fundamental techniques and theories of acting; development of individual insight, skill, and discipline in the presentation of dramatic materials. (CAN DRAM 8)

34. Theatre Crafts (3)
Introduction to the crafts in technical theatre scene construction, scene painting, property selection, stage lighting, sound production; costume construction, and makeup; laboratory experience in preparing major plays for public performance.

35. Intermediate Acting (3)
Prerequisite: DRAMA 33. Intermediate studies in acting including text analysis, expansion of the actor's character range and audition techniques.

41. Makeup for Theatre
(3; max total 6)
Theory and practice of makeup for theatre; techniques for characterization, style, and technical processes. Emphasis on basic techniques; introduction to prosthetics. Preparing plays for major public performances. (Formerly DRAMA 135)

62. Theatre Today (3)
Not open to theatre arts majors. Perspectives on theatre, its origins, and contemporary forms. Explores theatre as an artistic medium for enhancing our understanding of human experience. Emphasis on the content, meaning, and entertainment value of drama in performance. G.E. Breadth C1.

77. Community Service — Theatre
(1-3; max total 6)
Directed field experience developing skills in theatre or dance through a performance or design project; projects may include work with community service or other nonprofit organizations, public schools, special events, and other projects approved by the faculty supervisor.

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: permission of instructor. Group projects in all phases of production in laboratory theatre.

110. Design for the Theatre (3)
Comprehensive study of design aesthetics and application of design to theatrical production, including scenery, costume, lighting, sound, and makeup. Laboratory application, material for major public performance.

115. Dramatic Arts Laboratory
(1-2; max total 9)
(See DRAMA 15.) Not available for *CR/NC* grading.

130. Screenwriting (3; max total 9)
Principles and techniques in the preparation and marketing of film scripts.

131. Fundamentals of Playwriting
(3; max total 9)
Exercises in plotting, characterization, exposition, and stage business, critical analysis, and revision of manuscripts.

132. Advanced Acting:
Period Styles (3; max total 6)
Prerequisite: DRAMA 35. A study of styles of acting ranging from Greek Tragedy to Theatre of the Absurd with special emphasis on playing Shakespeare. (Formerly DRAMA 133B)

133. Advanced Acting:
Scene Study (3; max total 6)
Prerequisite: DRAMA 35. Advanced techniques including script analysis, characterization, physicalization, and emotional commitment, developed through improvisation and scene study. (Formerly DRAMA 133A)

134A-B. Advanced
Theatre Craft (3-3)
Prerequisite: DRAMA 34. (A) Advanced training in scenic techniques and allied technology. Laboratory application to major public productions. (B) In-depth survey of each phase of the costume design and production process. Laboratory application to 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
(3; max total 6)
(Same as CTET 137.) Basic techniques for the use of dramatization in elementary education; sociodrama, dramatization of school subjects, creative dramatic play; simplified staging techniques.

138A-B. Children's Theatre
(3-3; 138B max total 6)
(A) Theory, practice, and applications of theatre for children and adolescents; children's plays are examined through reading, discussion, and scene study. (B) Prerequisite: permission of instructor. Theatre for Young Audiences Tour; experience touring children's theatre productions for 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. Experimental Techniques in Play Direction (3)
Experimental techniques of play direction: prerehearsal problems and procedures; structural analysis of plays, composition, picturization, pantomimic dramatization, movement, rhythm.

151. Stage and Production Management (3)
Principles and techniques of stage and production management as applied to professional, educational, and community theatre and applied media; production, audition, rehearsal process, and organization; technical and performance process and procedures; production personnel and cost management.

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.

164. 20th Century Drama (3)
Study of the plays of major 20th Century dramatists encompassing various nations and cultures, with emphasis on the contemporary scene. Also includes dramatic theory and analysis, and consideration of social and political issues reflected in these authors' works.

177. Community Service: Theatre Arts (1-3; max total 6)
Directed field experience developing skills in theatre or dance through a performance or design project; projects may include work with community service or other nonprofit organizations, public schools, special events, and other projects approved by the faculty supervisor.

178. Oral Studies of Shakespeare (3)
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. Costume History for Theatre (3)
A survey of historical periods of dress from early Egyptian civilizations to present day with an emphasis on application to stage usage.

181B. Costume Design for Theatre (3; max total 6)
Costume design for theatre and dance incorporating analysis of script, research of historical period, selection of fabric, preparation of budget, and rendering of plates. Emphasis on illustration and design elements.

182A-B. Stage and Television Lighting (3-3)
Prerequisite: DRAMA 34 or 134A-B. (A) Instruments, control, color, electromechanical 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.)

185. History of the Theatre and Drama I (3)
History of European theatre and component arts from ancient Greece through the mid-19th 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. (May include lab hours)

189. Projects in Production
(1-3; max total 9)
(See DRAMA 89.)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

194. Shakespeare (4)
(See ENGL 189.)

IN-SERVICE COURSE

(See Course Numbering System.)

Theatre Arts (DRAMA)

303. Topics in Theatre Arts
(1-3; max total 9; repeatable with different topics)
In-service training in selected areas of drama/theatre arts.

COURSES

Dance (DANCE)

A maximum of 12 units of dance technique courses (DANCE 16, 117, 155, 158), ATHL, and KAC courses may be credited toward the minimum B.A. graduation requirement of 124 units for dance majors.

16. Introduction to Dance (3)
Exploration of basic concepts, techniques and styles through study problems, video and critical readings. Dance concert attendance may be required. G.E. Breadth E1. (Formerly DANCE 116)

20. Physical Theatre (3)
Incorporates the study of body awareness techniques, contact improvisation, commedia dell' arte, clown work, and other physical theatre traditions in an active exploration of actor training and expression.

70. Balance BodyMind (3)
Study of the alignment of the body and continuum between inner, cellular awareness of body through space. Promotes greater ease in movement; reduced emotional stress; knowledge of the body as process. Nondancers encouraged to enroll. G.E. Breadth E1. (Formerly DANCE 170)

115. Dance Laboratory (1; max total 9)
Group laboratory experience in presentation of productions for public performance. Not available for *CR/NC* grading.

117A. Modern Dance Technique (1; max total 2)
Basic aspect of modern dance technique. Emphasis on importance of breath, body alignment, and rhythmic coordination; total movement awareness.

117B. Modern Dance Technique (1; max total 2)
Beginning-intermediate level study of movement fundamentals, locomotor activities, and expressive qualities; development of balance, strength, breath coordination, and technical ability.

117C. Modern Dance Technique (2; max total 6)
Intermediate level of modern dance technique; center practice and locomotor movement, stress on increased movement awareness through individual technical development and personal expression.

117D. Modern Dance Technique (2; max total 12)
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.

155A. Modern Jazz Dance (1)
Prerequisite: DANCE 16 or 158A. Rhythmic and stylistic devices of jazz and rock movement using modern dance technique as a movement foundation.

155B. Modern Jazz Technique (1)
An in-depth study of jazz dance techniques and different jazz idioms; emphasis on individual style, freedom of expression.

158A. Ballet Technique (1; max total 2)
Beginning level of ballet technique. Basic principles of turnout, plier, etentre, relever, sauter, tomber, tourner, muscular control, and balance. Partial barre work, port de bras, adagio, centre barre, petit allegro, and grand allegro.

158B. Ballet Technique (1; max total 2)
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.

158C. Ballet Technique (2; max total 12)
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)
Advanced level of ballet technique. Advanced practice and study of French, Russian, Italian, and Danish concepts and theories of technique.

158P. Ballet Pointe (1)
Prerequisite: permission of instructor. Advanced level of ballet technique and technical training for ballet pointe work. Advanced study of style and theory used for ballet pointe.

159. Music as Dance Accompaniment (3)
Study of Western Classical Music Theory and History as it relates to dance exposure to world music. Rhythmic analysis and 20th century approaches to music composition and dance. Development of dancer's percussive and vocal abilities.

160. Creative Movement for Children (3)
Introduction to the basic concepts, principles, and methodology needed to develop an awareness of the aesthetic experience through dance and creative movement. The aesthetic qualities of dance are stressed to develop the use of creative intelligence and imagination.

161. Musical Theatre (3)
Training of actors for musical auditions through fundamental voice and movement techniques, study of how music and lyrics combine to suggest character, and study of relationship of song, scene, and choreography in various styles.

163. Portable Dance Troupe Company Class (2; max total 8)
Prerequisite: permission of instructor. By audition only, held in fall semester and meets for two semesters. A repertory class consisting of rehearsing, understudying, and performing roles. This laboratory experience leads toward performances and touring.

164. Dance History (3)
The historical development of dance from its origins to contemporary forms including diverse cultural perspectives.

166. Dance Choreography (2; max total 16)
Choreography is approached through the exploration of resources, including improvisation, use, and development of ideas, knowledge of forms, and development of craft. Choreography will be presented in class and performed.

168. Awareness Through Movement (3)
An introduction to the Feldenkrais Method — movement sequences that create new movement skills in the individual. Designed to include movement and observation, analysis and the application of this work in the fields of education and performance.

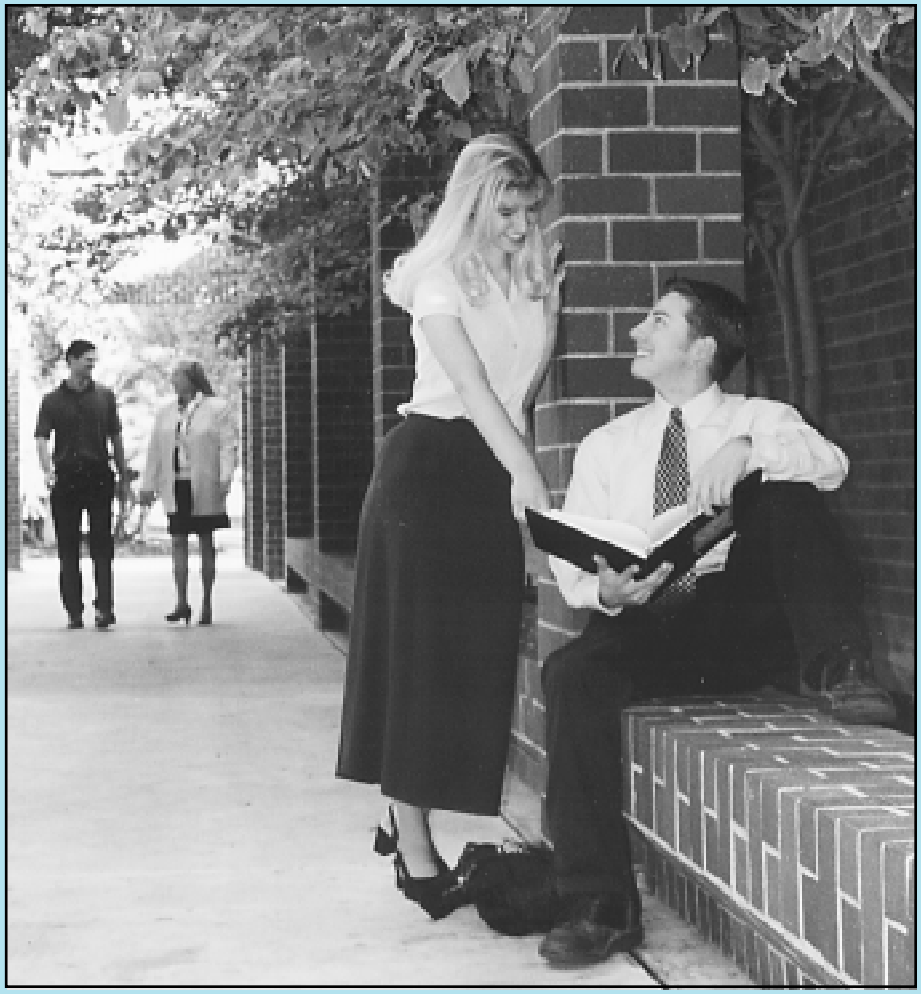
171. Philosophical Bases and Trends in Dance (3)
The elements and principles common to all arts and their relationship to dance. G.E. Integration IC.

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.

The Sid Craig School of Business

Peters Building, Room 282, (559) 278-2482
Fred J. Evans, *Dean;* Karen Dill Bowerman, *Associate Dean*
http://www.craig.csufresno.edu



The Sid Craig School of Business includes the departments of Accountancy, Finance and Business Law, Information Systems and Decision Sciences, Management, Marketing and Logistics, Aerospace Studies, and Military Science. Degree programs are the Master of Business Administration and the Bachelor of Science in Business Administration. Undergraduate students select one of 10 different areas of specialization, or options.

The Mission of the School

The mission of the Sid Craig School of Business (CSB) is to prepare students for meaningful careers in the regional, national, and global business environments, and to serve the Central California business community as a resource center. The mission implies:

- Undergraduate and graduate programs are of high quality. Programs emphasize critical thinking, quantitative reasoning, interpersonal and communication skills, life-long learning, and ethical behavior. They also provide an integrated understanding of business theory and practice, as well as knowledge of applicable technologies.
- The diversity of faculty and programs serves students with varied heritage, backgrounds, and interests.
- Teaching excellence is founded on a broad range of intellectual contributions that advance and disseminate knowledge. Especially appropriate are applied business research and instructional development activities.
- Service is given to the business community — ranging from professional development, continuing education, and consulting activities to participation in decision-making of businesses, not-for-profit organizations, and government agencies.

Accreditation

The B.S. in Business Administration was first accredited in 1959 by the premiere accrediting agency, the International Association for Management Education (AACSB). The B.S. was the third accredited business program in California, following UC Berkeley and UCLA and is one of only 370 accredited business programs in the U.S. The M.B.A. was accredited in 1974. Many subsequent accreditation reviews have found CSB in compliance with the demanding standards.

Advising

CSB operates an advising center, Undergraduate Student Services, located in Peters Building, Room 185. Business students are encouraged to have annual advising sessions to assist in evaluations and graduation requirements. Flow charts are available for each of the ten options to help students plan their academic program and to ensure that courses are taken in correct sequence.

A mentoring program matches students with a faculty member in their field who will assist with career or graduate study information.

Personal Computer Requirement

In addition to using the computers offered for open lab usage by CSB, each business student should follow the university's personal computer requirement. See the *Schedule of Courses* or visit *http://www.csufresno.edu/ait/Access95.htm*.

Scholarships

Incoming freshmen may apply by early January for the prestigious Craig Scholars or Fresno Merchants Scholars programs through the CSB dean's office. Selection is based on academic indicators of high school GPA and SAT or ACT scores, as well as leadership and service. Contact the CSB dean's office or visit *http://www.craig.csufresno.edu/scholarship.htm*.

In addition, CSB offers 67 scholarships for business students through the university's Scholarship Office, (559) 278-6572. The filing deadline is in mid-November. Consult *http://studentaffairs.csufresno.edu/financial_aid/scholarship.htm*.

DEGREE PROGRAMS

Master of Business Administration (M.B.A.)

The Craig School of Business offers one graduate degree, the Master of Business Administration. The program broadly prepares students in essential business concepts and their application to managerial problems. Elective area courses provide advanced preparation in special areas of professional practice. (See page 230).

Bachelor of Science (B.S.) Options

The CSB offers one undergraduate degree, the Bachelor of Science in Business Administration. All students select *one* of the 10 different areas of specialization, called options. These options are as follows:

- Accountancy Option (Department of Accountancy) - see page 208.
- Entrepreneurship Option (Department of Management) - see page 222.
- Finance Option (Department of Finance and Business Law) - see page 213.
- Human Resource Management Option (Department of Management) - see page 222.
- Information Systems Option (Department of Information Systems and Decision Sciences) - see page 218.
- International Business Option (Department of Finance and Business Law) - see page 213.
- Legal Environment of Business Option (Department of Finance and Business Law) - see page 213.
- Management Option (Department of Management) - see page 222.
- Marketing Option (Department of Marketing and Logistics) - see page 226.
- Real Estate and Urban Land Economics Option (Department of Finance and Business Law) - see page 213.

The following information (up to "Additional Programs"*) pertains only to the B.S. degree.*

Pre-Business Policy and Admission to Upper-Division Standing

All business students entering California State University, Fresno are considered pre-business majors and are coded as such. In order to select an option in business and enroll in 100-level business courses, pre-business students must:

a. complete the following courses or their equivalents with a grade of *C* or better in each course: ACCT 4A, 4B; B A 18; CSB 50; DS 71, 73; ECON 40 (or AG EC 1) and ECON 50; ENGL 1; and IS 50
b. have a cumulative grade point average of at least 2.0, and
c. submit an option form to formally declare an option in business. Students may obtain this form from the Craig School of Business Undergraduate Student Services Office, Peters Building, Room 185.

Students may apply for an option in the semester during which they will complete all work needed for enrollment qualification in 100-level business courses. Approval will be contingent upon satisfactory fulfillment of the lower-division course prerequisites and the GPA standard.

Transfer students, and those changing majors, will need to have their transcripts screened to see if they will receive equivalent credit for the aforementioned prerequisite courses. Transfer students must send a complete set of transcripts (official or unofficial) or grade reports of all college-level study to the Undergraduate Student Services Office, 5245 N. Backer Ave., M/S PB7, Fresno, CA 93740-8001. Transfer students from another region need to have a copy of the catalog(s) and course syllabi from the different colleges they attended. Upon receipt of these materials, transfer students' records will be evaluated. Notification of business course credit will then be sent by mail.

Students who are ready to enroll in 100-level upper-division courses, but who lack one or two of the pre-business courses, should contact the Undergraduate Student Services Office in PB 185 for further information.

Writing Requirements

Every upper-division business course has writing requirements, and the quality of the writing is used in determining grades in the course. Completion of the upper-division writing skills requirement (successful completion of IS 105W or ENGL 160W) is required in the first semester in which 100-level business courses are taken.

English Proficiency Requirement

Successful completion (grade of *C* or better) of ENGL 1 or its equivalent is a prerequisite to enrollment in upper-division business courses. Failure to successfully complete ENGL 1 by the time a student has completed 30 units at California State University, Fresno shall subject the student to administrative/academic probation and possible subsequent disqualification.

International (foreign) students who wish to declare business administration as a major must achieve a minimum score of 500 on the Test of English as a Foreign Language (TOEFL) examination.

Required Residency in CSB

In order to earn a B.S. in Business Administration at California State University, Fresno, students must complete at least 50 percent of the required business units in the Craig School of Business.

Statement on Prerequisites

Business administration majors must meet all prerequisites for business courses. Students registering for a course for which they have not completed the listed prerequisites will be administratively dropped. Exceptions to this policy must be approved by the appropriate department chair.

Grading

CR/NC grading is not permitted in the major with the exception of business courses numbered 193 and 195, and CSB 50.

ADDITIONAL PROGRAMS

Business Minors

General Business Minor	*Units*
ACCT 4A	**3**
Elect two courses from: B A 18; DS 73; FIN 120; IS 130; MGT 104, 106, 110; MKTG 100	**6-8**
Elect upper-division courses from not more than two fields: ACCT, B A, DS, FIN, HRM, IS, MGT, MKTG	**11**
Total	**20-22**

Entrepreneurship Minor	*Units*
MGT 81; MGT 110, 153	**12**
Electives: ENTR 155, 157; FIN 131; MKTG 134 or courses approved by the entrepreneurship coordinator	**6**
Total	**18**

Note: No course taken for the business minors can be graded on a *CR/NC* basis except for courses with mandatory *CR/NC* grading. A minimum of a 2.0 GPA is required for all units counted for the business minor.

Certificate Programs

Specialized certificate programs are offered in several fields within the Craig School of Business.

- Certificate in Business Information Systems (Department of Information Systems and Decision Sciences) - page 218
- Certificate in Entrepreneurship (Department of Management) - page 223
- Certificate in Finance (Department of Finance and Business Law) - page 214
- Certificate in Human Resource Management (Department of Management) - page 223
- Certificate in Organizational Management (Department of Management) - page 223

In addition, a Certificate in Network Administration is offered for students in the Information Systems option who have a strong interest in computer network environments (see page 218.) Also, students in the Marketing Option have an opportunity to earn a Certificate in Mass Communications and Journalism (see page 226).

Business Teacher Education Program

The Craig School offers a single subject business credential to teach in departmentalized classrooms typically found in middle school and senior high school settings. Information on this fifth year program may be obtained from business teacher education adviser Richard Lacy. See also pages 252-253.

Honors Program

Students with a GPA of 3.5 or higher may apply for the Craig School honors program in the fall semester of their junior year. The honors program is a three-semester program that provides the student with an opportunity for additional study and intellectual growth beyond the major and option requirements. It is designed to challenge the intellectually advanced student, provide a research foundation for advanced study or employment, and to recognize students who have shown exceptional ability. Students interested in the CSB Honors Program should contact the CSB Honors Program director in Peters Building, Room 185. For course descriptions, see this page.

Internships

Many of our students participate in the school's award-winning Internship Partners Program. Internships provide students with an opportunity to gain valuable practical experience while earning academic credit. Internships are available in all academic majors with businesses, nonprofit organizations, and government agencies. Students interested in internships should contact the Internships and Career Planning coordinator in Peters Building, Room 185.

Complete career development and placement services are available through Career Services, (559) 278-2381.

International Business Programs

Students can apply for the "Join the World" International Study Program in designated international partnership universities and use the credits they earn to satisfy their degree requirements at California State University, Fresno. The exchange opportunity is open to any regularly enrolled Fresno State student. In addition, CSB participates extensively in the university's many international exchange programs. For further information, contact the International Business Programs Office in Peters Building, Room 528, (559) 278-4653.

COURSES

Craig School of Business (CSB)

50. Introduction to the Craig School of Business (1)
Introduction to business careers, career development, educational options, and opportunities provided by the Craig School of Business. Emphasis on CSB requirements, resources, and expectations. Presentation of topics by faculty, staff, alumni, and business executives. *CR/NC* grading only. (Formerly B A 50)

184. Junior Honors Seminar (3)
Prerequisite: acceptance into the Craig Honors Program. Survey of the business disciplines and their application to business problems. Empirical, applied, and theoretical background for business research. Current issues and methods for solving business problems. Business research methodology, ethical considerations in designing research. Literature review and written proposal required for honors thesis. (Formerly MGT 156)

185. Senior Honors Seminar I (2)
Prerequisite: acceptance into the Craig Honors Program and completion of CSB 186. Analysis of business research and the application to business problems. Special emphasis on strategic management. Data analysis, applying to graduate schools, and conducting a job search. Lectures by faculty and business leaders. Fall of senior year. (Formerly MGT 186A)

186. Senior Honors Seminar II (2)
Prerequisite: CSB 185. Analysis of business research and the application to business problems. Special emphasis on strategic management. Editing and revising manuscripts, preparing papers for publication, designing conference posters, and delivering professional presentations. Spring of senior year. (Formerly MGT 186B)

Accountancy

The Sid Craig School of Business

Department of Accountancy
Robert M. Harper, *Chair*
Debbie L. Koehler, *Department Administrative Assistant*
Peters Business Building, Room 284
(559) 278-2852
FAX: (559)278-4911
http://www.craig.csufresno.edu/dprtmnt/acct/

B.S. in Business Administration
Option: Accountancy

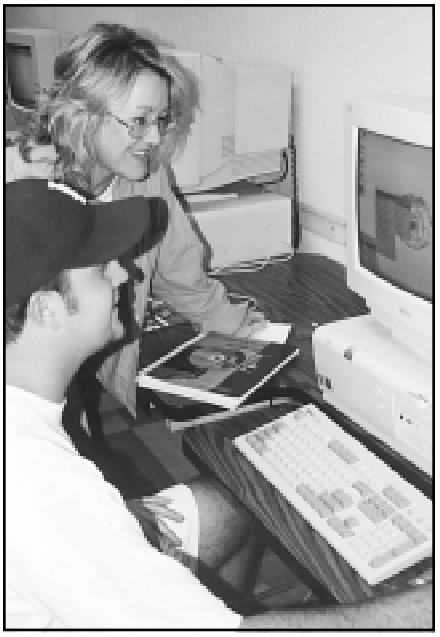
The Department

The Department of Accountancy offers an option in accounting within the Bachelor of Science in the Business Administration degree program. This option is designed to be broad enough to provide preparation for a career in public, industrial, or governmental accounting. The accounting topics of tax, information systems, managerial, and financial accounting are covered in sufficient depth to prepare the student for the exams for Certified Public Accountant (CPA), Certificate in Management Accounting, or Certificate in Internal Auditing.

Career Opportunities

A wide variety of professional business opportunities are available to graduates of the Department of Accountancy. The accountancy option prepares students for challenging and rewarding careers in all areas of accounting. Alumni of the Department of Accountancy are found in leadership positions locally, in other areas of California, and throughout the United States. Many of our graduates are currently partners in public accounting firms, officers in corporations, executives in governmental agencies, and successful entrepreneurs.

Stephanie Yamamura, a 1993 graduate of the department and recipient of the Dean's Medal, was honored by the American Institute of Certified Public Accountants (AICPA) with the Elijah Watt Sells Award. Each year, the AICPA presents this award to CPA candidates who attain the highest grades when taking all four sections of the Uniform Certified Public Accountant Examination at one time. Many of our students pass the entire CPA exam on the first sitting. In conjunction with the department, the University Business Center (located within the school) offers a CPA Review Course twice a year. This course is designed to meet the needs of the serious CPA candidate and covers thoroughly all exam areas: practice, theory, auditing, and business law.



To find out more about career opportunities, students should consult with the faculty in the department. In addition, students with career-related questions are encouraged to contact the Office of Career Services. Services include career counseling by career information specialists and professional assistance to students and graduates seeking full-time or part-time positions.

Faculty

The faculty of the Department of Accountancy is comprised of individuals of varied academic and business experience backgrounds. They are specialists in the areas of financial accounting, taxation, cost accounting, auditing, and accounting information systems. Their accumulation of academic preparation and business experience qualifies them to teach both the theoretical and practical applications of accounting.

Robert M. Harper, *Chair*
Dennis M. Baker
Rosita S. Chen
Patricia L. Huff
Garo Kalfayan
John P. Osborn
Sheng-Der Pan
Denise Patterson
Ali A. Peyvandi
Benjamin Y. Tai

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Sid Craig School of Business who are working toward the bachelor of science degree in business administration must complete, in addition to the university's General Education requirements, a ten-course group of pre-business courses, seven courses of upper-division core, and 23 to 32 units in an area of specialization or option. The pre-business classes include material considered essential for further study in business. The upper-division core classes provide a broad background and a breadth of knowledge and understanding. The option courses enable the student to specialize in a specific area of business and to prepare for effective performance in future employment.

	Units
Pre-Business requirements*	**20**
ACCT 4A, 4B; B A 18; CSB 50; DS 71, 73; ECON 40 or AG EC 1, ECON 50, ENGL 1, IS 50 (See *Pre-Business Policy*, page 206.)	
Upper-division core requirements	**27**
DS 123; FIN 120; IS 130; MGT 110 or 104-106, 124, 187; MKTG 100 (See *Statement on Prerequisites*, page 207.)	
Accountancy Option	**31-32**
Required courses	(12)
ACCT 120A, 120B, 132	
Electives	(19-20)
Select five courses from the following: ACCT 144, 145, 146, 148, 162, 165, 167, 189T; B A 150	
General Education requirements	**51**
Upper-division writing skills requirement	**3-4**
Business majors must select either IS 105W or ENGL 160W (See *Writing Requirements*, page 206.) *Note:* the Upper-Division Writing Exam is not an option for business administration majors.	
Electives	**0**
Total	**132-134**

*DS 71, ECON 50, and ENGL 1 are used to satisfy General Education requirements.

COURSES

Accountancy (ACCT)

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 record-keeping procedures.

4A. Financial Accounting Principles and Systems (3)
Not open to freshmen. Financial accounting; accounting statements, transaction analysis, and data accumulation; partnership and corporation accounting. (CAN BUS 2)

4B. Managerial Accounting Principles and Systems (3)
Not open to freshmen. 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. (CAN BUS 4)

120A. Intermediate Accounting I (4)
Prerequisite: ACCT 4A; DS 71 or equivalent recommended. ACCT 4B and 120A may be taken concurrently. Preparation and analysis of balance sheet and income statements; basic accounting theory and conceptual framework underlying financial accounting; theory of current and fixed assets; theory of current and noncurrent liabilities; and a review of applicable authoritative pronouncements.

120B. Intermediate Accounting II (4)
Prerequisite: ACCT 120A; DS 71 or equivalent recommended. An in-depth study of principles, procedures, and reporting requirements in financial accounting as applied to corporate entities; investments; revenue recognition; income tax allocation; pensions; leases; inflation accounting; error correction and principle changes; and cash flow. Special attention is given to authoritative pronouncements.

132. Cost Accounting (4)
Prerequisites: ACCT 4A and 4B. DS 71 or equivalent and IS 50 recommended. Industrial cost accounting; general principles of product costing, standard costing, differential costing; master budgeting, flexible budgeting, and capital budgeting; emphasis on the three functions of management - decision making, planning, and control. (3 lecture, 2 lab hours)

144. Tax Accounting and Planning (4)
Prerequisite: ACCT 4A. Federal income taxation, research, and planning affecting individuals.

145. Tax Research and Tax Accounting for Corporations and Partnerships (4)
Prerequisite: ACCT 144. Methods of tax research using the sources of tax law. Applications of research to tax planning, litigation, administration of a tax practice, and professional responsibilities. Effect of income tax laws on partnerships, corporations, estates, and trusts; estate and gift taxes.

146. Accounting Information Systems and Controls (4)
Prerequisites: ACCT 4A and 4B. Design of systems for the collection, organization, and reporting of accounting information. Theory and practice of flowcharting, evaluation of internal accounting controls in computer systems environments, and interrelationships of people, procedures, and equipment. (3 lecture, 2 lab hours)

148. Accounting for Governmental and Nonprofit Organizations (4)
Prerequisites: ACCT 120A, 132. Concepts, principles, and problems of accounting for governmental and nonprofit organizations. Budgeting, fund accounting, cost/benefit analysis, cash planning and control, and independent auditing are introduced in the context of making decisions in governmental and nonprofit organizations.

162. Auditing (4)
Prerequisites: ACCT 120A, 120B. 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.

165. International Accounting (4)
Prerequisites: ACCT 4A and 4B. Accounting concepts, principles, and methods for multinational corporations. Currency for translation of financial statements, financial reporting, international accounting and auditing standards, and the managerial aspects of multinational transactions.

167. Advanced Accounting Problems (4)
Prerequisite: ACCT 120B. Partnership, corporation, governmental, and institutional accounting.

189T. Topics in Accounting and Auditing (1-4; max total 8 if no topic repeated)
Prerequisites: 18 units of accounting. Specialized study in a particular area of professional accountancy: accounting theory, auditing, accounting information systems, contemporary developments in financial and managerial accounting, and the practice of accountancy.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of internship coordinator. Requires 150 hours of work at a pre-qualified, academically-related work station (business, government or nonprofit agency). As a course substitution, prior department approval required. Only one internship may count towards option requirements. *CR/NC* grading only.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Aerospace Studies

The Sid Craig School of Business

Department of Aerospace Studies
Lt. Col. James Harper, *Chair*
North Gym, Room 158
(559) 278-2593, (559) 278-7080
FAX: (559) 278-5245
e-mail: james_harper@csufresno.edu
http://www.csufresno.edu/afrotc/

Air Force Reserve Officer Training Corps (AFROTC)

Minor in Aerospace Studies

The Department

The Air Force Reserve Officer Training Corps Program is a college-based program open to men and women. Under this program the Air Force pays the full tuition for scholarship winners and provides a monthly stipend of $200. Other incentive programs are available to pay $200 per month and cost of tuition up to $1,500 per semester, plus a book allowance.

The primary goal of AFROTC is to provide students with the opportunity for well-paying, challenging and rewarding positions as commissioned Air Force officers and leaders after graduation.

The few years of service will provide young officers with leadership experience that will be invaluable for either an Air Force or civilian career.

Two routes for an Air Force commission are available to college students in Air Force ROTC. Entering students may enroll in the four-year program, while students with at least two academic years remaining in college may apply for the two-year program.

The Air Force ROTC education program provides professional preparation for future Air Force officers. It is designed to develop men and women who can apply their education to their initial active duty assignments as Air Force commissioned officers. In order to receive a commission, an Air Force ROTC cadet must complete all requirements for a degree in accordance with university guidelines as well as completing certain courses specified by the Air Force.

Air Force ROTC courses are taken for academic credit as part of a student's electives. The two major phases of the curriculum are the General Military Course (GMC) and the Professional Officer Course (POC). The first two years of the Air Force ROTC Program may be completed at California State University, Fresno if you are enrolled in one of the local junior colleges and plan to transfer to the university at the beginning of your junior year. In the Aerospace Studies program, all books, supplies, and uniforms are furnished at no cost to the student.

Air Force ROTC scholarships are available to qualified applicants in both the four- and two-year program. Each scholarship provides full tuition, laboratory and incidental fees, and a semester allowance for curriculum-required textbooks. In addition, scholarship cadets receive a nontaxable $200 subsistence each month during the school year. All two-year program cadets, regardless of scholarship status, receive $200 per month, and may be eligible to receive the cost of tuition (up to $1,500 per semester) and a book allowance.

Other scholarship programs are available to fill critical Air Force requirements. Additional money through express and incentive programs is available as well as the one-year commissioning program. Contact the unit admissions officer for the latest information.

Aerospace Studies Minor

A Minor in Aerospace Studies consists of satisfactory completion of the AFROTC program (16 upper-division units).

Career Outlook

Although flying is the primary mission of the Air Force, it is not the only job that has to be done. Today, since science and technology are a large part of the national defense, the Air Force needs the best scientists and engineers the nation can produce. It also needs other professional men and women with a broad range of knowledge and skills.

Most young officers who enter the Air Force today do not expect to be pilots or astronauts. They want to be part of the large research and development program of the vast support organization that keeps our country strong and progressive. Exciting job opportunities exist in a broad range of Air Force specialties.

In addition to the recurring need for pilots, the Air Force also needs personnel to work in navigation, missile operations, engineering, mathematics, physics, computer science, and in the support fields of personnel, administration, logistics, finance, education, security police, health, and others. In the years ahead, Air Force ROTC will continue to concentrate on preparing men and women to assume important and responsible positions of leadership in the modern Air Force.

Faculty

Lt. Col. James Harper, *Chair*
Major Michael R. Best
Captain Steven D. Tribble

Advisers:
Master Sgt. Richard J. Wasrud

Faculty and Facilities

The teaching staff in the Department of Aerospace Studies is composed of highly educated and experienced Air Force officers who are selected for their professional experience, academic background, and instructor qualifications. These officers attend the Air University's Academic Instructor School, the "teacher's college of the Air Force," and all have at least a master's degree.

General Military Course (GMC)

To be eligible for the GMC you must:

1. be a full-time college student
2. be age 14 or older
3. be of good moral character
4. meet the academic standards for admission to California State University, Fresno

Professional Officer Course (POC)

To be eligible for the POC you 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 and pass the Air Force Officer Qualifying Test;
5. (a) For pilot and navigator: be not more than 29 years of age at date of commissioning;

   (b) For all other categories: be not more than 30 years of age (35 years for those with prior military service) at date of commissioning;
6. be a full-time student according to the rules of California State University, Fresno; and
7. be approved for AFROTC training by the professor of aerospace studies.

COURSES

Aerospace Studies (A SP)

1A, 1B. The Air Force Today (1, 1)
Corequisite: A SP 3 Leadership Laboratory (one unit) if student desires an Air Force Commission. The Air Force in the contemporary world. Focuses on the organizational structure and missions of Air Force organizations; officership and professionalism; and includes an introduction to communication skills.

2A, 2B. The Evolution of USAF Air and Space Power (1, 1)
Corequisite: A SP 3 Leadership Laboratory (one unit) if student desires an Air Force Commission. Focuses on factors contributing to the development of air power from its earliest beginnings to the space-age global positioning systems of the Gulf war; the evolution of air power concepts and doctrine; and an assessment of communication skills.

3. Leadership Laboratory (1; max total 6)
Open to students who are members of the Reserve Officer Training Corps or are eligible to pursue a commission as determined by the professor of aerospace studies. Course must be taken each semester of the General Military Course (GMC). A study of Air Force customs and courtesies, issuing military commands, instructing, directing and evaluating the preceding skills, studying the environment of an Air Force officer and learning about areas of opportunity available to commissioned officers. *CR/NC* grading only.

5. Drill and Ceremony Fundamentals (1)
The elements of military drill, individual and group precision movements, development of command voice; technical, stylistic and aesthetic aspects of creative drill maneuvers; encompasses both rehearsal and public performance.

25. Air Force ROTC Field Training (3)
Taken during summer preceding entry into POC. Five-week field training provides leadership and officership training in a military environment which demands conformity to high physical and moral standards. Within this structured environment cadets are screened for officer potential as measured against field training standards. Motivation and professional development is achieved through various programs such as flight orientation, marksmanship and survival training. The Air Force provides meals, housing, pay, and travel to and from base.

103C. Air Force ROTC Field Training (3)
For those completed GMC and prior-service cadets. Four weeks of training taken during the summer preceding entry into POC. Field training provides leadership and officership training in a military environment which demands conformity to high physical and moral standards. Within this structured environment cadets are screened for officer potential as measured against field training standards. Motivation and professional development is achieved through various programs such as flight orientation, marksmanship and survival training. The Air Force provides meals, housing, pay, and travel to and from base.

104A, 104B. Air Force Management and Leadership (3, 3)
Corequisite: A SP 113 Leadership Laboratory (one unit) if student desires an Air Force Commission. A study of leadership and management fundamentals, leadership responsibilities, ethics, and communicative skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied.

105A, 105B. American Defense Policy (3, 3; max total 6)
A SP 105B is not open to students with credit in A SP 105BW. Corequisite: A SP 113 (one unit) if student desires an Air Force Commission. An examination of the needs for national security; an analysis of the evolution of the American defense strategy and policy; aerospace doctrine; overview of alliances and regional security, arms control, and terrorism. Special topics of interest focus on the military as a profession, officership, and the military justice system, and current issues affecting military professionalism. Within this structure, continued emphasis is given to developing communication skills. (Formerly A SP 105AW-BW)

105AW/BW. American Defense Policy (3)
Not open to students with credit in A SP 105A/B. Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement. Corequisite: A SP 113 (one unit) if student desires an Air Force Commission. An examination of the needs for national security; an analysis of the evolution of the American defense strategy and policy; aerospace doctrine; overview of alliances and regional security, arms control, and terrorism. Special topics of interest focus on the military as a profession, officership, and the military justice system, and current issues affecting military professionalism. Within this structure, continued emphasis is given to developing communication skills. Meets the upper-division writing skills requirement for graduation. (See note below.) (Formerly A SP 105BW)

113. Leadership Laboratory (1; max total 6)
Prerequisite: A SP 25 or equivalent military training. Must be taken each semester of the Professional Officer Course (POC). Activities classified as advanced leadership experiences. They involve the planning and controlling of the military activities of the cadet corps, the preparation and presentation of briefings and other oral and written communications, and the providing of interviews, guidance, and information which will increase the understanding, motivation, and performance of other cadets. *CR/NC* grading only.

Note: to meet the California State University, Fresno upper-division writing requirement, students must complete four semesters of aerospace studies curriculum consisting of A SP 104A/B and A SP 105A/B. In addition, during one semester, the 105A/B course must have the writing requirement (i.e. it must be 105AW or 105BW).

Finance and Business Law

The Sid Craig School of Business

Department of Finance and Business Law
K. C. Chen, *Chair*
Karen Linville, *Department Administrative Assistant*
Peters Business Building, Room 285
(559) 278-2341
FAX: (559) 278-4911
http://www.craig.csufresno.edu

B.S. in Business Administration
Options:
Finance
International Business
Legal Environment of Business
Real Estate and Urban Land Economics

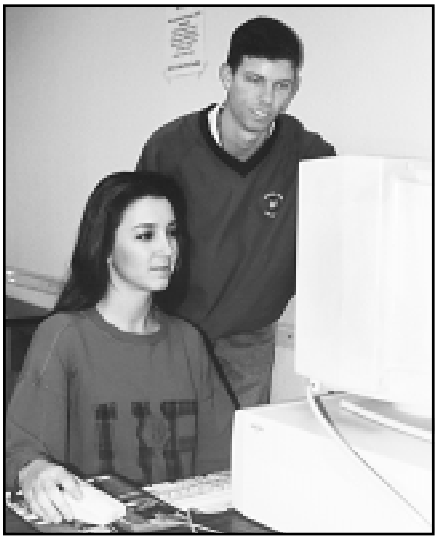
Certificate in Finance

The Department

The Department of Finance and Business Law offers four options (areas of emphasis) within the Bachelor of Science in the Business Administration degree program.

The Finance Option stresses the financial structure of businesses through a common set of courses and specialized courses directed at various applications. It consists of two tracks — *General Finance* and *Financial Planning*. The *General Finance* track is designed to provide students with the basic skills required to plan, supervise, and control the financial activities of business organizations. These include understanding the trade-off between risk and return, the time value of money, and the magnifying effect of leverage. Students specializing in the *General Finance* track gain the skills related to evaluating the financial needs of a business, obtaining the funds required by the firm, and using these funds in such a way that the company's goals are met.

Career opportunities in finance include, but are not limited to, the following: (1) corporate finance — financial analyst, financial planning, project finance; (2) portfolio management — security analyst, stock broker, investment banker, portfolio manager; and (3) banking and financial institutions — commercial and residential loan officers, trust officer, marketing officer.



The *Financial Planning* track offers students the opportunity to broaden their knowledge and understanding of financial services so as to improve their ability to make effective decisions in financial planning and to facilitate career development in this area.

The financial planning curriculum covers course titles such as investments, estate planning, individual income tax, retirement planning, risk management, insurance, and finance. Financial planners, working independently or as employees, advise individuals with regard to the management of all aspects of their personal finances — budgeting, taxes, investments, real estate, insurance, and retirement and estate planning. Financial planners also develop a comprehensive financial plan that meets individual objectives.

The International Business Option introduces students to the fastest growing part of business today. The information and communications revolution — and declining travel costs — have made all businesses aware of global markets. The option stresses the role of global communications and the growth of entrepreneurial opportunities in worldwide markets, with special attention to California and the markets of the Pacific Rim.

The Legal Environment of Business Option provides an excellent background for business people who will spend a considerable amount of their time resolving business-related, legal and regulatory problems. Those obtaining a legal environment option will be able to adjust and adapt to a variety of career paths. These include working in law office management and in a number of business departments, including public affairs, government relations, trust, and finance. Depending upon the elective coursework chosen, this option may prepare students for careers in underwriting, pension or benefits planning, arbitration or other forms of alternative dispute resolution, and other business areas requiring a familiarity with legal principles and processes. Many nonlawyers find a broad knowledge of law extremely helpful in their business careers. As a result, this option can be recommended for all business majors.

The Real Estate and Urban Land Economics Option provides the background for a wide range of career opportunities in addition to residential and commercial real estate sales. These areas include development, lending, banking, appraising, escrow, property management, and construction. Usually students who enroll in the real estate option will complete all courses necessary to take the California Brokers License Examination.

Faculty

The faculty is comprised of more than 20 full-time and part-time individuals who have outstanding reputations in both business and education. All full-time members of the department have earned an appropriate doctoral degree and many of them have gained national reputations for their scholarship. The faculty is extremely active in research and textbook writing as well as active in working with the business community. A wide range of approaches are used in teaching the many different courses offered by the department. These include computer simulations, team projects, community projects, laboratory research, group discussions, collaborative work groups, case studies, internships, and foreign studies programs. The broad background of the faculty and their strong commitment to business education assures students of a challenging and rewarding course of study.

K. C. Chen, *Chair*
Tom Doyel
Lynn M. Forsythe
James M. Highsmith
Amir A. Jassim
Ida M. Jones
Deborah J. Kemp
Barry P. Laiss
Paul M. Lange
J. David Reitzel
Manuchehr Shahrokhi
Kuo-cheng Tseng
Alan Rufus Waters
Rassoul Yazdipour

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Sid Craig School of Business who are working toward the Bachelor of Science in Business Administration must complete, in addition to the university's General Education requirements, a ten-course group of pre-business courses, seven courses of upper-division core, and 23 to 32 units in an area of specialization or option. The pre-business classes include material considered essential for further study in business. The upper-division core classes provide a broad background and a breadth of knowledge and understanding. The option courses enable the student to specialize in a specific area of business and to prepare for effective performance in future employment.

	Units
Pre-Business requirements** ACCT 4A, 4B; B A 18; CSB 50; DS 71, 73; ECON 40 or AG EC 1, ECON 50, ENGL 1, IS 50 (See *Pre-Business Policy*, page 206.)	**20**
Upper-division core requirements DS 123; FIN 120; IS 130; MGT 110 or 104-106, 124, 187; MKTG 100 (See *Statement on Prerequisites*, page 207.)	**27**
Option requirements The Department of Finance and Business Law offers four options. (See options next two columns.)	**24-28**
General Education requirements	**51**
Upper-division writing skills requirement Business majors must select either IS 105W or ENGL 160W (See Writing *Requirements*, page 206.) *Note:* the Upper-Division Writing Exam is not an option for business administration majors.	**3-4**
Electives	**0**
Total	**125-130**

Options

The four options available to students are outlined in the copy that follows. The completion of 24-28 units as required by the options, the pre-business requirements, the upper-division business core, the General Education requirements, special course requirements, and the electives, which may include a minor, total the 125-130 units required for the Bachelor of Science in Business Administration.

Finance Option	*Units*
Track (select one)	**27-28**
General Finance Track	(28)
FIN 121, 122, 123, 128, 139; B A 178	(19)
Elect 3 from FIN 131, 133, 138; B A 100, 150	(9)
Financial Planning Track	(27-28)
FIN 128*, 143*	(6)
Elect 7 from FIN 122, 131, 133, 138, 144*, 146*, 150*; B A 160*, 178; ACCT 144*	(21-22)
Total	**27-28**

* These courses have been accepted by the Certified Financial Planner Board of Standards for continuing education credits.

** DS 71, ECON 50, and ENGL 1 are expected to satisfy General Education requirements.

International Business Option	*Units*
B A 174, 175, 176	**9**
Elect 3 from ACCT 165; B A 177, 178; MKTG 140; and MGT 131	**9**
Electives Select three upper-division courses outside the Craig School of Business which can be justified as contributing to global cultural awareness. Introductory language courses and courses used for a second major are not accepted. Electives must be approved in advance by the coordinator of the International Business Option, in consultation with the department chair.	**9**
Total	**27**

The Language Requirement. English is the required language of the International Business Option. Every student is also required to demonstrate to the coordinator, by a note from a faculty member of the Department of Foreign Languages and Literatures or by special test, a working commercial knowledge of a second language. The second language is chosen by the student and approved by the coordinator of the program.

The International Business Association (IBA). While not a university requirement, membership in IBA is strongly encouraged. More than a student club, IBA is the vehicle by which students acquire the personal international network they will need for a successful career in international business. IBA also sponsors field trips and invites current practitioners in international business to speak and interact with students in the program.

Legal Environment of Business Option	*Units*
B A 150, 151, 155	**9**
Elect 2 from B A 101, 154, 156, 160, 177; HRM 157	**6**
Elect from approved upper-division courses in accountancy, business administration (including international business), finance, human resource management, management, marketing, logistics, decision sciences, and information systems	**9**
Total	**24**

Real Estate and Urban Land Economics Option	*Units*
B A 100, 154	6
FIN 122, 180, 181, 182, 183	15
Elect 1 from FIN 123, 185	3-4
Total	**24-25**

Requirements for Certificate Program

Before entering the program, students will need to demonstrate that they have foundation knowledge of business practices and possess good writing skills. Prior approval of the certificate program coordinator or the department chair is required. Students need to meet one of the following criteria:

1. be currently admitted to California State University, Fresno,
2. have a bachelor's degree in any field from an accredited institution, or
3. have an Associate of Arts degree from a two-year accredited college and a minimum of two years of business experience.

Certificate in Finance	*Units*
FIN 120, 128; B A 178	**10**
Elective courses	**9-10**
FIN 121, 122, 123, 131, 133, 138, 139	
Total	**19-20**

COURSES

Business Administration (B A)

18. Business and the Legal Environment (4)
Prerequisite: sophomore standing. Introduction to legal system; relation of ethics to law; administrative, criminal, tort, and labor law; and legal aspects of international trade. A more extensive study of the law of contracts and agency. Case studies; discussion and analysis.

88. Public Law Environment of Business (1)
Required of students seeking transfer credit for a 3-unit business law course in lieu of B A 18. Not open to students who completed B A 18 at California State University, Fresno. Relationship of ethics to law. Administrative law and government regulation framework, labor and employment law framework, and legal aspects of international trade.

100. Business and Real Estate Economics (3)
Prerequisites: ECON 40, 50. Applications of economic principles in business and real estate management; measure of profit, analysis of demand, cost analysis; price, wage, and public policies; case studies, analysis.

101. Business Ethics (3)
Traditional and contemporary ethical principles and their historic context and relevance to business practice. Identifying the ethical beliefs and values of self and others. Examining contemporary business problems from an ethical perspective. Not open to students who have completed A ETH 102A.

104. Global Business (3)
Studies globalization of business; role of trade, investment liberalization, and economic integration; technology; multinational enterprises. Examines influence of cultural, social, economic, political, geographic, philosophical, and environmental forces on individual and institutional competitiveness at regional, national and global levels; appropriate strategies. G.E. Multicultural/International MI.*

120. Business and Society (3)
Examination of dynamic societal pressures affecting business. Review of governmental, public and labor pressures on business in a changing environment; business' impact upon various segments of society. Ethical principles and their relationship to business.

150. Law and Business Activity (3)
Prerequisite: B A 18. Examination of the law of bailments, shipments, sales, commercial paper, and secured transactions. Nature of property; and the relation of the legal, ethical, and regulatory environment to commercial transactions. Case studies; discussion and analysis.

151. Law of Business Organizations (3)
Prerequisite: B A 18. Sole proprietorships, partnerships, limited partnerships, and corporations; advantages and limitations; social responsibilities. Effect of form on taxation and liability. Includes securities regulation, bankruptcy and insurance. Case studies; discussion and analysis.

154. Real Estate Law (3)
Meets California statutory course requirement for real estate broker's license. Prerequisite: B A 18. Legal aspects of acquisition and ownership of real estate; conveyances, mortgages, evidences of title; planning and zoning.

155. Government Regulation and Control of Business (3)
Prerequisite: B A 18. Government and social control of private enterprise, including examination of capitalism, private property, administrative law and process, antitrust law, and development of public policy through regulation and deregulation. Case studies; discussion and analysis.

156. Labor Law (3)
Prerequisites: ECON 40, 50; B A 18, MGT 104, 106 recommended. Law of industrial relations; historical and current principles for legal settlement of labor-management disputes; statutes, court decisions, administrative rulings; case studies; individual presentations.

160. Estate Planning (3)
The federal and state systems for regulating and taxing property transfers during lifetime and upon death including the policy and theory underlying the system and practical problems involved in applying estate and gift tax laws.

174. Introduction to International Business (3)
Prerequisite: for business majors, FIN 120; for others, permission of instructor. Competing in global markets. Accommodating to differing cultural, legal, and political systems. Role of start-up and medium-sized firms, importing, exporting, international contracts, and investment, multi-country production and distribution. Forecasting and compensating for changing government policies, market conditions affecting profitability.

175. Tools and Techniques of International Business (3)
Prerequisite: B A 174 or permission of instructor, and FIN 120. Organizing international operations, entering foreign markets using global communications, finding business connections and potential imports or exports. Selling abroad, government support services, pricing, shipping, documentation, taxes, duties, quotas, trade licenses. International personnel strategies, accounting systems, travel, international business control.

176. The International Business Environment (3)
Prerequisite: B A 174 or permission of instructor. Evolution of international business. Political regimes, economic success and failure, identifying prosperity, picking winners. Dealing with changing cultures, variations within cultures. Doing business in unstable regions. Implications of global downsizing. Trading blocks and their effects. Forecasting and international business opportunities.

177. Legal Environment of World Commerce (3)
Prerequisites: B A 18; junior standing; B A 150 recommended. Seminar on international sales, documents, credits, dispute resolution; trade law, including GATT/WTO customs, tariff laws; regulatory ethical environment of international marketplace, intellectual property transfers, political risk, exploitation of labor and environment. (Formerly B A 189T section)

* With advance approval, business majors may use this course to meet some option electives, but not to meet G.E. requirements.

178. International Finance (3)
Prerequisite: FIN 120. Evolution of international monetary system; balance of payment accounting; foreign exchange; forecasting exchange rates; management of foreign exchange risk; political risk analysis; foreign direct investment; international money and capital markets; Eurocurrency markets; international banking; international monetary and banking organizations.

189T. Topics in
Business Administration
(1-3; max total 9 if no topic repeated)
Studies in business administration.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of internship coordinator. Requires 150 hours of work at a pre-qualified, academically-related work station (business, government or nonprofit agency). Reflective journal, final report, and work station evaluation. As a course substitution, prior department approval required. Only one internship may count towards option requirements. *CR/NC* grading only.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Finance (FIN)

30. Personal Financial Planning (3)
Personal financial analysis, planning, and management for lifelong decision making. Topics include financial planning strategies; money and credit management; home ownership; home, health, and auto insurance needs; savings and investment strategies; and retirement and estate planning. G.E. Breadth E1.

120. Principles of Finance (4)
Prerequisites: ACCT 4A; DS 71; IS 105W or ENGL 160W (IS or ENGL course may be taken concurrently). Introduction to corporate financial management, investments, and financial institutions. Focus on financial policy, analysis, and valuation in a global environment. Topics include capital markets, risk and return, financial planning, capital budgeting, cost of capital, and working capital management. (3 lecture, 2 lab hours)

121. Intermediate
Financial Management (3)
Prerequisite: FIN 120. Modern theories of corporate finance; financial decision making under uncertainty; efficient allocation of financial resources; advanced financial planning and control strategies.

122. Financial Institutions
and Financial Markets (3)
Prerequisite: FIN 120. Role of the Federal Reserve in monetary policy; interaction of fiscal and monetary policy; analysis of depository and nondepository financial institutions; regulatory issues in financial markets; public policy toward financial institutions.

123. Business Forecasting (4)
Prerequisite: FIN 120; DS 123. 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, computer lab. (3 lecture, 2 lab hours)

128. Security Analysis (3)
Prerequisite: FIN 120. Analysis of securities markets; debt and equity instruments; options and futures; fundamental analysis; technical analysis.

131. Entrepreneurial Finance (3)
Prerequisite: FIN 120. Using financial and entrepreneurial perspectives to make better decisions at each stage of the entrepreneurial process, from identification of opportunity to harvest. Issues: venture capital markets, deal structuring, valuations, later stage financing, going public and other harvesting methods.

133. Futures Markets (3)
Prerequisite: FIN 120. Use of futures contracts as speculative investments and as hedging devices to reduce risk in securities portfolios and in domestic and international business operations. Topics: financial futures, commodity futures, futures markets, fundamental and technical analyses, hedging strategies.

138. Portfolio Management and Theory (3)
Prerequisite: FIN 120, 128. Methods of determining the most desirable group of securities to build in an investment portfolio; portfolio performance evaluation; managing and hedging risk; program trading and portfolio insurance.

139. Financial Management (3)
Prerequisite: senior level standing. Finance majors must have completed (or take concurrently) all other required courses in the Finance Option. Nonfinance majors need permission of the instructor. Integration of analysis and policy for business organizations; decisions under uncertainty; analyzing and solving cases.

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.

146. Risk Management (3)
Property, liability, and personnel pure-loss exposures. Risk management programs effectively treating the costs of pure risk, including loss control and loss financing techniques. Analysis of various types of commercial property and liability insurance contracts.

150. Financial Counseling (3)
Prerequisite: permission of instructor. The concept of a total coordinated system of personal financial planning; evaluate existing programs, design improved plans and coordinate execution to achieve stated objectives. Includes data gathering, the psychology of financial counseling, and the counselor's fiduciary responsibilities. Case studies.

The broad background of the faculty and their strong commitment to business education assure students of a challenging and rewarding course of study.

180. Real Estate Principles (3)
Meets California statutory course requirement for real estate salesperson's and broker's license. Theory and practice of urban land use. Location and legal dimensions, planning, and market processes; financial and investment decisions in real estate; computer analysis and case studies.

181. Real Estate Appraisal (3)
Prerequisite: FIN 120; FIN 180 or permission of instructor. Theory and determinants of real property value. Methods used in urban and rural property appraisals. Statistical techniques and the appraisal process; special purpose appraisals. Fieldwork required.

182. Real Estate Practices (3)
Meets California statutory course requirement for real estate broker's license. Relationship between public and private organizations active in real estate; company formation; selling and marketing techniques; financing; advertising; aspects of taxation; escrow procedure; property insurance; computer analysis and case studies.

183. Real Estate Finance (3)
Prerequisite: FIN 120; FIN 180 or permission of instructor. Characteristics and underwriting standards of institutions furnishing funds for real estate investment and development. Alternative financial instruments and their effect on property economics and value.

185. Housing Market Analysis (3)
Prerequisite: junior standing. Analysis of local and regional housing markets and submarkets; availability of market data; primary versus secondary data; design of data collecting instruments; interviewing techniques and interviewer bias; data analysis and presentation of findings; field studies required.

189T. Topics in Finance
(1-3; max total 9 if no topic repeated)
Studies in business including agricultural economics, business economics, legal environment of business, international business, finance, financial services, risk and insurance, and real estate.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of internship coordinator. Requires 150 hours of work at a pre-qualified, academically-related work station (business, government or nonprofit agency). Reflective journal, final report, and work station evaluation. As a course substitution, prior department approval required. Only one internship may count towards option requirements. *CR/NC* grading only.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Information Systems and Decision Sciences

The Department

Computer and information systems are at the forefront of most courses offered in the department. Every course deals with the use of information by managers in support of their decision-making roles. Those interested in specializing in the Information Systems option can choose from a broad set of courses designed to prepare one for a challenging and productive job in one of the fastest growing career paths.

The Information Systems Option provides students with knowledge, skills, and modern tools in the area of information technology. Students will learn about the strategic role of information systems in business decision making and how to solve management problems in all functional areas of business by implementing computer technology. Included are courses in end-user computing, data communication, network administration, database systems, decision support systems, expert systems, Web-page design, programming, and systems analysis and design.

The IS specialist is able to take on jobs such as network administrator in a firm using local area networks. This career path emphasizes management skills needed in a technical area and requires knowledge in hardware evaluation and acquisition.

As an end-user support technician, IS graduates can also gain employment helping others use the computer to get their jobs done. The IS professional knows how to get the most from personal productivity software, such as word processors, as well as how to design and implement systems.

Students skilled in both traditional and newer computer languages will find jobs as systems analysts who develop the larger systems that drive most business enterprises. Using a database orientation, these graduates use fourth-generation language development skills to provide speedy and effective solutions to business problems.

The Certificate in Business Information Systems is directed toward enhancing the knowledge of candidates for entry level data processing related positions. After candidates have demonstrated that they have met prerequisites for the certificate program, the approval of the program coordinator or of the department chair must be obtained before students may enter the program. Each student's individually designed program consists of a five-course sequence chosen with the approval of the certificate program coordinator.

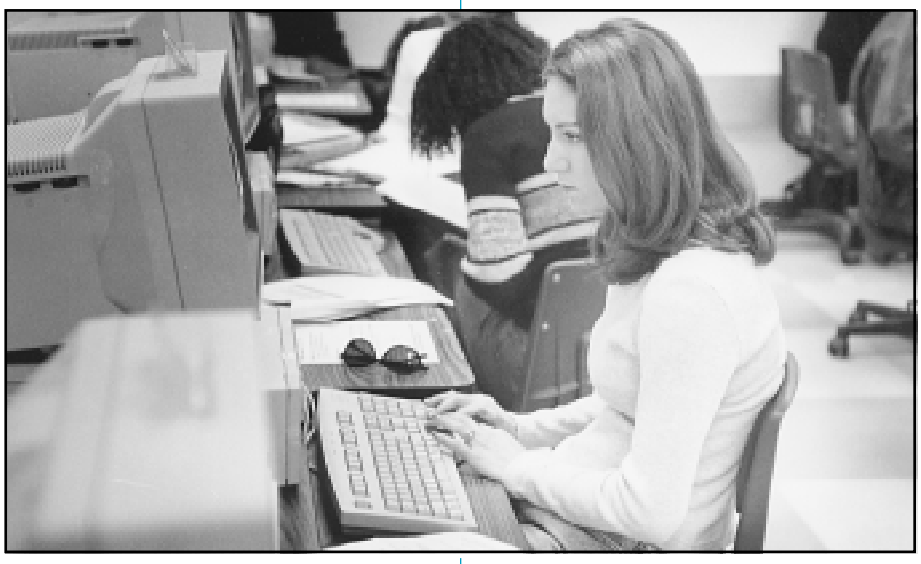
The Certificate in Network Administration is designed to enhance knowledge, practical experience, and employability of graduates in the computer network environment. Candidates must meet prerequisites for the certificate program and be approved by the program coordinator or the department chair. The program, designed individually for each student, consists of a five course sequence. It includes an internship and must be approved by the program coordinator.

Statistical and Computer Laboratories

In addition to the classroom instruction, guest speakers, and field trips, students who study in the Information Systems and Decision Sciences Department are exposed to modern computer laboratories for the quantitative, computer, and business communication classes throughout the semester. The computer laboratories provide the student with the valuable opportunity of hands-on computer experience for such classes as computer programming and statistical analysis. Seven laboratory rooms with over 185 microcomputers are the busiest rooms in the Leon S. Peters Business Building.

Faculty

The Department of Information Systems and Decision Sciences employs more than 20 full-time and part-time faculty with extensive expertise in systems analysis, systems design, computer language programming, statistics, networking, telecommunications, word processing systems, office automation, business communication, and database systems. These faculty come from all over the world and have Ph.D. degrees from major American and foreign universities. The modern computer and statistics laboratories offer students a unique opportunity to become acquainted with the developments in the field of computer technology and applications.



The Sid Craig School of Business

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B.S. in Business Administration
Option: Information Systems

Certificate in Business Information Systems

Certificate in Network Administration

Faculty

Charlotte J. Hiatt, *Chair*

Randy J. Anderson
Donald L. Beringson
Kelly J. Black
Priscilla M. Chaffe-Stengel
Harry Costis
Mostafa Elhag
Myron E. Hatcher
Charlotte J. Hiatt
Richard C. Lacy
Patricia A. LaRosa
Wallace C. Liu
William S. Mallios
Kathleen E. Moffitt
Arlene A. Motz
Sasan Rahmatian
Peter Simis
Rafael Solis
Donald N. Stengel
Tomasz R. Wielicki

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Sid Craig School of Business who are working toward the bachelor of science degree in business administration must complete, in addition to the university's General Education requirements, a ten-course group of pre-business courses, seven courses of upper-division core, and 23 to 32 units in an area of specialization or option. The pre-business classes include material considered essential for further study in business. The upper-division course classes provide a broad background and a breadth of knowledge and understanding. The option courses enable the students to specialize in a specific area of business and to prepare for effective performance in future employment.

Units

Pre-Business requirements* 20
ACCT 4A, 4B; B A 18; CSB 50; DS 71, 73; ECON 40 or AG EC 1; ECON 50; ENGL 1; IS 50
(See *Pre-Business Policy*, page 206.)

Upper-division core requirements 27
DS 123; FIN 120; IS 130; MGT 110 or 104-106, 124, 187; MKTG 100
(See *Statement on Prerequisites*, page 207.)

Information Systems Option 24
IS core ..... (15)
IS 51, 150, 158, 162, 166
Electives ..... (9)
Approved electives
Elect from ACCT 146; IS 151, 156T, 164, 168, 181, 188, 189T, 190, 195; MGT 126 or any other approved upper-division IS elective.

General Education requirements 51

Upper-division writing skills requirement 3-4
Business majors must select either IS 105W or ENGL 160W (See Writing *Requirements*, page 206.)
Note: the Upper-Division Writing Exam is not an option for business administration majors.

Electives 0

Total 125-126

*DS 71, ECON 50, and ENGL 1 are used to satisfy General Education requirements.

Requirements for Certificate Programs

Before entering either of the programs, students will need to demonstrate that they have completed at least 6 units of elementary accounting and are conversant in computer concepts (equivalent to IS 50 at the minimum). Approval of the certificate program coordinator or the department chair is necessary.

Certificate in Business Information Systems

Students also need to meet either one of the following criteria:

1. a bachelor's degree in any field from an accredited institution or
2. an Associate of Arts degree from a two-year accredited college and a minimum of two years of business experience.

Units

Required Courses 12
IS 150, 158, 162, 166

Elective Courses 3
Select a minimum of 3 units from:
IS 151, 156T, 164, 168, 190, 195

Certificate in Network Administration

Students have to be IS majors with a strong interest in computer network environment and be eligible to enroll into the Craig School of Business internship program.

Units

Required Courses 12
IS 162, 181, 190, 195 (network related internship)

Elective Courses 3
Select a minimum of 3 units from:
IS 151, 156T, 164, 168, 188

COURSES

Decision Sciences (DS)

71. Quantitative Analysis I (3)
Prerequisite: students must take the ELM exam; students who do not pass the exam must record a grade of *C* or better in a college-taught intermediate algebra course. Quantitative formulation and solution of problems in various disciplines, including mathematics of finance, linear programming, probability, and differential calculus. G.E. Foundation B4.

73. Statistical Analysis I (3)
Prerequisites: ELM exam, DS 71 or equivalent; ECON 40, 50 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.

123. Statistical Analysis II (3)
Prerequisites: DS 71, 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, nonparametric methods, Bayesian decision theory. (May include computer lab hours) (Formerly DS 173)

189T. Topics in Decision Sciences (1-3; max total 6 if no topic repeated)
Prerequisites: 12 units in decision sciences. Theory or application of statistics or operations research applied to current developments.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of internship coordinator. Requires 150 hours of work at a prequalified, academically-related work station (business, government, or nonprofit agency.) Reflective journal, final report, and work station evaluation. *CR/NC* grading only. As a course substitution, prior department approval required. Only one internship may count towards option requirements.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Information Systems (IS)

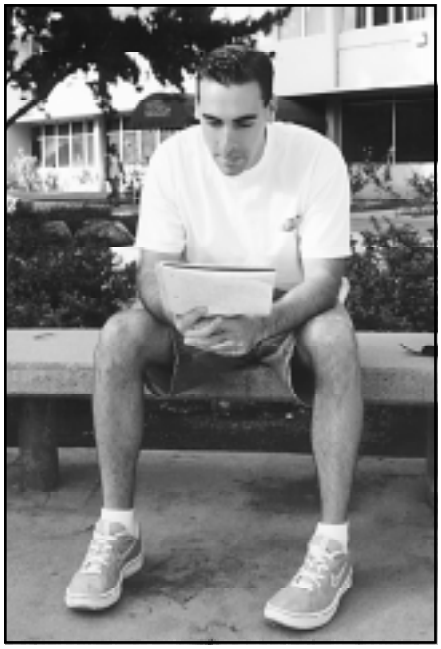
1A. Office Applications — Word Processing (1)
Elementary concepts and practice in computer applications for the modern office. Five-week block. Current software in place includes Microsoft Word, Excel, and Access. (2 lab hours)

1B. Office Applications — Spreadsheet (1)
See IS 1A.

1C. Office Applications — Database (1)
See IS 1A.

3. Business Presentations (2)
Theory and practice of effective presentation of ideas in a business setting. Appropriate use of multimedia techniques and equipment in making presentations. Presentation software and techniques for its use. Current software in use is Microsoft PowerPoint. (4 lab hours)

50. Computer Concepts (3)
Introduction to computer hardware and software systems, impact of computers on society, ethical issues, application of computer technology in many career fields, hands-on laboratory experience with personal productivity software. (2 lecture, 2 lab hours)



51. Programming Fundamentals (3)
Prerequisite: IS 50 or equivalent. Structured program design using Visual Basic. Concepts of object-oriented and event-driving programming, user interface design, algorithm development, testing and debugging, and documentation using business examples. (2 lecture, 2 lab hours)

104. Advanced Word/Information Processing Applications (3)
Prerequisite: IS 50. Advanced word information processing applications, including additional desktop publishing applications. Also meets the needs of students working toward a standard secondary teaching credential in business subjects. (2 lecture, 2 lab hours)

105W. Business Communication (3)
Prerequisites: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement or approved equivalent, and junior standing. Business communication theory; analysis of communication alternatives; effective business writing and speaking; case studies. Meets the upper-division writing skills requirement for graduation.

116. Office Systems Management (3)
The study of the management and administration of the office support function, including management of facilities, workstations, office support services, and productivity. Attention is also given to evaluation and acquisition of hardware and software as well as to personnel management and career development.

117. Data and Records Control (3)
Management of creation, use, maintenance, and disposition of data/records. Examines management of data/records stored on paper, microforms, and computers. Emphasis placed on ways of introducing, maintaining, and updating a data records program.

130. Management Information Systems (3)
Prerequisites: IS 50 or demonstration of computer literacy; upper-division standing; IS 105W or ENGL 160W (may be taken concurrently). Management concepts in the role/administration of information/information system functions in organizations; enhancement of management with computers; management of systems development; planning and budgeting, analysis, design, implementation and operation of computer-based systems; measurement of operating performance. (Formerly IS 160)

150. End-User Computing (3)
Prerequisite: IS 50, 51 recommended. Use of data resources in business problem solving. Integration of microcomputer packages with systems development concepts to implement information systems. Topics include information centers, 4GLs, and decision support tools. (2 lecture, 2 lab hours)

151. Advanced Applications Software — Microcomputers (3)
Prerequisites: IS 51. Advanced software development using the management of visual objects on microcomputers. Emphasis on structure and style, using visual environments, windows, and graphics. Program planning, logic structures, sorts and searches, variable passing, and file/database access. (2 lecture, 2 lab hours)

156T. Topics in Emerging Information Technologies (3; max total 6 if no topic repeated)
Prerequisites: IS 50. Overview of the most recent tools and techniques in information technology, and their utilization in the business environment with specific content of the course updated and refocused every year. (2 lecture, 2 lab hours)

158. Database Systems (3)
Prerequisites: IS 51, 150 recommended. Data structures; file design; database design concepts emphasizing the relational model; data administration; application of database management system software. (2 lecture, 2 lab hours) (Formerly IS 165)

162. Data Communications (3)
Resource sharing; computer traffic characterizations; multiplexing; network structure; packet switching and other switching techniques; computer network examples; routing and flow control; satellite and ground radio packet switching; transmission media and methods; line control procedures; line capacity assignment; communication processors. (Formerly IS 109)

164. Systems Configurations (3)
Prerequisite: IS 130. In-depth study of computer system technology: processors, storage devices, I/O devices; distributed processing; client-server; connectivity; LANs and WANs; selection, installation, and implementation processes.

166. Information Systems Analysis and Design (3)
Prerequisite: IS 158, ACCT 4A, 4B, and upper-division standing. Systems approach to problem solving; systems development life cycle; systems analysis; use of system modeling tools; logical systems design, including user interfaces, database, structure, and controls; implementation and testing. (2 lecture, 2 lab hours)

168. Information Systems Management (3)
Prerequisites: ACCT 4A, 4B, IS 130. Theories, costs, and problems associated with the operation of information systems. Organizational environments, security and legal issues, information center operations, end-user support, strategic information system planning, policy development, control and integration of information systems.

181. Computer Networks Management (3)
Prerequisites: IS 50, 130, 162. Theory and practice of computer network administration focusing on the role of the communications system in distributed computing network configuration; connectivity, network security, network hardware and software solutions; configuration of software in network environment, data transferability and access, routing, flow and congestion control. (2 lecture, 2 lab hours)

188. Decision Support and Expert Systems (4)
Prerequisites: IS 50, 130, 150. Overview of the basic topics in decision support and expert systems. Methodological foundation for integration of quantitative and expert knowledge with the computer for improving the decision-making process. Integrating databases, DSS models, and business analysis. Introduction to artificial intelligence and expert systems. (3 lecture, 2 lab hours) (Formerly DS 188)

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.

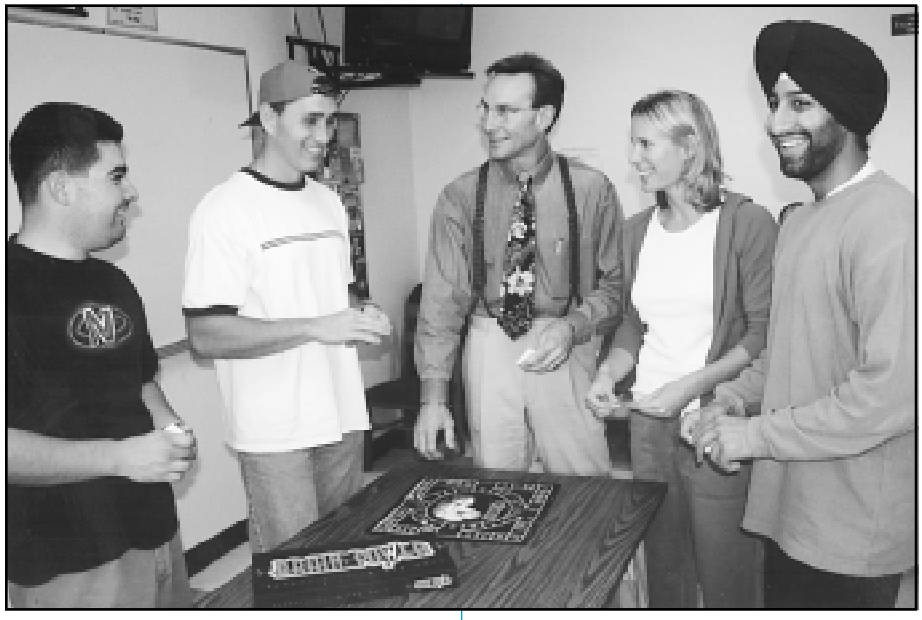
190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of internship coordinator. Requires 150 hours of work at a pre-qualified, academically related work station (business, government, or nonprofit agency). Reflective journal, final report, and work station evaluation. As a course substitution, prior department approval required. Only one internship may count towards option requirements. *CR/NC* grading only.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Management



The Sid Craig School of Business

Department of Management
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Nancy K. Tillman, *Department Administrative Assistant*
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B.S. in Business Administration
Options:
- Entrepreneurship
- Human Resource Management
- Management

Minor in Entrepreneurship

Certificate in Entrepreneurship

Certificate in Organizational Management

Certificate in Human Resource Management

The Department

The Department of Management offers three options within the Bachelor of Science in the Business Administration degree program: (1) Entrepreneurship, (2) Human Resource Management, and (3) Management.

The Entrepreneurship Option offers students a comprehensive academic experience in entrepreneurship that starts with the classroom and links to the community. It integrates core business concepts around the formation, start-up, and growth of an entrepreneurial firm. By taking a select group of entrepreneurship courses, the students learn how to launch their own business idea.

Students can facilitate their learning experience through active involvement in the Craig School's Small Business Institute, the Institute for Developing Entrepreneurial Action, and the Family Business Institute.

The Human Resource Management (HRM) Option is one of only 57 programs nationally — and the only program in the California State University system — that has been certified by the Association of University and College Industrial Relations and Human Resource programs. The HRM Option has consistently ranked in the top five programs nationally. This ranking is based on the number of students who pass the Professional in Human Resource exam given by the Society of Human Resource Management.

HRM students explore how organizations can best utilize their most important resource — their employees. Among the issues discussed are how to recruit and select the best employees, how to determine fair compensation, how to use benefit and performance appraisal systems that reward high performance, how to comply with federal and state employment laws, and how to negotiate and resolve employment disputes. The courses offered are intended to help those interested in creating a work environment that promotes teamwork and encourages employee excellence.

The Management Option develops skills, knowledge, attitudes, and abilities necessary for effective leadership in a wide variety of organizations. Graduates are prepared for entry-level leadership positions in today's rapidly-changing workplace through a dynamic curriculum combining theory, skill development, and practical experience, including internships in the student's area of interest. Courses develop those leadership abilities demanded by employers that include written, oral, analytical, and people skills. The option also provides a strong foundation for the M.B.A. Students may choose one of the following three tracks:

Organizational Leadership — Courses in this track prepare students for positions as project leaders, team leaders, and business managers. Courses emphasize leadership issues such as self-directed work teams, performance improvement, negotiating, vision and goal setting, and change management.

Production/Logistics Management (PLM) — This track provides students with a foundation for a variety of management career opportunities in manufacturing and distribution. With total quality management as a common basis, the PLM curriculum combines the two integrated disciplines of production/operations (transformation of resources into high quality products and services) and logistics (management of supply and distribution activities). Emphasis is placed on complementing the student's knowledge of PLM subject matter with hands-on, industrial experience gained through internship programs with local firms.

Special Management Applications — This track is designed for Management Option students who have a professional interest in a particular industry chosen by the student (agriculture, fashion merchandising, health science, industrial technology, recreation, theater, etc.) Students take business and organizational leadership courses and then, with approval of the department chair, select courses in their specific areas of interest.

Faculty

The faculty of the Department of Management is comprised of individuals who have studied and pursued business careers throughout the world. Well over a dozen specializations within the field of business administration are taught, researched, and shared with the business community by

these professors. Case studies, experiential exercises, computer simulations, laboratory research, business community projects, guest speakers, and seminar discussions are just a few of the ways in which instructors provide the students with a "real-world" exposure to business. The combination of faculty expertise, teaching skills, research activities, and business experiences assures the student of receiving the best possible management education.

Paula L. Rechner, *Chair*
Robert C. Hill, *Edward M. Reighard Chair of Business Management*

Karen D. Bowerman
Luis Ma. R. Calingo
Diana L. Gilbertson
Susan M. Halfhill
Dewey E. Johnson
Gerald Jones
Mark J. Keppler
Jahanguir M. Moghaddam
Julie B. Olson-Buchanan
Joseph J. Penbera
Timothy M. Stearns
Jia Wang

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Sid Craig School of Business who are working toward the Bachelor of Science in Business Administration must complete, in addition to the university's General Education requirements, a ten-course group of pre-business courses, seven courses of upper-division core, and 23 to 32 units in an area of specialization or option. The pre-business classes include material considered essential for further study in business. The upper-division core classes provide a broad background and a breadth of knowledge and understanding. The option courses enable the student to specialize in a specific area of business and to prepare for effective performance in future employment.

Units

Pre-Business requirements* 20
ACCT 4A, 4B; B A 18; CSB 50; DS 71, 73; ECON 40 or AG EC 1, ECON 50, ENGL 1, IS 50
(See *Pre-Business Policy*, page 206.)

Upper-division core requirements 27
DS 123; FIN 120; IS 130; MGT 110 or 104-106, 124, 187; MKTG 100
(See *Statement on Prerequisites*, page 207.)

Option requirements 24-25
Business students all have one common major — business administration. Within the major, there are ten option areas from which students can choose; each student is required to complete an option. The Department of Management offers three of these options.

General Education requirements 51

Upper-division writing skills requirement 3-4
Business majors must select either IS 105W or ENGL 160W
(See Writing *Requirements*, page 206.)
Note: the Upper-Division Writing Exam is not an option for business administration majors.

Electives 0

Total 125-127

*DS 71, ECON 50, and ENGL 1 are used to satisfy General Education requirements.

Options

The three options available to students are outlined in the copy that follows. The completion of the 24-25 units as required by the option, the General Education requirements, special course requirements, and the electives, which may include a minor, total the 125-127 units required for the Bachelor of Science in Business Administration.

Entrepreneurship Option — *Units*
ENTR 81, 153, 155, 157 ..... **12**
Electives: Four courses approved by the option coordinator **12**
Total 24

Human Resource Management Option — *Units*
HRM 150, 152, 153, 154, 157, 159 .... **18**
Elect from: AF AM 136, 144, 146; ANTH 120; B A 156; ECON 150, 152; H S 143, 145, 147; I E 111; HRM 189T, 190, 195; MGT 60, 126, 189T; PL SI 185 and PSYCH 144, 149, 156, and 176 ..... **6**
Total 24

Management Option — *Units*
Select one of the following tracks:

- *Organizational Leadership Track* ..... (24-25)
  MGT 127, 180, 182; HRM 150 ..... (12)
  and four courses selected from: MGT 60, 126, 131, 133, 160, 189T, 195; ENTR 153, 155; HRM 153 ..... (12-13)
- *Production/Logistics Management Track* ..... (24-25)
  MGT 126, 160, 180, 195; MKTG 114 . (17)
  and by approval of PLM track coordinator, two courses selected from: MKTG 126; FIN 123; ACCT 132; HRM 150 ..... (7-8)
- *Special Management Applications Track* ..... (24)
  MGT 127, 180, 182 (9)
  and 9 units selected from: MGT 131, 133, 189T, 195; HRM 150 ..... (9)
  and 6 units, by approval of the chair of the Management Department, in one area chosen by the student (agriculture, fashion merchandising, health science, industrial technology, recreation, theater, etc.) ..... (6)

Total 24-25

Requirements for Certificate Programs

Before entering a program, students will need to demonstrate that they have foundation knowledge of business practices and possess good writing skills. Prior approval of the certificate program coordinator or the department chair is required. Students need to meet one of the following criteria:

1. be currently admitted to California State University, Fresno,
2. have a bachelor's degree in any field from an accredited institution, or
3. have an Associate of Arts degree from a two-year accredited college and a minimum of two years of business experience.

Certificate in Entrepreneurship	*Units*
Required courses ENTR 81, 153; MGT 110	**12**
Elective courses ENTR 155, 157; MKTG 134; FIN 131 or courses approved by certificate program coordinator or department chair	**6**
Total	**18**

Certificate in Organizational Management	*Units*
Required Courses MGT 110 (or MGT 104 and 106), 127, 182	**12**
Elective courses ENTR 81; HRM 150; MGT 124, 126, 133, 180, 189T or courses approved by certificate program coordinator or department chair	**3-4**
Total	**15-16**

Certificate in Human Resource Management	*Units*
Required Courses HRM 150, 153, 154, and 157	**12**
Elective courses HRM 152, 159; MGT 106 or courses approved by certificate program coordinator or department chair	**3**
Total	**15**

COURSES

Entrepreneurship (ENTR)

81. Introduction to Entrepreneurship (3)
Develops an understanding of the complex tasks faced by individuals engaged in entrepreneurial activities. Identifies the methods for developing a business idea, the process of starting a business, how to acquire resources, and the key parts of a business plan. (Formerly MGT 129, MGT 120, MGT 81)

153. Business Plan Writing (3)
Prerequisite: ENTR 81; MGT 110. This course is designed to provide the student with both (1) an understanding of what is required to start a new firm and (2) the skills needed to write a business plan that will meet the standards for funding by an investor or financial institution. (Formerly MGT 153)

155. Problems in Small Business Management (3)
Prerequisite: ENTR 81 and 153. Special problems of small businesses: initiation, financing, operations. Class projects: studying local business operations; preparing business plans and financial requests. (Formerly MGT 128, MGT 140, MGT 155)

157. New Venture Laboratory (3)
Prerequisites: MGT 155 or consent of instructor. Students develop a business idea that results in a business plan. In a laboratory setting, students interact with entrepreneurs, suppliers, customers, and experts in order to create a new venture that may become viable. (Formerly MGT 130, MGT 170, MGT 157)

Human Resource Management (HRM)

150. Administration of Personnel (3)
Prerequisites: MGT 104 and 106 or 110, and IS 105W or ENGL 160W (may be taken concurrently). Composition of labor force; acquisition and utilization of human resources; 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: HRM 150 or permission of instructor, and IS 105W or ENGL 160W. Relations between employers and organized employee groups; organization, election, and certification procedures; techniques of collective bargaining; labor agreements; grievance handling; settlement of industrial disputes. Class discussion, student presentations.

153. The Staffing of Organizations (3)
Prerequisite: HRM 150 or permission of instructor, and IS 105W or ENGL 160W. In-depth study of major staffing issues such as recruitment and selection of employees. Emphasis on practical application of issues for future managers and HRM professionals. Group projects, class discussion, guest lecturers, and experimental exercises.

154. Compensation Administration (3)
Prerequisite: HRM 150 and IS 105W or ENGL 160W. Analysis of compensation programs for 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. Legal Aspects of Human Resource Management (3)
Prerequisite: HRM 150 or permission of instructor, and IS 105W or ENGL 160W. Survey of law related to employment, including discrimination, wrongful discharge, safety and health requirements, and other government regulations. Attention given to prevention and resolution of legal complaints and to emerging public policy issues. Oral presentations, discussions.

159. Seminar in Human Resource Management (3)
Prerequisites: last-semester senior and IS 105W or ENGL 160W. Integration of human resource management knowledge through utilization of previously acquired academic and practical experience; emphasis upon advanced problems in human resource management. Case analysis and discussion; individual and group report.

189T. Topics in Human Resource Management (1-3; max total 9 if no topic repeated)
Prerequisite: senior standing. Studies in personnel and labor relations, recruitment, selection, retention, compensation, employment law, and business ethics.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of internship coordinator. Requires 150 hours of work at a prequalified, academically-related work station (business, government or nonprofit agency). Reflective journal, final report, and work station evaluation. As a course substitution, prior department approval is required. Only one internship may count toward option requirements. *CR/NC* grading only.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Management (MGT)

60. Women in Business (3)
Explores opportunities and challenges facing women at work. Examines myths and realities of women's work experience from various perspectives including leadership, power, work-family issues, diversity, communication, workplace sexuality, and management styles. Lecture, discussion, guest speakers. (Formerly MGT 189T)

104. Administrative Principles of Management (3)
Prerequisite: IS 105W or ENGL 160W (may be taken concurrently). Not open to students with credit in MGT 110. Focus on planning techniques, organization theory, and ethical control processes in domestic and international business. Case analysis, management simulations, and written projects.

106. Behavioral Principles of Management (3)
Prerequisite: IS 105W or ENGL 160W (may be taken concurrently). Not open to students with credit in MGT 110. Focus upon the human dimensions and interpersonal skills of management, including motivation, job design, leadership, conflict, communication networks, and organizational change. Case analysis, written projects, small group exercises, and development of communication and interpersonal skills.

110. Administration and Organizational Behavior (6)
Prerequisite: IS 105W or ENGL 160W (may be taken concurrently). Not open to students with credit in MGT 104 or MGT 106. Development of management skills with emphasis on organization, communication networks, leadership, reward systems, conflict management, change, ethics, and stress. Case analysis, written projects, small group exercises.

124. Production/Operations Management (4)
Prerequisites: DS 123 (may be taken concurrently); IS 105W or ENGL 160W; MGT 104 or 110. Production/operations systems and problems in manufacturing and service organizations, including product development and process selection; facility location and design; operations planning and control; materials handling; inventory and quality control; project management. Lecture discussion; computer simulation.

126. Total Quality Management (3)
Prerequisites: MGT 104 and 106 or 110, or permission of instructor. Examination and analysis of the process and content issues involved in implementing TQM; general systems theory; managing change; quality improvement teams; problem solving processes. Lecture, discussion, case analysis, guest speakers, field trips.

127. Contemporary Leadership (3)
Prerequisites: MGT 104 and 106 or 110 and IS 105W or ENGL 160W (may be taken concurrently). Individual and team leadership development. Leadership potential assessment, contemporary leadership theories, and oral and written communications skill development. Guest speakers, experiential exercises, and case studies.

131. International Management (3)
Prerequisites: MGT 104 and 106 or 110; or permission of instructor. A review of the unique issues, problems, and challenges of managing enterprises in an international environment. Comparative analysis of management styles and cultures, managerial processes and strategy formulation. Focuses on American, European, and Japanese enterprises. Seminar discussion and cases.

133. Managing Nonprofit Organizations (3)
Prerequisites: MGT 104 and 106 or 110, or permission of instructor. Examination and analysis of the critical features of nonprofit organizations. Topics include board selection, needs assessment, grant writing, issues analysis, managing volunteers, service delivery systems, liaison functions, fund raising, and strategic planning. Lecture, case studies, field experience, and research.

160. Manufacturing Planning and Control (4)
Prerequisite: MGT 124. Material requirements planning; capacity management; production activity control; just-in-time philosophy; master planning; inventory management; distribution requirements planning; computer applications of manufacturing planning and control; database development and maintenance.

180. Seminar in Management Theory and Organization Design (3)
Prerequisites: MGT 104 and 106 or 110 and IS 105W or ENGL 160W (may be taken concurrently). Organizations as open systems functioning in the external environment; organization development as a planned intervention emphasizing effective implementation of system changes, integrating mechanisms in response to perceived contingencies; and strategic issues of organizational life cycles.

182. Seminar in Applied Management Techniques (3)
Prerequisites: MGT 104 and 106 or 110 and IS 105W or ENGL 160W. Implementation of management strategy in the human context of organizations; the organizational context which shapes behavior; climate and culture as an organization-wide process; and change, power, and conflict in the organization as a systematic entity.

187. Seminar in Strategic Management (3)
Prerequisites: last-semester senior, completion of CSB core requirements and IS 105W or ENGL 160W. Focuses on strategic management, industry analysis, global competitive environment, formulation and implementation of strategy, ethical issues, mergers and acquisitions, and management of strategic alliances. Case analysis/computer simulations included.

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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of internship coordinator. Requires 150 hours of work at a prequalified, academically-related work station (business, government or nonprofit agency). Reflective journal, final report, and work station evaluation. Prior department approval is required for course substitutions. Only one internship may count toward option requirements. *CR/NC* grading only.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Marketing and Logistics

The Department

The Marketing option offers an integrated set of courses that seek to prepare students to become competitive and ethical marketing practitioners. In this degree program, students learn to apply their imagination, initiative, sound judgment, and hard work to solve problems; to search for and analyze opportunities; and to survive in a dynamic, competitive environment.

Building on basic marketing theories and concepts, each student studies the domestic and international applications of buyer behavior, market segmentation, market research, channel management, physical distribution, and strategic planning. In addition, students are permitted to explore special interest areas such as advertising, sales, sales management, retailing, product management, purchasing, logistics, international marketing, and internships.

Marketing is the motor that powers our economy. Nothing happens in business until someone sells something. Only then can firms produce, suppliers distribute, and consumers enjoy the goods and services that contribute to our high standards of living. Marketing is the activity that provides the revenues business needs to meet its expenses, pay its employees, and generate its long-term success and growth.

Marketing is an exciting, fast-paced, dynamic field that offers career opportunities which stimulate personal growth, challenge the imagination, and capture a variety of interests.

Faculty

The faculty of the Department of Marketing and Logistics bring together individuals who have studied and pursued business careers throughout the world. Case studies, experiential exercises, computer simulations, laboratory research, business community projects, guest speakers, seminar discussions, and internships are just a few of the ways in which instructors provide the students with a "real-world" exposure to business. The combination of faculty expertise, teaching skills, research activities, and business experiences assures the student of receiving the best education possible in marketing.

Faculty

Charles S. Sherwood, *Chair*

Gerald O. Bryan
Douglas A. Cords
Reza Motameni
Richard D. Nordstrom
Beng S. Ong
Richard L. Pinkerton
William E. Rice

The Sid Craig School of Business

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B.S. in Business Administration
Option: Marketing

Certificate in Mass Communication and Journalism

Dr. Richard Pinkerton and department administrative assistant Linda Vail look at the Marketing Department's Web site with student assistant Anthony Rodgers.

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Sid Craig School of Business who are working toward the Bachelor of Science in Business Administration must complete, in addition to the university's General Education requirements, a ten-course group of pre-business courses, seven courses of upper-division core, and 23 to 32 units in an area of specialization or option. The pre-business classes include material considered essential for further study in business. The upper-division core classes provide a broad background and a breadth of knowledge and understanding. The option courses enable the student to specialize in a specific area of business and to prepare for effective performance in future employment.

	Units
Pre-Business requirements* 20	
ACCT 4A, 4B; B A 18; CSB 50; DS 71, 73; ECON 40 or AG EC 1, ECON 50, ENGL 1, IS 50	
(See *Pre-Business Policy*, page 206.)	
Upper-division core requirements 27	
DS 123; FIN 120; IS 130; MGT 110 or 104-106, 124, 187; MKTG 100	
(See *Statement on Prerequisites*, page 207.)	
Marketing Option 23-25	
MKTG 101; MKTG 103 and either MKTG 188A and MKTG 188B or MKTG 188A and MKTG 195	(12-13)
(See *Advising Note 2*.)	
Elect 11-12 units from the following: MKTG 110, 114, 115, 126, 130, 132, 134, 136, 140, 195, or with departmental approval, 189T	(11-12)**
General Education requirements 51	
Upper-division writing skills requirement 3-4	
Business majors must select either IS 105W or ENGL 160W	
(See *Writing Requirements*, page 206.)	
Note: the Upper-Division Writing Exam is not an option for business administration majors.	
Electives 0	
Total 124-127	

* DS 71, ECON 50, and ENGL 1 are used to satisfy General Education requirements.

** See certificate information for elective substitutes

Advising Notes

1. Students desiring more depth may also take MKTG 190 or 193. These courses count as free electives outside the requirements of the Marketing Option.
2. MKTG 188A and 188B constitute a block program and must be taken in sequence in the same semester, i.e., MKTG 188A is the first $7^{1}/_{2}$ weeks and MKTG 188B is the second $7^{1}/_{2}$ weeks.
3. Students may take a special "Marketing Plan" internship in lieu of MKTG 188B. The internship (MKTG 195, 3 units) must be taken in the same semester as MKTG 188A. A limited number of internships which qualify for this substitution will be made available at the beginning of the semester. All students should initially enroll in both MKTG 188A and MKTG 188B and, if successful in obtaining one of the available internships, drop 188B and add 195. The appropriateness of the internship as an alternative to 188B will be determined by the instructor, in consultation with the internship coordinator. Under no circumstance will a previously completed internship qualify for this substitution.
4. While a student can take up to 11 units of internships for degree credit, only one (1) MKTG 195 course of three (3) units can count in the option.
5. Independent study may not be used to replace or as a substitute for a regular class. See *Independent Study* in this catalog.

Certificate in Mass Communication and Journalism

To earn a Certificate in Mass Communication and Journalism, marketing students may take any four of the following courses (totaling 12 units) from:

	Units
MCJ 142 Advertising Procedures	3
MCJ 144 Advertising Copy Writing	3
MCJ 146 Advertising Media	3
MCJ 148 Advertising Campaigns	3
MCJ 152 Public Relations	3
MCJ 158 Public Relations Writing	3

Note: These courses substitute for the marketing electives.

COURSES

Marketing (MKTG)

100. Marketing Concepts (4)
Recommended for first semester juniors. Prerequisites: upper-division standing. Prerequisite or corequisite: IS 105W or ENGL 160W. Learn how marketing activities such as pricing, promotion, packaging, and distributing goods and services in international, national, profit, not-for-profit, service, consumer, and industrial markets are used to facilitate satisfaction of consumer needs.

101. Marketing Information Systems (4)
Recommended early in the Marketing Option. Prerequisite: MKTG 100. Examination of the state-of-the-art marketing information systems, including the process of Internet marketing, database marketing, and leading marketing databases. This course also teaches how to conduct surveys and how to do data analysis. Covers on-line questionnaire design, Internet data search, commercial and public databases, and how to analyze databases.

103. Marketing Communication Tools (4)
Recommended early in the Marketing Option. Teaches communication and persuasion tools for presenting ideas, selling goods and services, and negotiating. An experiential framework prepares students for success in entry level jobs. Students learn presentation skills, how to create a rèsumè, and how to use a follow-up system.

110. Buyer Behavior (4)
Prerequisite: MKTG 100. Provides an understanding of consumers' (individual and industrial) behavior in the marketplace. Theory from sociology, anthropology, economics, and psychology is applied to behavior in the market place. This understanding is then translated into more effective marketing strategy and tactics. (3 lecture, 2 lab hours) (Formerly MKTG 102)

114. Distribution Management (4)
Prerequisite: MKTG 100. Systems approach to supply and distribution activities aimed at minimizing cost and maximizing customer service. Emphasis on role of transportation, warehousing, inventory control, order processing, materials handling, packaging, procurement, and information in logistics management.

115. Marketing Channels (4)
Prerequisite: MKTG 100. Analysis of the coalition of merchants, agents, and other institutions which together constitute the channel of distribution for consumer and industrial goods; emphasis on designing, operating, controlling, and evaluating channel structures in a competitive environment. Case studies and problem solving.

126. Purchasing and Materials Management (4)
Prerequisite: MGT 124. Purchasing and supply chain management planning, policies, and procedures; purchasing organization; sources of supply, pricing; contract negotiation; value analysis; traffic management; quality assurance; inventory management; public purchasing; and legal and ethical aspects of purchasing.

130. Retail Managing and Merchandising (4)
Location, price, and promotion topics are enhanced with the buying and merchandising process, including buying planned stocks, style merchandising, and accounting and controlling systems.

132. Promotion Practices and Principles (4)
Prerequisite: MKTG 100. The focus is on promotion as a communications process and the integration of promotional elements into the total strategy of the firm. Students examine what makes promotions work, when and where to promote, and how promotions utilize data from the Marketing Information System.

134. Entrepreneurial Marketing (4)
Prerequisite: MKTG 100. A practical look at building a marketing plan for the person or firm interested in the development of a new product or service. A key element of the course is a project; students build a detailed plan to solve marketing-related problems a business faces, whether old or new.

136. Sales Force Management (4)
Prerequisite: MKTG 100. Selection, retention, supervision, compensation, and termination of sales personnel are approached from a perspective of a middle manager who needs to employ modern behavioral and supervision techniques to build a motivated and productive sales force.

140. Export and Global Marketing (3)
Prerequisite: MKTG 100; (B A 174 required for International Business Option only.) 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. (Formerly MKTG 176)

188A. Marketing Plans and Strategy (2)
Prerequisites: MKTG 101, 103. Last semester senior standing. The focus of this course is on the strategic marketing planning process and procedures which lead to development of marketing plans. Topics covered include the marketing planning process, marketing audit, objective and strategy formulation, and development of tactical plans. (Formerly MKTG 188)

188B. Marketing in Action (2)
Prerequisites: MKTG 101, 103, and 188A. Focuses on the task of marketing management. In teams, students using theoretical concepts and planning procedures (learned in MKTG 188A) will analyze marketing cases and will develop a marketing plan blueprint for a real company. (See *Advising Note 2*.) (Formerly MKTG 188)

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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

193. Supervised Work Experience (1)
Open only to business majors. Prerequisite: permission of instructor. Work-study: learning through on-the-job experience in a business. Written reports. *CR/NC* grading only.

195. Internship (3; max total 6)
Prerequisite: permission of the internship coordinator. Requires 150 hours of work at a pre-qualified, academically-related work station (business, government or nonprofit agency). Reflective journal, final report, and work station evaluation. As a course substitution, prior departmental approval required. Only one internship may count toward option requirements. *CR/NC* grading only.

200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Military Science

The Sid Craig School of Business

Department of Military Science
LTC Bruce Hupe, *Chair*
Lynn Traber, *Department Administrative Assistant*
North Gym, Room 211
(559) 278-2887, 278-4810
In California, (800) 660-ROTC

Army Reserve Officer's Training Corps Program (ROTC)

Minor in Military Science

The Program

The Army ROTC Program develops the mental and physical qualifications of students in preparation for positions of leadership within the military and civilian communities. Its instruction is challenging, professional, and enjoyable, and it complements all major areas of study. The course of study offered in military science is designed not only to prepare the student for service as a commissioned officer in the United States Army, Army Reserves, or National Guard, but also to provide him/her with knowledge and practical experience in leadership and management that will be useful in any facet of society.

Students who are uncertain about what the Army is all about and what it can offer may enroll in introductory courses for either one or two units. These courses acquaint the student with how the Army fits into society and some of the exciting things officers do. They also show how the Army can fit into a student's long and short range individual goals.

Those students who desire to pursue an opportunity for a military career can enroll in a structured curriculum from 12-21 units over a period of two years (see *course listings*, next page). One of the significant and exciting aspects of this curriculum is the requirement for a student to attend a six-week summer camp — with pay — following the first year of the structured curriculum. This camp enhances the student's ability to lead by providing him/her with actual experience in leading other students who represent some 300 colleges and universities in the United States.

Additionally, the student's curriculum must include acquired knowledge in written communication skills, understanding of human behavior, military history, computer literacy, and math reasoning.

Career Opportunities

Upon completion of the ROTC requirement, you are commissioned as a second lieutenant in the United States Army. Newly assigned officers will serve in one of 18 different career fields such as military police, aviation, signal corps, engineers, and military intelligence. You may serve your obligation on active duty or request a Guaranteed Reserve Forces Duty contract (GRFD) in which you will serve part-time in the Reserves or National Guard. Choosing a GRFD contract will allow you to pursue a civilian career and still be an officer in the U.S. Army. Whatever you decide, it should be noted that the recruiters for major corporations actively seek out former military officers to fill management positions because of the great personal motivation, discipline, and maturity that are hallmarks of the military officer.

Enrollment Requirements

Those students who are simply interested in finding out about our program should enroll in one of our introductory courses (see *course listings*, next page). Those who are considering pursuing the full ROTC course must meet certain requirements. Information on these requirements can be obtained by telephoning or visiting the Army ROTC office on campus, (559) 278-2887/4810, or in California, (800) 660-ROTC.

Financial Assistance

All students formally enrolled in the ROTC program receive at least $1,500 a year and can earn as much as $10,000 during their college careers. Each student receives $150 (tax free) each month of the school year and about $750 for summer camp. Students may also join a United States Army Reserve or California Army National Guard Unit as an officer trainee and be paid a minimum of $148 per weekend drill. The Army also has made available two-, three-, and four-year scholarships — on a competitive basis — which pay all tuition, books, and fees in addition to the $150 (tax free) each month.

Extracurricular Activities

ROTC offers students the opportunity to participate in a wide variety of challenging and exciting activities that emphasize teamwork and increase a student's self-discipline and personal confidence. Some of these activities include rappelling, orienteering, water survival training, marksmanship, map reading, helicopter insertions, and various individual confidence-building exercises. For those who seek additional training, ROTC offers cadets the opportunity to attend a U.S. Army school such as Airborne, Air Assault, and Northern Warfare.

Faculty

Bruce H. Hupe, *Chair*

Advisers:
Elizabeth Barnes
Warner Irizarry
Joong-Bin Im
Jerry McKinney

The faculty of the Department of Military Science are highly qualified and experienced professional U.S. Army officers selected for their instructor qualifications and academic background. Each officer is a graduate of at least two required Army schools in their respective fields in addition to an advanced course program. Each officer also attends the School of Cadet Command, which is the Army's training school for ROTC professors. Students find departmental faculty helpful in guiding them through their academic experience as well as helping them pursue career goals.

Military Science Minor

Each student enrolled in the ROTC Advanced Course and who completes the 21 units (19 upper-division) necessary for commissioning will be eligible for the award of a Minor in Military Science. Coordination with the department faculty adviser is required.

	Units
Required courses	**21**
M S 50A, 50B, 131, 132, 141, 142, 150A, 150B; HIST 180; KAC 42	
Optional course	**3**
M S 192	
Total	**24**

Professional Military Education Requirements (PME). In addition to the required courses above, students in the ROTC Advanced Course must fulfill prescribed professional military education requirements by satisfactorily completing courses in written communication, human behavior, military history, and computer literacy. Students must obtain approval from their military science department faculty adviser to ensure their planned course of study will satisfy this requirement prior to graduation and commissioning.

COURSES

Military Science (M S)

1. Introduction to Military Science (1)
Organization and function of the U.S. Army; basic traditions, customs, and protocol. Introduction to basic leadership skills, map reading, and management techniques.

2. General Military Skills and Survival Training (1)
Training in basic soldier skills and survival techniques in a field environment. Focuses on basic training skills, first-aid procedures, field crafts, and survival techniques.

10. Vietnam and Modern War (2)
Recent American military history with emphasis on the Vietnam War. Origins and evolution of U.S. involvement in Vietnam. Tactics, strategies, and political and social contexts of the conflict. Discussion of post-Vietnam military events, including terrorism and the Gulf War.

11. General Leadership Skills (2)
Basic rope work to include knots and rappelling, basics of orienteering and land navigation, basic marksmanship and military briefings.

12. Basic Leadership and Management (2)
Principles of leadership; principles of resource management; group goal attainment focusing on leader, group, and situational needs.

13. ROTC Basic Camp (3)
Prerequisite: permission of instructor. A six-week training program during the summer. This course is a "no obligation" look at the U.S. Army's basic leadership skills and training overview. Training is held and pay provided at Fort Knox, Kentucky.

50A. Freshman Leadership Laboratory (1; max total 2)
Open to freshman Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is voluntary. (Formerly M S 134; M S 134A)

50B. Sophomore Leadership Laboratory (1; max total 2)
Open to sophomore Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is voluntary. (Formerly M S 134; M S 134B)

131. Advanced Leadership and Management (3)
Prerequisite: permission of instructor. Personnel management problems and techniques of motivation as applied to a military environment; techniques and methods of instruction; application of basic military skills; military law.

132. Small Unit Leadership (3)
Prerequisite: M S 131 or permission of instructor. Principles of tactics and operations; organization of small units and their employment; field orders and instructions; small unit leadership techniques.

133. ROTC Advanced Camp (3)
Prerequisite: permission of instructor. A six-week summer camp conducted at Fort Lewis, Washington. Topics include familiarization with U.S. Army weapons systems, military skills, confidence training, light infantry tactics, and leadership and management techniques.

141. Ethics and Military Professionalism (3)
Prerequisite: permission of instructor. Military Professional Ethics, Military Justice, Command and Staff Functions, Mission and Organization of the U.S. Army and Military Correspondence.

142. Advanced Leadership Training (3)
Prerequisite: permission of instructor. Required course for MS IV cadets. Instruction focuses on transitioning cadets to lieutenants. Topics include responsibilities of army officers, army leadership doctrine, and the army promotion system. Emphasis on skills used early in an officer's career.

150A. Junior Leadership Laboratory (1; max total 2)
Open to junior Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is mandatory. Must be taken each semester a student is enrolled in the Advanced Course. (Formerly M S 134; M S 134C)

150B. Senior Leadership Laboratory (1; max total 2)
Open to senior Army ROTC students. Practical work to augment classroom instruction. Weekly morning laboratories plus one field trip each semester. Attendance at all functions is mandatory. Must be taken each semester a student is enrolled in the Advanced Course. (Formerly M S 134; M S 134D)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Directed Reading in Selected Military Topics (3)
Prerequisites: M S 131, 132, 141 and permission of instructor. Directed reading in military history and/or the role of the army in the formulation of national policy in consultation with a faculty adviser. Requires a substantial writing requirement.

Business — Craig M.B.A. Program

The Craig School of Business

Craig M.B.A. Program
Mark J. Keppler, *Director*
Peters Business Building, Room 183
(559) 278-2107

Master of Business Administration (M.B.A.)

Master of Business Administration

The Master of Business Administration (MBA) degree program is designed to provide professional education for managers of business, agriculture, education, government, and nonprofit organizations. The Craig MBA Program focuses on cutting-edge theory and innovative business practices delivered in an interesting and challenging manner. The Craig MBA Program offers elective area courses in special areas of professional practice.

Admission. The program is open to college graduates without regard to the area of undergraduate study. Applicants are expected to show intellectual promise to do well in the program, and upon graduation, to perform effectively as professional managers. Applicants must submit the following to be considered for admission:

1. a completed California State University, Fresno Graduate Application form
2. a completed Craig M.B.A. Program Application form
3. complete university or college transcripts
4. official record of the Graduate Management Admission Test
5. two letters of recommendation appropriate for evaluation of professional promise, and
6. a description of work experience.

M.B.A. Degree Requirements

The M.B.A. is awarded to students upon completion of requirements in three groups of courses. These groups are generally completed in sequence. Students may not take Group II or Group III courses prior to the semester they complete their Group I requirements without permission from the graduate business director.

Group I
The following five courses or equivalent knowledge are required of non-business majors *or* business majors from non-American Assembly Collegiate School of Business (AACSB) business schools: MBA 200, 201, 203, 204, and 205. Some or all of Group I requirements may be waived on the basis of an evaluation of previous coursework.

Equivalent knowledge may be demonstrated through examinations offered two times each year before the beginning of fall and spring semesters.

Units

Group II 18
These courses develop the core managerial skills for the M.B.A. candidate. Course topics include leadership and organizational behavior, management information systems, financial management, managerial accounting, marketing management, and the regulatory and ethical environment of business.
MBA 210, 211, 212, 213, 214, and 215

Group III 15-18
These courses allow the student to integrate the knowledge from Group I and II and specialize in specific subject areas. Students will select a block of three courses based on one of the following subject areas: General M.B.A., Ag Business, Entrepreneurship, Finance, Human Resource Management, Management Information Systems, and Marketing.

Select one of the following elective areas ..... (9)
Accounting ..... (9)
MBA 220, 221
Agribusiness ..... (9)
Select from AG BS 210*, 225, 250*, 260
Entrepreneurship ..... (9)
Select from MBA 250, 262, 270*, 272*
Finance ..... (9)
Select from MBA 230*, 231, 232, 233
Human Resource Management ..... (9)
Select from MBA 240, 241, 242, or 243
Management Information Systems ..... (9)
Select from MBA 250, 251, 252, 253
Marketing Management ..... (9)
Select from MBA 260*, 261, 262, 263
International Business ..... (9)
Select from MBA 221, 231, 241, 251, 261
General M.B.A. ..... (9)
Select from MBA 220, 230, 240, 250, 260, 270
Additional approved elective** ..... (0-3)
MBA 279 ..... (3)
Select one of the following culminating experiences ..... (3-6)
MBA 298 and either MBA 216 or an MBA elective ..... (6)
MBA 298 and MBA 216 ..... (6)
Comprehensive Exam and an MBA elective ..... (3)
Total 33-36

Note: MBA 210 fulfills the university's graduate-level writing proficiency requirement.

* Required course in elective area.

** A list of approved electives is available in the Graduate Business Program Office.

GRADUATE COURSES

(See *Course Numbering System.*)

Master of Business Administration (MBA)

200. Managerial Economics (3)
Prerequisites: finite mathematics, admission to graduate business program or permission of director. Logic and methods of economic analysis for business decisions. Production, cost, supply; buyer behavior, consumer demand, derived demand; forecasting; market structure, pricing, negotiation; government regulation; risk, uncertainty, macroeconomic concepts.

201. Accounting and Information Systems (3)
Prerequisites: electronic spreadsheet literacy, and either admission to graduate program in business or permission of director. Concepts and terminology of financial and managerial accounting and information systems. Transaction processing systems and planning and control systems integrated with data capture, data classification, information storage and organization, information access and display/reporting.

203. Methods of Decision Sciences (3)
Prerequisites: linear functions, familiarity with PC-based microcomputing and spreadsheets, and either admission to the graduate business program or permission of director. Statistical concepts, inferential statistical methods, management science techniques. Descriptive statistics; discrete random variables; expected value decision theory; continuous distributions; sampling distributions; estimation; hypothesis testing; analysis of variance; linear regression and correlation; chi-square tests; time series analysis and forecasting; simulation. (2 seminar, 2 lab hours)

204. Global Environment of Business (3)
Prerequisite: admission to the graduate business program or permission of director. Introduction to global business environment. Cultural, economic, political, and legal systems. Advances in global trade, marketing, production, accounting, taxation, financial and payment systems. Impact of technological advances, multinational corporations, and nation-states on the performance and competitiveness of businesses. Lecture and case.

205. Production and Operations Management (3)
Prerequisites: MBA 203 or concurrently, admission to the program or permission of director. Production and operations systems; product development; process selection; facility location and design; transportation management; method analysis; job design; work measurement; planning and control; project management; inventory control; just-in-time philosophy; total quality management.

206. Business Communication (3)
Investigation and analysis of the communication process as it relates to managerial effectiveness. Business communication theory; analysis of communication alternatives; effective business writing and speaking; case studies.

210. Leadership and Organizational Behavior (3)
A seminar that examines management functions and behavioral processes as they relate to complex problems in today's dynamic organizations. Special emphasis on leadership, organizational change, and motivational issues. Lectures, discussions, case studies, and experiential exercises.

211. Management Information Systems (3)
Prerequisites: MBA 200 and 201. Managerial and technical issues in computer based information systems. Decision support; artificial intelligence, expert, and strategic information systems; system analysis, design, and implementation; financial, human resource, marketing, and production information systems.

212. Financial Management (3)
Prerequisites: MBA 200, 201, and 203. Theories, concepts, and techniques in financial management; financial analysis, planning, forecasting, and working capital; risk and return analysis, valuation models, cost of capital and capital budgeting; capital structure, dividend policy and long-term financing. Special contemporary topics in financial management.

213. Managerial Accounting (3)
Prerequisites: MBA 200 and 201. In-depth consideration of several topical areas in accounting analysis related to both profit and not-for-profit organizations, with emphasis on currently controversial issues. Analysis includes budgetary planning, cost analysis, internal control and case studies.

214. Marketing Management (3)
Prerequisites: MBA 200-204; 203 or concurrently. Analysis of the concept of marketing, the marketing strategy development process at strategic business unit level, and segmentation and positioning strategies. The development of product, price, promotion, and distribution strategies. Examination of product, price, promotion, sales, and distribution management topics and issues through case analysis.

215. Regulatory and Ethical Environment of Business (3)
Prerequisites: MBA 210-214 or concurrently. Relationships among personal ethics, corporate social responsibility, and regulatory policy on business decision making. Evaluation of business decisions, corporate goals, and regulatory statutes and process in terms of their ethical quality and adherence to sound policy.

216. Business Research (3)
Prerequisites: MBA 200-205. Logic and methods of survey and experimental research methods for business. Multivariate analytical methods for interpretation of survey and experimental results. Research using secondary data for business decisions. Preparation of a plan for thesis, project, or other business research.

220. Seminar in Cost Accounting (3)
Prerequisites: MBA 200-205 and 213. The development, interpretation, and uses of accounting reports for management planning, control, and decision-making. Cost-volume-profit analysis; linear programming, capital budgeting; inventory models; standards, budgets, and analysis variance for planning and control purposes; divisional performance; and transfer pricing issues. (Formerly BUS 263)

221. Seminar in International and Nonprofit Accounting (3)
Prerequisites: MBA 200-205 and 213. Accounting for various types of funds as applied to governmental and other not-for-profit organizations. Global practices and accounting standards. Managerial problems of multinational enterprises. International auditing standards and taxation issues.

230. Seminar in Advanced Financial Management (3)
Prerequisite: MBA 212. An applied case-method analysis of theories, concepts, and analytical techniques of financial management, financial analysis and planning, capital budgeting, leasing, refunding, mergers and acquisitions, corporate restructuring, financial engineering, derivative securities. Lecture and cases.

231. Seminar in International Finance (3)
Prerequisite: MBA 212. An advanced study of theories and techniques in global finance and investment. The international financial system; currency markets; risks and exposure management; balance of payments; political risks; international banking and capital markets; euro-currencies; portfolio and foreign direct investment.

232. Seminar in Investments and Portfolio Management (3)
Prerequisite: MBA 212. Advanced analysis of equity, fixed-income, and derivative securities; operation of financial markets and investment environment. Strategic and tactical decisions related to institutional and individual portfolio management. Lecture and cases.

233. Seminar in Management of Financial Institutions (3)
Prerequisite: MBA 212. Comprehensive analysis of the role of financial institutions and markets in allocating capital. Application of economic and financial analytical techniques to the managerial problems of financial institutions. Lecture and cases.

240. Seminar in Human Resource Management: Theory, Policy, and Practice (3)
Prerequisite: MBA 210. Analysis of the theories behind, and practical application of, human resource management policies of private and public organizations. Particular emphasis on government employment policy. Lecture and cases.

241. Seminar in Comparative Human Resource and Industrial Relations Systems (3)
Prerequisite: MBA 210. Analysis of human resource and industrial relations practices of transnational and multinational corporations operating in the global environment. Particular emphasis on the emergence, evaluation, structures, functions and challenges of labor movements in developed and less developed countries. Lecture and cases.

242. Seminar in Compensation and Benefits Administration (3)
Prerequisite: MBA 210. Analysis of the behavioral and social issues involved in designing and administering of employee compensation systems and benefit programs. Particular emphasis on the psychological relationship between pay and performance and the micro and macro forces that affect pay. Lecture and cases.

243. Seminar in Organizational Staffing (3)
Prerequisite: MBA 210. Analysis of the techniques for recruiting, selecting, evaluating, and allocating employees to meet organizational goals with emphasis on sociological, psychological, and cultural factors effecting work attitude and behavior.

250. Seminar in End User Computing (3)
Prerequisite: MBA 211. Use of data resources in business problem solving. Analysis, formulation and implementation of business models using microcomputer packages; managerial topics and decision support tools. Lecture, case, and lab.

251. Seminar in Information Systems in a Global Environment (3)
Analysis of systems through study and application of systems theory; special emphasis on information systems. Application of systems theory in national and international environments; lecture and case analysis. (Formerly BUS 265)

252. Seminar in Information Systems Management (3)
Prerequisite: MBA 211. Study of hardware, software, and behavioral issues related to the design, acquisition, implementation, and management of contemporary data processing systems underlying global information systems. Lecture and cases.

253. Seminar in
Information Technology (3)
In-depth analysis of a selected information technology with application to business problem solving and decision making. Topics from database; telecommunications; decision support systems; expert systems; artificial intelligence. Lecture and cases.

260. Seminar in Market
Analysis and Forecasting (3)
Prerequisite: MBA 214. The strategic marketing planning process. Using an in-depth market, competition and company analysis, sales forecasting techniques, PIMS (Profit Impact of Marketing Strategy) Project, and market share models to design an effective marketing plan. Techniques for measuring market response and advertising effectiveness.

261. Seminar in
Global Marketing Management (3)
Prerequisite: MBA 214. Analysis of problems of product design, channel structure, promotion, logistics, and inter-organization cooperation and control in international marketing. Negotiation, bargaining, and contracting across national boundaries. Legal issues affecting global marketing operations, cases, projects, and special studies.

262. Seminar in Marketing
for Entrepreneurs (3)
Students will learn how to (a) create a prototype of marketing offerings through concept and market tests, (b) forecast the diffusion rate, (c) estimate the size of potential markets and market share, and (d) develop comprehensive promotional mix plans. Other topics include planning market entry strategies for new ventures, allocating promotional budgets, and implementing plans through team building and negotiation techniques with suppliers, wholesalers, and retailers.

263. Seminar in Marketing
Management Issues (3)
Prerequisites: MBA 214 and 260. With approval of instructor, each student selects a marketing management problem or issue, and prepares a major investigative paper. Student will present results to seminar for professional critique.

270. Seminar in Business Ventures (3)
Designed for effective decision-making at each stage of an entrepreneurial process through initial start-up. Identifying opportunities, developing and evaluating venture plans, and pricing and structuring venture deals.

272. Seminar in
New Venture Management (3)
Prerequisite: MBA 210. Provides an understanding of the managing and growing of a new firm. Objectives are met with an overview of the literature, case analysis, use of simulation, and evaluation of new ventures in the community.

279. Seminar in Business
Policy and Strategy (3)
Prerequisite: completion of Group II or concurrently. Evolution of strategic management, globalization of strategy, role of multinationals, competitive advantage strategy formulation; implementation; control issues; role of top and middle management; ethics; and culture.

289T. Seminar in Business Topics (3)
Prerequisite: completion of 9 units of 200-level courses. Theory and developments in accounting, administration and organization, business education, communication, consumer economics, finance, industrial and regional studies, real estate and urban economics, information systems, decision sciences, resource economics, risk and insurance, or transportation.

290. Independent Study
(1-3; max total 6)
Prerequisite: Advanced to Candidacy; permission of director and instructor. Approved for *SP* grading.

292. Readings in Business (2-3; max total 3; not repeatable for credit)
Prerequisite: Advanced to Candidacy; permission of director. Approved for *SP* grading.

298. Management Project (3)
Prerequisites: MBA 216, Advanced to Candidacy, and permission of director. See *Criteria for Thesis and Project*. Examination of the work and problems general managers of business units face as chief strategists and organization builders. Independent analysis of an operating industry, business, or a principals functional area of an organization. Case studies and field research project. Approved for *SP* grading.

299. Thesis (3)
Prerequisites: MBA 216, Advanced to Candidacy, and permission of director. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for SP grading.

IN-SERVICE COURSES

(See Course Numbering System.)

Business (BUS)

367. CPA Review (2-4)

380T. Topics in Business (1-3;
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)
Credit may not exceed 1 unit per week of workshop activity. Open only to experienced teachers. Study and critical analysis of problems in content and teaching in secondary school business education.

398. Business Internship
(1-6; max total 6)
Designed for graduate students who need or desire supervised work experience. *CR/NC* grading only.

The School of Education and Human Development

Education Building, Room 210
Paul Shaker, *Dean*, (559) 278-0210

The Mission of the School

The primary mission of the School of Education and Human Development (SOEHD) is to educate students to become teachers, administrators, counselors, and educational specialists in order to provide for the educational needs of children and adults with special attention to diversity and equity.

SOEHD prepares highly competent educators and human development specialists, providing professional support and leadership to the area community, promoting applied research, and providing experiences and opportunities that will enable employed professionals to remain current in their fields.

Students attend classes, study, and work in a state-of-the-art Education Building. This five-story facility offers clinical areas and computer and microteaching laboratories.

SOEHD fosters the realization of human potential by preparing those who work in the field of education and human development to function more effectively and productively in a mutable and increasingly diverse society.

The SOEHD theme *Making a Difference in a Diverse Society: Leadership for a New Millennium* places considerable emphasis on an educator who can function effectively as a leader in a culturally and linguistically diverse society.

Specific goals of the SOEHD are as follows: providing programs to prepare teachers, counselors, and other education specialists; providing learning experiences for adapting to change; providing inservice experiences necessary for professional development and renewal; providing opportunities for research with emphasis on applied research; providing opportunities for faculty to remain current in their fields and serve as role models for educators and the professional community; and providing an optional learning environment using innovative technologies.

The School of Education and Human Development includes the departments of Counseling and Special Education; Curriculum, Teaching, and Educational Technology; Educational Research, Administration, and Foundations; and Literacy and Early Education. The Liberal Studies Program, the Doctorate in Educational Leadership, the Center for Educational Research and Service, and the Instructional Technology and Resource Center are also integral parts of the school.

Counseling and Special Education

The Department

The Department of Counseling and Special Education offers programs and master's degrees in the areas of counseling, rehabilitation counseling, and special education. The programs utilize the services and facilities of community agencies and school districts within the university service area.

Counseling. Three master's degrees are available in the field of counseling: the Master of Arts in Education with an option in counseling and student services; the Master of Science in Counseling with an option in marriage and family therapy; and the Master of Science in Rehabilitation Counseling.

The M.A. degree in Education is a 30-unit program for individuals seeking advanced preparation for careers in school counseling (grades K-12) or student services in higher education.

The M.S. in Counseling degree is a 60-unit program designed for persons who desire professional preparation for the practice of marriage and family therapy in agency or private settings.

The M.S. in Rehabilitation Counseling is a 60-unit program designed for persons who desire professional preparation to work in agency or private settings assisting those who are physically, mentally, or emotionally disabled to reach optimal occupational, personal, and social adjustment.

The Pupil Personnel Services Credential Program is a 42-unit program that provides preparation for individuals who desire to function as school counselors in grades K-12.

Special Education. The Special Education program offers the Preliminary Level I Education Specialist Credential in Mild/Moderate and Moderate/Severe Disabilities in a basic program format, an internship format, and a dual certification program (known as the TIES Program), which leads to the Preliminary Level I Education Specialist Credential in Mild/Moderate or Moderate/Severe Disabilities *and* the Multiple Subjects Credential.

The Special Education Program also offers the Professional Level II Education Specialist Credential in Mild/Moderate and Moderate/Severe Disabilities. Students must complete the Professional Level II credential program within five years of completion of the Level I credential program. Additionally, the program offers the Master of Arts degree in Special Education, which may be taken while pursuing the Professional Level II credential program.

Career Opportunities

Completion of the Pupil Personnel Services Credential and the M.A. in Education with an option in counseling and student services qualifies graduates to work in a public school setting or at the community college or university level in the areas of counseling and student services.

Completion of the M.S. in Counseling with an option in marriage and family therapy may qualify graduates for employment in private or agency counseling practices, county mental health programs, employee assistance programs, drug and alcohol abuse centers, and hospital mental health settings. The M.S. in Counseling with an option in marriage and family therapy may fulfill the educational requirements for the state of California Marriage and Family Therapist License. Since this program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP), MFT students are qualified to take the National Certified Counselor Exam upon graduation. This national examination is being used as the written portion of the professional counselor licensing process in more than 35 states.

Persons completing the M.S. in Rehabilitation Counseling may become employed in a variety of work settings including state and federal vocational rehabilitation programs, sheltered workshops, medical rehabilitation centers, private practice, drug and alcohol abuse rehabilitation programs, county and private mental health programs, community college and university disabled student programs, industry alcohol/industrial accident/employee assistance programs, and insurance company rehabilitation programs. Students in the M.S. in Rehabilitation Counseling program may, during their final semester of study, qualify to take the exam to become a Certified Rehabilitation Counselor (CRC).

Persons completing the Education Specialist Credential in Mild/Moderate and Moderate/Severe Disabilities may seek employment in public or private school programs, clinics, special schools, resource classrooms, educational programs, residential facilities, hospitals, and other agencies serving persons with special needs.

School of Education
and Human Development

Department of Counseling and Special Education
H. Dan Smith, *Chair*
Education Building, Room 350
(559) 278-0340
http://129.8.31.71/departments/cse/counsped.html

M.A. in Education
Option: Counseling
and Student Services

Pupil Personnel Services Credential

M.S. in Counseling
Option: Marriage and Family Therapy

M.S. in Rehabilitation Counseling

Criminal Justice Counseling Specialist Certificate of Advanced Study

M.A. in Special Education
Credential programs:
Preliminary Level I (*including Special Education Internship Program*)
and Professional Level II Education Specialist Credential in Mild/Moderate and Moderate/Severe Disabilities

Faculty

H. Dan Smith, *Chair,* (559) 278-0340
Ronald S. Kiyuna, *Coordinator of Counselor Education,* (559) 278-0329
Albert Valencia, *Coordinator of Pupil Personnel Services/Student Services,* (559) 278-0283
Charles Arokiasamy, *Coordinator of Rehabilitation Counseling,* (559) 278-0325

Diane R. Gehart-Brooks
Dana Caseau
Sari H. Dworkin
Deanna Evans-Schilling
Juan C. Garcia
Christopher F. Lucey
Robert H. Monke
Hong Shen
E.W. "Bud" Stude
Colleen Torgerson

Credential Program Requirements

The Department of Counseling and Special Education offers postbaccalaureate programs leading to credentials in the fields of counseling and special education. Credential programs include: *Counseling*: Pupil Personnel Services Credential; *Special Education*: Preliminary Level I Education Specialist Credential in Mild/Moderate and Moderate/Severe Disabilities (including Special Education Internship Program) and the Professional Level II Education Specialist Credential in Mild/Moderate and Moderate/Severe Disabilities.

Application Deadlines

University Admission. University deadlines for graduate admission applications normally are set during the semester prior to anticipated program enrollment. (Deadlines occur during April or May for fall enrollment and October or November for spring enrollment.) The university may extend admission deadlines if anticipated enrollment targets are not met. For specific deadlines, applicants need to check with the Admissions Office, Joyal Administration Public Contact Window, or call (559) 278-6283.

SOEHD Admission. All SOEHD admission materials required for full admission (Classified Standing) are to be submitted to the graduate technician in the Teacher Preparation and Services Center, ED 100, no later than 30 days following the deadline for university admission. Students submitting all application material within these timelines will receive priority consideration for admission. For SOEHD admission

deadlines, contact the Teacher Preparation and Services Center, ED 100, or call (559) 278-0300.

Counseling

Pupil Personnel Services Credential — School Counseling. The Pupil Personnel Services Credential is required to function as a counselor in a public school setting, grades K-12.

Admission Requirements. Applicants for the Pupil Personnel Services Credential must complete the admissions packet as specified in the *General Admission Requirements* in the *Education — Graduate Program* section. In addition to these requirements, applicants must:

1. Include with the admissions packet verification of completion of a counselor education program orientation. In addition, include:
   a. evidence of having passed the California Basic Educational Skills Test (CBEST)
   b. a current medical clearance
   c. a valid Certificate of Clearance to participate in public school field placement activities
2. Complete prerequisite coursework: COUN 174 (Introduction to Counseling) or equivalent.
3. Receive approval through a review by a program faculty committee. Following receipt of the completed packet and the review by program faculty, applicants will receive written notification regarding admission status.

Program Requirements. Candidates for the Pupil Personnel Services Credential who have been approved by the Program Faculty Review Committee for admission to the program and who want to be recommended for the credential must meet the following program requirements:

1. Complete COUN 150, 200, 201, 202, 203, 206, 208, 220, 240, 241, 242, 249A, 249B.
2. Complete practicum and field practice with a grade of *B* or better.
3. Pass the competency exit review.

Note: Students may not enroll in 200-level courses until their application has been approved by the Program Faculty Review Committee and they have been admitted to the credential program.

Pupil Personnel Services Credential — School Psychology. See *Psychology Department.*

Special Education

New state regulations have significantly changed the credentialing process for special education teachers. It is no longer necessary to first obtain a Single Subject or Multiple Subjects teaching credential before entering the field of special education. Under the new regulations, one must obtain the Preliminary Level I Education Specialist Credential in Mild/Moderate and/or Moderate/Severe Disabilities and within five years receive the Professional Level II Education Specialist Credential.

Preliminary Level I Education Specialist Credential Programs. The Preliminary Level I Education Specialist Credential has two areas of specialization: Mild/Moderate and Moderate/Severe Disabilities. These areas of professional emphasis distinguish the student population with which the candidate seeks to pursue a special education career.

1. *Mild/Moderate Disabilities.* This credential authorizes the provision of services to individuals with mild to moderate disabilities, in grades K through 12, including adults, who may be inefficient learners experiencing difficulties imposing structure on learning tasks. They may display delays in intellectual development, specific learning disabilities, and/or serious emotional disturbances.

Frequently their behavior is characterized by underachievement, failure expectancy, and lack of social competence. They may be impulsive, distractible, and inattentive. This credential is available through the Basic Program, the Internship Program, and the Dual Certification Program (description follows).

2. *Moderate/Severe Disabilities.* This credential authorizes the provision of services to individuals with moderate to severe disabilities in grades K through 12, including adults, with disabilities that require specialized support to address unique learning needs resulting from a range of intellectual, behavioral, emotional, communication, sensory, and/or motor impairments. This credential is available through the Basic Program, the Internship Program, and the Dual Certification Program (description follows).

Program Delivery Systems. Students may pursue their credential goals through the Basic Program, the Internship Program, or the Dual Certification Program. A program is also available for those seeking authorization to teach the deaf and hard-of-hearing:

1. *Basic Program.* The basic program is designed for students seeking the credential as a full- or part-time student. They may be working as a credentialed general education teacher or be teaching with an emergency special education credential.
2. *Internship Program.* The Internship Program is available to students after they complete a minimum of 15 units of specified prerequisites, acquire employment in an appropriate educational setting, and attain admission to the Internship Program. Interns may serve as special education teachers at a salary rate slightly reduced from that of fully credentialed teachers while completing the required coursework and other internship activities specifically designed to support their special professional needs.
3. *Dual Certification Program.* This program, known as the TIES Program (Teachers in Inclusive Educational Settings), leads to the Multiple Subjects Credential *and* the Preliminary Level I Education Specialist Credential in Mild/Moderate or Moderate/Severe Disabilities, and is designed to prepare preservice multiple subjects and special education teachers to work cooperatively in serving the needs of an increasingly diverse student population. Field work participation is extensive. Special advising is required.
4. *Deaf and Hard-of-Hearing.* This credential authorizes the provision of services to individuals from birth to age 22 who have hearing impairments that impair the processing of information through hearing and that adversely affect education performance. Processing linguistic information includes speech and language reception and speech and language discrimination. Contact the Department of Communicative Sciences and Disorders for advising.

Applicants who already possess a Multiple Subjects or Single Subject Credential will find the application process to be somewhat streamlined. Holders of one of these Basic Teaching Credentials may be exempted from items 2, 7, 9, and 10 of the *Admission Requirements* below. Please see an adviser for further clarification.

Note: In prior years, the attainment of a Special Education Credential roughly paralleled the requirements for obtaining the Master of Arts (M.A.) Degree in Special Education. This is no longer the case for those seeking the Preliminary Level I Education Specialist Credential in Mild/Moderate and/or Moderate/Severe Disabilities through the Basic Program, the Internship Program, or the Dual Certification Program. Level I programs do not lead to the Master's Degree.

Admission Requirements. Candidates applying for the Preliminary Level I Education Specialist Credential Programs in Mild/Moderate and/or Moderate/Severe Disabilities, the Internship Program, or the Dual Certification program are expected to meet the following admission requirements:

1. Attendance at an orientation session.
2. Verification of pre-program field experience in a classroom setting. This requirement is met by providing evidence that the candidate has completed EHD 50 (Introduction to Teaching) or another appropriate field experience.
3. Completion of Application for Admission to the Preliminary Level I Education Specialist Credential Program in Mild/Moderate and Moderate/Severe Disabilities, or the Internship Program.
4. Verification of university admission.
5. Provision of a complete set of transcripts of all previous colleges and universities attended.
6. Completion of an admission interview to assess your appropriateness for the program and the field.
7. Verification of Medical Clearance.
8. Provision of three letters of recommendation.
9. Completion of Application for Character and Identification Clearance.
10. Prior to admission to Special Education Practicum, students must demonstrate subject matter competence by completing either *a* or *b*:
    a. Complete an approved Multiple Subject Equivalency Program or pass the Praxis Series Multiple Subject Assessment for Teachers (MSAT) test for Content Knowledge and Area Exercises 1 and 2, *and* receive clearance from the program faculty that subject matter competency has been met by completing the Multiple Subjects Subject Matter Clearance form signed by the liberal studies adviser in ED 151.
    b. Complete an approved subject matter preparation program or pass the appropriate subject matter examinations, (information on these tests is available in the School of Education and Human Development Teacher Preparation and Services Center in ED 100), *and* receive authorization from the academic area adviser that subject matter competence has been met.
11. Prior to being recommended for the credential, students must provide verification of passing the California Basic Educational Skills Test (CBEST).
12. Prior to being recommended for the credential, students must verify possession of a bachelor's degree or higher from a regionally accredited institution of higher education.

Program Requirements. Candidates for the Preliminary Level I Education Specialist Credential Programs in Mild/Moderate and/or Moderate/Severe Disabilities, the Internship Program, or the Dual Certification (TIES) Program who have been admitted to the program and who want to be recommended for authorization must meet the following requirements:

Units

Prerequisites to all programs 5
EHD 50, SPED 120

Basic Program

Units

Courses common to all areas of emphasis 12
SPED 125, 135, 145, 155

Area of Emphasis 12-14
1. Early Childhood ..... (13)
ERF 130ECE, 130A; EHD 111, 112, 113; LEE 146, 148
2. Multiple Subjects ..... (12)
ERF 130, EHD 110, CTET 150, LEE 146
3. Single Subject ..... (14)
ERF 152; EHD 155A, CTET 159, LEE 156

Practicum 9
Mild/Moderate Disabilities ... (9)
SPED 175 *or*
Moderate/Severe Disabilities ... (9)
SPED 176

Total 33-35

Internship Program

Units

Prerequisites to Internship Program by area of emphasis 12-14
1. Early Childhood ..... (13)
ERF 130ECE, 130A; EHD 111, 112, 113; LEE 146, 148
2. Multiple Subjects ..... (12)
ERF 130, EHD 110, CTET 150, LEE 146
3. Single Subject ..... (14)
ERF 152; EHD 155A, CTET 159, LEE 156

Courses common to all areas of emphasis 15
SPED 125, 135, 145, 155, 160F

Praticum 9
Mild/Moderate Disabilities ... (9)
SPED 175 *or*
Moderate/Severe Disabilities ... (9)
SPED 176

Total 36-38

Dual Certification (TIES) Program

Units

Multiple Subjects Core 34
ERF 130, 140; CTET 121, 125, 150; LEE 146, 149; EHD 110, 160A, 160B

Special Education Core 12
SPED 125, 135, 145, 155

Praticum 9
Mild/Moderate Disabilities ... (9)
SPED 175 *or*
Moderate/Severe Disabilities ... (9)
SPED 176

Total 55

Note: Individuals must complete practicum and fieldwork courses with a grade of *B* or better.

Professional Level II Education Specialist Credential Program

As candidates near completion of the Preliminary Level I Education Specialist Credential program, they must plan for admission to the Professional Level II Education Specialist Credential Program. Upon admission, candidates must complete all coursework and obtain the Professional Level II credential no later than five years after obtaining the Preliminary Level I credential. The Level II credential program cannot be completed in fewer than two years of documented employment in a special education position that requires the Level I credential authorization. The Professional Level II credential is required as a condition for continued employment in special education in the state of California.

Candidates may complete their application for admission to the Level II credential program toward the conclusion of their Level I credential program; admission to the Level II credential program is contingent upon the following:

1. Successful completion of the requirements for the Preliminary Level I Education Specialist Credential and actual receipt of the Level I credential.
2. Verification of employment in a special education position that is likely to have sufficient duration for the Level II credential program to be completed. Day-to-day substitute positions *do not* satisfy this requirement.
3. A letter of recommendation from the supervising administrator of the employing district recommending the candidate to the Professional Level II credential program.
4. An interview with the program faculty who will review progress in the Level I credential program and thus assess suitability for the program and the profession.

Since candidates for the Professional Level II Education Specialist Credential have successfully completed the CBEST, have demonstrated subject matter competency, and have maintained an adequate grade point average required for successful completion of the Preliminary Level I credential program, these issues are reviewed only to determine compliance with program admission standards.

The Professional Level II credential program offers specialization in mild/moderate and moderate/severe disabilities as described under the Preliminary Level I credential program. Candidates will have selected one of these professional paths for completion of the Preliminary Level I credential program, and it is expected that the same level of severity of disability will be selected for study in the Level II credential program. The selected level of disability will be consistent with the work setting in which the candidate is employed and working under the Level I credential authorization.

The Professional Level II credential program features close cooperation between the university and the employing school district. The candidate, the candidate's adviser from the university, and an assigned and appropriately credentialed Level II teacher's support provider from the employing district will work cooperatively to develop a professional credential induction plan. The induction plan will identify the unique needs of the candidate in relation to the candidate's professional setting and will establish goals and determine specific activities (including non-university activities) that will assist candidates in their development as a professional special educator.

Ongoing progress on completion of the activities specified in the induction plan will be documented in the candidate's portfolio (initially developed as a component of the Preliminary Level I credential program). The induction plan can include up to 25% of the total program in approved non-university activities if they are deemed appropriate to the professional development of the candidate.

Candidates may wish to pursue the Master of Arts in Special Education while completing the requirements for the Professional Level II credential program. There is considerable coursework consistency between the requirements of these two programs; the candidate must meet the admission requirements of *both* programs should this be the educational objective. Please note the requirements under the *Master of Arts in Special Education* for specific coursework and program requirements.

Program Requirements. Candidates for the Professional Level II Education Specialist Credential Program in Mild/Moderate and/or Moderate/Severe Disabilities who have been admitted to the program and want to be recommended for authorization must meet the following coursework requirements:

Level II Program

Prerequisite ..... Level I Credential

Units

Special Education Induction/ Evaluation and Program core **12**
SPED 209A, 209B, 219, 233

Area of specialization **6**
- Mild/Moderate Disabilities
  SPED 235, 237 *or*
- Moderate/Severe Disabilities
  SPED 236, 240

Specific emphasis **6**
Or equivalent. Activities may consist of university coursework or non-university activities that are approved as a component of the professional induction plan. One-hundred fifty clock hours of approved workshops and/or seminars may be deemed equivalent to the 6-unit requirement. Students may combine university and non-university activities.

Total **24**
Or equivalent.

GPA Requirement for Admission to All Programs. The *California Code of Regulations*, Section 41100, mandates that for admission to a teaching credential program, the applicant shall have earned at the college level a grade point average that falls within the upper 50 percent of undergraduate students in the candidate's discipline. Please see the admissions technician in the Teacher Preparation and Services Center, ED 100, for information on this requirement.

Appeal to Denial of Admission. Applicants who have received notification of denial of admission because the minimum standards specified in the admission requirements have not been met have an opportunity to make a formal appeal for Special Consideration to the School of Education and Human Development Admissions and Standards Committee. Information regarding this process is obtained from the admissions technician in the Teacher Preparation and Services Center, ED 100.

Graduate Programs

The Department of Counseling and Special Education offers programs leading to a Master of Arts in Education with an option in counseling and student services; a Master of Science in Counseling with an option in marriage and family therapy; a Master of Science in Rehabilitation Counseling; and a Master of Arts in 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.

Application Deadlines

University Admission. University deadlines for graduate admission applications normally are set during the semester prior to anticipated program enrollment. (Deadlines occur during April or May for fall enrollment and October or November for spring enrollment.) The university may extend admission deadlines if anticipated enrollment targets are not met. For specific deadlines, applicants need to check with the Admissions Office, Joyal Administration Public Contact Window, or call (559) 278-6283.

SOEHD Admission. All SOEHD admission materials required for full admission (Classified Standing) are to be submitted to the graduate technician in the Teacher Preparation and Services Center, ED 100, no later than 30 days following the deadline for university admission. Students submitting all application material within these timelines will receive priority consideration for admission. For SOEHD admission deadlines, contact the Teacher Preparation and Services Center, ED 100, or call (559) 278-0300.

Master of Arts in Education

Counseling and Student Services

The Master of Arts in Education with an option in counseling and student services is designed for individuals seeking advanced preparation for careers within educational settings.

Admission Requirements for Classified Standing. See *General Admission Requirements* in the *Education — Graduate Program* section in this catalog.

Admission Requirements. Applicants for admission to the Master of Arts in Education with an option in counseling and student services must complete the admissions packet as specified in the *General Admission Requirements* in the *Education — Graduate Program* section. In addition to these requirements, applicants must:

1. Include with the admissions packet verification of completion of a counselor education program orientation.
2. Complete prerequisite coursework: COUN 174 (Introduction to Counseling) or equivalent. Applicants without an appropriate background may be asked to complete COUN 176 (Counseling and Mental Health) as an additional prerequisite.
3. Receive approval through a review by program faculty committee. Following receipt of the completed packet and the review by program faculty, applicants will receive written notification regarding admission status.

Note: Students may not enroll in 200-level courses until their application has been approved by the review committee and they are admitted to classified standing (fully admitted to the program).

Units

Core requirements **27**
ERF 220, 285 or 288;
COUN 298 or 299 ..... (10)
COUN 200, 203, 208, 220,
249A or 249B or 249C ..... (17)

Electives **3**
COUN 150, 180T, 201, 202, 240, 241, 242, 280T, 290; ERF 289; or other approved electives

Total **30**

Note: Practicum and field practice must be completed with a grade of *B* or better.

Master of Science in Counseling

Marriage and Family Therapy

The Master of Science in Counseling is a 60-unit professional degree program designed for persons who desire to practice in the field of counseling. An option is available in marriage and family therapy. Persons completing this degree may qualify to work in agencies, community colleges, four-year colleges and universities, marriage and family therapy, and related areas. Completion of the M.S. in Counseling with an option in

marriage and family therapy fulfills the educational requirements for the state of California Marriage and Family Therapist License if students take an elective upper-division or graduate-level course (at least 1 unit) in substance abuse and obtain at least seven clock hours of training through either a university course or a noncredit professional development workshop (with appropriate verification of attendance) in both child abuse assessment and reporting and domestic violence. Students seeking licensure should contact the coordinator of counselor education for information regarding licensing. This degree program is designed to meet the requirements of Division 2, Chapter 13, Section 4980.37 of the California Business and Professions Code.

In 1995 the Council for Accreditation of Counseling and Related Educational Programs (CACREP) conferred accreditation to the MFT option in counseling in Marriage and Family Therapy. CACREP is a specialized accrediting body recognized by the Council on Postsecondary Accreditation. Since this program is CACREP accredited, MFT students are qualified to take the National Certified Counselor Exam upon graduation.

Admission Requirements. Applicants for admission to the Master of Science in Counseling with an option in marriage and family therapy must complete the admissions packet as specified in the General Admission Requirements in the *Education — Graduate Programs* section. In addition to these requirements, applicants must:

1. Include with the admissions packet verification of completion of a counselor education program orientation.
2. Complete prerequisite coursework: COUN 174 (Introduction to Counseling) and ERF 153 (Educational Statistics) or equivalent. Based on prior coursework and experience, some applicants may be asked to complete COUN 176 (Counseling and Mental Health) as an additional prerequisite.
3. Receive approval through a review by program faculty committee. Following receipt of the completed packet and the review by program faculty, applicants will receive written notification regarding admission status.

Note: Students may not enroll in 200-level courses until their application has been approved by the review committee and they are admitted to classified standing (fully admitted to the program).

Course Requirements. Under the direction of a graduate adviser, each student develops and submits an individually designed program within the following framework:

	Units
Core requirements	**29**
ERF 220, COUN 298 or 299	(7)
COUN 200, 201, 202, 203, 206, 207, 208	(22)
Option	**22**
Marriage and Family Therapy COUN 211, 220, 230, 231, 238, 239 (6 units)	
Electives	**9**
Approved by adviser	
Total	**60**

Note: Practicum and field practice must be completed with a grade of *B* or better.

Criminal Justice Counseling Specialist Certificate of Advanced Study. Individuals who are fully classified and advanced to candidacy in (or graduates of) the M.S. in Counseling program (MFT option) may elect to take courses leading to the Criminal Justice Counseling Specialist Certificate of Advanced Study. The certificate program is cosponsored by the Department of Counseling and Special Education and the Department of Criminology. It is designed to enhance professional skills for counseling service within the criminal justice system. In addition to coursework required for the M.S. in Counseling, students seeking the Criminal Justice Counseling Specialist Certificate of Advanced Study are required to take a total of 16 units in Criminology (in addition to prerequisite CRIM 100 or equivalent), 6 units of which may be used as electives in the M.S. in Counseling (MFT option) program. The Certificate courses: CRIM 130, 153, 201, 203, and 281. M.S. in Criminology students seeking the certificate are required to take an equivalent number of counseling courses.

Grade Requirement

Pupil Personnel Services (PPS) Credential Program, M.A. in Education with an option in Counseling and Student Services, and M.S. in Counseling with an option in Marriage and Family Therapy. A student must demonstrate academic excellence in all coursework, fieldwork, and clinical experiences to be eligible to apply for the PPS credential or receive a master's degree. For the PPS and master of arts, a student will be placed on administrative academic probation after receiving a letter grade of *C* or less or a No Credit (*NC*) in any one class. Upon receipt of two letter grades of *C* or less, one letter grade of *C* or less and one *NC*, or two *NC*s, the student will automatically be disqualified from the program. For the master of science, a student will be placed on administrative academic probation after receiving a letter grade of *C* or less or a No Credit (*NC*) in any two classes. Upon receipt of three letter grades of *C* or less (including *NC*s) the student will automatically be disqualified from the program. This policy spans the entire length of the aforementioned programs; dismissal can occur at any point in the programs.

Master of Science in Rehabilitation Counseling

The Master of Science 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 the student has a working knowledge of the behavioral sciences. The degree requires 60 units of credit and is designed to cover two years of full-time coursework, including a full semester of internship. The program provides a combination of classroom and practical field experiences, which integrates theory and practice of rehabilitation counseling in a rehabilitation setting. The curriculum has flexibility to meet varying student needs.

The graduate program in rehabilitation counseling is accredited by the Council on Rehabilitation Education (CORE). Students are eligible to take the exam to become a Certified Rehabilitation Counselor (CRC) during the last semester of study.

Admission Requirements for Classified Standing. See *General Admission Requirements* in the *Education — Graduate Program* section of this catalog.

Admission Requirements. Applicants for admission to the Master of Science in Rehabilitation Counseling must complete the admission packet as specified in the *General Admission Requirements* in the *Education — Graduate Program* section. In addition to these requirements, applicants must:

1. Include with the admissions packet verification of completion of a counselor education program orientation.
2. Complete COUN 250 and 251 with a grade of *B* or better in each class.
3. Receive approval through a review by a program faculty committee. Following

receipt of the completed packet and review by program faculty, applicants will receive written notification regarding admission status.

Note: Students may not complete more than 10 units of 200-level coursework before obtaining classified standing (full admission to the program).

Program Prerequisites. ERF 153 (Educational Statistics), PSYCH 154 (Personality) or 250T (Seminar in Personality) or COUN 174 (Introduction to Counseling), and PSYCH 166 (Abnormal Psychology) or COUN 176 (Counseling and Mental Health) or their equivalents. Program prerequisites may not be counted toward the Master of Science in Rehabilitation Counseling.

Course Requirements. Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

	Units
Core requirements	**38**
COUN 250, 251, 252, 253, 257, 258, 260, 261, 269	
Courses in supporting curriculum	**12**
Research methods: ERF 220	(3)
Individual and group counseling skills: COUN 200, 202	(6)
Assessment: COUN 203	(3)
Electives	**10**
Approved by adviser	
Total	**60**

The student must demonstrate proficiency by the satisfactory completion of a comprehensive examination, in addition to fulfillment of all other specified degree requirements. A thesis/project may be substituted for the comprehensive examination.

Master of Arts in Special Education

The Master of Arts in Special Education offers advanced preparation in mild/moderate disabilities and moderate/severe disabilities and is closely related to course requirements for the Professional Level II Education Specialist Credential program. It is expected that students seeking admission to the Master of Arts in Special Education will possess a substantial entry-level background in special education, such as having made significant progress toward completion of the Preliminary Level I Education Specialist Credential program in mild/moderate or moderate/severe disabilities.

Applicants seeking the Master of Arts in Special Education who also wish to teach in special education settings in the public schools of California should be concurrently enrolled in the Education Specialist Credential program. The master's degree alone will not provide authorization for classroom instruction in the state of California. Only students seeking teaching positions in states other than California, students seeking expertise for application to employment settings which specifically exclude public education, or students desiring to teach outside of the United States may pursue the Master of Arts without concurrent enrollment in the Education Specialist Credential program. Students with these unique aspirations are responsible for understanding credentialing/licensing requirements that may pertain to their desired work setting.

Students are not required to obtain this master's degree to be employed as a fully credentialed special education teacher in California. It is the credentials (both Level I and II) which provide the required state authorization. Most individuals at the Professional Level II will desire the master's degree as a reflection of their professional preparation beyond the entry level, and for purposes of possible salary augmentation. Students who already possess a master's degree in another field are not required to complete this degree program while pursuing the education specialist credentials.

It is essential that time considerations for admission to and completion of the Master of Arts and credential programs be observed. Applicants who wish to be fully credentialed as special education teachers must complete the Professional Level II Education Specialist Credential program in mild/moderate or moderate/severe disabilities within five years of completing the Level I program. Six units of Special Education coursework may be brought forward from the Level I credential program to the Master of Arts program. The Master of Arts must be completed no later than five years subsequent to taking the first approved course for the degree.

Admission Requirements for Classified Standing. In addition to the admission requirements stated in the General Admission Requirements in the *Education — Graduate Program* section in this catalog, students must possess a GPA of 2.75 overall or on the last 60 undergraduate semester units (or 90 quarter units) and a GPA of 3.0 on all postbaccalaureate coursework attempted. The Special Education Program also requires completion of ERF 153 - Educational Statistics (or equivalent) as a prerequisite for admission. Students may complete ERF 153 no later than the first semester of 200-level coursework and prior to taking ERF 220 or SPED 233. Additional admission requirements include an interview with the program coordinator and faculty review.

Graduate Writing Requirement. Students must demonstrate writing competence before they apply for advancement to candidacy. SPED 233 - Seminar in the Special Educator as Researcher has been designated as the course used to determine students' ability to write clearly, logically, analytically, and knowledgeably. Should the student receive a passing grade in the course content but fail to demonstrate adequate writing competence, there is an appeal process; students are permitted to present their professional portfolio to a special education faculty committee for appeal review.

Professional Development Opportunities for Master's Degree Candidates. Master's degree candidates are provided various opportunities to broaden their professional and educational preparation. Faculty regularly involve degree candidates in advanced research, professional conference presentations, and collaborative writing for publication. Interested students receive mentoring concerning scholarships, grant writing, positions of leadership in school districts, and doctoral programs.

Prerequisite .... ERF 153 (or equivalent)

	Units
Core requirements	**19**
6 units of approved postbaccalaureate coursework in special education from the Preliminary Level I Education Specialist Credential Program or equivalent	(6)
ERF 220 and SPED 298 or 299	(7)
SPED 219, 233	(6)
Area of specialization	**6**
Six units from SPED 235, 236, 237, 240	
Candidates with interests in mild/moderate disabilities should complete SPED 235 and 237; candidates with interests in moderate/severe disabilities should complete SPED 236 and 240.	

Electives 5
Electives are determined in consultation with the student's program adviser and are to support the student's development in areas of specific emphasis (e.g. severe emotional disturbance, early childhood special education, home/school/community collaboration, etc.) All elective units must meet the criteria for graduate-level experiences.

Total 30

COURSES

Note: Students must provide their own transportation to off-campus sites for student teaching, field work, and observation and defray any resulting personal expense.

Counselor Education (COUN)

150. 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 (3)
(Same as PSYCH 174.) An overview of basic counseling models, including psychoanalytic, behavioral, cognitive, and humanistic approaches. Includes a personal counseling experience.

176. Counseling and Mental Health (3)
Examination of the relationship between counseling and mental health with emphasis on current issues of adjustment in society.

180T. Topics in Counseling
(1-3; max total 12 if no area repeated)
Prerequisite: permission of instructor. Seminar covering special topics relating to counseling: new developments in counseling techniques, special populations, and current research. (Successful Career Development, $10)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System*.)

Counselor Education (COUN)

200. Seminar in
Counseling Techniques (3)
Prerequisite: COUN 174. Emphasis given to interviewing skills, philosophy, theory, and methodology as applied to counseling. (2 seminar, 2 lab hours)

201. Seminar in
Multicultural Aspects
of Counseling (3)
Prerequisite: COUN 174. Cognitive and experiential study of social and psychological variables which influence the cross-cultural counseling relationship. Culturally relevant models of counseling theory and practice are explored. Current research methods and findings are presented. (2 seminar, 2 lab hours)

202. Seminar in Group Counseling (3)
Prerequisite: COUN 174, 200. Theories and methods of interpersonal communication within groups, transferal of information, group leadership and membership, role perceptions, verbal and nonverbal interaction, and group counseling. (2 seminar, 2 lab hours)

203. Seminar in
Assessment in Counseling (3)
Prerequisite: ERF 153. Selection, administration, and evaluation of psychological tests and psychometric data for use in counseling settings. (2 seminar, 2 lab hours) (Course fee for assessment materials, $10)

206. Counseling Through
the Lifespan (3)
Prerequisite: COUN 174. Explores developmental issues and life events from infancy through old age and their effect upon individual, couples and family relationships. The impact of gender, race, ethnicity, class and sexual orientation on developmental process is explored.

207. Psychopathology and the
Diagnostic and Statistical Manual of Mental Disorders (3)
Prerequisite: COUN 174, 176 or equivalent. Analysis of psychopathology within the framework of the current DSM. Emphasis on integrating the etiology of the disorders with diagnosis, theory and treatment.

208. Practicum in
Counseling (4; max total 8)
Prerequisites: 12 units in counseling program, including COUN 200. Supervised on-campus counseling experiences with selected clients. Experience in individual counseling, critiquing of tapes and typescripts, observations, and case report writing. Students must carry professional liability insurance. (2 seminar, 4 lab hours)

211. Seminar in
Sexuality Counseling (3)
Presents an overview of theories and research for the treatment of sexual issues, emphasizing relational and social contexts. Topics covered include sexual disorders, sexual abuse, and gay/lesbian/bisexual issues. (Formerly COUN 280T section)

213. Seminar in Therapeutic Methods
with Children, Adolescents,
and Their Families (3)
Prerequisites: COUN 206 and 230. Theories and methods for assessing and treating children, adolescents, and their families. Emphasis is placed on strength-based approaches, play therapy, and current issues in child/adolescent treatment. Covers parent education.

214. Student Development Theory
and Higher Education (3)
Offers an examination of the major theories of college student development. Theories are presented with an exploration of the conceptual framework, relevant research and criticism, and counseling applications. Implications for multicultural and ethical practice are presented throughout the course. (Formerly COUN 280T section)

220. Seminar in
Career Development Theory (3)
Prerequisite: COUN 174. Examination of career development theories and research for their implications in understanding career development generally and career counseling specifically. (2 seminar, 2 lab hours) (Course fee for assessment materials, $10)

230. Seminar in Marriage and Family Therapy Theories (3)
Prerequisite: COUN 174. Study of theories, techniques, and methodology of marriage and family therapy. Current research and methods are presented. (2 seminar, 2 lab hours)

231. Seminar in Ethics and Professional Practices of Marriage and Family Therapy (3)
Prerequisites: COUN 200, 230, and permission of instructor. Addresses professional concerns, including legal/ethical issues, professional identity, and Board of Behavioral Sciences regulations. Introduces family mediation and professional consultation. Includes a minimum of seven training hours in child abuse assessment and reporting in accordance with MFT licensing requirements.

238. Practicum in Marriage and Family Therapy (4; max total 8)
Prerequisites: COUN 207, 208, 230, and permission of instructor. Supervised clinical experiences with families, couples, and/or children. Training in family systems assessment and family communication techniques. Students must carry professional liability insurance.

239. Field Placement in Marriage and Family Therapy (3-12; max total 12)
Prerequisites: 40 units in counseling program, including COUN 200, 208, 238, and permission of instructor prior to semester enrollment. Supervised practice of marriage and family therapy. Setting opportunities include community agencies, school therapy programs, and hospitals. Typically requires a one-year commitment. To receive credit, students must log a minimum of 150 hours, which is one third of total required for graduation. *CR/NC* grading only.

240. Seminar in Counseling 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; direct contact with families, case study, and current legislation. (2 seminar, 2 lab hours)

241. Seminar in Organization of Counseling Services (3)
Prerequisite: COUN 200. Organization, administration, and evaluation of counseling programs. (2 seminar, 2 lab hours)

242. Seminar on Parent Education, Pupil Advocacy, and Consulting (3)
Prerequisites: COUN 174 and 200 or equivalent. Emphasis on current theory and methods of parent education, pupil advocacy, and consulting. Examination of current models in each area including ethical standards, legal concepts, and professional responsibilities. (2 seminar, 2 lab hours)

249A. Field Practice in Elementary School Counseling (4-8; max total 12)
Prerequisites: COUN 200, 208, and permission of instructor. Supervised practice in an elementary school. Students must carry professional liability insurance. Approved for *SP* grading. (160 hours of field practice required for 4 units of credit)

249B. Field Practice in Middle or High School Counseling (4-8; max total 12)
Prerequisites: COUN 200, 208, and permission of instructor. Supervised practice in middle or high schools. Students must carry professional liability insurance. Approved for *SP* grading. (160 hours of field practice required for 4 units of credit)

249C. Field Practice in Student Services (4-8; max total 12)
Prerequisites: COUN 200, 208, and permission of instructor. Supervised practice in a community college, college, or university. Students must carry professional liability insurance. Approved for *SP* grading. (160 hours of field practice required for 4 units of credit)

250. 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.

251. Medical Aspects of Disability (3)
Seminar in the treatment of disabling conditions including etiology, functional limitations, and vocational implications. Student presentation of case studies.

252. 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 to the disabled, including vocational diagnosis, job development, placement techniques, job analysis, affirmative action, and appropriate legislation. (2 seminar, 3 lab hours)

253. 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.

257. Case Practices in Rehabilitation Counseling (4)
Prerequisites: COUN 250, 251. 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 seminar, 6 lab hours)

258. Rehabilitation Counseling Practicum (4; max total 8)
Prerequisites: COUN 200, 250, 251, 252, 253, 257. Laboratory rehabilitation counseling experiences with clients who are disabled, supervised individual counseling sessions, analysis of the effects of disability on personal and vocational development, methods of facilitating vocational rehabilitation, observations, critiques, report writing. Students must carry professional liability insurance. (2 seminar, 4 lab hours)

260. Current Professional Issues in Rehabilitation Counseling (3)
Prerequisites: COUN 250, 251. Seminar on current professional issues in the field of rehabilitation counseling and vocational rehabilitation programs in the public and private sectors with emphasis on ethical standards, legal concepts, and professional development responsibilities.

261. Rehabilitation of the Severely Disabled (3)
Prerequisites: COUN 250, 251. Seminar on strategies to facilitate the vocational rehabilitation of persons with severe disabilities with emphasis on the principles of independent living, supported employment, client assistance programs, and rehabilitation engineering/technology.

269. Internship in Rehabilitation Counseling (12)
Prerequisites: COUN 200, 202, 203, 250, 251, 252, 253, 257, 258, 260, 261, permission of instructor. Full-time, supervised field placement in one of a variety of settings including case responsibilities. *CR/NC* grading only.

280T. Advanced Topics in Counseling (1-3; max 12 if no topic is repeated)
Prerequisites: postbaccalaureate standing and permission of instructor. Topics may include new developments in counseling techniques, rehabilitation counseling practices, special populations, and current research.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220. See *Criteria for Thesis and Project*. A project consists of a significant undertaking appropriate to counseling such as the development of a program for counseling service delivery, development of audiovisual materials or computer software for counselor education or service delivery. An approved proposal is required for enrollment. Approved for *SP* grading.

299. Thesis (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220 and completion of an acceptable thesis proposal. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. See School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *SP* grading.

IN-SERVICE COURSES

(See *Course Numbering System.*)

Counselor Education (COUN)

303. Human Interaction in Counseling (1-3; max total 12 if no topic repeated)
An exploration of human interaction skills. The course is designed to improve the ability to interact with others. Not applicable toward degree requirements.

380T. Topics in Counseling (1-3; max total 12 if no topic repeated)
Selected areas in counseling; placement skills, vocational evaluation, research, medical history, case management, mental health, counseling strategies, and theoretical orientation. Not applicable toward degree requirements.

COURSES

Special Education (SPED)

120. Teaching Students with Special Needs in General Education Settings (3)
Prerequisites: EHD 50 or 115 or permission of the instructor. Introduction to identification, characteristics, theories, curriculum, and instruction for students with mild to severe disabilities, legislative guidelines, nondiscriminatory assessment, parental involvement, and foundations in special education. Includes 15 hours of observation/participation.

125. Positive Behavioral and Social Supports (3)
Prerequisites: ERF 130, 130A, or 152 and SPED 120, or permission of instructor. Addresses effective behavior and social supports, emphasizing philosophical approach, prevention, intervention, and corrective strategies for teaching new behaviors. Completion of implementation with special education students required.

135. Assessment and Instruction in the Special Education Academic Curriculum (3)
Prerequisites: ERF 130, 130A, or 152 and SPED 120, or permission of instructor. Addresses non-biased assessment for placement, curriculum development, instruction, and implementation across placement options. Completion of assessment and instruction of special education students in field sited required. (2 seminar, 2 lab hours)

145. Assessment and Instruction in Special Education Functional Curriculum (3)
Prerequisites: ERF 130, 130A, or 152 and SPED 120, or permission of instructor. Addresses assessment, curriculum development, and instruction in domestic, vocational, self-help, leisure/recreation, communication, social, and mobility areas; environmental assessment; and implementation of functional curriculum across settings. (2 seminar, 2 lab hours)

155. The Professional in Special Education (3)
Prerequisites: admission to special education program and concurrent enrollment in SPED 175 or 176. Focuses on advanced application of models for collaboration, application of foundations, and theory in special education; advanced professional, legal, and ethical standards; and advocacy and self-advocacy.

160F. Fieldwork in Special Education (1-3; max total 12)
Prerequisite: prior or concurrent enrollment permission of instructor. Supervised observation and participation in selected programs for exceptional individuals; educational planning, guidance and counseling.

175. Level I: Mild/Moderate Practicum (9)
Prerequisites: admission to special education program and completion of all requirements for admission to special education student teaching. Supervised field work in public school classrooms for students with mild to moderate disabilities; 350 hours minimum including four consecutive weeks of full day experience.

176. Level I: Moderate/Severe Practicum (9)
Prerequisites: admission to special education program and completion of all requirements for admission to special education student teaching. Supervised field work in public school classrooms for students

with moderate to severe disabilities; 350 hours minimum including four consecutive weeks of full-day experience.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

Special Education (SPED)

201. Seminar in
Behavior Management (3)
Prerequisite: SPED 120 or equivalent. Behavior management principles, effective discipline, programs, and techniques employed in special education and clinical prescriptive teaching. Emphasis on school and home applications. (2 seminar, 2 lab hours)

202. Career Development
and Transition for
Students with Disabilities (3)
Prerequisite: SPED 120 or permission of instructor. Seminar in the examination of career education; models, curriculum scope and sequence, transitional approaches to independent living, and the utilization of local, state, and federal resources. (2 seminar, 2 lab hours)

205. Nature and Needs of
Individuals with Serious Emotional
Disturbance/Behavior Disorders (3)
Addresses the characteristics and needs of the child with emotional and behavioral disorders, and service delivery systems and agencies which exist to meet those needs. (2 seminar, 2 lab hours)

209A. Application of Theory into
Practice in Special Education Settings (3)
Supervised field experience with special education students and their families with integration of applied research and theory into practice in special education. Development of induction plan will include the candidate, university supervisor, and employer school district representative/support provider. (Minimum of 45 hours per unit) (Formerly SPED 209)

209B. Application of Theory into
Practice in Special Education Settings (3)
Coordination of ongoing support for professional self-assessment, goal-setting, and other induction plan components of SPED 209A. Support is provided by collaboration between university and school district/agency personnel. (Minimum of 45 hours per unit) (Formerly SPED 209)

211. Assessment of Learning
Handicapped Students (3)
Prerequisites: ERF 153, SPED 120. Review of testing techniques and instruments, and development of psychoeducational reports. Extensive independent child study and evaluation with appropriate diagnostic instruments. (2 seminar, 2 lab hours) (Course fee for assessment materials, $10)

214. Trends and Issues in
Special Education (3)
Provides discussion and analysis of current trends and issues in special education as it relates to legislation, litigation, at-risk student, medically involved student (e.g., HIV), multicultural considerations, consultative models, technology, and professional ethics. (Formerly SPED 280T section)

215. Seminar in Curriculum for
Learning Handicapped Students (3)
Prerequisites: SPED 120, 211. Current and effective instructional practices in the curricular areas of language arts, mathematics, social studies, and science for learning handicapped students; emphasis on the integration of cognitive strategies and advanced technology. (2 seminar, 2 lab hours)

217. Advanced Instruction of
Individuals with Serious Emotional
Disturbance/Behavior Disorders (3)
Designed to provide information relevant for planning, organizing, and managing instructional programs for students with emotional and behavioral disorders in a variety of settings. (2 seminar, 2 lab hours)

218. Practicum in Special
Education: Learning Handicapped (5)
Prerequisites: ERF 153; SPED 120, 211; prior and/or simultaneous enrollment in a maximum of 12 units in the following courses: SPED 201, 202, 214, 215, 235; COUN 240 or SPED 219. Clinical experience in diagnosis and evaluation of the learning handicapped, prescriptive program development, prescriptive instruction, and program management. Experience to include data gathering, program planning and execution, evaluation, and consultation.

219. Home/School/Community
Collaboration: Policy, Research,
and Practice (3; max total 6)
Prerequisite: permission of instructor. Examines educational, psychological, and political issues that arise when developing collaborative relationships with families, general educators, and other professionals. Primary focus is on the development of materials, strategies, and skills to work with families, including the culturally and linguistically diverse. (2 seminar, 2 lab hours)

220. Assessment of Individuals
with Severe Disabilities (3)
Prerequisite: SPED 120. Presentation of assessment strategies and methods used to identify current levels of educational performance for individuals. Emphasis is upon assessment practices and community-based curriculum domains which contribute data to the design of appropriate individualized education plans. (2 seminar, 2 lab hours)

221. Instructional Methods for
Students with Severe Disabilities (3)
Prerequisites: SPED 120, 220. Presentation of instructional approaches, methods and techniques for individuals from birth to adulthood using home, school and community-based curriculum content. Emphasis is upon educational practices which contribute to the design, implementation, and evaluation of appropriate individualized education programs and services. (2 seminar, 2 lab hours)

228. Advanced Practicum in
Special Education for Individuals
with Severe Disabilities (5)
Prerequisites: ERF 153; SPED 120, 220, 221; prior or concurrent enrollment in SPED 201, 202, 214; COUN 240 or SPED 219. Supervised, field-based experience in advanced teaching methods and procedures for integrating required competencies in the areas of program organization, management of teaching environments, skill assessment and instructional planning, behavior management, IEP implementation, program evaluation, teacher and parent consultation, microtechnology, and continuing professional development.

233. Seminar in the
Special Educator as Researcher (3)
Prerequisites: ERF 153 and 220. Examines the special educator as researcher from several perspectives through reading and analysis of contemporary and emerging research in special education; attending colloquia with special educators who are conducting research; and developing and beginning implementation of pilot research and project designs. (2 seminar, 2 lab hours)

235. Assessment and Development of Social Affective Education Programs (3)
Prerequisite: SPED 120 or equivalent. 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) (Formerly SPED 213)

236. Seminar in Social Curriculum and Communication (3)
Research and practice in assessment and instruction of communication and social interaction curriculum; advanced behavioral, emotional, and environmental supports for students with moderate to severe disabilities. Includes analysis of behavior, communication systems, adapted technology, and team participation with other specialists.

237. Seminar in Program Management for Students with Mild/Moderate Disabilities (3)
Students will learn to analyze assessment and performance data for the purpose of designing or modifying curriculum and instructional methods to facilitate the successful participation of students in general or special education classrooms. Additionally, students will examine current research and the implications for programming for students with mild/moderate disabilities.

238. Clinical Field Experience in Serious Emotional Disturbance/ Behavior Disorders (3)
Designed to provide clinical experience in diagnosis and evaluation of the serious emotionally and behaviorally disordered, prescriptive program development, prescriptive instruction, and program management. Experience to include data gathering, program planning and execution, evaluation, consultation, and collaboration. (2 seminar, 2 lab hours)

240. Seminar in Program Management for Students with Moderate/Severe Disabilities (3)
Current and emerging research in quality program characteristics; assessment and instruction of vocational, functional, academic, personal management (including self-help, domestic, and community); collaboration and leadership in programs for students with moderate to severe disabilities.

280T. Advanced Topics in Special Education
(1-3; 12 if no area is repeated)
Prerequisites: postbaccalaureate standing and permission of instructor. Topics may include special education legislation, parenting, transitional programming, parents as teachers, adolescents and adults with disabilities, current research, child abuse, gifted and talented.

290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220. See *Criteria for Thesis and Project*. A project consists of a significant undertaking appropriate to special education such as the development of courses of study, instructional manuals, teachers' guides, intervention programs, and computer software. An approved proposal is required for enrollment. Approved for *SP* grading.

299. Thesis (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220 and completion of an acceptable thesis proposal. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. See School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System*.)

Special Education (SPED)

380T. Topics in Special Education
(1-3; max total 12 if no topic repeated)
Selected areas in special education; identification of exceptional students, assessment of learning disabilities, focus on specific disabling conditions, instructional methods, parent involvement with handicapped students, federal and state legislation. Not applicable toward degree requirements.

Curriculum, Teaching, and Educational Technology

The Department

The primary mission of the Department of Curriculum, Teaching, and Educational Technology is the preparation and continuing education of K-12 educators, particularly teachers. Coursework and field experiences are designed to prepare teachers who are reflective thinkers, problem solvers, and decision makers to meet the challenges of teaching in a rapidly changing world characterized by social, economic, and cultural/linguistic diversity.

The coursework offers students opportunities to develop and refine their understanding of the teaching/learning process while experiencing the best of the world of practice. Additionally, educational technology coursework enhances their instructional effectiveness. Supervised field experiences along with instructional planning and evaluation techniques provide the foundation for productive and responsive teaching. In this context, all faculty promote teaching as a science and an art. Programs offered through the Department of Curriculum, Teaching, and Educational Technology are identified within two major categories: teaching credential programs and master's degree programs.

CalState TEACH. See *Special Programs*, page 461-462 for program information. See page 255-256 for courses.

Faculty

The faculty represents a wide range of experience and specializations. Students are encouraged to meet frequently with their professors and advisers to discuss their progress and concerns. Individual attention is the concern of the faculty and support staff of the department.

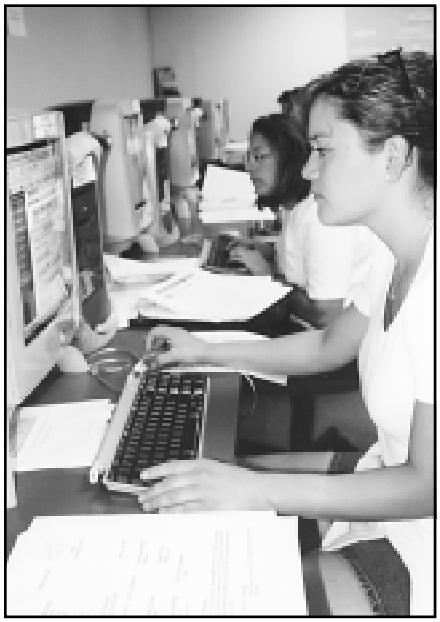
Joan C. Henderson-Sparks, *Chair*

Jody Daughtry, *Coordinator of Single Subject Credential Program*, (559) 278-0300

Michael Jordan, *Coordinator and Adviser of Multiple Subject Credential Program*, (559) 278-0300

Elizabeth Hansen, *Director of Field Experience*, (559) 278-0300

Janine Quisenberry, *Coordinator of Option IV Postbaccalaureate Re-entry Program*, (559) 278-0231



Donald Beauregard, *Coordinator Teacher Internship Program*, (559) 278-0232

Bernice A. Stone, *Coordinator of Block A/Middle School Program*, (559) 278-0265

David M. Andrews
Mario L.M. Baca
Jean L. Behrend
Otto E. Benavides
Carol F. Bohlin
Roy M. Bohlin
Robin T. Chiero
Gretchen Choate
Susan B. Harris
Sandra J. LeSourd
Jose Lomeli
David P. Lopez
James E. Marshall
Susana C. Mata
Jane M. Moosoolian
Lisa M. Nyberg
Joe Parks
Vera Pettus
Kien T. Pham

Career Opportunities

California State University, Fresno is the focal point of the San Joaquin Valley. The city of Fresno is a large and growing urban/industrial and agricultural regional service area. This unique geographical position allows for ready access to a variety of school systems — large urban schools as well as many less populated school districts in predominantly rural settings. Recent statistical reports provide evidence that the area population is continuing to increase along with the number of school-aged children. This pattern of growth along with anticipated attrition from the teaching profession provides considerable evidence of a growing demand for classroom teachers, curriculum specialists, and other positions directly or indirectly related to the field of education.

School of Education
and Human Development

Department of Curriculum, Teaching, and Educational Technology

Joan C. Henderson-Sparks, *Chair*
Education Building, Room 250
(559) 278-0240

Basic Teaching Credentials

- Multiple Subject, General
- Multiple Subject, CLAD/BCLAD
- Multiple Subject, with emphasis in Early Childhood Education Multiple Subject, Communicative Disorders
- Multiple Subject Internship Program
- Multiple Subject, Postbaccalaureate Block Program
- Multiple Subject, Block A/Elementary and Middle School Block
- Multiple Subject, CalStateTEACH (CST) Emergency Permit/Pre-Intern/ Intern Program
- Single Subject
- Single Subject, CLAD
- Single Subject Internship Program
- Special Education with emphasis in Early Childhood Education, Multiple and Single Subject

M.A. in Education

Option: Curriculum and Instruction

Certificate of Advanced Study in Educational Technology

Note: Recent legislation by the California Legislature will most probably result in additional required coursework in the area of early reading development.

Credential Programs

A basic teaching credential may be earned in conjunction with a baccalaureate degree or following completion of a fifth-year course of study. The two basic teaching credentials are the Multiple Subject Credential and the Single Subject Credential.

The Multiple Subject Credential holder is authorized to teach in self-contained classrooms from K-12. Most holders of the Multiple Subject Credential teach in elementary school settings. Programs include:

- Multiple Subject — General (See this section.)
- Multiple Subject — Early Childhood Education (See this section and the *Department of Literacy and Early Education.*)
- Multiple Subject — CLAD/BCLAD (See this section and the *Department of Literacy and Early Education.*)
- Multiple Subject Teacher in Preparation Internship Program (See this section.)
- Special Education Preliminary Level I Education Specialist Credential and Dual Certification Program (See the *Department of Counseling and Special Education.)*

Note: Students are encouraged to complete the CLAD credential since many school districts require it for employment.

The Single Subject Credential holder is authorized to teach in the subject area of the credential in departmentalized classrooms typically found in middle school and senior high school settings. This credential is offered in agriculture, art, business, English, English-speech, English-drama, English-ESL, foreign languages (French, German, and Spanish), home economics, industrial technology, mathematics, music, kinesiology, science, and social science.

For information about the professional preparation component of the Multiple and Single Subject Credential programs, including the Teacher in Preparation Internship Program, see this section. For information about the academic components of the Multiple Subject Credential, see the liberal studies major; for information about the academic component of the Single Subject Credential, see the appropriate department.

State Admission Requirements

California Code of Regulations, Section 41100, mandates that for admission to a teaching credential program, the student must be assessed in terms of the following criteria:

Scholarship. The candidate shall have earned at the college level a grade point average that falls within the upper 50 percent of undergraduate students in the candidate's discipline division on the campus.

Prerequisite Courses and Field Experiences. The candidate shall have successfully completed a supervised early field experience and other prerequisite courses and experiences prescribed by the campus.

Professional Aptitude. The candidate shall demonstrate suitable aptitude for teaching in the public schools. Aptitude is assessed through interviews, letters of recommendation, and a written statement of professional goals or philosophy.

Physical Fitness. The candidate shall satisfy the standards of physical fitness required by the State Credentialing Agency.

Fundamental Skills. The candidate shall demonstrate proficiency in fundamental skills in written and spoken English, reading, and mathematics.

Personality and Character. The candidate shall demonstrate personality and character traits that satisfy the standards of the teaching profession.

Admission Exceptions. If a candidate has not met one or more admission requirements but possesses compensating strengths in other required areas, he or she may be granted conditional admission which must be cleared prior to admission to student teaching. The number of exceptions granted each year shall not exceed 15 percent of the total number of candidates admitted during the previous year.

Multiple Subject Credential Programs

Holders of Multiple Subject Credentials are authorized to teach in self-contained classrooms commonly found in elementary schools. The School of Education and Human Development offers the Multiple Subject Credential. The cooperating departments are primarily responsible for developing subject matter competency which leads to the completion of the Multiple Subject Equivalency Program and baccalaureate degree in liberal studies. The School of Education and Human Development offers required coursework in professional education.

Multiple Subject Academic Advisers. Dean Paul Shaker serves as interim coordinator of the liberal studies major. Academic advising for the liberal studies major is conducted by Janell Perez, Pat Christensen, and Esther Rodriguez in the School of Education and Human Development's Liberal Studies Office in ED 151.

Multiple Subject Professional Preparation Adviser. Michael Jordan, the adviser for the Multiple Subject Credential Program, is located in the School of Education and Human Development's Teacher Preparation and Services Center in ED 100 and serves as the adviser for the professional preparation component of the program.

Types of Multiple Subject Credentials. There are two types of multiple subject credentials — the Preliminary Multiple Subject Credential and the Professional (clear) Multiple Subject Credential (fifth year).

A Preliminary Multiple Subject Credential provides authorization to teach in a self-contained classroom for a maximum time period of five years.

A Professional (Clear) Multiple Subject Credential is required for full authorization in a self-contained classroom. All requirements for a clear Multiple Subject Credential must be completed within five years of the date of issuance of the preliminary credential.

Requirements for a Preliminary Multiple Subject Credential

1. Complete core of professional education courses.
2. Demonstrate subject matter competence:
   a. complete an approved Multiple Subject Equivalency Program *or* pass the Praxis Multiple Subject Assessment for Teachers (MSAT) tests for Content Knowledge and Area Exercises 1 and 2
   b. receive clearance from the academic adviser that subject matter competence has been met.
3. Complete a bachelor's degree.
4. Provisions and Principles of the U.S. Constitution. Completion of a course (two semester units or three quarter units) in the provisions and principles of the United States Constitution *or* passage of examination in the subject given by a regionally accredited junior college, college, or university *or* verification of meeting the interstate agreement requirement.

Time Restrictions. Courses required for preliminary and professional (clear) credentials must be completed no more than 10 years prior to credential application.

Note: With the exception of the Internship Program, individuals may begin a Single or Multiple Subject Credential program if they are in their senior year, have completed at least 90 units toward a bachelor's degree, and have been admitted to a credential program.

Preliminary Multiple Subject Credential — General Requirements for Initial Admission

1. Attend a Multiple Subject Credential Program orientation meeting.
2. Provide evidence of successful completion of an appropriate pre-program field experience or EHD 50, Introduction to Teaching.
3. Provide evidence of passing the California Basic Educational Skills Test (CBEST) by presenting a CBEST Permanent Verification card, or meet other options. (See alternative admission plans in the Multiple Subject Credential Program admission packet.)
4. Complete an application to the credential program.
5. Verify admission to California State University, Fresno, with a student I.D. card or a Notice of Admission.
6. Provide a complete set of transcripts of all prior college/university coursework. Transcripts are used to verify a GPA that is in the top 50 percent of the applicant's major field of study or discipline.
7. Complete an Admission Interview Form and obtain an interview from a multiple subject credential faculty member. Sign up for interviews in ED 100.
8. Obtain a medical clearance at the University Health Center.
9. Obtain two completed Recommendation for Admission to Teacher Education forms written by instructors, supervisors, or other individuals in a position to recommend for admission into a teacher education program.
10. Obtain appropriate clearance to teach in a public school by presenting a valid California Teaching Credential or applying for a Character and Identification Clearance.

Required application materials and forms are available in the School of Education and Human Development's Teacher Preparation and Services Center in ED 100. All admission requirements (forms, documents, prerequisites) must be completed prior to enrollment in professional program courses.

Timelines for initial admission to the Multiple Subject Credential Program are listed in the next paragraph. Application forms are available in the school's Teacher Preparation and Services Center in ED 100.

Semester Enrolled	*Application Requirements Completed*
Summer	April 1
Fall	April 1
Spring	November 1

Preliminary Multiple Subject Credential — Requirements for Admission to Student Teaching

Multiple Subject Credential candidates must qualify for admission to two distinct levels of student teaching: (1) Initial Student Teaching (EHD 110) and (2) Final Student Teaching (EHD 160A and B, or C).

Requirements for Admission to Initial Student Teaching (EHD 110)

1. Submit an application form for EHD 110 by the specified deadline.
2. Complete all admissions requirements and receive notification of initial admission to the program.
3. Students must take CTET 150, Curriculum and Instruction in Elementary School (3 units), and LEE 146, Teaching Reading in K-3 Classrooms (3 units), or LEE 149, Teaching Reading in 4-8 Classrooms, concurrently with EHD 110, Initial Student Teaching. Students should also take ERF 130, Educational Psychology, and ERF 140, Cultural Foundations of Education, concurrently with EHD 110, Initial Student Teaching. This is provided as a means to maximize the bridging of theory and practice. In certain circumstances because of work schedules and other obligations, students may take coursework in accordance with individualized plans designed following consultation with the multiple subjects adviser. However, CTET 150 and LEE 149 or LEE 146 must be taken concurrently with EHD 110 (except in Option II and Special Education).
4. Maintain a 3.0 GPA on all professional preparation courses. All courses (except those offered for *CR/NC* only) must be taken for a letter grade.
5. Complete a fifth-year Program Form and have it signed by the multiple subject fifth-year adviser (ED 100).

Timelines for admission to Initial Student Teaching (EHD 110) are listed in the next paragraph. Application forms are available in the school's Teacher Preparation and Services Center in ED 100.

Semester Enrolled	*Application Requirements Completed*
Fall	April 1
Spring	November 1

Requirements for Admission to Final Student Teaching (EHD 160A, B, and C*)

1. Submit an EHD 160 application form by deadline.
2. Successfully complete Initial Student Teaching (EHD 110).
3. Demonstrate subject matter competence:
   a. complete an approved Multiple Subject Equivalency Program *or* passing the Praxis Multiple Subject Assessment for Teachers (MSAT) tests for Content Knowledge and Area Exercises 1 and 2
   and
   b. receive clearance from the program faculty that subject matter competency has been met by completing the Multiple Subject — Subject Matter Clearance form signed by the liberal studies adviser (ED 151).
4. Complete an approved program of professional preparation in a specific program option (see *Program Option* section) and maintain a GPA of 3.0 with no individual course grade lower than a *C*. All courses (except those offered for *CR/NC* only) must be taken for a letter grade.
5. If admitted as an exception with conditions, satisfy all conditions specified.
6. Clarification: Students who elect to complete the EHD 160 assignment in two semesters must sign up for EHD 160A (5 units) and EHD 160B (5 units). Successful completion of EHD 160A and 160B must include a minimum of one week of full-time student teaching. Successful completion of EHD 160C requires one full semester, all day, every day of student teaching in each assignment. Students will be solely responsible for planning and teaching a minimum of two weeks all day in this EHD 160 assignment.
7. Provide evidence of passing the California Basic Educational Skills Test (CBEST) by presenting a CBEST Permanent Verification card.

Timelines for Admission to Final Student Teaching (EHD 160A, B, and C) are listed in the next paragraph. Application forms are available in the school's Teacher Preparation and Services Center in ED 100.

Semester Enrolled	*Application Requirements Completed*
Fall	February 28
Spring	September 30

Note: Students who receive a "No Credit" grade in any student teaching course are required to

petition the Admissions and Standards Committee for approval to retake the course. Students who receive a grade of "No Credit" for a second time will be dismissed from the Multiple Subject Credential Program. Student teachers whose placements are terminated after the date for refund of tuition are responsible for full tuition regardless of circumstances leading to termination.

Basic Teaching Credentials

Preliminary Multiple Subject Credential programs include:

- Option I, General and Cross-Cultural Language and Academic Development (CLAD) and Bilingual Cross-Cultural Language and Academic Development (BCLAD)
- Option II, Early Childhood Education Emphasis with CLAD
- Option III, Communicative Disorders — Deaf and Hard-of-Hearing
- Option IV, Postbaccalaureate Re-entry Block Program
- Block A/Elementary and Middle School Block with CLAD
- Teacher in Preparation (TIP) Internship — Postbaccalaureate Program: Multiple Subject Internship
- Special Education Preliminary Level I Education Specialist Credential and Dual Certification Program

Multiple Subject, General (Option I). The Option I, General Multiple Subject Credential Program is directed toward providing professional preparation required for teaching in self-contained educational settings (typically found in the elementary school).

Program Requirements

1. Subject Matter Competency. Demonstrate subject matter competence through completion of the Multiple Subject Equivalency Program or pass the Praxis Series Multiple Subject Assessment for Teachers (MSAT) tests for Content Knowledge and Area Exercises 1 and 2 and receive faculty certification of subject matter competence.

2. Professional Preparation *Units*

EHD 110	3
CTET 121	3
CTET 125	3
ERF 130	3
ERF 140	3
CTET 150	3
LEE 146	3
LEE 149	3
EHD 160C	10
Total	**34**

3. Completion of a bachelor's degree. California law requires a bachelor's degree in a subject area other than professional education.

   For more information, see the Multiple Subject adviser in ED 100.

Preliminary Multiple Subject Credential with emphasis in Cross-Cultural Language and Academic Development and Bilingual Cross-Cultural Language and Academic Development (CLAD/BCLAD). The emphasis of CLAD/BCLAD programs is to prepare teachers to work with limited-English proficient students. The CLAD authorization will certify teachers to provide instruction for English language development and specially designed academic instruction in English. The BCLAD (Spanish and Hmong) replaces the Bilingual/Cross-Cultural Credential and will authorize teachers to provide academic instruction to limited-English proficient students in their primary language.

Program Requirements

The following are requirements for a Preliminary Multiple Subject Credential with CLAD Emphasis:

1. Demonstrate subject matter competence:
   a. complete an approved Multiple Subject Equivalency Program, the Liberal Studies degree, or pass the Praxis Series Multiple Subject Assessment for Teachers (MSAT) tests for Content Knowledge and Area Exercises 1 and 2;
   b. receive written notice from the academic adviser that subject matter competence has been met; and
   c. complete LEE 133 or LING 133 (English Language Learners in the Elementary School) and the equivalent of 6 units of foreign language.

Preliminary Multiple Subject Credential, CLAD/BCLAD General Requirements for Initial Admission and Requirements for Admission to Student Teaching. Same as for Multiple Subject Credential. See Multiple Subject adviser in ED 100 or the CLAD/BCLAD coordinator in ED 253 for details.

Professional Preparation for CLAD/BCLAD

	Units
EHD 110	3
CTET 121	3
CTET 125	2
ERF 130	3
ERF 140	3
CTET 150	3
LEE 146	3
LEE 149	3
EHD 160C	10
Total*	**34**

*Additional course for BCLAD:
LEE 139 3

There may be changes in this program. For more information see the Multiple Subject adviser in ED 100 or the CLAD/BCLAD coordinator in ED 253.

Multiple Subject/CLAD, emphasis in Early Childhood Education — (Option II). The Early Childhood Education Emphasis program prepares students to teach in the elementary grades, with special strengths in early childhood education. For more specific program information, see the *Department of Literacy and Early Education — Credential Programs, Option II, Early Childhood Education Emphasis.*

Multiple Subject, Communicative Disorders (Option III). The Option III, Communicative Disorders Program is designed for students who wish to prepare for specialization in special education as educators of the deaf.

Program Requirements

1. Subject Matter Competency. Complete an approved major in Communicative Disorders, pass the Praxis Series Multiple Subject Assessment for Teachers (MSAT) tests for Content Knowledge and Area Exercises 1 and 2, and receive faculty certification of subject matter competence.

2. Professional Preparation *Units*

EHD 110	3
CTET 121	3
ERF 130	3
ERF 140	3
CTET 150	3
LEE 146	3
LEE 149	3
EHD 160C	10
Total	**31**

3. Completion of a bachelor's degree. California law requires a bachelor's degree in a subject area other than professional education.

   For more information about Option III, see the requirements for the Deaf Education and the Special Education Specialist Credential in the *Department of Communicative Sciences and Disorders* section.

Multiple Subject, Postbaccalaureate Re-entry Block Program (Option IV). The Option IV program is designed to meet the needs of the re-entry student who has earned

a bachelor's degree, has extensive work experience, and wishes to return to the university to obtain a Multiple Subject Credential to teach in an elementary school. Students selecting this option register in a block of courses taught by a team of instructors. Candidates participate in classes and field assignments throughout a two-semester course of study and teach in various school settings.

Program Requirements

1. Subject Matter Competency. Complete a bachelor's degree with a major in a subject area other than professional education, pass the Praxis Series Multiple Subject Assessment for Teachers (MSAT) tests for Content Knowledge and Area Exercises 1 and 2, and receive faculty certification of subject matter competence.

2. Professional Preparation *Units*

EHD 110	3
EHD 160C	10
CTET 121	3
CTET 125	3
CTET 150	3
ERF 130	3
ERF 140	3
LEE 146	3
LEE 149	3
Total	**34**

3. Completion of a bachelor's degree. California law requires a bachelor's degree in a subject area other than professional education.

There may be changes in the Option IV program. For more information, contact the program coordinator at (559) 278-0257.

Multiple Subject, Block A/Elementary and Middle School Block. The Block A/Elementary and Middle School Block is designed to prepare Multiple Subject credential students for teaching in both elementary and middle school grades (K-8). Students in this program may do all of their student teaching in elementary grades (K-6) or have the option of doing half of their student teaching in middle school (7-8) and half in elementary school (K-6). The goal of this school-based, cohort program is to prepare students in practical applications as well as theoretical aspects of teaching by coordinating coursework with classroom practice and by providing additional training and support from classroom teachers. All coursework is offered on the Nelson School campus and is taught by a team of four professors who may also supervise student teaching. Student teaching placements are in Clovis, Central, or Fresno Unified schools. Special training is provided for students with an interest in middle school. This block enables students to move through the program as a cohort in one year beginning in the fall semester and providing a CLAD credential, if all CLAD requirements are completed. Program requirements are the same as Option I with CLAD. Information and applications are available outside of ED 255 or by contacting the coordinator at (559) 278-0265.

Multiple Subject, Teacher in Preparation (TIP) Internship Program. The TIP Internship program is designed for qualified individuals who have prior classroom experience and who seek an alternative route to obtaining a Professional (clear) Teaching Credential. Students must possess a bachelor's degree from an accredited institution, meet all criteria for admission to a basic credential program, and have extensive classroom related experience. Refer to the preliminary Multiple Subject CLAD/BCLAD Credential general requirements for initial admission. Candidates who have been successful long-term substitute teachers and holders of an emergency credential are good candidates for the internship program.

Interns have a year-long contract with a participating school district, earning a modestly reduced salary. In addition, interns enroll in coursework leading to a Professional (clear) Credential. The entire program requires two summers and two semesters to earn a Professional (clear) Credential.

For further information, please contact the Internship Office at (559) 278-0232.

Program Requirements

1. Subject Matter Competency. Demonstrate subject competency through completion of the Multiple Subject Equivalency Program *or* pass the Praxis Series Multiple Subject Assessment for Teachers (MSAT) tests for Content Knowledge and Area Exercises 1 and 2 and receive faculty certification of subject matter competence. Prerequisite for admission.
2. Admission to Program. Applicants must be admitted to California State University, Fresno and a basic teaching credential program in the School of Education and Human Development. They must participate in two levels of interviews: one by a university selection committee and another by school district personnel. Candidates must also be offered a teaching contract by a participating school district. Interns have the responsibility for finding their own jobs with participating districts.
3. Professional Preparation Units

Prerequisites:	EHD 110	3
	ERF 130	3
	LEE 146*	3
	LEE 149*	3
	CTET 150	3
Semester I:	EHD 160A	5
	ERF 140	3
	CTET 121	3
Semester II:	EHD 160B	5
	LEE 138	3
	CTET 125	3
Post-Internship:	CTET 100	3
	SPED 120	3
	H S 120	2
Total		**45**

* *Note*: LEE 146 and 149 reading courses should not be taken in the same semester.

4. Special Education Internship Program *Units*

Prerequisites to Internship Program by emphasis	12-14
Early Childhood	13
ERF 130ECE, 130A; EHD 111, 112, 113; LEE 146, 148	
Multiple Subject	12
ERF 130; EHD 110; CTET 150; LEE 146	
Single Subject	14
ERF 152; EHD 155A; CTET 159; LEE 156	
Courses common to all areas of emphasis	15
SPED 125, 135, 145, 155, 160F	
Practicum	9
Mild/Moderate Disabilities (9) SPED 175 *or* Moderate/Severe Disabilities (9) SPED 176	
Total	**33-35**

For CLAD/BLCAD certification, please see page 248 and 250 of this catalog or contact the CLAD/BCLAD adviser at (559) 278-0364.

CalStateTEACH

CalStateTEACH is a new alternative path to the Multiple Subject CLAD teaching credential. Developed at the California State University Chancellor's Office, CalStateTEACH is designed specifically for teachers who hold emergency permits and are teaching full-time in an elementary school. The School of Education and Human Development houses one of the five regional centers in the state that administers this program.

Professional (Clear) Multiple Subject Credential Programs (Fifth Year)

The Professional (clear) Multiple Subject Credential is required for full authorization to teach in a self-contained classroom in the state of California. To obtain this credential, the candidate must meet the following requirements:

General Requirements. (See *Preliminary Multiple Subject Credential — General Requirements for Initial Admission.*)

Requirements for Admission to Student Teaching. (See *Preliminary Multiple Subject Credential — Requirements for Admission to Student Teaching.*)

In addition to these requirements, the Professional (clear) Credential (fifth year) candidate must:

1. Complete an approved fifth-year program containing a minimum of 30 units of upper-division/graduate credit taken after completion of all bachelor's degree requirements.
2. Include at least 30 units of professional education in the total five-year credential program.
3. Complete a mainstreaming requirement (SPED 120 or equivalent).
4. Complete a health education requirement (H S 120 or equivalent).
5. Complete a classroom computer application course (CTET 100).
6. Complete Cardiopulmonary Resuscitation (CPR) training.

Program Advisement. Program advisement for a Professional (clear) Multiple Subject Credential is obtained from the multiple subject fifth-year adviser located in the School of Education and Human Development's Teacher Preparation and Services Center in ED 100.

Time Restrictions. Courses required for preliminary and professional (clear) credentials must be completed no more than 10 years prior to credential application.

Multiple Subject, Teachers in Inclusive Educational Settings (TIES) Block (a dual certification program). The TIES block is designed to prepare pre-service, multiple-subject, special education teachers to work collaboratively in serving the needs of an increasingly diverse student body. Students will complete the Multiple Subject and Preliminary Level I Education Specialist Credential Program in Mild/Moderate or Moderate/Severe Disabilities concurrently. For specific TIES program information, see the *Department of Counseling and Special Education — Preliminary Level I Education Specialist Credential programs, Program Delivery Systems #3, Dual Certificate Program.*

Preliminary Level I Education Specialist Credential Program (Basic Program). The Preliminary Level I Education Specialist Credential has two areas of specialization: Mild/Moderate and Moderate/Severe Disabilities. For specific program information, see the *Department of Counseling and Special Education — Preliminary Level I Education Specialist ,#1 Mild/Moderate and #2 Moderate/Severe.*

Single Subject Credential Program

The Single Subject Credential authorizes the holder to teach in the subject area specified on the credential in departmentalized classrooms commonly found at middle schools, high schools, and adult educational settings. The School of Education and Human Development offers the Single Subject Credential in cooperation with 18 academic departments. The cooperating departments are responsible for developing subject matter competency; the School of Education and Human Development is primarily responsible for developing professional education competency.

The Single Subject coordinator in the School of Education and Human Development provides general advisement for Single Subject Credential candidates. Area advisers (see list) provide academic advisement for credential candidates majoring in their respective departments, teach methods courses in their subject fields, assign and supervise student teachers, and act as official liaisons between the subject matter departments and the Single Subject coordinator in the Educational Research, Administration, and Foundations Department.

Single Subject Majors and Advisers

Agriculture: R. Rogers/A. Parham
Art: D. Nadaner/P. Fleming
Business: R. Lacy
English: R. Hansen/J. Hales
English (Theatre Arts): K. Morin
English (ESL): B. Birch
English (Speech): D. Fox
Foreign Languages: R. Freeman, R. Kuhn
Home Economics: N. Dilbeck
Industrial Technology: T. Gullickson
Kinesiology: S. Cottle
Mathematics: A. Tuska
Music: W. March
Science: D. Andrews
Social Science: J. Stallones

Single Subject Professional Preparation Adviser. Jody Daughtry, coordinator of the Single Subject Program, and other advisers may be contacted through the School of Education and Human Development's Teacher Preparation and Services Center in ED 100.

Types of Single Subject Credentials. There are four types of Single Subject Credentials:

- Preliminary Single Subject Credential
- Internship Single Subject Credential
- Professional (clear) Single Subject Credential (fifth year)
- Preliminary Single Subject Credential with CLAD Emphasis

Preliminary Single Subject Credential. A Preliminary Single Subject Credential provides authorization to teach a specified subject in a departmentalized classroom for a maximum period of five years.

Professional (Clear) Single Subject Credential. A Professional (clear) Single Subject Credential is required for full authorization in a departmentalized classroom. All requirements for a Professional (clear) Single Subject Credential must be completed within five years of the date of issuance of the preliminary credential.

Requirements for a Preliminary Single Subject Credential (General or CLAD Emphasis)

1. Complete a 30-unit core of professional education courses or a 33-unit core for the CLAD emphasis.

General Core	*Units*
ERF 151	3
ERF 152	3
CTET 159	3
CTET 161	3
LEE 156	3
EHD 155A	5
EHD 155B	10
Total	**30**

CLAD Emphasis	*Units*
ERF 151	3
ERF 152	3
CTET 159	3
CTET 161	3
LEE/LING 137	3
LEE 156	3
EHD 155A	5
EHD 155B	10
Total	**33**

2. Demonstrate subject matter competence:
   a. Complete an approved subject matter preparation program or pass the subject matter examinations designated by the California Commission on Teacher Credentialing
   and

b. receive clearance from the academic adviser that subject matter competency has been met.

3. Complete a bachelor's degree in a subject matter other than education.
4. Complete 6 semester units of a second language or the equivalent (for the CLAD emphasis only.)

Subject matter tests are being revised. For an update on required subject matter examinations or other information about the Single Subject Credential, contact the credential analyst or a single subject adviser in ED 100, (559) 278-0300.

Time Restrictions. Education courses required for preliminary and professional clear credentials must be completed no more than 10 years prior to credential application.

Note: With the exception of the Internship Program, individuals may begin a Single or Multiple Subject Credential program if they are in their senior year, have completed at least 90 units toward a bachelor's degree, and have been admitted to a credential program.

Preliminary Single Subject Credential — General Requirements for Initial Admission

1. Attend a Single Subject Credential program orientation meeting.
2. Provide evidence of successful completion of an appropriate pre-program field experience or EHD 50, Introduction to Teaching.
3. Show evidence of passing the California Basic Educational Skills Test (CBEST) by presenting a CBEST Permanent Verification card, or meet an alternative requirement. (See the Single Subject Credential Program admission packet.)
4. Complete an application to the credential program.
5. Verify admission to California State University, Fresno with a student I.D. card or a Notice of Admission.
6. Provide a complete set of transcripts of all prior college/university coursework. Transcripts are used to verify a GPA that is in the top 50 percent of the applicant's major field of study or discipline.
7. Complete an Admission Interview Form and obtain an interview from a Single Subject Credential faculty member and from the subject area academic adviser.
8. Obtain a medical clearance at the University Health Center.
9. Obtain two completed Recommendation for Admission to Teacher Education forms written by instructors, supervisors, or other individuals in a position to recommend for admission into a teacher education program.
10. Obtain appropriate clearance to teach in a public school by presenting a valid California Teaching Credential or applying for a Character and Identification Clearance.

Required application materials and forms are available in the School of Education and Human Development's Teacher Preparation and Services Center in ED 100. All admission requirements (forms, documents, prerequisites) must be completed prior to enrollment in professional program courses.

Timelines for initial admission to the Single Subject Credential program are listed in the next paragraph.

Semester to be Enrolled	*Application Deadline is*
Summer	April 1
Fall	April 1
Spring	November 1

Preliminary Single Subject Credential — Requirements for Admission to Student Teaching

Admission to Initial Student Teaching (EHD 155A). Authorization to begin student teaching requires that the candidate:

1. Submit an EHD 155A application form by the specified deadline.
2. Receive notification of initial admission to the Single Subject Credential program.
3. Maintain a 3.0 GPA on all professional education courses. All courses (except those offered for *CR/NC* only*)* must be taken for a letter grade.
4. Complete a fifth-year program form and have it signed by the academic area adviser and the Single Subject coordinator or Single Subject adviser.
5. For the general Preliminary Single Subject Credential, have completed or be enrolled concurrently in ERF 151, ERF 152, and CTET 159.

Timelines for Admission to Initial Student Teaching (EHD 155A) are listed in the next paragraph. Application forms are available in the School of Education and Human Development's Teacher Preparation and Services Center in ED 100.

Semester to be Enrolled	*Application Deadline is*
Fall	April 1
Spring	November 1

Admission to Final Student Teaching (EHD 155B). Requirements for admission to final student teaching (EHD 155B) include the following:

1. Submit an EHD 155B application form by deadline.
2. Demonstrate subject matter competence:
   a. Complete an approved subject matter preparation program or pass the subject matter examinations designated by the California Commission on Teacher Credentialing.
3. Maintain a 3.0 GPA on professional education coursework. All courses (except those offered for *CR/NC* only*)* must be taken for a letter grade.
4. If granted an "Exception" admission, satisfy all requirements specified when the exception was granted.
5. Show evidence of passing the California Basic Educational Skills Test (CBEST) by presenting a CBEST Permanent Verification card.
6. For the general Preliminary Single Subject Credential, have completed ERF ERF 151, ERF 152, CTET 159, and EHD 155A. Have completed or be concurrently enrolled in LEE 156. Have completed or be concurrently enrolled in CTET 161 (depending on policy of the appropriate academic department.)
7. For the Preliminary Single Subject Credential with CLAD emphasis, have completed ERF 151, ERF 152, CTET 159, EHD 155A, and either LEE 156 or CTET 161, depending on the policy of the appropriate academic department.

Timelines for Admission to Final Student Teaching (EHD 155B) are listed in the next paragraph. Application forms are available in the School of Education and Human Development's Teacher Preparation and Services Center in ED 100.

Semester to be Enrolled	*Application Deadline is*
Fall	February 28
Spring	September 30

Note: Students who receive a "No Credit" grade in any student teaching course are required to petition the Admissions and Standards Committee for approval to retake the course. Students who receive a grade of "No Credit" for a second time will be dismissed from the Single Subject Credential Program. Student teachers whose placements are terminated after the date for refund of tuition are responsible for full tuition regardless of circumstances leading to termination.

Single Subject Teacher in Preparation (TIP) Internship Program. The Single Subject Internship program is designed for qualified individuals who have prior classroom experience and who seek an alternative route to obtaining a teaching credential. The entire program requires two summers and two semesters to earn a Professional (clear) Credential. Refer to Preliminary Single Subject Credential general requirements for admission. Interns have a year-long contract with a participating school district, earning a modestly reduced salary. In addition, interns enroll in coursework leading to a Professional (clear) Credential.

1. Program Requirements
   a. Subject Matter Competency. Have subject matter competency verified by an academic adviser.
   b. Provide evidence of teaching experience in the subject matter area.
   c. Provide a support letter from a participating school district willing to hire the candidate as an intern.
2. Admission to Program. Applicants must be admitted to California State University, Fresno and a basic teaching credential program in the School of Education and Human Development. They must participate in at least two interviews: one by a university selection committee and another by school district personnel. Candidates must also be offered a teaching contract by a participating school district. Interns have the responsibility for finding their own jobs with participating districts.
3. Professional Preparation

		Units
Prerequisites:*		
	CTET 159	3
	ERF 151**	3
	ERF 152	3
	EHD 155A	5
Semester I:	EHD 155B	5
	CTET 161	3
Semester II:	EHD 155B	5
	LEE 156	3
Summer II:	CTET 101	3
	SPED 120	3
	H S 121	2
Total		**38**

* CTET 159, ERF 152, and EHD 155A are prerequisites for classroom teaching under an internship credential.

** ERF 151 may be taken at any time during the program; however, it is suggested as a prerequisite.

Contact the Internship Program Office at (559) 278-0232.

Professional (Clear) Single Subject Credential Program (Fifth Year). The Professional (clear) Single Subject Credential is required within five years of obtaining a Preliminary Single Subject Credential. Candidates may apply as soon as they have met all the requirements. To obtain this credential the candidate must meet the following requirements.

1. Hold or be eligible to be recommended for a Preliminary Single Subject Credential (see requirements for the Preliminary Single Subject Credential.)
2. Complete an approved fifth-year program containing 30 units of upper-division/graduate credit taken after completion of all bachelor's degree requirements.
3. Include at least 30 units of professional education in the total five-year credential program.
4. Complete a mainstreaming requirement (SPED 120 or equivalent).
5. Complete a health education requirement (H S 121 or equivalent).
6. Complete the classroom computer application course (CTET 101).
7. Complete Cardiopulmonary Resuscitation (CPR) training.

Program Advisement. Program advisement for a Professional (clear) Single Subject Credential is obtained from the Single Subject fifth-year advisers. They can be contacted through the School of Education and Human Development's Teacher Preparation and Services Center in ED 100 and from the subject area academic adviser.

Time Restrictions. Courses required for preliminary and professional (clear) credentials (including SPED 120, H S 121 and CTET 101 or their equivalents) must be completed no more than 10 years prior to credential application.

Certificate of Advanced Study in Educational Technology

The Certificate of Advanced Study in Educational Technology is a postbaccalaureate program designed to provide professional and specialized preparation for the candidate interested in acquiring knowledge and skills essential for technology-related leadership in educational settings.

Students completing this program will be able to:

- describe the current and potential impact of advanced technologies on education and society
- analyze instructional needs and determine viable uses of technology for meeting those needs
- select and develop appropriate technology-based materials which correlate to curriculum objectives
- model the effective use of technologies (including microcomputers, video, instructional television, telecommunications and multimedia) within educational settings
- demonstrate an understanding of the equitable and ethical use of technology, and
- plan, implement, and evaluate programs which exemplify the effective use of technology to attain curriculum objectives.

Classes taken while working on this certificate can be counted as elective units toward a Master of Arts in Education with a concentration in curriculum and instruction. Students who hold a valid California teaching credential may also apply to the Commission on Teacher Credentialing (CTC) to have their files reviewed for the supplemental authorization "Computer Concepts and Applications."

Students who wish to pursue either of these options while working on the certificate should state such an intent early in their program so they can receive proper advising regarding master's or CTC requirements.

Admission Requirements

1. Complete or receive a waiver for CTET 100 or 101.
2. Verify admission to California State University, Fresno and admission to the SOEHD graduate programs. See *General Admission Requirements* in the *Education — Graduate Programs* section in this catalog.

Course Requirements	*Units*
CTET 225, 227, and 230	9
Approved Electives	5-6
Total	**14-15**

For further information, contact the educational technology certificate adviser at (559) 278-0245.

Master of Arts Degree in Education

Curriculum and Instruction

The Master of Arts degree in Education with a concentration in curriculum and instruction is designed to provide professional and specialized preparation for the candidate interested in acquiring knowledge and skills essential for the design and

development of curriculum and related instructional practices. Beyond the course requirements, the program enables the student to elect and pursue in-depth study in areas of curriculum and instruction such as bilingual education, computer education, multicultural education, math education, science education, social science education, or other specializations related to elementary, middle school, and secondary education. The program allows the student to take a varied representation of courses within the context of curriculum and instruction, which may also be used to meet fifth-year requirements for the clear Teaching Credential. For information on the Master of Arts in Education with a concentration in Curriculum and Instruction, please contact the graduate program coordinator, Dr. Joan Henderson-Sparks, at (559) 278-0240.

Admission Requirements for Classified Standing. See *General Requirements* in the *Education — Graduate Program* section of this catalog.

Program Requirements

1. Prerequisites: 12 units in professional education coursework; completion of prerequisites required for enrollment in advanced coursework in the area of specialization. ERF 153 is no longer a prerequisite to the program. However, it is still a prerequisite to the research core requirement, ERF 220.
2. Course Requirements — *Units*
   ERF 220*; ERF 285 or 288 6
   CTET or ERF 298 or 299 4
   CTET 250, 275 5-6
3. Electives: Electives are selected from the School of Education and Human Development and include special subject areas to constitute a broad-based program in curriculum and instruction or to represent an in-depth study in a specialty area within the context of curriculum and instruction.** 14-15

   Total 30

* ERF 153 is a prerequisite for ERF 220.

**The student's program of study is to be determined in consultation with a curriculum and instruction faculty adviser and approved by the program coordinator.

COURSES

Note: Students must provide their own transportation to off-campus sites for classes, student teaching, practice and field activities, and defray any resulting personal expense.

CalState TEACH (CST)

401. Multiple Subject Credential Module 1: Curriculum, Instruction, and Intern Teaching in the Elementary School (9)
Prerequisite: admission to CalState TEACH program. Major emphasis on the foundations of education, teaching reading and mathematics, and assessment.

402. Multiple Subject Credential Module 2: Curriculum, Instruction, and Intern Teaching in the Elementary School (9)
Prerequisite: successful completion of CST 401. Continued work in the foundations of education — teaching reading and mathematics. Major emphasis in teaching science, language arts, technology, and assessment.

403. Multiple Subject Credential Module 3: Curriculum, Instruction, and Intern Teaching in the Elementary School (9)
Prerequisite: successful completion of CST 402. Continued work in all curricular areas. Major emphasis in teaching social studies and mathematics, learning theory, and models of discipline.

404. Multiple Subject Credential Module 4: Curriculum, Instruction, and intern Teaching in the Elementary School (12)
Prerequisite: successful completion of CST 403. Continued work in all curricular areas. Major emphasis in reading diagnosis and remediation, integrated curriculum, technology, visual and performing arts, and physical education.

Curriculum, Teaching, and Educational Technology (CTET)

2R. CBEST Math Development (3)
Designed to further the basic skills in math for applicants to teacher education credential programs. Students who pass the course will satisfy the CBEST math requirement for admission into teacher education credential studies. Students are still required to pass the CBEST to qualify for a teaching credential. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

99. Introduction to the Macintosh for Educators (1)
Provides hands-on experience in educational and classroom application of the Macintosh Operating System, word processing, and World Wide Web navigation and mail tools for integration into school curriculum. (Formerly CTET 180T)

100. Educational Applications of Microcomputers — Multiple Subject (3)
Prerequisite: EHD 50 or permission of instructor. Prior passing of the Macintosh Operating System, word processing, and telecommunications performance test or CTET 99 is required. Methods for using computers for teacher/student productivity, critical thinking, and grades K-8 curriculum objectives. (2 lecture, 2 lab hours)

101. Educational Applications of Microcomputers — Single Subject (3)
Prerequisite: EHD 50 or permission of instructor. Prior passing of Macintosh Operating System, word processing, and telecommunications performance test or CTET 99 is required. Methods for using computers for teacher/student productivity, critical thinking, and grades 7-12 curriculum objectives. (2 lecture, 2 lab hours)

121. Mathematics in the Elementary School (3)
Prerequisites: admission to the Multiple Subject Program and satisfy General Education Quantitative Reasoning requirement[s] (see *General Education* section). Methods and materials for developing mathematics concepts and skills for a culturally and linguistically diverse classroom. (2 lecture, 2 lab hours)

122. Fieldwork in Outdoor Education (1-2; max total 2)
Prerequisites: ERF 130 or 152; permission of instructor. Practice at camp with responsibilities of counseling, camp leadership, curriculum planning, and evaluation; utilization of resource people from several disciplines.

123. Classroom Management (2)
Classroom organization, management, and mainstreaming including focus on the culturally, linguistically diverse student.

125. Teaching Elementary School Science (3)
Prerequisite: admission to the Multiple Subject Credential Program. Designed to assist teacher candidates in constructing the knowledge and skills necessary to effectively and equitably teach elementary school science in a culturally and linguistically diverse classroom. (2 lecture, 2 lab hours) (Instructional materials fee, $5) (Formerly CTET 125BC)

126. Social Studies in the Elementary School (3)
In-depth study of the strategies and techniques of social studies instruction.

136. Multicultural Education (3)
Assists teachers and other school personnel to acquire skills in multicultural curriculum design and delivery. Emphasizes language acquisition instruction and mentoring techniques for working with students in a pluralistic society.

137. Creative Dramatics (3)
(See DRAMA 137.)

150. Curriculum and Instruction in the Elementary School (3)
Prerequisites: admission to the Multiple Subject Credential Program, ERF 130 and 140 (or concurrent enrollment) and EHD 110 and LEE 146 taken concurrently. Examines integrated curricula in K-8 classrooms, purpose and use of the California Frameworks, curricular reform, trends, and assessment. Instructional strategies for diverse populations are examined. (2 lecture, 2 lab hours)

158. Communication and Learning (3)
(See COMM 114.) No credit will be given if the student has taken COMM 114.

159. Curriculum and Instruction in Secondary Schools (3)
Prerequisites: admission to the Single Subject Credential Program; ERF 152 or concurrent enrollment. Instructional planning, methodologies of teaching and learning, evaluation techniques, motivation, classroom management and discipline, preparation and evaluation of materials. Microteaching practice and analysis. (2 lecture, 2 lab hours) (Instructional materials fee, $5)

161. Methods and Materials in Secondary Teaching (3)
Prerequisites: ERF 152 and CTET 159 or concurrent enrollment; 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. (Instructional materials fee for Single Subject — Art Methods and Materials enrollees, $10)

180T. Topics in Curriculum, Teaching, and/or Educational Technology (1-3; max total 9)
Issues and topics in curriculum and instruction; elementary, middle school, and secondary education; technology, and computer literacy.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

Curriculum, Teaching, and Educational Technology (CTET)

212. Mathematics Education in the Primary Grades (3)
Mathematics content and methods for primary grades. Focus is on using research about children's mathematical understanding and mathematics classrooms to inform instructional decisions.

225. Integration of Technology Across the Curriculum (3)
Prerequisite: CTET 100 or 101 or permission of instructor. Identification, evaluation, and use of advanced technologies such as microcomputers, instructional video, laserdisc, television, and telecommunications for developing teaching materials appropriate for state curriculum framework. (2 lecture, 2 lab hours)

227. Current Issues and Trends in Educational Technology (3)
Prerequisite: CTET 100 or 101 or permission of instructor. Focuses on the social, economic, and psychological impacts of technology and technology research on schools, teaching, and learning. Students examine the past and formulate a vision of the future of educational technology through readings, discussions, and research.

228. Developing Problem-Solving Skills with Computers (3)
Prerequisite: CTET 100 or 101 or permission of instructor. Developing problem-solving skills within K-12 computing environments. Students will develop curriculum materials, lesson plans, and teaching strategies for promoting problem-solving skills through the effective use of applications software, problem-solving software, programming languages, and authoring systems. (2 seminar, 2 lab hours) (Instructional materials fee, $10)

230. Planning and Implementing Innovative Technology Programs (3)
Prerequisite: CTET 100 or 101 or permission of instructor. Strategies for implementing change in educational settings; planning for equitable technology use; planning and instituting effective staff development programs; managing resources, including networking equipment; locating, developing, and coordinating funding sources; and gaining parent and community support.

250. Advanced Curriculum Theory and Analysis (3)
Prerequisite: CTET 150 or 159 or permission of program adviser. Theory and practice of curriculum development, evaluation, and revision. Study of contemporary problems and curriculum approaches to meet societal needs. (2 lecture, 2 lab hours) (Instructional materials fee, $5)

275. Practicum in Curriculum Development
(1-6; max total 6)
Prerequisite: teaching credential. Study and application of contemporary research in curriculum development.

280T. Advanced Topic
(1-3; max total 6)
Prerequisite: permission of instructor. Advanced, in-depth analysis of issues and problems in curriculum and instruction; elementary, middle school, and secondary education; technology and computers in education. Emphasis placed on advanced research.

290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220. See *Criteria for Thesis and Project*. A project consists of a significant undertaking appropriate to education such as the development of curricula and instructional materials, educational policy, educational theory, and educational technology. An approved proposal is required for enrollment. Approved for *SP* grading.

299. Thesis (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220 and completion of an acceptable thesis proposal. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. See School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Curriculum, Teaching, and Educational Technology (CTET)

380T. Topics in Education
(1-6; max total 12)
Studies in theory, procedures, and application in such areas as social forces, professional activities, technology, and instructional innovations.

Educational Research, Administration, and Foundations

The Department

The Department of Educational Research, Administration, and Foundations sponsors one graduate degree and offers coursework in support of all the education graduate and credential programs. Consequently, departmental faculty are involved in some fashion in nearly all formal school programs.

Program

Education Administration. The mission statement of the Education Administration Program is "Providing Educational Leadership for Central California, the State, the Nation, and the World." The Master of Arts in Education with an option in administration and supervision is a 30-unit degree program. The Administrative Services Credential Program is a two-tier program that provides authorization to function in an administrative position in a P-12 school setting.

The Preliminary Administrative Services Credential Program is a 24 semester unit program that provides basic preparation for employment in a P-12 public school administrative position. The Professional Administrative Services Credential Program is also a 24 semester unit program. Once an individual completes the Preliminary Administrative Services Credential, application must be made to the Professional Administrative Services Credential Program within the first year of employment. The program provides individually designed advanced preparation in professional development, transformational leadership, school law, school finance, school human resource management, and other areas necessary for leadership in all education settings.

Higher Education Administration. A selection of elective courses associated with various interest areas is available for those seeking a career in higher education or a related field. This curriculum provides professional development for careers in universities, community colleges, government, corrections, hospitals, social services, the military, business, religious organizations, and other positions requiring expertise in education administration.

Research. The research program component is an integral part of all graduate degrees and offers coursework in research methodology theory and practices, measurement, program evaluation, and qualitative and

quantitative analyses. The faculty also play an important role in providing consultation and support to graduate students' research.

Foundations. Courses in the cultural and social foundations of education are fundamental to understanding contemporary education and, with educational psychology, are found in all teacher education programs. The foundations faculty have developed coursework tailored to a variety of teaching credential options, ranging from early childhood through high school.

Faculty

Atilano A. Valencia, *Chair*

Curtis L. Guaglianone, *Coordinator of Education Administration Credential Programs*

Kathryn J. Biacindo
Sharon Brown-Welty
Donald G. Coleman
Deborah Copeland
Alfredo Cuellar
Jolyne S. Daughtry
Phyllis A. Kuehn
Helen L. Kennedy
Pamela Lane-Garon
J. Leonard Salazar
Robert D. Segura
David E. Tanner
Susan M. Tracz
Ronald P. Unruh
Donald Wise

Credential Programs

Administrative Services Credentials. Individuals who wish to serve as educational administrators must complete preliminary and advanced levels of preparation. Holders of the Preliminary Administrative Services Credential and the Professional Clear Administrative Services Credential are authorized to serve in such positions as district superintendent, principal, program director, and any related administrative assignments at all school levels.

In special circumstances, students may be eligible for the Administrative Internship Credential. This credential allows students to have a full-time position requiring an administrative credential while they are working toward the completion of the Preliminary Administrative Credential.

Preliminary Administrative Services Credential and Administrative Internship Credential

Admission Requirements. Applicants for the Preliminary Administrative Services Credential and Administrative Internship Credential must meet the following requirements for admission to the program:

1. Complete the Application for Postbaccalaureate Admission at California State University, Fresno.
2. Complete the Application for Admission to School of Education and Human Development graduate programs.
3. Possess a GPA of 2.75+ over the last 60 semester units.
4. Obtain three letters of recommendation.
5. Provide evidence of having passed the California Basic Educational Skills Test (CBEST).
6. Demonstrate writing competence.
7. Provide a complete set of transcripts of all prior college and university work.

School of Education
and Human Development

Department of
Educational Research,
Administration, and Foundations
Atilano A. Valencia, *Chair*
Dianna Lewis, *Department Administrative Assistant*
Education Building, Room 350
(559) 278-0350

M.A. in Education
Option: Administration and Supervision

Credentials
- Administrative Internship Credential
- Preliminary Administrative Services
- Professional Administrative Services

8. Complete a statement of purpose.
9. Submit scores from the Graduate Record Examination (GRE) — General Test or the Miller Analogies Test (MAT).
10. Have three years of verifiable school experience completed before the end of credential coursework.
11. Possess a basic teaching credential or have three years of verifiable school experience completed before the end of credential coursework.
12. Be approved by the education administration faculty.

Program Requirements. Candidates for the Preliminary Administrative Services Credential who have been admitted to the program and who want to be recommended for this authorization must meet the following requirements:

1. Possess a valid California teaching credential based on a bachelor's degree or a Pupil Personnel Services Credential.
2. Verify three years of successful, full-time experience in public schools (or in private schools of equivalent status.)
3. Complete ERF 285; EAD 261, 262, 263, 267, 268, 269, and 272.
4. Verify training in the needs of and methods of providing educational opportunities to individuals with exceptional needs through completion of SPED 120, one year of full-time experience in special education, *or* 6 units of approved special education coursework.
5. Receive a passing score on the California Basic Educational Skills Test (CBEST).
6. Pass the competency exit review.
7. Complete a master's degree.

Professional Administrative Services Credential

Admission Requirements. In addition to meeting all admission requirements for the Preliminary Administrative Services Credential, persons desiring admission to the Professional Administrative Services Credential Program must meet the following requirements:

1. Possess a GPA of 3.0 or better over the last 60 semester units.
2. Hold a valid Preliminary Administrative Services Credential.
3. Be in a position requiring the Preliminary Administrative Services Credential as verified by the district.

Program Requirements. Candidates for the Professional Administrative Services Credential (Advanced Credential) who have been admitted to the program must meet the following requirements.

1. Verify a minimum of two years of full-time experience in public or private schools in a position requiring an administrative credential.
2. Complete for the credential:
   a. EAD 283 – Professional Induction (2 units)
      Designates the induction component to the Professional Credential and is taken the semester prior to enrollment in didactic and professional development courses.
   b. EAD 281 – Transformational Leadership (2 units)
   c. EAD 264 – Seminar in the Legal Aspects of Education (2 units)
      EAD 265 – Seminar in School Community Relations (2 units)
      EAD 266 – Seminar in School Finance and Business Administration (2 units)
      EAD 275 – Seminar in Advanced Techniques of Personnel Administration in Education (2 units)
      (These four 2-unit university courses are highly recommended, although students may receive a proficiency waiver.)
   d. Electives to complete 12 units of university didactic courses
   e. 120 clock hours or equivalent of 8 academic university units of professional development
   f. EAD 284 – Professional Assessment (2 units)
      This course is taken the semester immediately following the completion of all required coursework and professional development activities.
3. Be in a position requiring the Preliminary Administrative Services Credential as verified by the district.
4. Possess a master's degree.
5. Pass the competency exit review.

Master of Arts Degree in Education

Administration and Supervision

The Department of Educational Research, Administration, and Foundations offers a program leading to a Master of Arts degree in Education with an option in administration and supervision. The Master of Arts degree program provides preparation for several career opportunities, including P-12 administration*, higher education administration**, and other general administration career opportunities or professional positions. Candidates who qualify for a preliminary teaching credential, with prior approval, may use part or all of a master's degree program to satisfy the fifth-year requirements for a clear teaching credential.

The administration and supervision option is designed to provide professional preparation for administrative positions in education, including schools, colleges, universities, agencies, and other related educational organizations.

Program Requirements

Admission Requirements for Classified Standing. See *General Admission Requirements* in the *Education — Graduate Program* section in this catalog.

Program Prerequisites. Fifteen units in education (or the equivalent) demonstrating an adequate background for advanced work in the field. ERF 153 is no longer a prerequisite for admission to the program. However, it is still a prerequisite to research core requirement, ERF 220.

Core requirements	*Units*
ERF 220, 285 or 288, EAD 298 or 299	**10**
EAD 261, 262, and 9 units from the following: EAD 263, 264, 265, 266, 267, 268, 269, 271, 272, 273, 274, 275, 277, 278T, 279, 281, 283, 284, 287, 288, 290; ERF 260, 272, 274, 282, 284, 286, 287, 288, 289	**15**
Electives: 5 units from the above or other approved electives	**5**
Total	**30**

* For individuals seeking careers in P-12 administrative positions, the following 15 units of electives are recommended: EAD 263, 267, 268, 269, and 272.

** For individuals seeking careers in higher education administration, development, grants administration, and other administrative positions, 14 units from the following electives are recommended: EAD 267, 273, 275 or 278T, 277, 281 or other by arrangement.

Note: no more than 6 units of coursework taken for *CR/NC* only may be applied toward degree requirements.

Grade Requirements

M.A. Program and the Administrative Credential Programs

To be eligible to receive the master's degree or be recommended for the Administrative Credential, a student must maintain academic excellence in all coursework. Once an *NC* or one letter grade of *C* or less has been earned in any course, the student will be placed on administrative academic probation. Upon the receipt of two *NC*s or

letter grades of *C* or less, at any point in the administrative credential program, the student will automatically be disqualified from the program.

COURSES

Educational Research, Foundations (ERF)

2R. CBEST Writing Development (3)
Designed to further the basic skills in writing for applicants who intend to enroll in teacher education credential programs. Students who pass the course will satisfy the CBEST writing requirement for admission into teacher education studies. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

130. Psychological Foundations of Education — Multiple Subject (3)
Not open to students with credit in ERF 130ECE. Prerequisites: admission to the Multiple Subject Credential Program; PSYCH 10. Foundation for theories of learning, development, motivation, and classroom management. Includes variability in student performance and assessment issues.

130A. Psychological Foundations Fieldwork — ECE (1)
Prerequisite: admission to Option II teacher education program or permission of instructor. Taken concurrently with ERF 140A and supervised field experiences related to interprofessional collaboration.

130ECE. Psychological Foundations of Education — ECE (2)
Prerequisite: admission to Option II teacher education program. Foundation for relating concepts, principles, and theories of psychology and development for the education of children eight years and younger.

140. Cultural Foundations of Education (3)
Not open to students with credit in ERF 140ECE. Prerequisite: admission to the Multiple Subject 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; relationship between school and community.

140A. Cultural Foundations Seminar — ECE (1)
Prerequisites: concurrent enrollment with ERF 130A (Option II) and fieldwork courses in the departments of Counseling and Special Education, Criminology, Nursing, Psychology, and Social Work Education. Shared discussion and analysis of processes related to collaboration among education, health, law, psychology, and social service professionals.

140ECE. Cultural Foundations of ECE (2)
Prerequisite: admission to Option II teacher education program. Functions of education in America's multicultural society. Foundation for understanding children and families in the ecological contexts of home, school, and community with special focus on programs serving children eight years and younger.

151. Social Foundations of Education (3)
Not open to students with credit in ERF 140. Prerequisite: admission to the Single Subject Credential Program. Scope, function, recent trends and issues in secondary schools; includes cultural, social, historical, and philosophical influences.

152. Psychological Foundations of Education — Single Subject (3)
Not open to students with credit in ERF 130. Prerequisites: admission to Single Subject Credential Program; PSYCH 10. Educational psychology; growth and development, learning, personality and self-concepts of adolescents; implications for learning and teaching.

153. Educational Statistics (3)
Prerequisite: ELM exam. Methods of describing, analyzing, and interpreting data; statistical inference, including "t" test, correlation and prediction, chi square, and simple research design. Computer applications during lab activities. (2 seminar, 2 lab hours)

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; pupil personnel services; supervision and administration; child abuse, and computer literacy.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

Educational Research, Foundations (ERF)

220. Research in Education (3)
Prerequisites: 12 units of education courses or equivalent and ERF 153. 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. (2 seminar, 2 lab hours)

260. Assessment as Learning (3)
Analyze interaction among assessment models, effective instruction, and learning in educational settings. Use educational theory to identify criteria for choosing and integrating alternative assessments including performance, observation/interview, portfolio, curriculum-embedded and self-assessment. Develop assessment items and protocols.

272. Instructional Planning and Evaluation (3)
Principles and practices of instructional planning, assessment and testing of learning outcomes, performance appraisal and evaluation of teaching; test construction analysis, and grading.

274. Social Interaction in Teaching (3)
In-depth study of the dynamics of effective interpersonal relations in the classroom with students; and beyond, with administrators, parents, and colleagues. Strategic interaction for creative, low-stress teaching and learning based upon related theory and research. (2 seminar, 2 lab hours)

280T. Advanced Topics in Education (1-3; max total 6)
Prerequisite: permission of instructor. Advanced, in-depth analysis of issues and problems in educational foundations; curriculum and instruction; reading; early childhood, elementary, middle school, and secondary education; and computers in education. Emphasis placed on advanced research.

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.

284. Seminar in International Education (3)
Analysis of historical, social, and political forces which shape national education endeavors. Emerging international education efforts and organizations.

285. Seminar in Advanced Educational Psychology (3)
Prerequisite: minimum 3 units from the following: ERF 130, 152; COUN 174, or PSYCH 101. Seminar on the psychological foundations of education; nature and

characteristics of development, learning processes, and forces which affect educational growth.

286. Social Issues in Education (3)
Prerequisites: ERF 140 or 151 or a 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.

287. Seminar in History of Educational Thought (3)
Prerequisites: ERF 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.

288. Educational Measurement and Program Evaluation (3)
Prerequisite: ERF 153. Procedures and issues involved in the measurement and evaluation of educational programs; planning, etc. Applications in educational settings are emphasized. (2 seminar, 2 lab hours)

289. Seminar in Advanced Educational Research (3)
Prerequisites: ERF 153 and 220; or permission of instructor. Emphasis on conceptualizing advanced educational research problems, analyzing data and interpreting data, computer lab activities using such techniques as ANOVA, multiple regression, and multivariate statistics and developing the methodology for thesis proposals. (2 seminar, 2 lab hours)

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220. See *Criteria for Thesis and Project*. A project consists of a significant undertaking appropriate to graduate study in education. An approved proposal is required for enrollment. Approved for *SP* grading.

299. Thesis (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on at least 24 units of the master's program, including ERF 220 and completion of an acceptable thesis proposal. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. See the School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Educational Research, Foundations (ERF)

380T. Topics in Education (1-6; max total 12)
Studies in theory, procedures, and application in such areas as social forces, professional activities, technology, and instructional innovations.

GRADUATE COURSES

(See *Course Numbering System.*)

Education Administration (EAD)

261. Managing Educational Organizations (3)
Initial course in Education Administration sequence. Development of knowledge and skills central to managing educational organizations.

262. Education Leadership (3)
Prerequisites: EAD 261; concurrent enrollment in EAD 267 required for preliminary administrative service credential candidates. Initial course in education leadership. Development of knowledge and skills essential to organizational leadership.

263. Seminar in Instructional Supervision (3)
Prerequisites: EAD 261, 262. 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 (2)
Prerequisites: teaching experience; EAD 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.

265. Seminar in School-Community Relations (2)
Prerequisite: EAD 261. Seminar on interaction with community forces, news media, political agencies, and minority groups in policy analysis and development; data-based decision-making and analysis.

266. Seminar in School Finance and Business Administration (2)
Prerequisite: EAD 261. Economic perspectives and practices of school finance and business administration; local, state, and federal responsibility for financial support of education. (2 seminar hours)

267. Fieldwork in Education Administration I (3)
Prerequisites: EAD 261; taken concurrently with EAD 262 and adviser permission. Supervised administrative practice in multiple sites and grade levels including culturally diverse settings; observe and practice leadership and general supervisory skills. Includes seminar discussions of field experiences and required research. *CR/NC* only. (Minimum of 120 hours required for 3 units of credit)

268. Fieldwork in Education Administration II (3)
Prerequisites: EAD 261, 262, 267; taken concurrently with or after EAD 263 and adviser permission. Supervised administrative practice with specific emphasis on classroom clinical supervision in multiple sites and grade levels, including culturally diverse settings; observe and practice leadership skills in instructional supervision. Includes seminar discussions of field experiences and required research. *CR/NC* only. (Minimum of 120 hours required for 3 units of credit)

269. Site-based Leadership (3)
Prerequisites: EAD 261, 262, 263, 267, 272. Includes essentials of site leadership: school law, finance, community relations, personnel, and support services. In-depth research into restructuring, teacher empowerment, and student achievement in culturally diverse schools.

271. Seminar in School Facilities (3)
Prerequisite: preliminary credential or permission of instructor. Emphasis on planning, design, and function of educational facilities so they are consistent with the educational goals of the school and school district. (2 seminar, 2 lab hours)

272. Seminar in Advanced Curriculum Evaluation and Development (3)
Prerequisites: EAD 261 and ERF 285 or permission of instructor. 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. Ethical and Professional Issues in Education Administration (3)
Prerequisite: Preliminary Administrative Services Credential or permission of instructor. Seminar on the ethical and professional issues of administrative professionalism, examined in the context of the various roles the administrator is expected to perform as a practitioner.

274. Advanced School Finance and Business Services (3)
Prerequisite: preliminary credential or permission of instructor. Primary emphasis is directed toward the acquisition of expertise in advanced planning and management of business and finance elements of public schools. (2 seminar, 2 lab hours)

275. Seminar in Advanced Techniques of Personnel Administration in Education (2)
Prerequisite: preliminary credential or permission of instructor. 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 responsibility of nonteaching staff members.

277. Computer Applications in Education Administration (3)
Prerequisite: preliminary credential or permission of instructor. 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. (2 seminar, 2 lab hours)

278T. Topics in Advanced Education Administration (1-3; max total 8)
Prerequisite: preliminary credential or permission of instructor. Seminar covering special topics relating to education administration: new developments in education administration, special populations, and current research.

279. Advanced Administration Fieldwork (1-8; max total 8)
Prerequisites: employment in a position requiring an Administrative Services Credential and permission of instructor. Supervision of Professional Administrative Services Credential candidates in their place of employment. The type of assignment will depend on requirements of the university and will be individually developed in cooperation with candidate's employer. Includes seminar discussions of field experience and required research *CR/NC* only. (40 hours required for 1 unit)

280T. Topics in Professional Development (1-3; max total 4)
Prerequisite: preliminary credential or adviser permission. Advanced-level studies in theory, procedures, and application of education administration principles. Includes such topics as: community advisory committees, marshalling resources, interventions for school improvement, technology utilization, and restructuring. *CR/NC* only.

281. Transformational Leadership (2)
Prerequisite: EAD 283 and permission of instructor. A course for experienced practitioners in organizational development. Interventions for restructuring, including site-based management, staff development, strategic planning, and team building, as well as individual and community interventions aimed at transforming schools and other organizations into world-class operations.

283. Professional Development Induction (2)
Prerequisites: preliminary administrative services credential, full-time employment in an administrative position, and permission of instructor. A professional development course is required for the professional administrative services credential. First course among the advanced credential requirements. *CR/NC* only.

284. Professional Development Assessment (2)
Prerequisites: completion of professional administrative services credential coursework and permission of instructor. A professional development course is required for the professional administrative services credential to verify satisfactory completion of the induction plan and individualized course of study to meet the advanced credential requirements. Final course among the advanced credential requirements. *CR/NC* only.

287. Internship I (3)
Prerequisites: employment in a position requiring an administrative services credential, concurrent enrollment in EAD 261, and permission of adviser. Supervised administrative practice with emphasis on leadership, school management, classroom supervision, and community relations, while employed in a full-time position requiring an Administrative Services Credential. Includes seminar discussions of internship experiences, professional development plan, and required research. *CR/NC* only.

288. Internship II (3)
Prerequisites: employment in a position requiring an administrative services credential, completion of EAD 261, 262, 272, and ERF 285, taken concurrently with EAD 263 and 269, and permission of adviser. Supervised administrative practice with emphasis on continuation of professional development plan, leadership, school management, classroom supervision, and community relations. Student must be employed in a full-time position requiring an administrative credential. Includes seminar discussions of internship experiences and required research. *CR/NC* only.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220. See *Criteria for Thesis and Project*. A project consists of a significant undertaking appropriate to graduate study in education. An approved proposal is required for enrollment. Approved for *SP* grading.

299. Thesis (4)
Prerequisites: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including, ERF 220 and completion of an acceptable thesis proposal. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. See School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Education Administration (EAD)

380T. Topics in Educational Administration (1-6; max total 12)
Studies in theory, procedures, and application in such areas as social forces, professional activities, technology, and instructional innovations.

Education — Liberal Studies

School of Education and Human Development
Paul Shaker, *Interim Coordinator*
Janell Tatsumura, *Adviser*
Esther Rodriguez, *Adviser*
Pat Christensen, *Adviser*
Education Building, Room 151
(559) 278-0270

B.A. in Liberal Studies

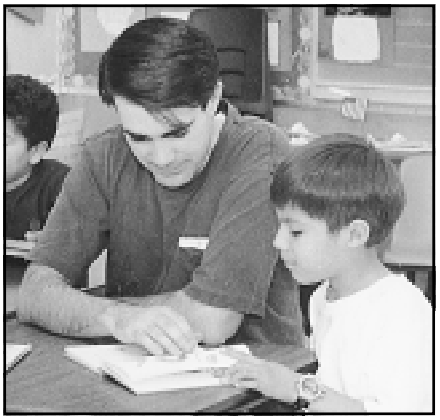
The Program

The aim of a liberal studies education program is to develop in students an appreciation and understanding of the arts, the sciences, the humanities, and the various cultures that compose the area serviced by California State University, Fresno. A study of the liberal arts teaches ways of thinking, exploring, understanding, and seeing the world from the perspective of others.

The primary mission of the Liberal Studies Program is to provide a strong knowledge-based education in the liberal arts that will provide subject matter preparation for elementary teaching or foundation preparation for other professions such as law, medicine, journalism, and various fields of public service.

Students completing the requirements with the appropriate grade point average will satisfy the California requirements for the Multiple Subject Equivalency and will not be required to take and pass the Multiple Subject Assessment for Teachers (MSAT) exam. Students can proceed directly into the Multiple Subject Credential Program after passing the California Basic Educational Skills Test (CBEST) and meeting other credential program admission requirements. Consult the Multiple Subject program adviser in ED 100.

The blended program option blends subject matter preparation and teacher preparation by offering coursework in both areas concurrently, and in a connected manner. This major has been designed to fully comply with the California Commission on Teacher Credentialing standards for a subject matter preparation program for elementary teachers. Candidates who meet a special set of criteria may apply to the credential program.



Faculty

The liberal studies degree program faculty represent a broad cross-section of academic disciplines. At present many different departments offer courses that can be applied toward this major. The initial point of contact is the Liberal Studies Office in ED 151.

Career Opportunities

Liberal studies majors preparing for careers in elementary teaching should expect to find a favorable job market. Recent statistical reports for the Central Valley provide evidence that the area population is continuing to grow along with the number of school-aged children. This pattern of growth, along with anticipated attrition from the teaching profession, provides ample support of a continuing need for well-prepared, credentialed elementary teachers.

Liberal studies majors not planning careers in teaching will find that a number of area employers are seeking prospective employees with a broader vision of the world, not normally provided by a narrow specialization. Opportunities are available in people-oriented jobs such as public relations, personnel, medicine, etc.

As liberal studies candidates prepare for entrance into the teaching profession or other careers, they are provided expert assistance from the campus Career Services Office. Assistance in preparing placement files, preparing for job interviews, and searching for suitable employment is readily available for each candidate.

Scholarship Requirement

Liberal studies majors who plan to obtain a Multiple Subject Credential (elementary teaching) must earn a high GPA as a condition for admission to a teacher education program.

For additional information regarding admission to the Multiple Subject Credential Programs, contact the SOEHD Teacher Preparation and Services Center in ED 100.

Credential Programs

Liberal studies students who wish to complete a credential program that will lead to authorization to teach in an elementary school must follow a specific course of study. Students may wish to use their electives to begin work on prerequisites for one of the following preliminary credential programs:

- Multiple Subject Credential with CLAD emphasis
- Multiple Subject Credential with BCLAD emphasis
- Multiple Subject Credential — emphasis in Early Childhood Education
- Special Education

Program Advisement

Liberal studies majors are expected to attend a group orientation describing the program during their first semester on campus. Dates for orientation sessions are posted outside ED 151 or can be obtained by calling (559) 278-0270. These orientations, which are scheduled regularly each term, enable students to understand major requirements and ensure effective planning of their coursework. Students seeking individual advisement (customarily following the group orientation) can call the Liberal Studies Office.

In addition, all students should purchase the Liberal Studies Handbook, available in the Kennel Bookstore.

Freshmen. Follow the catalog description for General Education and select from appropriate categories.

Transfer Students. Select upper-division courses from the liberal studies major requirements. An official university evaluation of your prior work (DARS) will be completed in the first semester, and you will be notified by mail. Attend a group orientation as soon as possible to ensure a smooth transition into the Liberal Studies Program.

Liberal Studies Program

Liberal Studies offers a flexible program for students who want to obtain broad knowledge through studying a variety of subjects and for those interested in becoming elementary school teachers. All liberal studies students complete the same program of 93-102 units of general education and major courses but then have several ways in which they may complete their degree. For those pursuing a Multiple Subject Credential, most of the credential courses may be included in the major and all could be included in a carefully planned four-year program.

Attention: The Liberal Studies Degree/ Multiple Subject Credential listed here is correct as of the time of publication of this catalog. As teacher education programs are subject to state and system legislative control, it is recommended that students interested in the credential consult the Liberal Studies Program office of the School of Education and Human Development for current program requirements.

Blended Program

The Blended Program blends both General Education and most of the Multiple Subject Credential coursework into the major. Completion of the credential also requires completion of EHD 160C — Student Teaching. Courses satisfying General Education requirements are indicated by the G.E. are in parentheses.

Bachelor of Arts Degree Requirements

Liberal Studies Major
Units

Major requirements 93-100

Core 15
- COMM 3, 7, or 8 [all A1] ..... (3)
- ENGL 1 [A2] ..... (3)
- PHIL 28 [A3] ..... (3)
- MATH 10A [B4], 10B ..... (3)

Breadth 51-52
- Mathematics/Science ..... (17)
  - MATH 100; N SCI 1A [B1, 3], 1B [B2, 3],115, [IB], 116
- Arts and Humanities ... (13-15)
  - ART 20, 40, 50; MUSIC 9; ENGL 41, 43; or DRAMA 22 [all C1] ..... (3-4)
  - ENGL 101, 102, or 103 [IC] ..... (4)
  - Two of: HUM 10, LING 11, one foreign language course at level 1B or above [all C2] ..... (6)
- Social Sciences ..... (21)
  - HIST 1, 11 [D1]; PL SI 2 [D2], GEOG 4 [D3]; ECON 165; S SCI 110 [ID], 180 [M/I]

Application courses 18-19
- C SCI 5, 7; or IS 50 ..... (3)
- CFS 38 [E1] ..... (3)
- DRAMA 137, ART 179, MUSIC 153, or DANCE 160 ..... (3)
- COMM 114 or ENGL 104 ..... (3-4)
- CFS 133S, PSYCH 169, or RLS 125 ..... (3)
- KINES 152 ..... (3)

Concentrations (select one) 9-14
- Consult your adviser for a list of concentrations.

General Education
- All requirements of the General Education Program applicable to the 1999-2000 and subsequent catalogs are met by courses in this program (courses labeled by G.E. area).

Electives and remaining degree requirements[1] 24-31
- Students should satisfy the Upper-Division Writing Requirement either by passing the exam or successfully completing a *W* course.

Total 124

Non-Credential Students

Elective units may be used for a dual major.

Credential Students

It is recommended that elective units be used to begin the Professional Preparation requirements or for a dual major.

Multiple Subjects

Professional Preparation ..... (37-39)
- EHD 50 ..... (0-2)
- CLAD/BCLAD Preparation: LEE 133 or LING 133 ... (3)
- Credential Courses ..... (34)
  - EHD 110; ERF 130, 140; LEE 146, 149; CTET 121, 125, 150; EHD 160

Students who want to become elementary school teachers must obtain admission to the credential courses. EHD 50 (2 units) is a prerequisite for admission to the credential program, although students with appropriate experience may be allowed to waive it. Consult a liberal studies adviser.

See "Preliminary Multiple Subject Credential — Requirements for Admission to Student Teaching" on page 249 for admission criteria.

Basic Admission Requirements for the Liberal Studies Blended Program Credential Coursework:

- Attained 45-60 cumulative units
- CBEST taken
- 2.67 cumulative grade point average
- Two letters of recommendation
- Faculty interview
- Evidence of writing proficiency
- Spoken English proficiency
- Completion of campus-designated lower-division prerequisite coursework to include the following: EHD 50; N SCI 1A, 1B; MATH 10A; PHIL 28; LING 11 or Area C2 foreign language course; CFS 38

In order to apply to the credential program, Liberal Studies Blended Program majors must meet the basic admission requirements for the Multiple Subject Credential Program. Students who do not meet these requirements, but want to continue pursuing a teaching credential, must consult a liberal studies adviser and work toward qualification through an Admission by Agreement Plan.

Dual Major: Credential and non-credential students may complete the degree with a dual major. See a liberal studies adviser and an adviser in your other major field for details.

Advising Notes

1. The upper-division writing skills requirement must be taken no sooner than the term in which 60 units of coursework are completed. See *Degree Requirements*.
2. Liberal Studies majors who plan to obtain a Multiple Subject Credential (elementary teaching) should attend a Multiple Subject orientation by signing up in ED 100 during the semester prior to entering the credential program.

Education — Literacy and Early Education

School of Education
and Human Development

Department of Literacy and Early Education
Jacques S. Benninga, *Chair*
Education Building, Room 250
(559) 278-0250

Credentials
- Multiple Subject, Option II
- Early Childhood Education (CLAD)
- Multiple Subject, CLAD/BCLAD
- Early Childhood Specialist
- Reading/Language Arts Specialist

M.A. in Education
Options:
- Early Childhood Education
- Reading/Language Arts

The Department

The primary mission of the Department of Literacy and Early Education is to prepare knowledgeable and professionally competent teachers and curriculum leaders in the areas of early childhood education (N-3), bilingual/cross-cultural education (K-12), and reading/language arts (K-12) in both public and private educational settings.

The department offers the Preliminary Multiple Subject Credential in both Early Childhood Education (CLAD, Option II) and Bilingual/Cross-Cultural Language and Academic Development (CLAD/BCLAD). At the graduate level, the department offers programs in early childhood education and reading/language arts.

Credential Programs

Basic Teaching Credentials. The basic Multiple Subject Teaching Credential may be earned in conjunction with a baccalaureate degree (preliminary credential) or following completion of a fifth year of professional preparation in the following areas:

1. Multiple Subject Credential — Early Childhood Education with CLAD Emphasis
2. Multiple Subject Credential with CLAD Emphasis

Specialist Teaching Credential. The specialist teaching credential represents a year of postbaccalaureate study and two years teaching experience in an area of teaching specialization. The specialist credential may be earned by a holder of a Multiple Subject or Single Subject Credential. The Department of Literacy and Early Education offers specialist credentials in early childhood education and reading/language arts.

Master's Degree Programs

The Department of Literacy and Early Education offers advanced and specialized study for the Master of Arts degree in Education with options in early childhood education and in reading/language arts. Completion of a master's degree signifies that the holder is prepared to provide professional leadership in an area of specialization offered by the department. Most candidates for the master's degree have three or more years of successful teaching experience.

Faculty

Jacques S. Benninga, *Chair*

Susan Macy, *Coordinator of Early Childhood Education Emphasis (Option II), Specialist Credential and Master's Programs*, (559) 278-0267

Armando Baltra, *Coordinator of Bilingual/Cross-Cultural Language and Academic Development*, (559) 278-0364

Robert H. Pritchard, *Coordinator of Reading/Language Arts Specialist Credential and Master's Programs*, (559) 278-0278

Shareen Abramson
Armando Baltra
Imelda Basurto
Glenn DeVoogd
Bonnie L. Dutton
Elaine Garan
Adrienne Herrell
Judith C. Neal
Cecilio Orozco
Richard F. Osterberg
Marilyn R. Shelton
Gail E. Tompkins
Anthony Vang

Special Programs

Bonner Center for Character Education and Citizenship: Jacques S. Benninga, Director

California Reading and Literature Project: Rosie Arenas, Co-Director

Central California Reading Recovery Project: Judith C. Neal, Director

Joyce M. Huggins Early Education Center: Shareen Abramson, Director

San Joaquin Valley Writing Project: Gail Tompkins, Director

Credential Programs

Preliminary Multiple Subject Credential programs in the Department of Literacy and Early Education include: Option II — Early Childhood Education with CLAD Emphasis.

For clarification pertaining to program content, see the appropriate Multiple Subject program coordinator or contact the Student Services Office in ED 100, (559) 278-0300.

Option II — Early Childhood Education with CLAD Emphasis

The Early Childhood Education Emphasis Program prepares students to teach in the elementary grades, with special strengths in early childhood education. This block program with fieldwork and student teaching in early childhood classrooms, preschool, kindergarten, primary, and intermediate grades enables the student to obtain a Multiple Subject CLAD Credential in a specific emphasis area. Students who elect to complete the EHD 160 assignment in two semesters enroll in EHD 160A (5 units) and EHD 160B (5 units). Successful completion of EHD 160A and EHD 160B must include a minimum of one week of full-time student teaching in each assignment.

Program Requirements

1. Subject Matter Competency. Demonstrate subject matter competence through completion of the Multiple Subject Equivalency Program or pass the Multiple Subject Assessment of Teaching (MSAT) examination Content Knowledge and Content Area Exercises I and II.
2. Prerequisite Requirements
   a. Three units of child development or child psychology coursework
   b. Additional Course Requirements. LEE 133 or LING 133 and the equivalent of 6 units of the same foreign language
   c. EHD 50 or waiver
3. Professional Preparation *Units*

EHD 111	1
EHD 112	1
EHD 113	1
CTET 121	3
ERF 130A	1
ERF 130ECE	2
ERF 140A	1
ERF 140ECE	2
LEE 146	3
LEE 148	4
LEE 149	3
EHD 160C	10
Total	**32**

4. Completion of a Bachelor's Degree. California law requires a bachelor's degree in a subject area other than professional education.

Other Preliminary Multiple Subject Credential Programs with CLAD Emphasis. The emphasis of CLAD/BCLAD programs is to prepare teachers to work with English language learners. The CLAD authorization will certify teachers to provide instruction for English language development and specially designed academic instruction in English. The BCLAD (Spanish and Hmong) has replaced the Bilingual/Cross-Cultural Credential and authorizes teachers to provide academic instruction to English language learners in their primary language.

Prerequisite requirements: EHD 50 or equivalent. Requirements for a Preliminary Multiple Subject Credential with CLAD/BCLAD:

1. Demonstrate subject matter competence:
   a. Complete an approved Multiple Subject Equivalency Program, the Liberal Studies degree, or pass the Multiple Subject Assessment for Teachers (MSAT), tests for Content Knowledge and Content Area Exercises 1 and 2.
   b. Receive written notice from the academic adviser that subject matter competence has been met.
   c. Additional course requirements: LEE or LING 133 and the equivalent of 6 units of the same foreign language.
2. Additional classes for BCLAD: the BCLAD requires courses in addition to those listed. For specific courses, see the Liberal Studies adviser, (559) 278-0270, or Multiple Subject adviser, (559) 278-0305.

3. Professional Preparation *Units*

EHD 110	3
CTET 121	3
CTET 125	3
ERF 130	3
ERF 140	3
CTET 150	3
LEE 146	3
LEE 149	3
EHD 160C	10
Total*	**34**

*Additional course for BCLAD:
LEE 139 3

Specialist Credentials/Certificate

Specialist credentials may be earned by holders of Multiple Subject and Single Subject credentials. The specialist credential represents a year of postbaccalaureate study in an area of teaching specialization. Specialist credential programs offered through the Department of Literacy and Early Education include: (1) Early Childhood Education and (2) Reading/Language Arts.

Early Childhood Education Specialist Credential

Admission Requirements. (1) Prerequisite: completion of a Multiple Subject Credential or Single Subject Credential, (2) Completion of an Application for Admission to the Specialist Credential Program that must be approved by the program coordinator, (3) Attainment of Postbaccalaureate Standing (Credential only) or Graduate Standing (Credential and Master's Degree).

Program *Units*

1. Course Requirements
   Select 15 units with approval of ECE coordinator: LEE 171, 232, 233, 235, 241, 271 15
2. Electives are selected from fields including special education, educational administration, bilingual education, and other fields as determined in consultation with the ECE faculty adviser 15

   Total 30
3. Experience. Two years of successful teaching experience in early childhood education.

Courses taken in the Early Childhood Specialist Credential Program may be used to satisfy part or all of the clear credential (fifth year) requirements provided prior approval is obtained from the early childhood education coordinator. Specialist credential courses may also be used to meet part or all of the requirements for a master's degree. It is strongly advised that application for the master's degree be completed at the same time the application for the specialist credential occurs. See the SOEHD Teacher Preparation and Services Center in ED 100 for admission information. For information about all early childhood programs,

contact the early childhood education program coordinator at (559) 278-0267.

Reading/Language Arts Specialist Credential

Admission Requirements. (1) Complete application for postbaccalaureate standing at California State University, Fresno; (2) complete application for Admission to SOEHD graduate programs; (3) possess a GPA of 2.75 overall; (4) provide three letters of recommendation; (5) complete a Statement of Purpose; (6) take the GRE (general test) or the Miller Analogies Test and submit a copy of score; (7) successfully complete 12 semester units of education coursework; and (8) possess a basic teaching credential.

Program	*Units*
1. Course Requirements	
LEE 213, 214, 215, 224, 234, 244, 254, 278	24
2. Experience: Completion of a one semester supervised field experience (LEE 254) and three years of successful teaching experience at any grade level (K-12).	

Courses taken in the Reading/Language Arts Specialist Credential Program may be used to satisfy part or all of the clear credential requirements for either the Multiple Subject or Single Subject credential, provided prior approval is obtained from the fifth-year adviser. Specialist credential courses may also be used to meet part of the requirements for a master's degree. See the SOEHD Teacher Preparation and Services Center in ED 100 for admission information. For information about the Reading/Language Arts Specialist Credential, contact the reading/language arts program coordinator at (559) 278-0278.

Master of Arts Degree in Education

Early Childhood Education

The Master of Arts degree in Education with an option in early childhood education offers specialized preparation for a wide variety of positions in educational settings with children from birth through the primary grades. The program is designed to meet individual needs of candidates with different experiential and educational backgrounds and varied career objectives. Students may use the program to meet fifth-year credential requirements for the Clear Teaching Credential.

Admission Requirements for Classified Standing. See *General Admission Requirements* in the *Education — Graduate Program* section in this catalog.

Program. Prerequisites: LEE 171 and 12 additional units in education or child development and an adequate background for advanced work in the field as determined by the program faculty. ERF 153 is no longer a prerequisite for admission to the program. However, it is still a prerequisite to the research core requirement, ERF 220.

	Units
Course Requirements	
ERF 220; ERF 285 or 288; LEE 298B or 299	10
Select 15 units with approval of ECE coordinator: LEE 171; LEE 232, 233, 235, 241, 271	15
Approved Electives	5
Total	**30**

For information on the M.A. in Education, early childhood education option, contact the early childhood education coordinator at (559) 278-0320.

Master of Arts Degree in Education

Reading/Language Arts

The Master of Arts degree program in Education with an option in reading/language arts 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 Requirements for Classified Standing. See *General Admission Requirements* in the *Education — Graduate Program* section in this catalog.

Program. Prerequisites: 12 units of professional education coursework. ERF 153 is no longer a prerequisite for admission to the program. However, it is still a prerequisite to the research core requirement, ERF 220.

	Units
Course Requirements	
ERF 220; ERF 285 or 288 and LEE 298A or 299	10
LEE 213, 215, 244, 278	12
Approved Electives (See adviser for suggested courses or groupings. The program offers special elective groupings in Integrated Language Arts, Teaching LEP Students, Diagnostic/Clinic Experiences, and Reading Recovery.)	8
Total	**30**

For information on the M.A. in Reading/Language Arts, contact the reading/language arts coordinator at (559) 278-0278.

COURSES

Note: Students must provide their own transportation to off-campus sites for classes, student teaching, practica and field activities, and defray any resulting expense.

Literacy and Early Education (LEE)

AR. Reading Skills (1-3; max total 3)
Designed to improve reading abilities. Emphasis on improving vocabulary, comprehension, and flexibility in reading rate. Focus is on college level textbooks. Lecture-discussion approach with directed reading. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

1R. Reading Application Skills (1-3; max total 3)
A combination of lecture, discussion, and direct application to improve skills, such as identifying main point, building vocabulary, and drawing inferences. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

2R. Basic Skills Reading Development (3)
Designed to further the basic skills in reading for applicants to teacher education credential programs. Students who pass the course will satisfy the CBEST reading requirement for admission into teacher education. Students are still required to pass the CBEST to qualify for a teaching credential. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

120. Problems in Education
(2-3; repeatable with different topics; maximum of 3 units per code, e.g., CL, ST)
In-depth study of various areas in education including children's literature (CL) and storytelling (ST). Selected topics may require activities.

129. Hmong in Bilingual Schools: BCLAD (3)
Prerequisite: HMONG 101 or equivalent. Emphasis on Hmong language development for bilingual teachers. Includes basic content area instruction in Hmong, evaluation of teaching materials, and conferencing with parents. (Formerly HMONG 104)

133. English Language Learners in the Elementary School (3)
(Same as LING 133.) Language issues, methodologies, and materials for teaching K-8 English language learners. Structure and acquisition of English by first and second language learners. Basic characteristics of languages spoken by diverse school populations. Sociocultural factors for education of English language learners.

137. Language Minority Students in the Secondary Classroom (3)
(See LING 137.) Not open to students with credit in LING 137. Prerequisite: admission to the Single Subject Credential Program. Issues, methodologies, and materials to provide content area instruction to secondary students whose primary language is not English.

138. Teaching the Linguistically Different (3)
Studies and methods used in English Language Development (ELD) classrooms, including multimedia instruction, SDAIE methodology, development and adaptation of materials. Parent involvement and working with paraprofessionals in an ELD classroom.

139. Teaching Content in L1 (3)
Prerequisites: Spanish or Hmong language fluency or permission of instructor. Teaches L1 methods and materials used to teach content in bilingual classrooms. Designed for BCLAD candidates. Students will deliver lessons in bilingual classrooms in local schools under university supervision.

146. Teaching Reading in K-3 Classrooms (3)
Prerequisites: (1) admission to the Multiple Subject Credential Program or the Special Education Credential Program (2) ERF 130 and 140, and CTET 150 or LEE 148 (or concurrent enrollment); (3) concurrent enrollment in EHD 110 or 112 (if Option II) is highly recommended. LEE 146 and 149 must be taken concurrently with EHD 110 (except for Option II and Special Education.) Balanced reading/writing program for grades K-3, assessment strategies to guide literacy instruction, explicit skills teaching in a literature-based classroom, and techniques for culturally/linguistically diverse learners.

147. Early Childhood Education: Classroom Ecology and the Child with Special Needs (3)
A study of classroom environment with a focus on the relationship, attitudes and actions of teachers, children, parents, and staff who interact in a regular classroom with a mainstreamed child. (2 lecture, 2 lab hours)

148. Integrated Curriculum (4)
Prerequisites: admission to the Multiple Subject Credential Program, Option II; completion of or concurrent enrollment in EHD 110; ERF 130, 140. Taken in place of CTET 150 by students in Option II program. Integration of curriculum and use of instructional resources in early childhood programs and the elementary school (K-6); methods of teaching. Lecture supported by curriculum development activities. (3 lecture, 2 activity hours)

149. Teaching Reading in 4-8 Classrooms (3)
Prerequisites: (1) admission to the Multiple Subject Credential Program or the Special Education Credential Program; (2) ERF 130 and 140, and CTET 150 or LEE 148 (or concurrent enrollment); (3) concurrent enrollment in EHD 110 or 112 (if Option II) is highly recommended. LEE 146 and 149 must be taken concurrently with EHD 110 (except for Option II and Special Education). Balanced reading/writing program for grades 4-8; assessment techniques to guide instruction, emphasizing comprehension and strategy teaching; integrating language arts with content area instruction; and techniques for culturally/linguistically diverse students. (Formerly LEE 156M)

156. Literacy and Content Area Instruction (3)
Prerequisites: admission to the Single Subject Credential Program; concurrent enrollment in EHD 155A or 155B. Language and literacy development as it relates to content area teaching and learning, including techniques for culturally/linguistically diverse learners. (Grades 7-12). (Formerly LEE 156S)

171. Trends and Issues in Early Childhood Education (3)
A comprehensive study of the field of early childhood education, including principles of early childhood education, parent relations, use of community resources, and organization of programs in early childhood education.

175. Teaching and Evaluating English Learners in K-12 Classrooms (3)
Prerequisite: previous or concurrent enrollment in LEE 138. Methods and materials for teaching and evaluating K-12 limited-English proficient students, with special emphasis on developing and assessing English language ability and interrelating language instruction with content area subject matter. Emphasis on SDAIE, Specially Designed Academic Instruction in English.

180T. Topics in Literacy and Early Education (1-3; max total 9)
Issues and topics in reading, bilingual/cross-cultural education, reading, and language development.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

Literacy and Early Education (LEE)

213. Teaching the Language Arts K-12 (3)
Seminar on integrated language arts, reading-writing connections, and using language arts in literature-based reading programs and theme cycles.

214. Literature for Children and Adolescents (3)
Prerequisite: admission to program or permission of instructor. Survey of genre, authors, and illustrators; critical interpretation and classroom application of books; the impact of social and cultural patterns in literature.

215. Language Issues in Reading (3)
Prerequisite: admission to program or permission of instructor. Seminar exploring issues related to language acquisition and literacy development with special emphasis on culturally and linguistically diverse learners.

221. Early Childhood Curriculum for Children with Special Needs (3)
Modifications in mainstreamed or special settings to adapt early education curriculum for young children with special needs. Study of theoretical models, research, teaching techniques, criteria for selection of appropriate materials and provisions for adapting physical classroom environments.

224. Assessment and Development of Reading Abilities (3)
Analysis of reading performance utilizing portfolio and performance based assessments and diagnostic instruments. Consideration of methods and materials for instruction.

232. Reading and Language Arts in Early Childhood Education (3)
Prerequisite: admission to program or permission of instructor. Examines development of oral and written language skills in young children. Explores theories, curricula, and strategies for teaching language arts and beginning reading.

233. Play, Observation, and Assessment in Early Childhood Education (3)
Prerequisites: LEE 171; admission to Early Childhood Emphasis or Specialist program. Play theory and research and its relationship to growth and development in young children. Observation-based assessment, developmental profiles, rubrics and portfolios to document development. Structuring environments that facilitate play and development in early childhood settings, infants through grade three. (2 lecture, 2 lab hours)

234. Clinical Experiences in Reading Assessment and Instruction (3)
Prerequisite: LEE 224. Clinical experiences in the supervised application of principles learned in LEE 224. Emphasis on individual and small group evaluation and instructional procedures. (2 lecture, 2 lab hours) (Instructional materials fee, $10)

235. Concept Development in Early Childhood Education (3)
Prerequisite: LEE 233 or permission of instructor. Study of how young children develop concepts, analysis of existing curriculum and design of relevant curriculum. (2 lecture, 2 lab hours)

241. Fieldwork in Early Childhood Education (3)
Prerequisite: admission to Early Childhood Emphasis or Specialist program. Supervised experiences in work with young children and their families in at least two different levels including preschool, kindergarten, and primary. (Minimum of 135 hours)

244. Research for Reading Professionals (3)
Prerequisites: LEE 213, 215, 278, and permission of instructor. Study of past and current research in reading related to instructional issues; planning and analysis of curricula in light of current research; application of research skills.

254. Supervised Field Experiences in Reading (3)
Prerequisite: LEE 224, 244, and permission of instructor. Intensive varied supervised field experiences in settings with reading specialists, consultants, or staff development personnel 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.

271. Culturally Responsive Teaching (3)
Ways in which culture affects personality, language, and cognitive development. Similarities and differences in education and socialization in a variety of cultural settings are studied. Curricula for multicultural education are included. (2 lecture, 2 lab hours)

278. Literacy Processes and Practices (3)
Prerequisite: LEE 146 and 149 for Multiple Subject Credential holders; LEE 156 for Single Subject Credential holders; or permission of instructor. Understanding literacy processes through the investigation of current theories, issues, and practices.

280T. Advanced Topics in Literacy and Early Education (1-3; max total 3)
Prerequisite: permission of instructor. Advanced, in-depth analysis of issues and problems related to literacy, bilingualism, and early childhood education. Emphasis placed on advanced research.

290. Independent Study (1-3; max total 6)
See Academic Placement — Independent Study. Approved for *SP* grading.

298A. Project — Literacy (4)
Prerequisite: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220. See *Criteria for Thesis and Project*. A project consists of a significant undertaking appropriate to education such as the development of curricula and instructional materials, intervention programs, studies of policy related to reading and literacy, and educational theory. An approved proposal is required for enrollment. Approved for *SP* grading.

298B. Project — Early Childhood Education (4)
Prerequisite: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220. See *Criteria for Thesis and Project*. A project consists of a significant undertaking appropriate to education such as the development of curricula and instructional materials, intervention programs, studies of policy related to early childhood education, and educational theory. An approved proposal is required for enrollment. Approved for *SP* grading.

299. Thesis (4)
Prerequisite: advancement to candidacy for the master's degree; *B* average on 24 units of the master's program including ERF 220 and completion of an acceptable thesis proposal. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. See School of Education and Human Development's graduate programs coordinator for thesis guidelines. Approved for *SP* grading.

IN-SERVICE COURSES

(See *Course Numbering System*.)

Literacy and Early Education (LEE)

380T. Topics in Literacy and Early Education (1-6; max total 12)
Studies in theory, procedures, and application in such areas as pertain to departmental focus.

383. Problems in Child Study (2; max total 12 if no topic repeated)
Methods of studying children; relationship of child study groups, reviews of research findings in child development, and adolescent behavior.

Education — Interdepartmental

Interdepartmental Programs and Courses

The interdepartmental section provides information about the Master of Arts degree program in Education — Curriculum and Instruction, and the Victim Services Certificate of Special Study Program. These programs are sought by students with varied professional interests and career goals.

Information is also provided about special School of Education and Human Development (SOEHD) programs and services that are available for administrators, faculty, and students.

For faculty listings, refer to the following departments within the SOEHD:

- Counseling and Special Education (CSE)
- Curriculum, Teaching, and Educational Technology (CTET)
- Educational Research, Administration, and Foundations (ERAF)
- Literacy and Early Education (LEE)

Master's Degree Program

The Master of Arts degree in Education with an option in curriculum and instruction is designed to provide professional and specialized preparation for candidates interested in acquiring knowledge and skills essential for the design and development of curriculum and related instructional practices. This 30-semester unit program provides candidates with an opportunity to obtain in-depth study in a variety of specialty areas associated with the field of education, such as microcomputer applications, subject area applications, philosophical/psychological foundation applications, etc. For more information about this program, refer to the *Education — Curriculum, Teaching, and Educational Technology* section in this catalog.

Victim Services Certificate Program

The SOEHD and the Department of Criminology jointly sponsor the Victim Services Certificate of Special Study Program.

The primary goal of the Victim Services Program is to provide experiences, knowledge, and skills for working with victims within a criminological/human development framework. This program is also very useful for individuals interested in pursuing a career in the area of behavioral sciences.

Students working toward a Victim Services Certificate have an opportunity to receive an interdisciplinary/interagency examination of victim services as they relate to: theoretical concepts, legal aspects, victim rights, causes of victimization, and services available to assist the victim. Furthermore, emphasis is directed toward assisting the students in acquiring new perspectives and skills needed for working effectively with different types of victims.

Program Processes and Procedures. To attain a Victim Services Certificate, the candidate must progress through three distinct program phases: admission, completion of program courses, and certificate authorization. Each of these program phases is described in the copy that follows.

School of Education and Human Development
Paul Shaker, *Dean*
Education Building, Room 210
(559) 278-0210

Robert H. Monke, *Associate Dean*
Education Building, Room 205
(559) 278-0205

Berta Gonzalez, *Associate Dean*
Education Building, Room 205
(559) 278-0209

Lynn Eilefson, *Director of Advancement*
Education Building, Room 236
(559) 278-0249

Michael Jordan, *Coordinator*
Multiple Subject Credential Program
(559) 278-0300

Jolyne Daughtry, *Coordinator*
Single Subject Credential Program
(559) 278-0300

Joan C. Henderson-Sparks, *Coordinator*
Victim Services Certificate Program
(559) 278-0240

M.A. in Education
Curriculum and Instruction Option

Victim Services Certificate

Admission. For admission information, contact the Department of Criminology in McKee Fisk 244 (559) 278-2305.

Course Requirements. A minimum of 12 units are required with 3 units selected from each of the four emphasis areas: (1) theory, (2) victim issues, (3) service delivery, and (4) legal/social policy.

	Units
1. Theory	**3**
Victimology (CRIM 175)	
2. Victim Issues	**3**
Select a minimum of 3 units:	
Family Violence (CRIM 140)	(3)
Child Abuse (EHD 107)	(3)
Domestic Violence (W S 116)	(1)
Rape (W S 108)	(1)
Incest (W S 109)	(1)
3. Service Delivery	**3**
Select a minimum of 3 units:	
Intervention and Counseling for Helping Professions (EHD 108)	(3)
Victim Services (CRIM 176)	(3)
Child Welfare (S WRK 128)	(3)
4. Legal/Social Policy	**3**
Select a minimum of 3 units:	
Education for Community Change (EHD 109)	(3)
Legal Policy in Victim Services (CRIM 177)	(3)
Women and Violence (CRIM/W S 126)	(3)
Total	**12**

Field Experience. An additional 3-unit field experience (CRIM 182: Internship in Victimology) is available to interested students. Enrollment can be arranged by contacting the Department of Criminology.

Advising. For information and advisement, contact the School of Education and Human Development certificate program adviser or the chair of the Department of Criminology.

Special Programs and Services

The Center for Educational Research and Services (CERS) assists faculty, students, school districts, and the community in improving practice in education through research. Emphasis is on applied and collaborative research which will impact educational quality for learners of all ages. Assistance is available in grant proposal writing and submission; in administering state, federal, and private grants; and for consultation for specific needs such as organizational change, publication, and program planning. Other technical support includes evaluation, survey design, and statistical programming, analysis, and interpretation. The SOEHD Center for Educational Research and Services is located in ED 334.

Advancement. In its effort to provide the highest quality programs and services to the educational community in the Central Valley, the SOEHD has begun a comprehensive plan for advancement. The school intends to involve faculty, emeriti faculty, business leaders, students, alumni, and friends of education in providing "state-of-the-art" instruction, facilities, and programs for continuing development and support of education. Coordination of the Advancement program is provided by Lynn Eilefson, director of advancement, in ED 236. For more information, call (559) 278-0249.

The Instructional Technology and Resource Center (INTERESC) provides support to faculty for the utilization and integration of technology in the curriculum. INTERESC staff provide assistance in instructional design required for the preparation and production of instructional materials such as slides, videotapes, multimedia, and other media formats. Center personnel also consult with students, faculty, and staff in selecting computer hardware and software, and audiovisual equipment. This unit also includes a Resource Center which contains print and non-print curriculum materials that are available for both immediate examination and checkout. A Support Services area can be accessed for development of special publications and presentations as well as for volume duplication and reproduction. INTERESC manages all SOEHD computerized classrooms and laboratories and provides technical support for the Human Development Center. Coordination of INTERESC is provided by Otto E. Benavides in ED 481.

The Human Development Center provides support for instruction and also includes specialized services for clientele ranging in age from infant through adult. This center is comprised of two major areas: the Early Childhood Education Center and the Clinic.

- The Early Childhood Education Center provides opportunities for students to observe child development and learning processes as well as to participate in the educational processes through supervised laboratory experiences. The clientele include children from low-income families and other children from the local community who are on-site throughout the day.
- The Clinic provides laboratory space in support of instruction in counseling, reading, and special education programs. Clientele using this facility receive a variety of special clinical services delivered in one-to-one or small group formats. These services include individual and group testing, special reading instruction, work skills assessment, parenting instruction, and other programs that are focused on unique client needs.

International Education and Special Programs. SOEHD is involved in international program development and study so that faculty and students can enhance their understanding of other cultures and nations and contribute constructively toward a better future throughout the world. Special support is provided for international, multicultural, and cross-cultural educational experiences for faculty, staff, and students. Additionally, the SOEHD is committed to the development and offering of special courses and programs to meet the educational needs of students and the community. Coordination of the SOEHD International Education and Special Programs is provided by Berta Gonzalez in ED 205.

Mini Corps. The SOEHD provides facilities for the Mini Corps Program. This program is developed to prepare migrant students to work in bilingual classrooms and to obtain teaching credentials. Mini Corps staff provide counseling, advising, and financial support annually for 80 migrant students who are interested in becoming teachers. For more information contact Directors Lilly Lomeli or Jose Mejia in the Mini Corps Office located in ED 461.

COURSES

Education and Human Development (EHD)

50. Introduction to Teaching (2)
Orientation to role of teacher in public schools; observation of teacher-pupil interaction, instructional approaches, classroom management in elementary, secondary, and/or middle schools; two-hour lecture weekly, plus two-hour school site observation weekly, not including travel. *CR/NC* grading only.

101. Peace Education (1-3; max total 3)
An introduction to peaceful conflict resolution strategies for use in the home, school, community, and international relations including educational models and programs for the prevention of nuclear war. A multidisciplinary approach with invited speakers and audiovisual presentations.

107. Child Abuse (3)
Develops perspectives on child abuse and child victimization. Assessment, treatment, and prevention of child abuse/neglect are covered. Other areas include: effects of divorce, media, and war on the lives of children and children's rights. Course meets licensure and licensure renewal requirements for many professional groups.

108. Intervention and Counseling for Helping Professions (3)
Focuses on crisis intervention and the coping process. Looks at ways of assisting persons directly and indirectly affected by crises such as crime victimization, family change, and other problems.

109. Education for Community Change (3)
The capacity of a society to ensure individuals a safe environment and a high quality of life is dependent on its ability to respond to needs and make appropriate changes. Examples of specific mechanisms for affecting public policy are explored. Includes such activities as advocacy, interprofessional collaboration, planning strategies, legislative proposals, grant writing, grass roots organizing, and public education efforts at the city, county, and state levels.

110. Initial Student Teaching (1-3; max total 3)
Prerequisites: admission to Multiple Subject Program; ERF 130; CTET 150 and LEE 146 must be taken concurrently, except in Option IV. Supervised activities and teaching in public school classrooms. Forty minutes per day per unit with additional conference periods. *CR/NC* grading only. (Instructional materials fee, $7)

111. Initial Student Teaching — Foundations (1)
Open only for ECE students. Not open to students with credit in EHD 110BC. Prerequisites: admission to Multiple Subject Program (Option II); ERF 130ECE, ERF 140ECE, or concurrent enrollment. Supervised activities and teaching in public school classrooms. (1 unit) *CR/NC* grading only. (Formerly T Ed 110)

112. Initial Student Teaching — Reading (1)
Open only for ECE students. Not open to students with credit in EHD 110BC. Prerequisites: admission to Multiple Subject Program (Option II); ERF 130ECE, ERF 140ECE, LEE 146 or concurrent enrollment. Supervised activities and teaching in public school classrooms. (1 unit) *CR/NC* grading only. (Formerly T Ed 110)

113. Initial Student Teaching — Curriculum (1)
Open only for ECE students. Not open to students with credit in EHD 110BC. Prerequisites: admission to Multiple Subject Program (Option II); ERF 130ECE, ERF 140ECE, LEE 146, or concurrent enrollment. Supervised activities and teaching in public school classrooms. (1 unit) *CR/NC* grading only. (Instructional materials fee, $7) (Formerly T Ed 110)

115. Liberal Studies Senior Project (3)
Prerequisite: senior standing and if planning to enter the Multiple Subject Credential Program, EHD 50 or equivalent. Supervised tutorial in the public schools, working one-on-one with students identified as "at risk" of school failure. A journal, final paper, and other written and oral work are required. One hour lecture, three hours tutorial.

155A. Student Teaching in Secondary School (5)
Prerequisites: admission to the Single Subject Credential Program; ERF 151, 152, and CTET 159 must be taken prior to or concurrently with EHD 155A. Student teaching in middle school under clinical supervision; assignment requires 3 hours per day, Monday through Friday. *CR/NC* grading only. (Instructional materials fee, $15)

155B. Student Teaching in Secondary School (5 or 10; max total 10)
Prerequisites: admission to student teaching; EHD 155A; CTET 161 (or concurrently depending on major departmental policy); senior or postbaccalaureate standing; approval of major department including subject matter competency approval; completion of waiver program or passing of appropriate National Teachers Examination. Supervised teaching in a single subject classroom; assignment is for the full day; five days per week. *CR/NC* grading only.

160A. Student Teaching in Elementary School (5)
Prerequisites: admission to the Multiple Subject Credential Program; completion of all requirements for admission to student teaching; ERF 140 or concurrent enrollment. Supervised teaching in public school classrooms; assignment requires a minimum of one-half day, five days per week. *CR/NC* grading only. (Instructional materials fee, $5)

160B. Student Teaching in Elementary School (5)
Prerequisites: admission to the Multiple Subject Credential Program; completion of all requirements for admission to student teaching; ERF 140 or concurrent enrollment. Supervised teaching in public school classrooms; assignment requires one-half day, five days per week. Assignment also requires two weeks of full-time teaching. *CR/NC* grading only. (Instructional materials fee, $5)

160C. Student Teaching in Elementary School (10)
Prerequisites: admission to the Multiple Subject Credential Program; completion of all requirements for admission to student teaching; ERF 140 or concurrent enrollment. Supervised teaching in public school classrooms; assignment is one-half day for the first five weeks and all day for the last ten weeks. *CR/NC* grading only. (Instructional materials fee, $10)

180T. Topics in Education and Human Development (1; max total 9)
Issues and topics in education and human development.

IN-SERVICE COURSES

(See *Course Numbering System.*)

Education and Human Development (EHD)

Note: EHD 306, 316, and 326 are equivalent to the CSU consortium courses Designated Subjects 306, 316, and 326. They satisfy specified requirements for the Designated Subjects Credential for Adult and Vocational Education.

306. Foundations of Adult/Vocational Education (3)
Scope and function of adult education, curriculum principles and practices, instructional techniques and media, student and instructional evaluation.

316. Seminar in Adult/Vocational Education (3)
Prerequisite: EHD 306. Community and occupational relationships, work experience, counseling and guidance, leadership development, community and cultural differences.

317. Curriculum Development (2)
Candidates will be able to prepare unit plans including goals, objectives, topical outlines, strategies, activities, safety considerations, materials, and student assessment instruments that are well-defined and coordinated.

318. Learning and Instruction (2)
Emphasis on individual traits and differences during stages of development affecting how students learn. Candidates will use a variety of instructional techniques, strategies, activities, and materials that are appropriate for students with diverse needs and learning styles.

319. Classroom and Laboratory Management (1)
Candidates will demonstrate proficiency in the operation and maintenance of a facility for vocational instruction. Successful completion of these course requirements satisfies Standard 12 of Level I.

320. Evaluation (1)
Teacher candidates will identify students' prior knowledge and skills, develop individualized instructional objectives, evaluate student performance and achievements, and assess overall program effectiveness.

321. Curriculum Development and Evaluation (2)
Teacher candidates will prepare unit plan and lesson plans that include goals, objectives, strategies, activities, and safety considerations, as well as materials and student assessment instruments that are well-defined and coordinated.

322. Special Needs (1)
Prerequisite: completion of Level 1 requirements. Specifically addresses the identification of special needs populations and those learning strategies, activities, and materials that may be utilized to be successful with a very diverse student population.

323. Learning, Instruction, and Classroom (2)
Focus on presenting ideas, concepts, and procedures using clear and meaningful language. Candidates will use a variety of instructional techniques, strategies, activities, and materials that are appropriate for students with diverse needs and learning styles.

324. Foundations of Vocational Education (1)
Teacher candidates will understand the concepts of vocational education and how it relates to other subject areas. History, traditions, current delivery systems, and current initiatives will be addressed. Teacher candidates will acquire an understanding of current policies, funding, practices, and issues.

325. Perspectives on the Adult Learner: Adult Learning Styles and the Role of the Teacher (2)
Prerequisites: CBEST or high school diploma or GED. Overview of the diversity in adult population, adult learning process, and interpersonal relations. Examination of a variety of theories, techniques, and strategies to enhance adult learning. Emphasis will be on adult student characteristics and learning styles.

326. Independent Study in Adult/Vocational Education (3)
Prerequisite: EHD 316. Individually prescribed assignments in terms of candidate's educational and occupational background and teaching field.

327. Instructional Strategies and Evaluative Techniques in Adult Education (2)
Centers on the practical applications of adult learning theory. Topics include handling the diversity of adult learning styles, developing dynamic instructional strategies, utilizing learning retention techniques, evaluating instruction, and student assessment.

328. Adult Learning through Interpersonal Relations, Counseling, and Guidance (2)
Designed to help participants target the needs of adult learners as a diverse population and to recognize personal and academic problems. Topics include identifying appropriate school or community services available to students, conflict resolution, and group facilitation.

329. Curriculum, Instructional Technology, and Community Legislative and Occupational Relationships (3)
Overview of the essential elements in the design, development, and delivery of successful adult education classes, including the use of technology in the classroom. Addresses current issues which impact adult education.

353. Curriculum Problems and Practices (1-3; max total 12 if no topic repeated)
Prerequisite: teaching credential. Individual or group projects in curriculum analysis, implementation, and evaluation; implications of individual differences and environmental factors. Written report required. May not be applied to a master's program.

361. General Methods of Teaching (3)
Basic principles of teaching and application to the classroom; implications of methods for classroom management, motivation, pupil behavior, and reporting to parents; preparation of instructional plans and evaluation instruments.

363F. Fieldwork in Curriculum (1-3; max total 6 if no project repeated)
Prerequisite: regular credential or recommendation of the principal. Special projects in curriculum implementation and evaluation. Individual or group projects. Written report submitted to instructor and school district (individual or group conference; hours arranged).

381. Planning and Organizing Outdoor Education (3)
Prerequisite: teaching experience. Role of the public school in promoting learning opportunities outside the classroom; outdoor science, conservation, education, health and safety, group living, camp work experience, and nature study; responsibilities of classroom teachers for outdoor leadership. (Seminar, lab, field trips)

395. Supervision of Student Teachers (2; max total 4)
Prerequisites: postbaccalaureate standing, teaching experience. Supervision and evaluation of student teachers; role of the supervising classroom teacher, college supervisor, and other personnel. *CR/NC* grading only.

Education — Graduate Programs

Postbaccalaureate Advancement

Graduate Education programs in the School of Education and Human Development are focused on *"Making a Difference" in central California's diverse society by preparing leadership for a new millennium.* Postbaccalaureate advanced credential and master's degree programs are primarily focused on: (1) preparation and enhancement of teachers and other educational leaders and (2) preparation of human service leaders who function in a variety of human development roles in both public and private sectors.

The need for quality teachers, administrators, curriculum and instruction specialists, and human development professionals is particularly important for the enhancement of human potential and productivity in the richly varied ethnic, cultural, and social milieu of the region. The School of Education and Human Development is committed to developing the knowledge, skills, and values for educational leadership in a changing, diverse, and technologically complex society.

Interprofessional Collaboration

The Certificate of Advanced Study in Interprofessional Collaboration (CASIC) is a 15-unit, two-semester program that provides graduate students and practicing professionals with essential knowledge and skills in interprofessional collaboration while earning university credit and an academic certificate at the completion of the program. See page 464-465.

Mission and Goals

The mission of the School of Education and Human Development is to educate students to become teachers, administrators, counselors, and educational specialists in order to provide for the educational needs of children and adults, with special attention to diversity and equity.

The specific goals of the SOEHD are as follows:

- to provide programs for preparing competent teachers, administrators, counselors, and other education specialists;
- to provide constituents with learning experiences that will enable them to adapt to changing conditions;
- to provide services necessary for the continued growth and development of the educational community through such activities as workshops, special classes, and lectures;
- to provide opportunities for research involving faculty, school, and agencies as they address educational and social concerns;
- to provide opportunities for faculty to remain current in their profession and serve as role models by demonstrating their skills in university classrooms, schools, the professional community, and other settings; and
- to provide an optimal learning environment using innovative technology.

The School of Education and Human Development offers advanced and specialized preparation required for awarding master's degrees and advanced specialist and services credentials. Information about interdisciplinary programs is provided in this section. General information is also provided about all advanced programs while more specific program information is obtained by referring to appropriate departmental sections in this catalog.

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Bonnie Dutton,
Graduate Programs Coordinator
Education Building, Room 269
(559) 278-0280

M.A. in Education

M.A. in Special Education

M.S. in Counseling

M.S. in Rehabilitation Counseling

Advanced Credential Programs
Administrative Services
- Preliminary
- Professional
- Administrative Services Internship

Early Childhood Education Specialist

Pupil Personnel Services
- School Counseling

Reading/Language Arts Specialist

Professional Level II Education Specialist
- Mild/Moderate Disabilities
- Moderate/Severe Disabilities

Professional Level II Education Specialist Internship Credential
- Mild/Moderate Disabilities
- Moderate/Severe Disabilities

Certificate of Advanced Study in Interprofessional Collaboration

Master's Degree Programs

The SOEHD offers four master's degree programs in separate areas of professional emphasis. These degree programs include:

1. M.A. degree in Education with the following options: administration and supervision, curriculum and instruction, early childhood education, reading/language arts, and counseling and student services
2. M.A. degree in Special Education
3. M.S. degree in Counseling with an option in marriage and family therapy
4. M.S. degree in Rehabilitation Counseling

Master's degree programs can be pursued concurrently with fifth-year (postbaccalaureate) teaching credential, specialist credential, or services credential programs. For information regarding the fifth-year Professional (clear) teaching credential program, contact Multiple and Single Subject fifth-year advisers in the Teacher Preparation and Services Center in ED 100. Elective units needed to complete the 30-unit postbaccalaureate requirement may be included as part of a master's degree and/or an advanced credential program (excludes basic credential core courses and other fifth-year requirements: health, computer applications, and mainstreaming).

For additional information and advisement pertaining to SOEHD master's degree programs, consult the appropriate department and program coordinator.

M.A. in Education

- Administration and Supervision. (See *Department of Educational Research, Administration, and Foundations*/coordinator of administrative services program.)
- Curriculum and Instruction. (See *Department of Curriculum, Teaching, and Educational Technology*/coordinator of curriculum and instruction.)
- Early Childhood Education. (See *Department of Literacy and Early Education*/coordinator of early childhood education.)
- Reading/Language Arts. (See *Department of Literacy and Early Education*/coordinator of reading/language arts.)
- Counseling and Student Services. (See *Department of Counseling and Special Education*/coordinator of counselor education.)

M.A. in Special Education.

- (See *Department of Counseling and Special Education*/coordinator of special education program.)

M.S. in Counseling

- Marriage and Family Therapy. (See *Department of Counseling and Special Education*/coordinator of rehabilitation counseling.)

M.S. in Rehabilitation Counseling. (See *Department of Counseling and Special Education*/coordinator of rehabilitation counseling.)

Master's Degrees

Admission Requirements. Enrollment in an SOEHD master's degree program requires that separate applications for admission be completed for the university *and* the SOEHD.

University Admission Requirements. Applicants are required to complete the California State University Application for Graduate Admission Parts A and B. In addition to this form, and among other requirements, the applicant is expected to provide evidence of an appropriate four-year B.A. or B.S. degree, scores on the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT), and a minimum GPA of 2.5 on the last 60 (90 quarter) units attempted. University applications are available in the university Admissions Office (Joyal Administration public contact window), the Graduate Office (Thomas Administration 132) and the Teacher Preparation and Services Center (ED 100).

SOEHD Admission Requirements. In addition to making application for admission to the university Admissions Office, consult the Teacher Preparation and Services Center in ED 100 for:

1. program information
2. SOEHD graduate programs admission packet
3. any specific program application forms, and
4. assignment to an appropriate adviser.

All students applying for admission to a master's degree program in the SOEHD must meet the minimum admission requirements listed in the copy that follows and be approved for admission by a program Faculty Review Committee. Evidence of completion of these requirements is to be submitted along with required forms in one complete packet to the Teacher Preparation and Services Center, ED 100, by the application closing date. A completed admissions packet will include the following:

1. verification of admission to California State University, Fresno
2. an application to the SOEHD graduate programs
3. a complete set of transcripts of all prior college or university work
4. evidence of a minimum GPA of 2.75 overall or on the last 60 undergraduate units. Continuing postbaccalaureate students must have attained a cumulative GPA of 2.75 on all units attempted (for exception, see *Special Education Programs*)
5. a statement of purpose
6. three letters of recommendation
7. evidence of successful completion of ERF 153 (Educational Statistics) or equivalent*
8. evidence of receipt of the Graduate Record Examination — General Test by providing a copy of the GRE Score Report *or* the Miller Analogies Test (MAT) by providing a copy of the Institution Score Report
9. evidence of receipt of a passing score on the Test of English as a Foreign Language (TOEFL) if an international student. The SOEHD also retains the option to require international students to obtain additional preparation if English usage skills are judged to be inadequate
10. evidence of writing proficiency by one of the following:
    a. obtaining a passing score on the Upper-Division Writing Exam
    b. completing English 160W with a grade of *B* or better
    c. obtaining a passing score on the CBEST

*Required for admission to M.S. in Counseling, M.S. in Rehabilitation Counseling, and M.A. in Special Education. ERF 153 is required as a prerequisite for ERF 220 in all M.A. in Education Program options. ERF 153 cannot be applied toward an SOEHD M.A./M.S. program.

11. evidence of any additional requirements unique to each degree and program within the degree. See graduate programs offered through the departments of:
    - Counseling and Special Education
    - Curriculum, Teaching, and Educational Technology
    - Educational Research, Administration, and Foundations, and
    - Literacy and Early Education

Required application packets are available in the Teacher Preparation and Services Center, ED 100.

Application Deadlines

University Admission. University deadlines for graduate admission applications normally are set during the semester prior to anticipated program enrollment. (Deadlines occur during April or May for fall enrollment and October or November for spring enrollment.) The university may extend admission deadlines if anticipated enrollment targets are not met. For specific deadlines, applicants need to check with the Admissions Office at the Joyal Administration public contact window or call (559) 278-6283.

SOEHD Admission Deadlines. All school admission materials required for full admission (classified standing) are to be submitted to the graduate technician in the Teacher Preparation and Services Center, ED 100, no later than 30 days following the deadline for university admission. Students submitting all application material within these timelines will receive priority consideration for admission. General deadlines for program admission are April 1 for summer/fall enrollment and November 1 for spring enrollment. For specific SOEHD admission deadlines, contact the Teacher Preparation and Services Center, ED 100, or call (559) 278-0300.

Applicants who have not completed all requirements for full admission (classified standing) but qualify for unclassified postbaccalaureate standing can enroll in up to 6 units of program coursework. However, no more than 6 program units can be completed during unclassified postbaccalaureate standing and additional program coursework cannot be taken until full admission (classified standing) is attained.

Applicants must complete all program application requirements prior to or during

the first semester of enrollment in the degree program. Early completion of application materials assures timely review and written notification of admission status.

Program Faculty Review. Following submission of all application requirements, the program faculty representing each master's degree program reviews the application. Written notification is then sent regarding whether or not admission has been granted.

Appeal of Admissions Decision. Applicants who have received written notification of denial of admission have an opportunity to submit a formal appeal for special consideration to the program faculty. An appeal for special consideration must be submitted within two weeks of the date of the letter of denial in order to be considered by the program faculty during the same semester.

Advancement to Candidacy/Completion of Degree. For information regarding advancement to candidacy and procedures needed to complete the master's degree, contact the Teacher Preparation and Services Center in ED 100.

The Teacher Preparation and Services Center maintains a record center for all students who are working toward a SOEHD master's degree. It also maintains liaison between the Division of Graduate Studies 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 the appropriate program coordinator.

Advanced Credential Programs

Advanced Credential Programs are categorized as: (1) specialist credentials and (2) services credentials. These credentials require professional preparation at the postbaccalaureate level. Most specialist and services credentials require successful completion of a basic Multiple Subject or Single Subject credential. Exceptions to this are in Pupil Personnel Services and in some cases Administrative Services. (See program coordinator for details.)

Specialist Credential Programs offered at California State University, Fresno include:

1. Agriculture. (See *Department of Animal Sciences and Agricultural Education*/ adviser for the agriculture specialist credential.)
2. Early Childhood Education. (See *Department of Literacy and Early Education*/coordinator of early childhood education.)
3. Reading/Language Arts. (See *Department of Literacy and Early Education*/coordinator of reading/language arts.)
4. Professional Level II Education Specialist Credential:
    - Deaf and Hard of Hearing. (See *Department of Communicative Sciences and Disorders*/coordinator of education specialist credential.)
    - Mild/Moderate Disabilities
    - Moderate/Severe Disabilities
    (See *Department of Counseling and Special Education*/coordinator of education specialist credential.)
5. Professional Level II Education Specialist Internship Credential:
    - Mild/Moderate Disabilities
    - Moderate/Severe Disabilities
    (See *Department of Counseling and Special Education*/coordinator of education specialist credential.)

Services Credential Programs offered at Fresno State include:

1. Administrative:
   - Preliminary Administrative Services
   - Professional Administrative Services
   - Administrative Services Internship

   (See *Department of Educational Research, Administration, and Foundations*/coordinator of educational administration.)
2. Clinical — Rehabilitative. (See *Department of Communicative Sciences and Disorders*/coordinator of clinical — rehabilitative program.)
3. Health (School Nurse). (See *Department of Nursing*/coordinator of health services.)
4. Pupil Personnel — School Counseling. (See *Department of Counseling and Special Education*/coordinator of counselor education.)
5. Pupil Personnel — School Psychology. (See *Department of Psychology*/coordinator of school psychology program.)
6. Pupil Personnel — School Social Work and Child Welfare and Attendance. (See *Department of Social Work Education*.)

Specialist and services credential programs can be pursued concurrently with a fifth-year (postbaccalaureate) teaching credential (Multiple Subject or Single Subject) and/or a master's degree. Elective units needed to complete the 30-unit postbaccalaureate requirement may be included as part of a specialist credential, services credential, and/or master's degree (excludes basic credential core courses and fifth-year requirements: health, computer applications, and mainstreaming). For information regarding the fifth-year Professional (clear) teaching credential program, contact a fifth-year adviser in the Teacher Preparation and Services Center, ED 100.

For information pertaining to the specialist and services credential programs, consult with the appropriate program coordinator or the Teacher Preparation and Services Center, ED 100.

Specialist and Services Credentials

Admission Requirements. Enrollment in an SOEHD Advanced Credential program requires that separate applications for admission be completed for the university *and* the SOEHD.

University Admission Requirements. Applicants are required to complete the California State University Application for Graduate Admission Parts A and B. In addition to this form, and among other requirements, the applicant is expected to provide evidence of an appropriate four-year B.A. or B.S. degree, scores on the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT), and a minimum GPA of 2.5 on the last 60 (90 quarter) units attempted. University applications are available in the university Admissions Office (Joyal Administration public contact window), the Graduate Office (Thomas Administration 132) and the Teacher Preparation and Services Center (ED 100).

For admission requirements for advanced specialist and services credential programs, refer to the specific program information found in catalog sections for the departments of:

- Counseling and Special Education
- Curriculum, Teaching, and Educational Technology
- Educational Research, Administration, and Foundations, and
- Literacy and Early Education.

Application materials and forms are available in the Teacher Preparation and Services Center, ED 100. Admission requirements for advanced credential programs are to be completed along with required forms and submitted in one complete packet to the Teacher Preparation and Services Center, ED 100.

Application Deadlines

University Admission. University deadlines for graduate admission applications normally are set during the semester prior to anticipated program enrollment. (Deadlines occur during April or May for fall enrollment and October or November for spring enrollment.) The university may extend admission deadlines if anticipated enrollment targets are not met. For specific deadlines, applicants need to check with the Admissions Office at the Joyal Administration public contact window or call (559) 278-6283.

SOEHD Admission Deadlines. All school admission materials required for full admission (classified standing) are to be submitted to the graduate technician in the Teacher Preparation and Services Center, ED 100, no later than 30 days following the deadline for university admission. Students submitting all application material within these timelines will receive priority consideration for admission. General deadlines for program admission are: April 1 for summer/fall enrollment and November 1 for spring enrollment. For specific SOEHD admission deadlines, contact the Teacher Preparation and Services Center, ED 100, or call (559) 278-0300.

Applicants who have not completed all requirements for full admission but qualify for unclassified postbaccalaureate standing can enroll in up to 6 units of program coursework. However, no more than 6 program units can be completed during unclassified postbaccalaureate standing and additional program coursework cannot be taken until full admission is attained.

Applicants must complete all program application requirements prior to or during the first semester of enrollment in a specific credential program. Early completion of application materials assures timely review and notification of admission status.

Program Faculty Review. Following submission of all application materials, the program faculty representing each advanced credential program reviews the application. Written notification is then sent regarding whether or not admission has been granted.

Appeal of Admission Decision. Applicants who have received written notification of denial of admission have an opportunity to submit a formal appeal for special consideration to the program faculty. An appeal for special consideration must be submitted within two weeks of the date of the letter of denial in order to be considered by the program faculty during the same semester.

Educational Leadership – Joint Doctoral Program

The Doctoral Program

The purpose of the Doctoral Program in Educational Leadership is to enhance the talents and skills of individuals who plan to devote their lives to the implementation of educational practices informed by research. Offered jointly by California State University, Fresno and the University of California, this Ed.D. program provides students with a broad view of educational problems and a strong background in social science theory. In addition, the program prepares students to conduct and interpret inquiries on which sound educational policy and practice can be anchored.

Students in the program benefit from the teaching and research expertise of established scholars from five universities, including: California State University, Fresno and the University of California campuses at Davis, Los Angeles, Santa Barbara, and Santa Cruz. The faculty hail from a number of academic disciplines: educational administration, education, anthropology, sociology, business, psychology, linguistics, and economics.

All courses are taught in Fresno and are held during the evenings and on the weekends to accommodate full-time working professionals.

Interdisciplinary/ Intercampus Faculty

California State University, Fresno

Armando Baltra — ESL and Foreign Language Teaching Methodology, Bilingualism and Bilingual Education, Psycholinguistics
Jacques Benninga — Curriculum and Instruction, Developmental Psychology, Character Education
Ric Brown — Research, Statistics, and Measurement, Educational Psychology, Student Rating of Instruction
Sharon Brown-Welty — Evaluation, Education Leadership, Conflict Resolution, Policy Development, Labor Relations
Karen Carey — Ethnographic Research Methods, School Psychology
Donald Coleman — Program Development, Management, Leadership and Organization Development
Deanna Evans-Schilling — Family Involvement, Curriculum, Teacher Preparation
Diana Gilbertson — Leadership and Organizational Behavior, Administration and Organization Theory, Management
Dewey Johnson — Strategic Leadership, Organizational Behavior
Phyllis Kuehn — Research, Measurement, Statistics, Language Acquisition
James Marshall — School Curriculum Reform, Assessment, Science Education
Finian McGinn — Linguistics, Literacy, Multicultural Education
Rosemary Papalewis — Educational Leadership, Administration/Higher Education, Women Leaders
Bernice Stone — Curriculum, Teacher Preparation, Mainstreaming
Susan Tracz — Statistical Methodology, Educational Reform, Counseling
Ronald Unruh — Evaluation and Assessment, Bilingual Education
Diane Yerkes — Pre-service Preparation of Instructional Leaders, Preparation of Administrators, Women in Educational Administration

University of California

James Bruno (UC Los Angeles) — Quantitative Method, Operations Research, Educational Policy and Planning, Evaluation and Assessment, Educational Leadership
Joseph Castro (UC Davis) — Organizational Learning, Leadership in Higher Education
James Catterall (UC Los Angeles) — Administration and Policy Analysis, Organization and Leadership
Donald Erickson (UC Los Angeles) — Principalship, Organizational Theory
Richard Figueroa (UC Davis) — Bilingual Special Education, Special Education, Minority Testing, Nonpsychometric Assessment, Migrant Education
Tuli Glasman (UC Santa Barbara) — Principalship/Superintendent, Personnel Evaluation
Ross MacDonald (UC Davis) — Developmental Education, Tutoring, Ethnographic Research
Peter McLaren (UC Los Angeles) — Curriculum Theory and Design; Critical Pedagogy; Critical Theory and Critical Multiculturalism; Historical, Philosophical, Social, and Multicultural Foundations of Education
John McNeil (UC Los Angeles) — Curriculum, School Administration
Barbara Merino (UC Davis) — Bilingual Schooling, Multilingual Contexts
Douglas Minnis (UC Davis) — Non- formal Education, Mentoring, Teacher Effectiveness
Sandra Murphy (UC Davis) — Teaching and Assessing Writing, Reading Comprehension
Russell W. Rumberger (UC Santa Barbara) — Educational Reform, Education Policy, Education and Labor Markets, Survey Design
Jonathan Sandoval (UC Davis) — Psychological Tests and Measurement, Children's Classroom Learning, School-Linked Health and Human Services
Trish Stoddart (UC Santa Cruz) — Educational Psychology, Science Education/Curriculum
Jon Wagner (UC Davis) — Educational Reform, Social Organization of Educational Research
Karen Watson-Gegeo (UC Davis) — Ethnographic Research Methods, Sociolinguistics, Bilingual Education, International Education
George Yonge (UC Davis) — Educational Psychology, Educational Philosophy, Teacher Preparation

School of Education
and Human Development

Joint Doctoral Program in Educational Leadership
Sharon Brown-Welty,
Co-Director,
California State University, Fresno
Jonathan H. Sandoval,
Interim Co-Director,
University of California, Davis
Shelly M. Dorn,
Academic Coordinator
Diane Rivera-Pasillas,
Administrative Assistant
Education Building, Room 310
(559) 278-0427
FAX: (559) 278-0457
http://caracas.soehd.csufresno.edu/jdpel/jdpel.html

Doctorate in Educational Leadership (Ed.D.)
Organizational Studies
Supervision, Curriculum, and Instruction
Assessment and Evaluation
Sociocultural Contexts

Admission Requirements

Applicants must meet the general admission requirements for both California State University, Fresno and UC Davis. These include a master's degree or equivalent from an accredited institution and a grade point average of at least 3.2 in upper-division undergraduate and master's degree coursework. Applicants must also demonstrate high potential for educational leadership and scholarly achievement through professional experience, academic accomplishment, and professional recommendations. Applicants whose graduate degrees are in subjects other than education/educational administration and who plan to pursue a Professional Administrative

Services Credential must complete the required 24 credential units (Preliminary level) prior to admittance.

The deadline for application to the program is in February. Finalists are interviewed by the Joint Doctoral Program Admissions Committee.

Residency Requirements

Students must spend a minimum of one year in academic residence at each campus. To establish residence at UCD, doctoral students in their second year of coursework will register at UCD in the winter, spring, and fall quarters.

Program Requirements

Students in the program move through three phases of study, comprising 60 units. Phase one comprises eight core courses, phase two comprises specialization courses and field case study, and phase three comprises the dissertation. All students move through phase one as a cohort. Students may choose to specialize in one of four areas: organizational studies; supervision, curriculum, and instruction; assessment and evaluation; and sociocultural contexts.

	Units
Phase 1 — Core	**24**
EDL 201, 202, 203, 204, 205, 206, 207, 208	
Phase 2 — Specialization	**24**
EDL 210, 280T, 290, EDU 299, 299D	
Phase 3 — Dissertation	**12**
EDL 299	
Total	**60**

DOCTORAL GRADUATE COURSES

Educational Leadership (EDL)

201. Organizational Theory in Complex Organizations (3)
Prerequisite: admission to the program. Seminar. Combines alternative views of organizational theory with applications to the structure of the school; to critical roles played by teachers, principals and other school personnel; and to examine the relationships among structural elements of schools.

202. Planning and Changing in Education (3)
Prerequisite: admission to the program. Seminar. Examines strategies for initiating and institutionalizing change in people and organizations, with particular attention to moral and ethical issues faced by educational leaders. Attention is given to the development of skills in communicating results of research and evaluation, critiquing of scholarly and professional writing and communication of research and technical information.

203. Governance and Political Perspectives for Educational Leadership (3)
Prerequisite: admission to the program. Seminar. Determinants of policy in educational organizations and leadership. Analysis of structures used for legal, fiscal and political decisions and conflict management. Role of the educational leader in relation to intergovernmental activities aimed at educational reform.

204. Quantitative Methods Applied to Administrative Practice (3)
Prerequisite: ERF 220 or equivalent. A tutor will be available for specific student need. Seminar. Examines advanced research methodologies and data analysis techniques applicable to education and social science settings. Topics include experimental and quasi-experimental design, advanced statistical techniques, sampling distributions, nonparametric statistics, inference and hypothesis testing. Specific applications to the work of the education leader.

205. Families, Communities, and Schools in Sociocultural Context (3)
Prerequisite: admission to the program. Seminar. Explores the role of parental relationships with the schools focusing on representation of culturally diverse communities, involvement of parents in their children's education, socialization, and learning processes as related to the transition of children from home to school.

206. Conceptual Curriculum Perspectives for Educational Leadership (3)
Prerequisites: admission to the program and EDL 201, 202. Seminar. Students will develop the philosophical and analytical skills to examine curriculum theory and practice, including the conceptualization of purposes of the organization of subject matters, and of the instructional methods.

207. Ethnographical Research Methods (3)
Corequisites: admission to the program and EDL 204. Seminar. Examines the purpose and nature of ethnographic research including current application in educational settings. Emphasis is directed toward critical analysis of current ethnographic studies and will include field-based application.

208. Theories of Cross-Cultural Education (3)
Corequisites: admission to the program and EDL 205. Designed to explain and discuss the most relevant theoretical approaches dealing with cross-cultural, multicultural education. As diverse and conflicting perspectives are examined, students will experience the complexity of views and perceptions dealing as leaders with multicultural populations coexisting in a pluralistic society.

210. Field-based Research Practicum in Organizational Settings (1-6; max total 8)
Prerequisites: admission to the program, EDL 201-208, and permission of the co-directors. Engages students in studies relevant to field settings. Includes collecting and analyzing both qualitative and quantitative data related to improving educational practice and/or solving school problems. Expected to relate to prospective dissertation topic and proposal possibilities.

280T. Topics in Educational Leadership (1-3; max total 15)
Prerequisites: admission to the program, EDL 201-208, and permission of the co-directors. Topics and issues in educational leadership in the areas of organizational studies, curriculum, instruction and supervision, assessment and evaluation, and sociocultural studies. Analysis of research findings and an emphasis on the relationship of theory to practice.

290. Individual Study (1-18; max total 18)
Prerequisites: admission to the program, EDL 201-208, and permission of the co-directors. Research for individual doctoral graduate students. *CR/NC* grading only.

299. Dissertation (1-12; max total 12)
Prerequisites: advancement to candidacy for the Doctorate in Education and a minimum GPA of 3.0. Submission of approved dissertation. See *Criteria for Dissertation*. *CR/NC* grading only.

UC DAVIS COURSES

Education (EDU)

299. Individual Study (1-6; max total 40 quarter units)
Independent study, 3-18 hours. Individual study under the direction of a faculty member. *Satisfactory/Unsatisfactory* grading only.

299D. Research (1-6; max total 30 quarter units)
Independent study, 3-18 hours. Research for individual graduate students. *Satisfactory/Unsatisfactory* grading only.

The College of Engineering and Computer Science

Engineering East, Room 122
Karl E. Longley, *Dean*, (559) 278-2500

The Mission of the College

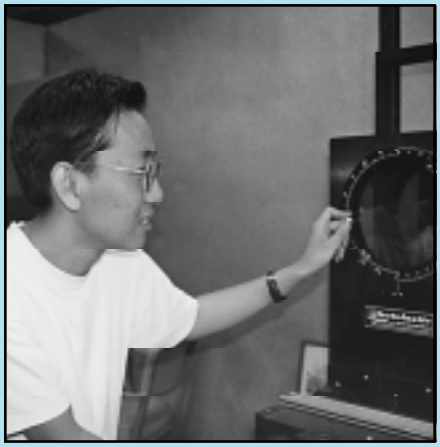
The College of Engineering and Computer Science is the only publicly supported engineering college in the San Joaquin Valley. The mission of the college is to develop each student's potential to the greatest extent possible, provide a quality engineering education to all students, and to serve students from groups that historically have not participated in a university engineering education.

To reach these goals, the College of Engineering and Computer Science provides excellent scholarship support for students and maintains a computer system with 150 student workstations.

The Civil, Electrical, Industrial, Mechanical, and Geomatics Engineering programs are accredited by the Accreditation Board for Engineering and Technology (ABET). The Construction Management Program is accredited by the American Council for Construction Education (ACCE).

The College of Engineering and Computer Science fosters programs and activities that support and enhance instruction and that encourage the development of the faculty.

ENGR 1T. Topics in Engineering
(1-4; variable, max 12 if no topic repeated)
Selected topics in engineering that serve as an introduction to the field of engineering and technology.



The College of Engineering and Computer Science includes the departments of Civil and Geomatics Engineering and Construction, Computer Science, Electrical and Computer Engineering, and Mechanical and Industrial Engineering.

Civil and Geomatics Engineering and Construction

College of Engineering
and Computer Science

Department of Civil and Geomatics Engineering and Construction
Mohamad A. Yousef, *Chair*
Engineering East Building, Room 178
(559) 278-2889
FAX: (559) 278-7002

B.S. in Civil Engineering

B.S. in Construction Management

B.S. in Geomatics Engineering

M.S. in Civil Engineering

Minor in Construction Management

The Department

The Department of Civil and Geomatics Engineering and Construction offers programs of study leading to the Bachelor of Science degrees in Civil Engineering, Geomatics Engineering, and Construction Management. Civil and Geomatics Engineering programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) which represents the major professional engineering groups in the United States. The Management Specialty Program of the Bachelor of Science degree in Construction Management is accredited by the American Council for Construction Education, the professional accreditation organization of the construction industry.

Civil engineering includes the research, development, planning, design, construction, and maintenance associated with urban development, water supply, structures, energy generation and transmission, water treatment and disposal, and transportation systems. The civil engineer deals with the function and safety of such public facilities as buildings, bridges, dams, pipelines, powerplants, highways, and harbors, and is concerned with the protection of the public against natural hazards of earthquakes, floods, landslides, and fires.

The graduate curriculum leading to an M.S. degree in Civil Engineering provides specialized training in the fields of structural engineering and applied mechanics, soil mechanics and foundation engineering, environmental engineering, water resources engineering, highway engineering, and geomatics engineering.

Geomatics engineers manage the global spatial infrastructure. This effort includes real property boundary determination, digital mapping, Geographic Information Systems (GIS), Global Positioning Systems (GPS), remote sensing, photogrammetric mapping, applications programming, project management, and construction layout activities. Students use a wide selection of specialized equipment while acquiring a solid theoretical background. Integration of geomatics engineering design concepts spans a sequence of courses throughout the curriculum. Intensive design coursework during the senior year provides a culminating focus. Coursework containing design components includes the following: Computer-Aided Mapping (G M E 66) first year; Route and Construction Surveying (G M E 40) second year; Stereophotogrammetry (G M E 123) and Digital Mapping (G M E 126) third year; Subdivision Design (G M E 159) and two upper-level technical design courses — Senior Project (G M E 180) and Project Design (G M E 181) — senior year.

Students in construction management (CM) are exposed to a wide variety of topics, ranging from courses in management and administration of construction companies, projects, people, and equipment to courses focusing on specific techniques for project planning and control work improvement and estimating. The Construction Management program also provides opportunities to develop a strong background in computer applications in construction. Computer skills combined with a solid management and technical background are major assets of the construction management graduate.

Faculty and Facilities

The teaching and research specialties of the department's faculty cover every area of civil engineering, geomatics engineering, and construction. Most faculty members are licensed as civil engineers, land surveyors, or contractors and have a wide range of professional experience in engineering design, analysis, research and development, and project planning and management.

Excellent laboratory facilities exist for testing of soils and construction materials, hydraulics testing, and water quality analysis.

Mandatory Advising

It is the policy of the department that every student see his/her assigned adviser at least once during the academic year.

Administrative Academic Probation

A minimum GPA of 2.0 must be maintained in all courses taken in the College of Engineering and Computer Science. Students who fail to maintain a 2.0 GPA in courses within their major may be placed on administrative academic probation. Failure to eliminate the grade point deficiency could result in disqualification from the College of Engineering and Computer Science.

Career Opportunities

Employment opportunities for civil engineers in industry, state, and federal government agencies remain at a high level as a result of increasing urban growth and land development, and the recent emphasis on the maintenance and repair of the nationwide highway system. Civil engineers are also in demand to meet the growing challenge of mitigating environmental hazards.

Civil engineers frequently occupy positions in specialty areas such as environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water-resources engineering. Position titles for civil engineers, such as senior engineer or project engineer in specialty areas, typically reflect their rank within their organization.

Opportunities for specialists in geomatics engineering continue to grow with rapid advancements in analytical photogrammetry, geographic information systems, and inertial and satellite positioning technologies. Most graduates of this program have been employed by federal and state government agencies, the petroleum industry, and other private industries.

Many civil and geomatics engineering graduates have earned professional licenses as civil engineers or land surveyors within a few years of receiving their degrees.

Opportunities for construction management graduates are excellent. Examples of positions held by construction management graduates are project manager, construction manager, project administrator, estimator, scheduler, architectural representative, project superintendent, and construction administrator. Students should consider this challenging, satisfying, and high-paying profession.

Faculty

Mohamad A. Yousef, *Chair*

Howard C. Biddlecome
Chandra S. Brahma
James K. Crossfield
Wayne P. Dominick
Ali El-Zeiny
Frank H. Goishi
R. Louis Gysler
Mushtaq Hussain
Jesus S. Larralde-Muro
Karl E. Longley
Riadh Munjy
Fareed W. Nader
Todd R. Sheller
C. Dennis Spring
William F. Wright

Bachelor of Science Degree Requirements

Civil Engineering Major — *Units*

Major requirements 69

C E 20, 85, 121L, 123, 123L, 124, 128, 129, 130, 132, 133, 142, 142L, 150, 180A, 180B, 185 ..... (34)
G M E 15 ..... (3)
ECE 70, 90 or 91 ..... (6)
I E 160, I E 182W ..... (5)
M E 26, 112, 136 ..... (9)
Technical Area Courses ..... (12)
Select mandatory technical area courses in one or more of the following groups subject to the *Design Courses* statement below.
Environmental and Water Resources: C E 140, 141, 143, 144
General Professional: C E 110, 161, 190, 191T
Geotechnical: C E 125, 134
Structures: C E 131, 135, 136, 137, 138
Geomatics: G M E 151, 173
Transportation: C E 151, 152, 153
Design Courses: at least 6 units of technical area courses must be selected from the following design courses: C E 125, 134, 135, 136, 141, 143, 144, 151

Other requirements 68

General Education
Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 92-94 for G.E. listings.)
The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 1A [B1], PHIL 20 [C2], C E 121 [IB], PHIL 120 [IC], PL SI 120 [M/I]
Additional requirements
GEOL 1; MATH 76, 77, 81; PHYS 4A, 4AL, 4B, 4C

Total 137

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

Advising Notes

1. Courses in mathematics, the physical sciences, or engineering taken *CR/NC* are not counted toward fulfillment of degree requirements in civil engineering.
2. Since the civil engineering major curriculum is very demanding, many students, especially those not fully prepared in mathematics, chemistry, and/or physics take 4½ or more years to graduate rather than the traditional 4 years. Students not fully prepared in chemistry should consider taking CHEM 3A in lieu of CHEM 1A. If needed, students also may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.

Recommended Program

First Semester — *Units*

C E 85 (Introduction to Civil Engineering) 1
MATH 75 (Mathematical Analysis I) ... 4
G M E 15 (Engineering Surveying) 3
G.E. Area A1[2] 3
G.E. Area A2[2] 3
G.E. Area C1[2] 3
17

Second Semester

MATH 76 (Mathematical Analysis II) ... 4
PHYS 4A, L (Mechanics and Wave Motion/Lab) 4
M E 26 (Engineering Graphics) 3
ECE 70 (Engineering Computations Using C and Fortran) 3
G.E. Area D1[2] 3
17

Third Semester

C E 20 (Engr Mechanics: Statics) 3
MATH 77 (Mathematical Analysis III) ... 4
G.E. Area B2[2] 3
CHEM 1A (General Chem and Qual Analysis) 5
PHYS 4B (Electricity and Magnetism) ... 3
18

Fourth Semester

GEOL 1 (Physical Geology) 4
PHIL 20 (Moral Questions) 3
MATH 81 (Applied Analysis) 4
PHYS 4C (Light and Modern Physics) 3
G.E. Area D2[2] 3
17

Fifth Semester

C E 121[1], 121L (Mechanics of Materials) 4
C E 128 (Civil Engineering Hydraulics) 3
C E 129 (Engineering Hydraulics Lab) 1
I E 182W (Engineering Writing) 3
M E 112 (Engineering Mechanics Dynamics) 3
G.E. Area D3[2] 3
17

Sixth Semester

C E 123, L (Soil Engineering) 4
C E 130 (Theory of Structures) 3
C E 142, L (Environmental Engineering) 4
C E 150 (Transportation Planning and Design) 3
PHIL 120 (Contemporary Conflicts of Morals) 3
17

Seventh Semester

C E 124 (Concrete Laboratory) 1
C E 132 (Reinforced Concrete Design) 3
C E 180A (Project Design) 1
C E 185 (Civil Engineering Practice) 1
ECE 90/91 (Principles of Electrical Circuits) 3
M E 136 (Thermodynamics) 3
Technical Area Courses (See *Major Requirements*) 6
18

Eighth Semester

C E 133 (Design of Steel Structures) ... 3
C E 180B (Senior Project) 2
I E 160 (Engineering Economy) 2
PL SI 120 (International Politics) 3
Technical Area Courses (See *Major Requirements*) 6
16

[1] Also counts as major GPA.
[2] See pages 92-94 for G.E. listings.

Master of Science in Civil Engineering

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

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, geomatics engineering, or a related field

from an institution accredited by the Accreditation Board for Engineering and Technology. To be admitted, students must have a 2.7 grade point average in the last 60 semester-units of engineering courses attempted, on the basis of 4.0 being *A*, or the approval of the Graduate Committee of the Department of Civil and Geomatics Engineering. If an applicant's preparation is deemed insufficient by the Graduate Committee of the Department of Civil and Geomatics Engineering, the applicant is required to take additional courses which are 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. The department graduate program coordinator shall appoint an interim graduate adviser for each student when that student is accepted into the graduate program. The coordinator will take into account student interests and correlated faculty interests when making this appointment.

A student must satisfactorily complete a written examination administered by the department before being eligible for Advancement to Candidacy. The purpose of the examination is to satisfy both the university's graduate writing requirement and to demonstrate the student has sufficient technical proficiency to continue in the program.

Continuation in the Program. Prior to being admitted to classified standing, a student is 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 then should select a graduate adviser before completing 12 units of graduate study and advancing to candidacy. Other members of his or her graduate committee shall be selected in consultation with the graduate adviser if the student has selected Plan A. This committee shall consist of at least three tenure/tenure track faculty. One or more external committee members, as identified by the graduate adviser and the graduate student, may also be included on this committee as long as the majority of the committee is composed of tenure/tenure track faculty members. The graduate student shall notify the department's Graduate Committee with a letter signed by both the student and the graduate adviser of the membership of the students' Graduate Committee. This letter shall be placed in the student's academic folder.

A graduate student may change graduate advisers when he or she justifies the reasons for such change in writing to the department graduate program coordinator and when such change is approved by the department's Graduate Committee. The student, together with his or her graduate adviser, completes a contract program within his or her first semester of coursework taken for graduate credit. This program must be approved by the department's Graduate Committee. Satisfactory progress toward 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 12 semester hours must be earned before the average is determined.

Campus graduate disqualification procedures shall be enforced by the department graduate program coordinator. Graduate students in the Department of Civil and Geomatics Engineering shall maintain a 3.0 grade point average (4.0 scale) each semester and cumulatively throughout all graduate program coursework. Any semester for which the grade point average falls below 3.0 shall result in placing the affected graduate student on probation. Normally, a second consecutive offense shall lead to disqualification. Such probation shall be for at least one semester or shall continue until the cumulative grade point average has again been raised above 3.0.

Program. Each master's degree student selects, as early as possible during the first semester of attendance, and upon consulting with and securing the approval of the graduate adviser, a program best suited to the student's interests and objectives.

The M.S. degree in Civil Engineering requires the completion of one of three programs of study containing the following requirements:

Plan A	*Units*
a. 200-series engineering courses	**12-24**
b. 100-series civil engineering or geomatics engineering undergraduate elective courses	**0-6**
c. Outside of the Department of Civil and Geomatics Engineering and Construction — 100-series upper-division and 200-series graduate courses in engineering, mathematics, statistics, management, business, geology, physics, chemistry, health sciences, biology, or other disciplines best suited to the student's graduate program as approved by the program adviser	**0-12**
d. Thesis 299	**6**
Total	**30**

Under this plan the total units from (b) and (c) may not exceed 12 units with not more than 6 units being 100-series upper-division courses.

Plan B	*Units*
a. 200-series engineering courses	**15-27**
b. 100-series civil engineering or geomatics engineering undergraduate elective courses	**0-6**
c. Outside of the Department of Civil and Geomatics Engineering and Construction — 100-series upper-division and 200-series graduate courses in engineering, mathematics, statistics, management, business, geology, physics, chemistry, health sciences, biology, or other disciplines best suited to the student's graduate program as approved by the program adviser	**0-12**
d. Project 298	**3**
Total	**30**

Under this plan the total units from (b) and (c) may not exceed 12 units with not more than 6 units being 100-series upper-division courses.

Plan C	*Units*
a. 200-series engineering courses	**18-30**
b. 100-series civil engineering or geomatics engineering undergraduate elective courses	**0-6**
c. Outside of the Department of Civil and Geomatics Engineering and Construction — 100-series upper-division and 200-series graduate courses in engineering, mathematics, statistics, management, business, geology, physics, chemistry, health sciences, biology, or other disciplines best suited to the student's graduate program as approved by the program adviser	**0-12**

d. Comprehensive Final Examination..... **0**
Total..... 30

Under this plan the total units from (b) and (c) may not exceed 12 units with not more than 6 units being 100-series upper-division courses.

Undergraduate courses that may be used as electives:

M E 144	Advanced Mechanics of Materials (3)
C E 110	Computer Application in Civil Engineering (3)
C E 125	Geotechnical Engineering Design (3)
C E 131	Intermediate Theory of Structures (3)
C E 134	Foundation Design (3)
C E 135	Reinforced and Prestressed Concrete Design (3)
C E 136	Design of Timber Structures (3)
C E 137	Seismic Design of Building (3)
C E 138	Structural Mechanics (3)
C E 141	Water Resources Engineering (3)
C E 143	Engineering Hydraulics (3)
C E 144	Design of Water Quality Control Processes (3)
C E 151	Pavement Design (3)
C E 153	Traffic Operations and Control (3)
C E 191T	Topics in Civil Engineering (3)
G M E 125	Analytical Photogrammetry (3)
G M E 126	Digital Mapping (3)
G M E 135	Advanced Survey Computations (3)
G M E 140	Earth Resources Surveying (3)
G M E 145	Geopositioning (3)
G M E 152	Real Property Descriptions (3)
G M E 153	Advanced Boundary Law (3)
G M E 161	Data Interface Design (3)
G M E 174	GIS Applications (3)
G M E 175	GIS Design Problems (3)
G M E 177	GIS Database Design (3)
G M E 191T	Topics in Surveying Engineering (1-3; max total 3)

Graduate Courses (C E)

205	Computing in Engineering Analysis (3)
206	Environmental Engineering and Planning (3)
220	Advanced Foundation Engineering (3)
230	Advanced Theory of Structures (3)
232	Prestressed Concrete Design (3)
233	Advanced Behavior and Design of Steel Structures (3)
234	Theory of Plates and Shells (3)
235	Finite Element Analysis (3)
237	Dynamics of Structures (3)
240	Engineering Hydrology (3)
242	Water Resources Planning and Management (3)
245	Advanced Unit Operations and Processes (3)
246A, B	Advanced Water Quality (3, 3)
247	Solid and Hazardous Wastes Engineering (3)
251	Advanced Boundary Law (3)
261	Geoprocessing (3)
271	Geodetic Systems Optimization (3)
275	Satellite Surveying (3)
280	Surveying Engineering Seminar (1; max total 3)
281	Civil Engineering Seminar (1; max total 3)
283	Digital Remote Sensing (3)
285	Advanced Analytical Photogrammetry (3)
286	Geographic Information Systems Design (3)
290	Independent Study (1-3)
291T	Topics in Civil Engineering (1-3; max total 15)
298	Project (3)
299	Thesis (2-6; max total 6)

COURSES

Civil Engineering (C E)

20. Engineering Mechanics: Statics (3)
Prerequisites: MATH 77 or concurrently; PHYS 4A. Analysis of force systems, equilibrium problems, section properties; graphic, algebraic, and vector methods of problem solution. (CAN ENGR 8)

29. Engineering Mechanics (3)
(See M E 29.)

85. Introduction to Civil Engineering (1)
The civil engineering profession and its role in society; creative thinking and critical thinking as integral parts of the engineering decision process; engineering methods of analysis; career opportunities. (Field trips required)

110. Computer Applications in Civil Engineering (3)
Prerequisites: ECE 70, C E 130. Use and modification of existing programs. Creation of new programs. Use of structured language, spreadsheets, and database management software. Interactive design and graphic displays. Design orientation. Term projects.

121. Mechanics of Materials (3)
Prerequisite: C E 20; C E 85 or concurrently. Applications of principles of mechanics to find stresses and deformations in machine and structural members.

121L. Mechanics of Materials Laboratory (1)
Prerequisite: C E 121 or concurrently. Application of principles and methods of testing to verify theory and determine limitations of principles of mechanics of materials. (3 lab hours)

123. Soil Engineering (3)
Prerequisites: C E 121; ECE 70. Physical and mechanical properties of soil as an engineering material; studies and design applications in permeability, one and two dimensional flows, seepage through earth dams and coffer dams, porewater pressure and excess porewater pressure; compressibility, stress-strain relationships and strength characteristics; computer-aided analysis case histories. (Instructional materials fee, $15)

123L. Soil Engineering Laboratory (1)
Prerequisite: C E 121L, 123 or concurrently. Experiments to illustrate and amplify the principles of soil mechanics. (3 lab hours; field trips required)

124. Concrete Laboratory (1)
Prerequisite: C E 121L. Proportioning of concrete mixes; admixtures; workability tests; compressive, flexural, and tensile strength tests; reinforced concrete. (3 lab hours; field trips required)

125. Geotechnical Engineering Design (3)
Prerequisites: C E 123, ECE 70. Design and theory of embankment and cut slopes, surcharging and sand drains, dewatering systems and ground control, excavation and support systems, field compaction and grouting systems; construction considerations, computer-aided design, and case histories. (2 lecture, 3 lab hours)

127. Construction Soils and Foundation (3)
Not open to civil engineering majors. Prerequisite: upper-level standing. Physical and mechanical properties of soil, construction applications of soils engineering design, field control during construction, field problems and remedial measures, and case histories.

127L. Construction Soil Lab (1)
Not open to civil engineering majors. Corequisite: C E 127. Laboratory experiments and sessions to reinforce principles of soil mechanics as well as foundation design and illustrate the use of soil as a construction material. (3 lab hours and field trips required)

128. Civil Engineering Hydraulics (3)
Prerequisite: C E 85 or concurrently and M E 112 or concurrently. Fundamentals of civil engineering hydraulics with application to hydraulic structures.

129. Engineering Hydraulics Lab (1)
Prerequisite: C E 128 or concurrently. Experiments and demonstrations in fluid properties, flow management, pipe flow, open channel flow, pumps, and hydraulic scour. (3 lab hours)

130. Theory of Structures (3)
Prerequisite: C E 85 or concurrently, C E 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. (Instructional materials fee, $15)

131. Intermediate Theory of Structures (3)
Prerequisite: C E 130. Analysis of statically indeterminate beams, trusses, and frames; advanced topics in slope deflection and moment distribution; matrix methods.

132. Reinforced Concrete Design (3)
Prerequisite: C E 130. Design of reinforced concrete structural elements using the Ultimate Strength Design Method. Introduction to the Alternate Method. Introduction to prestressed concrete. (2 lecture, 3 lab hours; field trips required)

133. Design of Steel Structures (3)
Prerequisite: C E 130. Design of steel members and systems for buildings. Design areas include: tension members, compression members, beams, beam-columns, connections and plate girders. (2 lecture, 3 lab hours)

134. Foundation Design (3)
Prerequisites: ECE 70, C E 123, 132 or concurrently. Design and theory of spread and continuous wall, rectangular, cantilever and trapezoidal footings; earth pressures and cantilever as well as gravity retaining walls; pile foundations; pile driving; construction considerations; load tests; subsurface investigations; case histories; and computer-aided design of foundations. (2 lecture, 3 lab hours)

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; field trips required)

136. Design of Timber Structures (3)
Prerequisite: C E 130. Design of timber members and systems for buildings. Design areas include: loads, properties of wood, tension members, beams, columns, beam-columns, connections, diaphragms, shear walls, and glued laminated arches.

137. Seismic Design of Building Structures (3)
Prerequisites: C E 130, M E 112. Effects of earthquakes on structures. Introduction to structural dynamics. Response of structures. Seismic provisions of building codes. Basic concepts in seismic-resistant design. Detailing for seismic-resistant construction. Term project. (Field trips required)

138. Structural Mechanics (3)
Prerequisite: C E 130. Energy theorems and applications. Analysis of arches, beams on elastic foundations, cable stayed structures, and unsymmetrical bending of beams. Introduction to plastic theory of structures.

140. Hydrology (3)
Prerequisites: ECE 70, C E 128 or concurrently. The hydrologic cycle, atmospheric conditions, precipitation, infiltration, ground water, soil moisture, evaporation, runoff, streamflow, hydrographs, flood routing, hydrologic statistical analysis; applications to water resources planning and management. (Field trips required)

141. Water Resources Engineering (3)
Prerequisites: C E 128, 142 (or concurrently), I E 160 (or concurrently), M E 26. Hydraulic design of water distribution, sewerage, and drainage systems. Computer-assisted pipe network analysis. Pump applications. (2 lecture, 3 lab hours; field trips required)

142. Environmental Engineering (3)
Prerequisites: CHEM 1A; C E 128 or concurrently. Introduction to the principles and practices of environmental quality management, including water and air quality, waste management, and the environmental effects of engineered systems.

142L. Environmental Quality Laboratory (1)
Prerequisite: C E 142 or concurrently. Study and analysis of physical, chemical, and biological characteristics of air, water, and solid wastes. (Field trips required)

143. Engineering Hydraulics (3)
Prerequisite: C E 128. Design of pressure-conduit and open-channel flow systems with applications to hydraulic structures and control works, hydraulic power conversion, sediment transport, and channel stabilization.

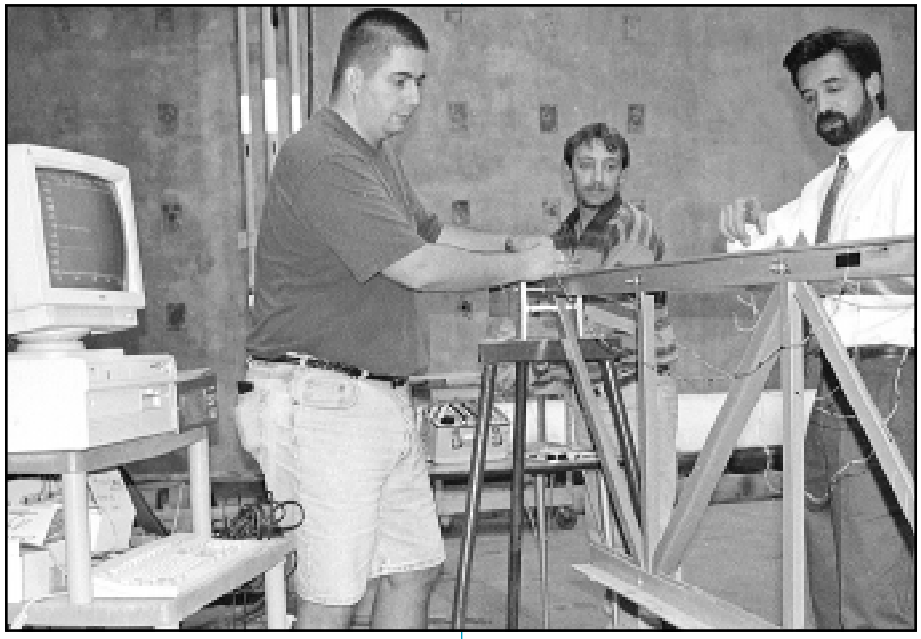
144. Design of Water Quality Control Processes (3)
Prerequisites: C E 142 or permission of instructor; I E 160 (or concurrently). Analysis and design of selected physical, chemical, and biological facilities for water purification and wastewater treatment. (Field trips required)

150. Transportation Planning and Design (3)
Prerequisite: G M E 15, upper-division standing. 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 Design (3)
Prerequisite: C E 123 or concurrently. Analysis of pavement structures. Factors affecting pavement performance. Structural design of flexible and rigid highway and airfield pavements. Pavement overlays, recycling, rehabilitation, and management system.

152. Transportation Engineering Materials (3)
Prerequisite: C E 123. Properties and testing of aggregates for asphalt concrete. Composition and properties of bituminous mixtures. Performance of asphalt concrete in pavement structures. Traditional and new design procedures for asphalt concrete. (2 lecture, 3 lab hours)

153. Traffic Operations and Control (3)
Prerequisite: C E 150 or concurrently. Highway traffic characteristics and studies;



comprehensive transportation planning; traffic regulation and control; environmental considerations.

161. Construction Engineering I (3)
Prerequisite: C E 123. Basics of civil engineering contracting, organization of construction firms, legal structures, project funding, cash flow, equipment costs, labor relations, and safety.

170. Pollution and Society (3)
Prerequisite: PL SI 2 or 101. Not open to civil engineering majors. Descriptive analysis of natural and human environments. Effects of pollution and related human activities. Pollution control strategies and technology. Rational environmental decision-making. (Field trips required)

180A. Project Design (1)
Prerequisites: senior standing in civil engineering; permission of instructor; C E 185 (may be taken concurrently). Student teams complete and orally defend proposal for a design project that includes several civil engineering specialties. Information gathering, time/resource management, and communication skills. (Formerly C E 191T)

180B. Senior Project (2)
Prerequisites: C E 180A; approved project proposal; I E 182W (may be taken concurrently). Synthesis of previous coursework into a civil engineering design project under the supervision of a faculty member. Group projects except by special permission. (Formerly C E 180)

185. Civil Engineering Practice (1)
Prerequisites: senior standing in civil engineering or permission of instructor; C E 180B concurrently. Practice of civil engineering; opportunities in civil engineering; transition from student to professional engineer; engineering ethics. Evaluation of design requirements, economic, and social considerations; student presentations.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

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 (2-4)
Prerequisite: permission of adviser. Engineering practice in a consulting, industrial, or government work setting. Each cooperative internship period usually spans a summer-fall or spring-summer interval. This course cannot be used to meet graduation requirements. *CR/NC* grading only.

GRADUATE COURSES

(See *Course Numbering System.*)

Civil Engineering (C E)

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)
Evaluation of 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.

220. Advanced
Foundation Engineering (3)
Prerequisite: graduate standing. Design of cantilevered and anchored sheet-pile walls; axial- and lateral-loaded pile groups; drilled piers; pile driving stresses and wave equation analysis; beams on elastic foundations; footings on expansive and non-uniform soils and on rock; and case histories.

230. Advanced Theory of Structures (3)
Prerequisite: graduate standing in engineering or permission of instructor. Analysis of indeterminate structures by force (flexibility) methods and by displacement (stiffness) methods; Matrix methods suitable for digital computer solutions. Virtual work, real and complementary energy. Classical structural theorems. Introduction to the finite element method.

232. Prestressed Concrete Design (3)
Prerequisite: graduate standing in engineering or permission of instructor. Structural behavior and design of prestressed concrete elements and systems — continuous beams, frames, slabs. Partial prestress. (Field trip[s] required)

233. Advanced Behavior and Design
of Steel Structures (3)
Prerequisite: graduate standing in engineering or permission of instructor. Material behavior and design of basic structural units; plate girders; connections; inelastic buckling; composite design; plastic design; PΔ effect. Analysis and design of continuous structures, braced and unbraced frames; stability of steel structures. Critical study of the AISC specifications.

234. Theory of Plates and Shells (3)
Prerequisite: graduate standing in engineering or permission of instructor. Methods of calculating stresses and deformations in plates and shells used in engineering structures. Bending of circular and rectangular plates under various conditions. Membrane and flexural analysis of shells of revolution.

235. Finite Element Analysis (3)
Prerequisite: graduate standing in engineering or permission of instructor. Theoretical and conceptual bases for formulation of finite element representations in solid mechanics. Development of element stiffness matrices for plane stress and plane strain problems, bending of plates and deformation of shells.

237. Dynamics of Structures (3)
Analysis of structural members and systems subject to dynamic loads. Basic theory for single-degree-of-freedom and multi-degree-of-freedom analytical models; free vibration, harmonic and transient excitation, response spectrum, LaGrange's equations, earthquake analysis.

240. Engineering Hydrology (3)
Prerequisites: C E 128, 140. Analysis of the physical and stochastic processes governing the occurrence and movement of water in its natural environment. Applications to hydraulic engineering practice.

242. Water Resources
Planning and Management (3)
Prerequisite: graduate standing in engineering or permission of instructor. A study of the interrelations of engineering, economic, legal, political, administrative, ecological, and social factors involved in the planning and management of water resources.

245. Advanced Unit
Operations and Processes (3)
Prerequisites: C E 246A and 246B or concurrently. 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)

246A. Advanced Water Quality (3)
Prerequisite: C E 142 or permission of instructor. Theory and practice of physical/chemical processes for controlling water quality, including chemical equilibrium and kinetics; mass transfer mechanisms; physical separation processes; adsorption, exchange, and membrane-based processes; disinfection.

246B. Advanced Water Quality (3)
Prerequisites: C E 142 or permission of instructor; C E 246A recommended. Theory and practice of biological processes for controlling water quality, including suspended growth systems; attached growth systems; ponds; land treatment. Also sludge treatment processes, including biological stabilization, thickening, and dewatering; sludge disposal.

247. Solid Wastes Engineering (3)
Planning and design of waste collection and disposal systems. Waste segregation and energy impact related to recovery and recycling practices. Environmental impact and institutional issues related to solid and hazardous waste systems.

251. Advanced Boundary Law (3)
Prerequisite: G M E 151 or equivalent. Land and water boundary legal issues, both historical and new. Case investigations.

261. Geoprocessing (3)
Prerequisite: G M E 173 or equivalent. Integration of computer technologies for gathering, analyzing, and displaying data associated with the earth's spatial features. Engineering design problems dependent on competing factors.

271. Geodetic
Systems Optimization (3)
Prerequisite: G M E 108 or equivalent. National geodetic networks; planimetric and vertical control systems; geodetic control densification; network optimization criteria and methodology.

275. Satellite Surveying (3)
Prerequisite: graduate standing. Discussion of GPS orbital theory, data collection and processing algorithms, network adjustments, project design and optimization techniques. Review of current research trends and applications. (Field trips required)

280. Surveying Engineering
Seminar (1; max total 3)
Prerequisite: graduate standing. Current California State University, Fresno surveying engineering research presented and discussed by faculty and graduate students. Oral presentation and written report documenting ongoing research activities required.

281. Civil Engineering
Seminar (1; max total 3)
Prerequisite: graduate standing. Presentations and discussion by faculty and practitioners on topics of current interest in the field. Students will make oral presentations and submit written reports documenting ongoing research activities or other appropriate topics.

283. Digital Remote Sensing (3)
Prerequisite: G M E 140 or equivalent. Quantitative approach in remote sensing; digital image characteristics, error correction, registration; geometric and radiometric image enhancement; image classification; system design; remote sensing and GIS.

285. Advanced
Analytical Photogrammetry (3)
Prerequisite: G M E 125 or equivalent. Mathematical models in photogrammetry; bundle block adjustment, self-calibration; close-range photogrammetry; real time photogrammetry and data snooping. System design; hardware and software considerations in photogrammetry.

286. Geographic
Information Systems Design (3)
Prerequisite: G M E 173 or equivalent. Data structures and algorithms, databases for GIS, error modeling and data uncertainty, visualization, data exchange and standards, the multipurpose cadaster, advanced analysis techniques.

290. Independent Study
(1-3; max total 3)
Prerequisite: graduate status in engineering. See *Academic Placement — Independent Study*. Approved for *SP* grading.

291T. Topics in Engineering
(1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected engineering topics. May be offered with a lab.

298. Project (3; max total 3)
Prerequisite: graduate status in engineering. See *Criteria For Thesis and Project*. Independent investigation of advanced character such as analysis and/or design of special engineering systems or projects; critical review of state of the art of special topics, as the culminating requirement for the master's degree. Abstract required. Approved for *SP* grading. (Instructional materials fee, $15)

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria For Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for master's degree. Approved for *SP* grading. (Instructional materials fee, $15)

IN-SERVICE COURSES

(See *Course Numbering System*.)

Civil Engineering (C E)

311. Professional Examination Review
(2; may be repeated in different fields)
Prerequisite: bachelor's degree in engineering or eligibility to take state registration examinations. Review of engineering fundamentals for those qualified to take the state examination for certification as engineer-in-training; or review in a specific field (civil, electrical, mechanical, or other)

for those preparing to take the examination for registration as professional engineer.

321. Professional Engineering Seminar (1-3; may be repeated in different fields) Prerequisite: bachelor's degree in engineering or related field, or experience as a professional engineer. Latest developments in various specialized areas of professional engineering practice; new materials, design and construction methods, equipment, devices, and procedures.

Bachelor of Science Degree Requirements

Geomatics Engineering Major — *Units*

Major requirements 70

G M E 1, 15, 15L, 16, 16L, 34, 40, 50, 61, 66, 102, 123, 125, 126, 135, 143, 151, 159, 173, 180, 181 ..... (53)

I E 160 ..... (2)

Engineering Science ..... (3)
Select one course from the following: C E 20, 29, 150; M E 26, 29, 31; ECE 90 or 91

Technical Courses ..... (12)
Select mandatory technical courses from the following list subject to the *Design Courses* statement listed below: G M E 100, 101, 105, 109, 114, 129, 140, 145, 152, 153, 161, 174, 175, 177, 190, 191T; C E 121, 150, 161; C SCI 115, 124, 150, 172; CONST 114, 122, 124; B A 154; CRP 100; FIN 180, 181; MATH 101, 121; MGT 104; PHYS 110

Design Courses: At least 6 units of technical courses must be selected from the following design courses: G M E 145, 153, 161, 175

Other requirements 63

General Education

Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 92-94 for G.E. listings.)

The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 3A [B1], PHIL 20 [C2], G M E 108 [IB], PHIL 120 [IC], PL SI 120 [M/I]

Additional requirements
GEOL 1; MATH 76, 77; PHYS 4A, 4AL, 4B, 4C

Total 133

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

Advising Notes

1. Courses in engineering, computer science, mathematics, the physical sciences, and mandatory technical courses taken *CR/NC* are not counted toward fulfillment of degree requirements in geomatics engineering.
2. All geomatics engineering students must consult with their academic advisers at least once each year.
3. The geomatics engineer major curriculum is very demanding. Many students, especially those not fully prepared in mathematics and physics take 4½ or more years to graduate rather than the traditional four years. If necessary, students may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.
4. The upper-division writing skills requirement can be met by passing the university examination or by completing I E 182W with a letter grade of *C* or higher no sooner than the term in which 60 units of coursework are completed.

Recommended Program

First Semester — *Units*

G.E. Area A2[2] 3
G.E. Area C1[2] 3
G M E 1 (Introduction to Geomatics Engineering) 1
G M E 15, L (Engineering Surveying) ... 4
G M E 66 (Computer-Aided Mapping) 2
MATH 75 (Mathematical Analysis I) ... 4
17

Second Semester

G.E. Area A1[2] 3
G M E16, L (Municipal Surveying) 2
G M E 61 (Microcomputers in Engineering) 3
MATH 76 (Mathematical Analysis II) ... 4
PHYS 4A, L (Mechanics and Wave Motion/Lab) 4
16

Third Semester

G.E. Area D1[2] 3
G M E 40 (Route and Construction Surveying) 3
CHEM 3A (Intro General Chemistry) ... 4
MATH 77 (Mathematical Analysis III)... 4
PHYS 4B (Electricity and Magnetism).... 3
17

Fourth Semester

G.E. Area B2[2] 3
G M E 34 (Adjustment Computations) 3
G M E 50 (Land Surveying) 3
Engineering Science 3
PHYS 4C (Light and Modern Physics) ... 3
PHIL 20 (Moral Questions) 3
18

Fifth Semester

G.E. Area D2[2] 3
G.E. Area D3[2] 3
G M E 123 (Stereo-Photogrammetry) ... 3
G M E 135 (Advanced Adjustment Computations) 3
G M E 151 (Boundary Control and Legal Principles) 3
G M E 173 (Introduction to GIS) 3
18

Sixth Semester

G M E 102 (Geodetic Surveying) 3
G M E 108[1] (Geodesy) 3
G M E 125 (Analytical Photogrammetry) 3
G M E 126 (Digital Mapping) 3
PL SI 120 (International Politics) 3
15

Seventh Semester

G M E 143 (Satellite Geodesy)..... 3
I E 160 (Engineering Economy)..... 2
GEOL 1 (Physical Geology) 4
Technical Courses (See *Major Requirements*) 6
15

Eighth Semester

G M E 159 (Subdivision Design)..... 3
G M E 180 (Senior Project)..... 2
G M E 181 (Project Design) 3
PHIL 120 (Contemporary Conflicts of Morals) 3
Technical Courses (See *Major Requirements*) 6
17

[1] Also counts as major GPA.
[2] See pages 92-94 for G.E. listings..

COURSES

Geomatics Engineering (G M E)

1. Introduction to Geomatics Engineering (1)
An introduction to geomatics engineering philosophical thought; geomatics engineering profession and career opportunities; professional ethics and safety; creative and critical thinking applied to the geomatics engineering decision-making process. (Formerly S E 1)

5. Critical Reasoning (3)
Fundamentals of analysis and evaluation in the context of technology. Evaluating the viewpoints of experts. Patterns of deductive and inductive arguments. Common fallacies of reasoning. G.E. Foundation A3. (Formerly S E 5)

11. Construction Surveying (2)
Prerequisite: MATH 5. Principles of surveying measurements; distances, directions, elevations, reduction of surveying data; planimetric mapping. Construction applications. (Formerly S E 11)

11L. Construction Surveying Laboratory (1)
Prerequisite: G M E 11 or concurrently. Field practice in measurements of distance and use of level, transit, and tape in solution of construction surveying problems. (3 lab hours; field trips required) (Formerly S E 11L)

15. Engineering Surveying (3)
Prerequisite: MATH 5. Principles of surveying measurements for distance, direction, elevation, and position; geometry of the single aerial photograph; topographic and planimetric mapping, GIS/LIS, horizontal curves, vertical curves, earthwork and engineering applications. (Formerly S E 15)

15L. Engineering Surveying Laboratory (1)
Prerequisite: G M E 15 or concurrently. Field practice in geomatics measurement, construction stakeout, and curve alignment problems. (3 lab hours; field trips required) (Formerly S E 15L)

16. Municipal Surveying (1)
Prerequisites: G M E 15. Instrumentation; automated electronic survey data collection; local plane control survey, land survey, GIS overlay mapping and astronomy for azimuth applications. (Formerly S E 16)

16L. Municipal Surveying Laboratory (1)
Prerequisite: G M E 16 or concurrently. Field and office practice in instrumentation; automated electronic survey data collection; local plane control survey, land survey, GIS overlay mapping and astronomy for azimuth applications. (3 lab hours; field trips required) (Formerly S E 16L)

23L. Geomatics Statistics Lab (1)
Concepts of measurements and error; reliability of measurements, probability theory, preanalysis of geomatics measurements, statistical analysis of measurements, hypothesis testing, analysis of variance, error ellipses, experimental design. (3 lab hours; field trips required) (Formerly S E 23L)

34. Adjustment Computations (3)
Prerequisites: G M E 15, 61, MATH 76. Error theory, adjustment of simple survey networks, and matrix methods; digital computer solutions of geomatics computation and adjustment problems. (Formerly S E 34)

40. Route and Construction Surveying (3)
Prerequisites: G M E 15, 15L or permission of instructor. Computations and theory covering surveys for highway, irrigation, rail, pipeline, and other transportation alignment projects. Includes computer solutions and applications. (2 lecture, 3 lab hours; field trips required) (Formerly S E 141, S E 40)

50. Land Surveying (3)
Prerequisite: G M E 15. The United States Public Land Survey System with special emphasis on California; introduction to the California Land Surveyors Act, Certified, A.L.T.A. and mortgage surveys; sectionalized land subdivision, corner restoration, resurveys, evidence, and descriptions. (Field trips required) (Formerly S E 50)

61. Microcomputers in Engineering (3)
Prerequisite: G M E 15 or concurrently. Microcomputer operating systems; introduction to high level computer languages, file processing, program documentation, testing, and debugging. (Formerly S E 61)

66. Computer-Aided Mapping (2)
Prerequisite: G M E 15 or concurrently. Principles of computer map creation and design; interactive editing of digital map and graphic data; graphic input to Geographic Information Systems; includes comprehensive computer mapping design experience. (Formerly S E 66)

73. Geomatics (2)
Introduction to Geographic and Land Information Systems; software and hardware issues; practical exercises. (Formerly S E 73)

100. Land and Society (3)
Prerequisite: junior standing. How private land ownership rights have shaped the development of our nation into a superpower; the effects of virtually "free" western land; land tenure systems and land ethics; current state, national and international societal trends and implications. (Formerly S E 100)

101. Creative Thinking (3)
Prerequisites: GE B4 completed, ENGL 1. Development of a process for creative thinking. Styles of thinking. Obstacles to overcome. Divergent versus convergent thinking. Idea stimulation. Gaining acceptance for new ideas. (Formerly S E 101)

102. Geodetic Surveying (3)
Prerequisites: G M E 16, 16L, 34. Horizontal and vertical geodetic networks for deformation, industrial tooling and local area applications; theory and application of State Plane Coordinate systems. (2 lecture, 3 lab hours; field trips required) (Formerly S E 102)

105. Futuristics (3)
Prerequisites: GE B4 completed, ENGL 1. Study of the future with emphasis on technology; growth curves, trend extrapolation, analytical models; breakthroughs; Delphi techniques; cross-impact matrix; flow diagrams and relevance trees; decision making. (Formerly S E 105)

108. Geodesy (3)
Prerequisites: MATH 77, PHYS 4A, 4AL, G M E 34. Size and shape of the earth; three-dimensional coordinate systems; computations on the spheroid; reduction to plane coordinates; introduction to differential equations, gravity modeling and gravity measurements. (Formerly S E 108)

109. Geodetic Astronomy (3)
Prerequisite: G M E 108. Celestial sphere, star, and earth coordinates; altitude and hour-angle methods of solar observation; astronomical and instrumental corrections to observations; time systems; determination of latitude, longitude, and azimuth. (2 lecture, 3 lab hours) (Formerly S E 109)

114. GPS Navigation (3)
Prerequisite: permission of instructor. Theory and concepts of navigation systems emphasizing real-time GPS. Design of air, sea, and land navigation applications, including automatic vehicle location and navigation (AVLN). (2 lecture, 3 lab hours; field trips required) (Formerly S E 114)

123. Stereo-Photogrammetry (3)
Prerequisites: G M E 15, 34 or concurrently. Imaging systems; image quality. Theory of stereo-photogrammetry; orientation of stereo-model. Design and operating principles of stereoplotters. Photogrammetric mapping; orthophoto mapping. Project planning. (2 lecture, 3 lab hours; field trips required) (Formerly S E 123)

125. Analytical Photogrammetry (3)
Prerequisites: G M E 123, 135. Introduction to analytical photogrammetry; strip and block aerial triangulation. Design and operating principles of analytical plotters. Introduction to soft-copy photogrammetry. (2 lecture, 3 lab hours; field trips required) (Formerly S E 125)

126. Digital Mapping (3)
Prerequisites: G M E 123, 173 or concurrently. Design of data input, editing, display and processing mechanisms for digital mapping applications; hardware considerations and software design for DTM applications. (2 lecture, 3 lab hours; field trips required) (Formerly S E 126)

129. Industrial Photogrammetry (3)
Prerequisites: G M E 125, 135. Photogrammetric principles applied to close range applications; calibration of non-metric imaging systems; simultaneous bundle adjustment of a photo block; use of additional camera and block parameters in adjustment; design of photogrammetric systems for industrial process monitoring; case studies. (Field trips required) (Formerly S E 129)

135. Advanced
Adjustment Computations (3)
Prerequisites: G M E 34, MATH 77. Statistics, propagation of errors, advanced theory of least squares optimization algorithms. Computer programming for complex surveying and photogrammetry adjustment applications. Project design. (Formerly S E 135)

140. Earth Resources Surveying (3)
Prerequisite: junior standing or permission of instructor. Extraction of quantitative data from aerial and space imagery for monitoring environment and management of earth resources. Data input for Geographic Information Systems. (Formerly S E 140)

143. Satellite Geodesy (3)
Prerequisites: G M E 102, 108, 135. Motion of a satellite, orbit geometry and perturbations; time measuring systems; global geodesy model; reduction and adjustment of GPS and other satellite observation data; differential equations of orbit relaxation; GPS network optimization; data transformation. (Field trips required) (Formerly S E 148, S E 143)

145. Geopositioning (3)
Prerequisites: G M E 143. Design of planning, data collection, data processing and network adjustment applications; kinematic and real-time GPS applications; case studies. (2 lecture, 3 lab hours; field trips required) (Formerly S E 145)

151. Boundary Control
and Legal Principles (3)
Prerequisite: G M E 50 or permission of instructor. Legal principles that control the boundary location of real property. (Formerly S E 151)

152. Real Property Descriptions (3)
Prerequisite: G M E 151 or permission of instructor. Theory and practice of real property descriptions and recording systems; metes and bounds, United States Public Land Survey System, lot and block and other styles investigated; practical exercises and case studies. (Field trips required) (Formerly S E 152)

153. Boundary Survey Design (3)
Prerequisite: G M E 151 or permission of instructor. Design of evidence gathering, resurvey, retracement, and analysis techniques for complex United States Public Land Survey System, metes and bounds, riparian, mineral, land grant and fraudulent surveys; case studies. (Field trips required) (Formerly S E 153)

159. Subdivision Design (3)
Prerequisites: G M E 40, 151. Subdivision map act, local subdivision regulations, title search, zoning study. Tentative and final subdivision layout, map drafting, computerized subdivision design, and drafting; environmental impact study. (2 lecture, 3 lab hours; field trips required) (Formerly S E 159)

161. Data Interface Design (3)
Prerequisites: G M E 16, 135. Development and design of data collector software; file system generation, manipulation and transfer; microcomputer interface to data collector, electronic total station, digitizer, stereo/mono comparator and stereo-plotters. (2 lecture, 3 lab hours) (Formerly S E 161)

173. Introduction to GIS (3)
Prerequisites: G M E 15 and 66 or M E 26, or permission of instructor. Data quality and accuracy, privacy, ethics, institutional, governmental and technological issues associated with GIS; hardware and software considerations for geodetically controlled cadastral, resource and environmental GIS applications; existing system case studies. (Field trips required) (Formerly S E 173)

174. GIS Applications (3)
Prerequisite: G M E 173. Use of available GIS. Applications software; spatial analysis, simulation modeling and system evaluation; practical applications to specific GIS scenarios; creation, manipulations, maintenance and analysis of geodetic, cadastral, administrative, resource and environmental overlays. (2 lecture, 3 lab hours; field trips required) (Formerly S E 174)

175. GIS Design (3)
Prerequisite: G M E 173. Application of data quality, accuracy, ethics and liability issues to the design of integrated Geographic Information Systems; integrated data structure, algorithm, and database considerations; major design team GIS development project required. (2 lecture, 3 lab hours; field trips required) (Formerly S E 175)

177. GIS Database Design (3)
Prerequisites: G M E 135, 173. GIS database structure and design; design, use, maintenance and mutation of comprehensive relational and spatial database structures for GIS applications; structured query language; hardware implications and case studies of existing GIS software packages; creation of new GIS applications software (Formerly S E 177)

180. Senior Project (2)
Prerequisites: G M E 123, 135, 143, 151, 173; approved subject; I E 182W or Upper Division Writing Exam or concurrently; G M E 181 concurrently. Study of a problem under supervision of a faculty member; final typewritten report required. Individual project except by special permission. G M E 180 and G M E 181 satisfy the senior major requirement for the B.S. in Geomatics Engineering. (Field trips required) (Formerly S E 180)

181. Project Design (3)
Prerequisite: G M E 123, 135, 143, 151, 173. Design of control, boundary location, and photogrammetric systems. Evaluation of design requirements, economic, and social considerations. Case Studies. Student presentations. G M E 180 and 181 satisfy the senior major requirement for the B.S. in Geomatics Engineering. (Field trips required) (Formerly S E 181)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly S E 190)

191T. Topics in
Geomatics Engineering
(1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected geomatics engineering subjects not in current courses. (Formerly S E 191T)

193. Internship in
Geomatics Engineering (2-4)
Prerequisite: permission of adviser. Engineering practice in a consulting, industrial, professional, or government work setting. Internship periods usually span a summer-fall or spring-summer interval. A report will be required of the student at the termination of each implemented experience. This course cannot be used to meet graduation requirements. *CR/NC* grading only. (Formerly S E 193)

Bachelor of Science Degree Requirements

Construction Management Major

	Units
Major requirements	**75**
Construction Core	(48)
CONST 1, 5, 10, 15, 42, 43, 50, 105, 107, 114, 116, 120, 122, 124, 162, 164	
C E 127; G M E 11, 11L; ACCT 3; MGT 104	(12)
Technical Specialty	(15)
Select one:	
Architecture	
CONST 31, 32, 131, 132, 134	
Management	
CONST 144, 150, 151, 166; FIN 180	
Other requirements*	**57**
General Education	(51)
Additional requirements	
MATH 72 or 75; PHYS 2A; ECON 40 or 50	
Select one from CHEM 3A, GEOL 1, MATH 76, PHYS 2B	
Remaining degree requirements	**0**
(See *Degree Requirements*); upper-division writing skills by examination	
Total	**132**

*Some of the courses listed as additional requirements also satisfy General Education requirements. Consult the department office for a list of approved General Education courses specific to the Construction Management program.

Advising Notes

1. Courses in mathematics, the physical sciences, or construction taken *CR/NC* are not counted toward fulfillment of degree requirements in construction.
2. Since the construction major curriculum is very demanding, many students, especially those not fully prepared in mathematics, chemistry, and/or physics take 4 $^{1}/_{2}$ or more years to graduate rather than the traditional 4 years. Students not fully prepared in mathematics should consider taking MATH 71 and 72 in lieu of MATH 75. If necessary, students may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.
3. The upper-division writing skills requirement can be met by passing the university examination or by completing I E 182W with a letter grade of *C* or higher no sooner than the term in which 60 units of coursework are completed.
4. Other construction specialties may be developed under department advisement.
5. The Management Specialty Program is accredited by the American Council for Construction Education.

Construction Management Minor

Students from interrelated disciplines will acquire professional and specialized construction knowledge and skills. Preparation for participation in the building-related professions leads to careers in solving the infrastructure needs of society and the environment.

	Units
Required Core courses	**15**
CONST 5, 10, 42, 50, 120	
Additional elective courses	**6**
The student will select two additional construction courses in consultation with a faculty adviser. Emphasis may be placed upon a variety of specialization areas.	
Total	**21**

Recommended Program for Architectural Specialty

First Semester	*Units*
G.E. Area A1	3
G.E. Area A2 (ENGL 1)	3
G.E. Area A3 (C SCI 1 recommended)	3
G.E. Area B2	3
CONST 1 (Construction Management Orientation)	3
CONST 5 (Construction Materials)	3
	18

Second Semester	
G.E. Area B4 (MATH 72 or 75)	3-4
G.E. Area C1	3
G.E. Area D1	3
CONST 50 (Basic Building Systems)	3
CONST 42 (Architectural Drawing)	3
	15-16

Third Semester	
G.E. Area B1 (PHYS 2A)	4
G.E. Area C2	3
G.E. Area D2	3
CONST 15 (Construction Management Software)	3
ACCT 3 (Essentials of Accounting)	3
	16

Fourth Semester	
G.E. Area C1 or C2	3
G.E. Area D3 (ECON 40 or 50)	3
G.E. Area E (FIN 30 recommended)	3
CONST 10 (Estimating and Bidding)	3
CONST 43 (Computer-Aided Construction Detailing)	3
G M E 11, 11L (Construction Surveying)	3
	18

Fifth Semester	
G.E. Area IB (N SCI 115 recommended)	3
CONST 31 (Architectural Graphics)	3
CONST 32 (Architectural Design)	3
CONST 120 (Construction Contract and Specifications)	3
Additional requirements (MATH 76 or PHYS 2B or CHEM 1A or GEOL 1)	4
	16

Sixth Semester	
G.E. Area IC	3
G.E. Area ID	3
CONST 131 (Adv Architectural Graphics)	3
CONST 132 (Adv Architectural Design)	3
CONST 162 (Mechanical Systems I)	3
CONST 105 (Const Structures)	3
	18

Seventh Semester

G.E. Area M/I (B A 104 or COMM 164 or GEOG 167 recommended) 3
CONST 107 (Adv Const Structures) ... 3
CONST 122 (Construction Laws) 3
CONST 134 (Architectural Design Prob) 3
MGT 104 (Admin Principles of Management) 3
15

Eighth Semester

C E 127 (Construction Soils and Foundation)..... 3
CONST 114 (Construction Management) 3
CONST 116 (Scheduling and Controls) 3
CONST 124 (Construction Labor Law) 3
CONST 164 (Building Electrical Systems) 3
15

Recommended Program for Management Specialty

First Semester *Units*

G.E. Area A1 3
G.E. Area A2 (ENGL 1)..... 3
G.E. Area A3 (C SCI 1 recomm.) 3
G.E. Area B2 3
CONST 1 (Construction Management Orientation)..... 3
CONST 5 (Construction Materials) 3
18

Second Semester

G.E. Area B4 (MATH 72 or 75) 3-4
G.E. Area C1 3
G.E. Area D1 3
CONST 50 (Basic Building Systems)... 3
CONST 42 (Architectural Drawing) ... 3
15-16

Third Semester

G.E. Area B1 (PHYS 2A) 4
G.E. Area C2 3
G.E. Area D2 3
CONST 15 (Const Man Software) 3
ACCT 3 (Essentials of Accounting) 3
16

Fourth Semester

G.E. Area C1 or C2..... 3
G.E. Area D3 (ECON 40 or 50) 3
G.E. Area E (FIN 30 recommended).... 3
CONST 10 (Estimating and Bidding) . 3
CONST 43 (Computer-Aided Construction Detailing) 3
G M E 11, 11L (Construction Surveying) 3
18

Fifth Semester

G.E. Area IB (N SCI 115 recommended) 3
CONST 120 (Construction Contracts and Specifications) 3
CONST 162 (Mechanical Systems I) ... 3
CONST 164 (Building Electrical Systems) 3
Additional requirements (MATH 76 or PHYS 2B or CHEM 3A or GEOL 1)..... 4
16

Sixth Semester

G.E. Area IC 3
G.E. Area ID 3
CONST 105 (Construction Structures) 3
CONST 122 (Construction Laws) 3
FIN 180 (Real Estate Principles) 3
MGT 104 (Admin Principles of Management) 3
18

Seventh Semester

G.E. Area M/I (B A 104 or COMM 164 or GEOG 167 recommended) 3
CONST 107 (Adv Const Structures) ... 3
CONST 116 (Scheduling and Controls) 3
CONST 124 (Construction Labor Law) 3
CONST 166 (Mechanical Systems II) .. 3
15

Eighth Semester

CONST 114 (Construction Management) 3
C E 127 (Construction Soils and Foundation)..... 3
CONST 144 (Construction Site Planning and Development)..... 3
CONST 150 (Heavy Construction)..... 3
CONST 151 (Heavy Building) 3
15

COURSES

Construction Management (CONST)

1. Construction Management Orientation (3)
Orientation to essential elements of professional practice in construction management. Construction-related regulatory requirements. Ethics, business, safety, and personnel practices. Management techniques and interaction with professional organizations and associations.

5. Construction Materials (3)
Introduction to basic construction materials: concrete, masonry, metals, woods, thermal materials, finishes, equipment, and specialties. (2 lecture, 2 lab hours; field trips)

10. Estimating and Bidding (3)
Prerequisites: CONST 5, 42. Basic methods used to evaluate, fix cost, calculate worth, make accurate quantity take-offs and labor time estimates; preparing bids for prospective buyers. (6 lab hours)

15. Construction Management Software (3)
Introduction to construction industry software and project documentation. Basic instruction in estimating, scheduling, design, and project control software. Designed to provide an overview of those particular software packages used in subsequent construction management coursework. (2 lecture, 2 lab hours)

31. Architectural Graphics (3)
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. (6 lab hours)

32. Architectural Design (3)
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. (6 lab hours)

42. Architectural Drawing (3)
Architectural drafting techniques and standards; progress from fundamentals to completion of light construction working drawings, floor plans, elevations, details, application of building codes. (6 lab hours)

43. Computer-Aided Construction Detailing (3)
Prerequisite: CONST 42. Application of computers to planning and details for wood, concrete, masonry, and steel structures. (6 lab hours) (Formerly CONST 142)

50. Basic Building Systems (3)
Exploration of theoretic principles relating to the various building systems. (2 lecture, 2 lab hours; field trips)

105. Construction Structures (3)
Prerequisites: CONST 5, 50; PHYS 2A; MATH 71 and 72 or 75. Properties, strength, and functional applications of basic construction materials: woods, metals, and concrete. Recent developments in new materials and applications. (2 lecture, 2 lab hours; field trips)

107. Advanced Construction Structures (3)
Prerequisite: CONST 105. Analysis of construction materials in its application to different structural systems. (2 lecture, 2 lab hours)

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.

116. Scheduling and Control (3)
Prerequisites: CONST 15. 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. (2 lecture, 2 lab hours)

120. Construction Contracts and Specifications (3)
Principles and methods for developing and applying construction contracts and specifications, including bidding requirements, bonds and insurance, certificates, agenda, change orders, general and supplemental conditions, and CSI specifications. (2 lecture, 2 lab hours)

122. Construction Laws (3)
Orientation to the rules and regulations governing construction industry practices and activities including contractors license law, state lien laws, health and safety regulations, personnel relations and supervision, workers compensation, employment insurance, and taxes.

124. Construction Labor Law (3)
Study of federal and state labor-oriented regulations as applied to construction industry practices. Interaction between technical and legal aspects of collective bargaining, pre-hire agreements, hiring hall referrals, open shop construction, work force management, labor standards, employment discrimination, strikes, and picketing.

131. Advanced Architectural Graphics (3)
Prerequisite: CONST 31. Architectural graphic techniques as tools of three dimensional analysis and representation in the design process. (6 lab hours)

132. Advanced Architectural Design (3)
Prerequisite: CONST 32. Development of understanding of the forces affecting the man-made environment through function identification, systems analysis, and development of architectural design solutions to problems at an intermediate level of complexity. (6 lab hours)

134. Architectural Design Problems (3)
Prerequisites: senior standing or permission of instructor; CONST 132. Conceptual planning and design of a large scale architectural project responding to the social and cultural context of the environment. Employing team research and analysis leading to the design and presentation on individual solutions with graphic and three-dimensional techniques. Satisfies the senior major requirement for the architecture specialty of the B.S. in Construction Management. (6 lab hours)

144. Construction Site Planning and Development (3)
Prerequisite: CONST 43; senior standing. Analysis of land development; site investigation, grading, street piping systems, and landscaping. (2 lecture, 2 lab hours; field trips)

150. Heavy Construction (3)
Prerequisites: senior standing or permission of instructor; CONST 105, 116, 120. Problems and methods of solution in heavy construction from earth moving, paving, compacting to tunneling; administrative procedures, quantity surveying, estimating, scheduling, and bidding. Satisfies the senior major requirement for the B.S. in Construction Management. (2 lecture, 2 lab hours; field trips)

151. Heavy Building Construction (3)
Prerequisites: senior standing or permission of instructor; CONST 150. Problems and methods of solutions in the construction of heavy buildings; site, excavations, foundations, framework, heavy timber, reinforced concrete, structural steel, masonry construction and related elements. Satisfies the senior major requirement for the B.S. in Construction Management. (2 lecture, 2 lab hours; field trips)

162. Mechanical Systems I (3)
Heating, ventilating, and air conditioning systems in buildings and plants; California Energy Code, heat loss and gain, system sizing and life cycle cost analysis. Lectures, demonstrations, guest speakers from industry. (Field trips)

164. Building Electrical Systems (3)
Electrical systems for power, light, heat, signals, and communications in commercial, industrial, and residential buildings. (2 lecture, 2 lab hours; field trips)

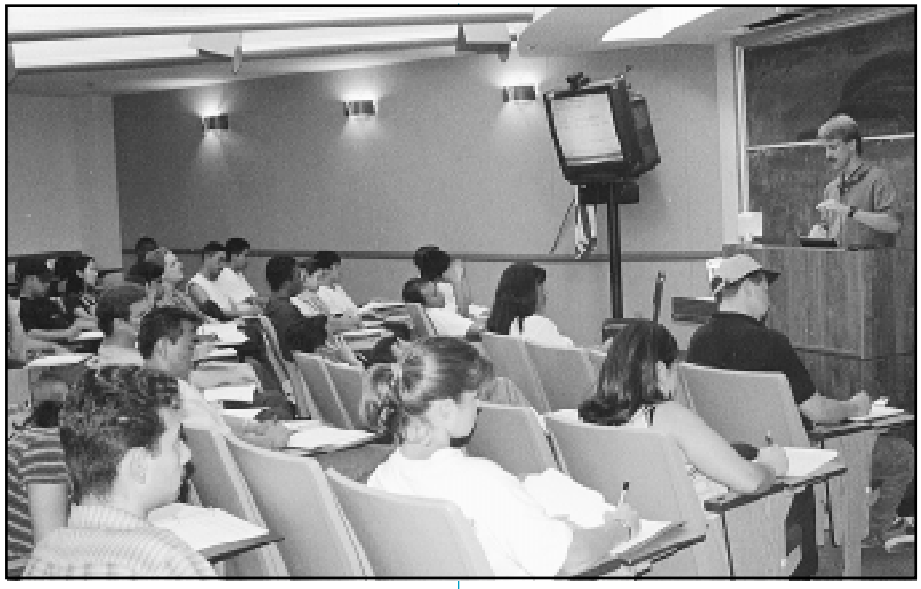
166. Mechanical Systems II (3)
Prerequisite: CONST 162. Construction application of water systems, plumbing and storm drainage, and sewage disposal systems.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Course fee variable)

191T. Technical Topics in Construction (1-3; max total 6)
Prerequisite: permission of instructor. Investigation and analysis of selected subjects in construction. (2-6 lab hours)

193. Internship/Work Experience (3-6; max total 6)
Open only to construction majors. Prerequisites: junior standing and permission of instructor. Supervised work experience in construction related industries. Periodic consultations with instructor.

Computer Science



College of Engineering
and Computer Science

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B.S. in Computer Science
M.S. in Computer Science
Minor in Computer Science

The Department

Computer science is applied reasoning using both art and science: It requires the ability to communicate ideas through a combination of language and powerful technology. It is concerned with the interaction of humans and computers, as well as the application of computers to a myriad of specialized problems.

The goal of the Department of Computer Science is to offer programs to a diverse audience: (1) students interested primarily in computing, (2) students interested primarily in applying computing to some other field of study, and (3) students who wish to include computing as part of their general education.

Faculty and Facilities

The faculty comes from a variety of areas including computer systems and architecture, theoretical computer science, programming languages, software engineering, computer graphics, distributed systems and parallel processing, and neural networks. They have in common a desire to provide a program that will give the student a broad range of experience in computer science as well as the depth of education that will be needed in the student's later career, whether professional or academic.

The department has access to a networked environment of UNIX-based machines consisting of Sun Microsystems workstations and microcomputer laboratories of Macintosh workstations and PCs. The INMOS Corporation Transputer system (a reconfigurable parallel processing machine) is for upper-division courses and research projects. These systems are connected with campus and international networks, allowing access to other machines and communication with people on campus and around the world.

Career Opportunities

Computer use pervades our society, and the industry supporting that use has been growing rapidly. Graduates from this program find job opportunities in such diverse fields as computer design, software development, systems analysis, database design, computer graphics, and technical programming. Because of the strong theoretical foundation of the program, graduates are attractive to companies involved in computer manufacturing and to those industries using computers in high technology applications.

Our proximity to two of the largest computer use areas in the nation, Silicon Valley and Los Angeles, provides our graduates with a broad-based collection of potential employers. Graduates have also obtained exciting and challenging positions at Air Force and Naval bases in California. A high proportion of our graduates have pursued graduate studies. Students who obtain the master of science degree will be in an excellent position to pursue a Ph.D. degree.

Organizations

Student chapters of the Association for Computing Machinery (ACM) and the IEEE Computer Society are very active in the department. They organize field trips to major computer manufacturers and users in California. The ACM chapter sponsors the fall Programming Contest.

Computer science majors who have a distinguished academic record in computer science are invited to join Upsilon Pi Epsilon, the Honor Society for the Computing Sciences.

Co-op Program

Through the Cooperative Education program, the department encourages full-time employment for students for one semester in computer-related positions. This is an excellent opportunity for a student to obtain experience, a reasonable salary, and college credit in this field.

Faculty

Brent J. Auernheimer, *Chair*
Tarek Alameldin
Lan Jin
Walter Read
Shigeko Seki
Grace C. N. Wei
J. Todd Wilson
Henderson C. Yeung

Undergraduate Program

The bachelor's degree in computer science prepares students for careers in the computing industry or for graduate study. Combined with a minor in any other field of study, the bachelor's degree allows students to utilize their computing expertise in a variety of specialized fields. The core and computer science theory courses are excellent preparation for students who intend to pursue an advanced degree in computer science.

For the computer science major, the department offers courses that represent both the core of study considered essential to all aspects of computing and advanced study sequences in particular fields of interest. The core classes introduce all majors to the spectrum of thought represented in computing. The advanced sequences allow the individual student to pursue concentrated work within such areas as computer architecture, artificial intelligence, databases, compilers, operating systems, computer science theory, computer graphics, software engineering, programming languages, distributed systems, and parallel processing. The department also offers topics courses to keep students informed of current advances and methodology in computing.

In addition to courses designed for majors, the department offers courses intended to introduce computing to nonmajors. These courses will benefit any major who wishes to include computer literacy in their undergraduate study.

Grade Requirements. All courses taken to fulfill major course requirements must be taken for a letter grade. All courses required as prerequisites for a course must be completed with a grade of *C* or better before registration will be permitted.

Administrative Academic Probation. A minimum Grade Point Average (GPA) of 2.0 must be maintained in all courses taken in the College of Engineering and Computer Science. Students who fail to maintain a 2.0 GPA in courses within their major may be placed on administrative academic probation. Failure to eliminate the grade point deficiency could result in disqualification from the College of Engineering and Computer Science.

Bachelor of Science Degree Requirements

Computer Science Major	*Units*
Major requirements	**55-60**
C SCI 40, 41, 60, 112, 115, 117, 119, 144	(28)
Select five courses from the following	(15-17)
C SCI 124, 134, 150, 154, 156, 164, 172, 174, 176, 186, 191T	
Complete three of the following sequences	(9-12)
C SCI 124-126	
C SCI 134-136	
C SCI 144-146 or 144-148	
C SCI 150-152	
C SCI 156-ECE 146	
C SCI 164-166	
C SCI 172-173	
C SCI 176-177	
C SCI 186-188	
C SCI 198 or complete a fourth sequence	(3)
Additional requirements	**23**
C SCI 1; MATH 75, 76; PHYS 2A and 2B or PHYS 4A, 4AL, 4B, 4BL; C SCI 113 or ECE 115	
General Education*	**51**
Electives	**3-8**
Total	**128**

*It is anticipated approximately 9 units required for the major will also satisfy General Education requirements.

Note: Pass the Upper-Division Writing Exam or IE 182W (recommended to satisfy upper-division writing graduation requirement).

Computer Science Minor

The Computer Science Minor requires 20 units of computer science courses consisting of C SCI 40, C SCI 41, and 12 units from C SCI 1, 60, 72, or upper-division courses. At least 6 of the 20 units must be upper division. No *CR/NC* courses will be accepted toward the Minor in Computer Science.

Suggested minor sequences (after completion of C SCI 40, 41):

Artificial Intelligence:	C SCI 60, 112, 117, 164, 166
Computer Architecture:	C SCI 112, 113, 176, 177
Computer Graphics:	C SCI 112, 172, 173
Computer Languages:	C SCI 60, 112, 115, 117, 134
Database Emphasis:	C SCI 60, 115, 124, 126, 144
Scientific Computation:	C SCI 60, 112, 154*, 172*
Secondary Teaching:	C SCI 60, 101, 112, 113, 117
Software Engineering:	C SCI 60, 112, 115, 150, 152
System Software:	C SCI 112, 113, 144, (146 or 148)
Theory of Computation:	C SCI 60, 119, 174, 186, 188

*C SCI 154 and 172 have a mathematics prerequisite. Note that these are only suggested combinations. While attention must be given to prerequisites, many combinations are available to interested students.

Graduate Program

The Master of Science degree program in Computer Science is designed to offer the advanced principles, applications, and current topics in computer science. Students who obtain the M.S. degree will be ready to do significant developmental work in the computer industry or in an important application area and will also be well qualified to pursue a Ph.D. degree.

Applicants may hold an acceptable bachelor's degree in any field of study and must submit Graduate Record Examination (GRE) scores.

To attain classified standing at the time of admission, an applicant must:

1. have a minimum grade point average of 2.75 in the last 60 units and
2. have completed the following undergraduate prerequisite courses or equivalents with a minimum grade point average of 3.0: C SCI 40, 41, 60, 112, 113, 115, 117, 119, 144, MATH 75, 76, and two additional C SCI courses numbered over 120.

Applicants who do not meet the requirements 1 and 2 above may be admitted to conditionally classified standing to complete the remaining prerequisites at California State University, Fresno. Approved coursework up to a maximum of 10 units of the 30 units required for the M.S. degree can be taken concurrently with prerequisite courses by a student with conditionally classified standing.

To attain classified standing from conditionally classified standing, a student must complete the remaining prerequisite courses with a minimum grade point average of 3.0 in all coursework taken toward the M.S. degree in Computer Science.

(See also *Graduate Studies*)

Master of Science Degree Requirements

The Master of Science degree requires a minimum of 30 units after the completion of the baccalaureate degree according to the criteria below. At least 21 units of the total must be taken in 200-level courses in computer science. The undergraduate courses used toward the bachelor's degree or toward fully classified status may not be used toward the master's degree.

	Units
Required courses	**10**
C SCI 174 or 188, 200, 213, 217	
Electives	**9**
Two of the following: C SCI 226, 244, 250, 264, 272, 282	
One of the following: C SCI 246, 252, 274, 284	
Approved electives	**5-8**
Culminating experience	**3-6**
C SCI 298 or 299	
Total	**30**

A student must pass the Departmental Qualifying Examination prior to advancement to candidacy. One component of the exam will be used to satisfy the graduate writing skills requirement.

COURSES

Computer Science (C SCI)

1. Critical Thinking and Computer Science (3)
Prerequisite: intermediate algebra. Overview of the field of computer science with an emphasis on critical thinking skills. Problem-solving strategies, algorithm design, and data abstraction. Introduction to hardware, theoretical limitations of computers, and issues arising from the growing role of computers in society. G.E. Foundation A3.

5. Computer and Applications (3)
An introduction to the computer: tools, applications, and graphics. Overview of the components of computer systems; discussion on software systems, electronic mail, influence of computers on society and the future of computing; extensive hands-on experience with application tools and programming. PC (Windows) environment. *CR/NC* grading only. (2 lecture, 2 lab hours)

7. Computer Literacy (3)
Overview of the history of computing, a presentation of the components of computer hardware and software systems, a study of applications, programming, electronic mail, societal impact, and the future of computing. Macintosh environment. (2 lecture, 2 lab hours)

10. Introduction to BASIC Programming (1)
Prerequisite: elementary algebra. Introduction to structured programming techniques using the programming language BASIC. Topics include input/output, branching, looping, subroutines, and computer graphics. No prior experience required.

15. C and C^{++} Programming (2)
Prerequisite: programming experience in a major high-level language, e.g., BASIC, COBOL, FORTRAN, Pascal. An introduction to the C and C^{++} programming languages. Types, operators, expressions, flow of control, functions, pointers, and arrays. Standard libraries and programming tools. Emphasis on programming projects.

20. FORTRAN Programming (4)
Prerequisites: Students must take the ELM exam; students who do not pass the exam must record a grade of *C* or better in a college-taught intermediate algebra course; trigonometry. Introduction to programming in FORTRAN with emphasis on program design, debugging, and documentation. Elementary applications and structured programming for algorithm development. (3 lecture, 2 lab hours) (CAN CSCI 4)

40. Introduction to Programming and Problem Solving (4)
Prerequisites: Students must take the ELM exam; students who do not pass the exam must record a grade of *C* or better in a college-taught intermediate algebra course; trigonometry. Introduction to problem solving, algorithm development, procedural and data abstraction; program design, coding, debugging, testing, and documentation; a high-level programming language. (3 lecture, 2 lab hours)

41. Introduction to Data Structures (4)
Prerequisite: C SCI 40. Programming methodology, program correctness. Review of data types. Data structures: linear and nonlinear structures, files. Implementation of data structures. Recursion. Searching and sorting. (3 lecture, 2 lab hours)

60. Foundations of Computer Science (3)
Prerequisites: C SCI 40 and 41 or concurrently. Abstraction, iteration, induction, recursion, complexity of programs, data models, and logic.

72. Introduction to Computer Graphics (3)
Comprehensive overview of computer graphics. Geometry, color, hardware devices, surfaces and materials, lighting and shading, polygonal models, textures, fractals, rendering, animation, and production techniques. Case studies, examples, films, and video displays from actual systems.

101. Computer Applications in the Sciences (3)
Prerequisite: intermediate algebra; calculus recommended. Introduction to computers with emphasis on microcomputers. Preparation, storage, and processing scientific data, documents, and illustrations; graphing, manipulating, and simple statistical analysis of data; computer-to-computer communications and file transfers; Internet and World Wide Web; introduction to computer languages. (2 lecture, 2 lab hours)

105T. Workshop on Computer Languages (1-3; max total 6)
Prerequisite: C SCI 40 or permission of instructor. Workshops in the use of various high-level programming languages or other selected languages in areas of database, statistical computation, or operating systems.

112. Introduction to Computer Systems (4)
Prerequisite: C SCI 41. Computer arithmetic. Von Neumann architecture. Instruction sets, data types, formats, addressing. Register and ALU organization. Memory hierarchy. I/O. Bus organization. Study of one or more assembly languages. Basics of implementation of higher-level languages. (3 lecture, 2 lab hours)

113. Introduction to Computer Organization (4)
Prerequisite: C SCI 41. Fundamental issues of computer design at register-transfer level. Logical design of basic combinational and sequential modules. Organization and design of major functional blocks: ALU, CPU, memory, cache, input/output, hard-wired and microprogrammed control. Simulation of computer organization. Introduction to high-performance superscalar computer organization. (3 lecture, 2 lab hours) (Formerly C SCI 113A)

115. Algorithms and Data Structures (3)
Prerequisites: C SCI 41, 60; MATH 75. Review of basic data structures. Graph, search paths, and spanning trees. Algorithm design and analysis of sorting, merging, and searching. Memory management, hashing, dynamic storage allocation. Integration of data structures into system design.

117. Structures of Programming Languages (4)
Prerequisites: C SCI 41, 60, and C SCI 119. General concepts and paradigms of programming languages; scope and binding rules, applications and implementations

of language concepts. Languages selected from: ADA, ICON, Miranda, ML, MODULA 2, OCCAM 2, PROLOG, LISP, Scheme, Smalltalk. (3 lecture, 2 lab hours)

119. Introduction to Finite Automata (3)
Prerequisites: C SCI 41, 60. Strings, languages, and fundamental proof techniques. Regular expression, regular grammar, regular languages, finite automata, their interrelationship, and their properties. Introduction to context-free languages.

124. Introduction to File Processing (3)
Prerequisite: C SCI 115. Definition of file components, access methods, and file operations. Algorithms for efficient implementation of data structures; characteristics of bulk storage media for mainframe and microcomputers. Introduction to database management systems.

126. Database Systems (3)
Prerequisite: C SCI 115; C SCI 124 recommended. Database concepts; hierarchical, relational, and network models. Data normalization, data description languages, data manipulation languages, and query design.

134. Compiler Design (3)
Prerequisites: C SCI 112, 115, 119. Syntax and semantics of programming languages. Lexical analysis, parsing techniques, parser generator, SLR and LALR parsing. Introduction to symbol table organization and semantic routines. Compiler generators.

136. Compiler Construction (3)
Prerequisite: C SCI 134. Advanced topics in compiler design. Type checking. Runtime storage management. Intermediate code generation. Interpreters. Error recovery techniques. Code generation and optimization.

144. Introduction to Operating Systems (3)
Prerequisites: C SCI 41 and C SCI 112 or ECE 118. Operating system history and services. File systems. Memory management. Process management — concurrent processes, communication, semaphores, monitors, deadlocks. Resource management — processor and disk scheduling. Security and protection mechanisms.

146. Systems Architecture (3)
Prerequisites: C SCI 113, 144. An in-depth analysis of one or more operating systems — system data structures, hardware architecture, shell and kernel functions, I/O routines, interrupt handling. Other topics may include parallel hardware architectures, performance analysis.

148. Systems Programming (3)
Prerequisites: C SCI 113, 144. Topics include implementation of operating system components and modification of existing systems. Device drivers, memory management, communication networks, and file systems will be examined. Projects will be emphasized.

150. Introduction to Software Engineering (3)
Prerequisite: C SCI 41. History, goals, and motivation of software engineering. Study and use of software engineering methods. Requirements, specification, design, implementation, testing, verification, and maintenance of software systems. Team programming. (2 lecture, 3 lab hours)

152. Software Engineering (4)
Prerequisite: C SCI 150. In-depth examination of techniques for specification, design, implementation, testing, and verification of software. Human-computer interfaces. Formal methods of software development. Use of software engineering tools for the development of substantial software projects. (3 lecture, 3 lab hours)

154. Simulation (3)
Prerequisites: C SCI 41, 60; MATH 75. Simulation as a tool for the study of complex systems in computer science, statistics and operations research. Generating random variables. Review of principles behind and examples of simulation languages.

156. Internetworking Systems and Protocols (3)
Prerequisite: C SCI 144 or permission of instructor. Review of underlying network technologies. Application-level interconnections, network architectures, addressing, mapping abstract addresses to physical addresses, routing datagrams, error and control messages, protocol layering, gateways, subnets. Client-server interactions. Upper layers of protocol stacks. (2 lecture, 3 lab hours)

164. Artificial Intelligence Programming (3)
Prerequisite: C SCI 117. Introduction to problem-solving methods from artificial intelligence. Production systems. Knowledge-based systems. Machine learning. Topics chosen from fuzzy logic, neural network models, genetic algorithms. Verification, validation, testing.

166. Principles of Artificial Intelligence (3)
Prerequisite: C SCI 164. Analysis of knowledge-based and neural models, including self-organization, sequential learning models, neurally inspired models of reasoning and perception. Integration of different paradigms.

172. Computer Graphics (4)
Prerequisites: MATH 76, C SCI 41, and (C SCI 112 or ECE 118). Hardware devices, raster graphics, device in dependence, graphic data structure and representations, interactive techniques, and algorithms for the display of two- and three-dimensional objects, graphic transformations, graphics standards, modeling, animation, VRML, and scientific visualization. (3 lecture, 2 lab hours)

173. Advanced Computer Graphics (4)
Prerequisite: C SCI 172. Visible surface algorithms, lighting and shading, textures, curves and surfaces, computer-aided design, advanced modeling techniques, solid modeling, advanced raster graphics architecture, advanced geometric and raster algorithms, user interface, ray tracing, animation techniques, and fractals. (3 lecture, 3 lab hours)

174. Design and Analysis of Algorithms (3)
Prerequisites: C SCI 115, 119. Models of computation and measures of complexity, algorithms for sorting and searching, set representation and manipulation, branch and bound, integer and polynomial arithmetic, pattern-matching algorithms, parsing algorithms, graph algorithms, NP-complete problems.

176. Parallel Processing (4)
Prerequisites: C SCI 113, 144. Characteristics, and classification of computer systems. Notion and realization of parallelism. Pipeline design techniques. Vector processing. Array processing. Multiprocessing. Multiprocessing vs. multicomputers. Shared memory vs. message-passing, problem solving, and parallel programming. Architectural trends. (3 lecture, 2 lab hours)

177. Distributed Computer Systems (4)
Prerequisites: C SCI 113, 144; C SCI 176 recommended. Characteristics and design of distributed systems. Application and network interconnectivity. Enterprise computing. Distributed data and transaction management. Distributed operating systems. Distributed problem solving and programming. (3 lecture, 2 lab hours)

186. Formal Languages and Automata (3)
Prerequisite: C SCI 119. Introduction to formal language theory. Context-free grammars, context-sensitive grammars, unrestricted grammars, graph grammars, and

rewriting systems; properties of context-free languages, push-down automata.

188. Introduction to Computability (3)
Prerequisite: C SCI 119. Introduction to computability and complexity. Turing machines, recursive functions, reduction, undecidability, classes P and NP, and intractable problems.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191T. Proseminar (1-3; max total 15)
Prerequisite: permission of instructor. Presentation of selected topics in computer science.

194. Cooperative Education
(1-4; max total 8)
Prerequisites: courses appropriate to the work experience; approval by major department cooperative education coordinator. Integration of work experience with academic program, individually planned through coordinator. *CR/NC* grading only.

198. Project (3)
Prerequisite: senior standing in computer science or permission of instructor and approved subject. See *Criteria for Thesis and Project*. Study of a problem under the supervision of a faculty member. Presentation by the student in a seminar setting and a final report are required. Satisfies the senior major requirement for the B.S. in Computer Science. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

Computer Science (C SCI)

200. Introduction to Research in Computer Science (1)
Prerequisite: classified standing in computer science. Orientation to the graduate program, introduction to research methodology, and discussion of possible project and thesis topics.

213. Computer Organization (3)
Prerequisites: C SCI 112 and 113 or permission of instructor. Organization of memory, I/O, and processors. Computer busses. Microprogramming and instruction execution. Interrupts. Data communications.

217. Programming Language Principles (3)
Prerequisite: C SCI 117 or permission of instructor. Advanced topics in programming languages: concurrency, exceptions, types, procedures, execution models. Introduction to the formal specification of programming languages: syntax specification, semantic specification.

226. Advanced Database Systems (3)
Prerequisites: C SCI 124, 126 and 144. Implementation of database systems on modern hardware systems. Operating system design issues, including buffering, page size, prefetching, etc. Query processing algorithms, design of crash recovery and concurrency control systems. Implementation of distributed databases and database machines.

244. Operating Systems (3)
Prerequisite: C SCI 144. Operating system functions. Performance monitoring and fine-tuning. Network operating system design. Concurrency, analysis of deadlock. Selected topics from current research.

246. Computer Architecture (3)
Prerequisite: C SCI 144. Examination and comparison of RISC and CISC architectures. Parallel processors, multiprocessors, dataflow machines. Database machines. Selected topics from current research.

250. Advanced Software Engineering (3)
Prerequisite: C SCI 150 or permission of instructor. Theoretical and practical aspects of software engineering emphasizing requirements analysis, specification, design, coding, testing, correctness, maintenance, and management. Examination of reliability, performance, and software metrics.

252. Software Development Environments (3)
Prerequisite: C SCI 150. Overview of modern software engineering environments including structured editors, programmer's assistants, and tools for software cost estimation, testing, scheduling, specification, and verification. Relationship between artificial intelligence and software engineering.

264. Artificial Intelligence (3)
Prerequisite: C SCI 164 or ability to program in Lisp and Prolog. Software technology for artificial intelligence systems, including expert systems. Knowledge-based and rule-based systems. Explanation and learning. User-oriented interfaces.

272. Computer Graphics (3)
Prerequisite: C SCI 172 or permission of instructor. 3-D transformations, visible-surface algorithms, shading, textures, curves and surfaces, computer-aided design, advanced modeling techniques, solid modeling, advanced raster graphics architecture, advanced geometric and raster algorithms, user interface, ray tracing, animation techniques, and fractals.

274. Combinatorial Algorithms (3)
Prerequisite: C SCI 174. Design and analysis of efficient algorithms for combinatorial problems. Network flow theory, matching theory, augmenting-path algorithms, branch-and-bound algorithms, data structure techniques for efficient implementation of combinatorial algorithms, analysis of data structures, application of data structural techniques to sorting, searching, and geometric problems.

282. Theory of Computation (3)
Prerequisite: C SCI 188 or permission of instructor. General models of computation, recursive functions, undecidable problems, propositional calculus, predicate calculus, complexity classes, NP-complete problems.

284. Automata Theory (3)
Prerequisite: C SCI 186 or permission of instructor. Formal languages, abstract machines, algebraic approach to automata, term rewriting systems, formal power series, cryptography, parallel computation.

290. Independent Study
(1-3; max total 6)
Prerequisite: approval of department. See *Academic Placement — Independent Study*. Approved for *SP* grading.

291T. Seminar (1-3; max total 9)
Prerequisite: approval of instructor. Special topics in computer science of current interest and importance.

298. Research Project (3)
Prerequisite: advancement to candidacy. See *Criteria for Thesis and Project*. Independent investigation of an advanced topic as the culminating requirement for the master's degree. Approved for *SP* grading.

299. Master's Thesis (3-6; max total 6)
Prerequisite: advancement to candidacy. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Computer Science (C SCI)

391T. Topics in Computer Science
(1-6; repeatable for credit with different topics)

Edwards Air Force Program

College of Engineering
and Computer Science

Master of Science in Engineering Program in cooperation with Edwards Air Force Base

Campus advisers:

Nagy N. Bengiamin, *Chair*
Electrical Engineering
Engineering East Building, Room 254
(559) 278-2726

Satya D. Mahanty, *Chair*
Mechanical Engineering
Engineering East Building, Room 164
(559) 278-2368

Edwards Air Force Base adviser:

James W. Smolka, *Coordinator*
Edwards A.F.B.,
Building 2453, Room 117
(661) 258-5936

M.S. in Engineering

Options:

- Electrical Engineering
- Mechanical Engineering

The Program

California State University, Fresno in cooperation with the Air Force Flight Test Center's Education Services Branch, operates a master's degree program with options in electrical and mechanical engineering at Edwards Air Force Base (A.F.B.), California. All coursework, examinations, and degree requirements may be completed on the Base. Although sponsored by the Air Force, the program and courses are open to all qualified personnel in the area, without regard to employment affiliation. Courses are offered during off-duty hours at Desert High School, Edwards A.F.B. The program is offered on a part-time study basis for students pursuing a master's degree while working full time in their professions. The degree requires approximately three years to complete.

Program Goals

The Master of Science in Engineering program has the following goals: (1) to develop the students' advanced analytical skills by developing an in-depth understanding of major theoretical and practical engineering concepts; (2) to develop students' written and oral communication skills applied to technical areas; (3) to achieve an appropriate level of competence by the students in solving practical electrical or mechanical engineering problems; (4) to develop students' critical and creative thinking skills in mastering new topics required to understand and solve complex engineering problems; and (5) to allow the students to demonstrate a sufficient depth of knowledge in a substantive area of electrical or mechanical engineering to pursue advanced academic or industrial work.

Program Objectives

The program has the following objectives for each student: (1) to complete a minimum of 30 hours of graduate coursework, including six required courses in engineering mathematics (3 courses), linear control systems, applied electromagnetics (E E only), communications engineering (E E only), advanced dynamics (M E only), and compressible fluids (M E only); (2) to successfully pass a comprehensive examination which addresses all core course subjects; and (3) to enhance the students' career goals by increasing their theoretical, research, and problem-solving skills in applied engineering.

Program Requirements

The program consists of a common core (12 units), a set of required major courses (6 units), and approved elective courses (12 units), for a total of 30 units (semester hours) of coursework. In addition, a comprehensive examination is required. Up to nine semester hours of satisfactory graduate credit may be transferred into the program from other institutions if not used in completing another graduate degree program. (Undergraduate courses may be transferred if the courses were not used in completing another degree program and the total undergraduate upper division semester hours applied to this degree program do not exceed nine hours.)

The Graduate Record Examination (GRE) Aptitude Test is required of all students prior to advancement to candidacy status. The Advanced Test in Engineering may be required as detailed in the section titled *Admission to Graduate Standing.* (Call the coordinator for information.) The GRE is administered several times per year at Edwards A.F.B. A GRE information booklet and application forms are available in the resident coordinator's office or from the Division of Graduate Studies at California State University, Fresno.

All students must complete a written comprehensive examination before graduation. This examination will stress the material in the required major courses.

The program requires extensive use of a computer; therefore, students are expected to have their own computer or access to one 24 hours a day.

Faculty. All faculty are selected from the Fresno campus, from other CSU campuses, and from among qualified engineers in the Edwards A.F.B. area.

Admission to the University. Requirements for admission to California State University, Fresno are in accordance with Title 5, Chapter 1, Subchapter 3 of the *California Code of Regulations.*

Admission to Graduate Standing. Students who apply to the program are placed in one of the following categories:

1. Graduate Standing, Classified. Students with (a) an undergraduate degree in an appropriate engineering discipline from an ABET accredited program, (b) an undergraduate grade point average of 2.7, and (c) a minimum GRE quantitative score of 450 are eligible for classified (degree status) graduate standing. This constitutes full admission to the graduate program.

   Students who meet requirements (a) and (c) above with a GPA below 2.7 must take the GRE Advanced Test in Engineering and achieve a score above the 50th percentile. In addition, to achieve classified standing these students must take three courses chosen by the coordinator and the department chair and complete these courses with a grade of *B* or higher.
2. Graduate Standing, Conditionally Classified. Students from non-ABET accredited engineering programs, or with a degree in physical science or mathematics or a different engineering discipline, and who have not met the requirements of category 1, will be given conditionally classified graduate standing. Upon satisfactorily meeting any specified requirements, students will then be advanced to classified standing.

Degree Candidacy. The following requirements must be met prior to advancement to candidacy:

1. Classified graduate standing.
2. Completion at California State University, Fresno of at least 9 units of the proposed program with a 3.0 average on all completed work appearing on the program.
3. A minimum grade point average of 3.0 in all upper-division and graduate coursework from the date of commencing the first course of the proposed master's degree program.
4. Departmental recommendation for advancement to candidacy.
5. Satisfactory completion of the Graduate Writing Skills Requirement.

Nondegree students. Students with a bachelor's degree may take graduate courses through extension (concurrently with regular students) for extension credit or audit. Prior approval of the resident coordinator is required.

Curricula

Core Courses
(common to both programs)
Four courses are required:

ENGR 101	Applied ENGR Analysis I (3)
ENGR 102	Applied ENGR Analysis II (3)
ENGR 205	Computing in Engineering Analysis (3) *
ENGR 206	Probability Theory and Statistical Analysis (3) *
ENGR 210	Linear Control Systems (3)

*Either ENGR 205 or 206 may be taken to meet core course requirements.

Mechanical Engineering
Required Courses (both are required):

M E 211	Advanced Dynamics (3)
M E 220	Compressible Fluids (3)

Mechanical Engineering Electives:

ENGR 212	Advanced Control Systems (3)
M E 221	Incompressible Fluids (3)
M E 223	Jet Engine Propulsion (3)
M E 224	Rocket Propulsion (3)
M E 225	Heat Transfer (3)
M E 227	Advanced Thermodynamics (3)
M E 229	Advanced Gas Dynamics (3)
M E 230	Aircraft Stability and Control (3)
M E 232	Advanced Aircraft Stability and Control (3)
M E 241	Structural Analysis (3)
M E 243	Structural Dynamics (3)
M E 250	Astrodynamics (3)
M E 290	Independent Study (1-3)
M E 291T	Topics in Mechanical Engineering (1-3)

Electrical Engineering
Required Courses (both are required):

E E 241	Applied Electromagnetics (3)
E E 245	Communications Engineering (3)

Electrical Engineering Electives:

ENGR 212	Advanced Control Systems (3)
E E 243	Modern Methods in Synchronous Sequential Design (3)
E E 247	Modern Semiconductor Devices (3)
E E 249	Advanced Communications Engineering (3)
E E 251	Antennas and Propagation (3)
E E 253	Advanced Asynchronous Machine Design (3)
E E 255	Digital Signal Processing (3)
E E 257	Optical Communications and Lasers (3)
E E 259	Radar System Design (3)
E E 290	Independent Study (1-3)
E E 291T	Topics in Electrical Engineering (1-3)

Tuition Assistance. Eligible military personnel may apply for tuition assistance (T.A.) which pays 75 percent of tuition cost. The student pays the remaining 25 percent at the time of registration. Officers (but not enlisted personnel) incur a two-year noncumulative service commitment following use of T.A.

Civilian Personnel. Government civilian employees may be eligible to have tuition paid by their government agency, if it can be shown that the course content is work related. Also, many industrial firms have programs to reimburse employees for tuition paid for courses successfully completed. Contact your education development officer or training office for details.

G.I. Benefits. Eligible veterans and active duty personnel with more than 180 days in service may apply for educational benefits. Those with service prior to Jan. 1, 1977, receive benefits under the old G.I. Bill, which reimburses the full tuition cost. Those entering service after Jan. 1, 1977, may be eligible under the new G.I. Bill, which is a contributory plan. Application for V.A. educational benefits may be made in the office of the resident coordinator at the time of registration. The forms are processed through the Fresno campus Veterans Office.

Textbooks. Textbooks normally are available in the California State University, Fresno office at Edwards A.F.B. prior to

the first class meeting. In most cases, the cost of textbooks is not reimbursed by the government. Students should be prepared to pay by check.

Enrollment and Registration

Enrollment in the program may be accomplished in the office of the California State University, Fresno Edwards resident coordinator. It is not necessary to visit the Fresno campus. Students who wish to enroll are highly encouraged to contact the Edwards resident coordinator for a counseling appointment. Registration for individual courses generally is accomplished during the week prior to the start of classes. Dates and times for registration are announced by fliers and in the various EAFB media.

COURSES

Engineering (ENGR)

101. Applied
Engineering Analysis I (3)
Covers selected topics in mathematical analysis, with emphasis on applications to engineering problems. Ordinary differential equations, the LaPlace transformation, matrices and determinants, Fourier series and integrals, partial differential equations.

102. Applied
Engineering Analysis II (3)
Covers selected topics in mathematical analysis with emphasis on applications to engineering problems. Vector Analysis, line and surface integrals, complex variables and integrals, conformal mapping, series, residues, potential theory, and special functions.

GRADUATE COURSES

(See *Course Numbering System.*)

Engineering (ENGR)

205. Computing in
Engineering Analysis (3)
Prerequisite: a first course in numerical analysis at the graduate level. Solution of engineering problems using digital computation. Modeling of engineering systems for numerical analysis.

206. Probability Theory
and Statistical Analysis (3)
A first course in probability theory and statistical analysis at the graduate level. Finite sample spaces, conditional probability and independence, one-dimensional random variables, functions of random variables, two- and higher-dimensional random variables, poisson and other discrete random variables, continuous random variables, moment-generating function, reliability theory, sums of random variables, samples and sampling distributions, estimation of parameters, testing hypothesis.

210. Linear Control Systems (3)
Prerequisite: ECE 155 or permission of coordinator. A first-year graduate course covering the analysis, synthesis, and performance of linear control systems. Partial fraction expansion, Routh's criterion, the impulse function. Basic servo characteristics and types, block diagrams, transfer functions. A detailed treatment of the root locus method for analysis and synthesis. Frequency response, logarithmic and polar plots, Nyquist's criterion, stability characteristics, phase margin and gain margin.

212. Advanced Control Systems (3)
Prerequisite: ENGR 210 or permission of coordinator. Describing function analysis of nonlinear control systems; phase-plane analysis; Liapunov stability analysis; discrete-time systems; z-transform-method; linear stochastic systems; application of statistical design principles; optimal and adaptive control systems; digital control systems.

Electrical Engineering (E E)

241. Applied Electromagnetics (3)
Prerequisite: ECE 136 or permission of coordinator. Electrostatic field boundary conditions, energy relations, and forces; multidimensional potential problems; magnetic field boundary conditions, scalar and vector potentials, and magnetization; Maxwell's equations for stationary and moving media; energy, force, and momentum in an electromagnetic field; plane waves; waves near metallic boundaries; inhomogeneous wave equation.

243. Modern Methods
in Synchronous Sequential Design (3)
Prerequisite: ECE 172 or permission of coordinator. Synchronous machine design with PLDs and FPGAs; algorithmic state machines; incompletely specified machines; maximum compatibility classes; partitioning of sequential machines; state merging and state splitting.

245. Communications Engineering (3)
Prerequisite: ECE 134 or permission of coordinator. Basic modulation concepts; statistical properties of signals; transmission systems optimization against noise; digital transmission and modulation methods; attenuation and phase distortion in analog and digital systems; intermodulation distortion; random multipath channels; intersystem interference.

247. Modern
Semiconductor Devices (3)
Prerequisite: ECE 114 or permission of coordinator. Crystal structures and elastic constants; lattice energy and vibrations; thermal and dielectric properties of solids; ferroelectric and magnetic properties of crystals; free electron model of metals; quantum statistics distributions; band theory; semiconductor crystals; superconductivity; photoconductivity and luminescence; dislocations.

249. Advanced
Communication Engineering (3)
Prerequisite: ECE 245 or permission of coordinator. The measure of information; noiseless coding; models of communication channels; channel capacity; discrete memoryless channels; error correcting codes; information sources; discrete channels with memory; continuous channels.

251. Antennas and Propagation (3)
Wave equation, plane waves, metallic boundary conditions; wave equation for the potentials Lorentz transformation; covariant formulation of electrodynamics; radiation from a moving charge; scattering and dispersion; Hamiltonian formulation of Maxwell's equations.

253. Advanced
Asynchronous Machine Design (3)
Asynchronous machine design; primitive flow tables; static/dynamic hazards; state assignment; covers; partitions; decompositions; state identification and fault detection experiments; pulse mode circuits; iterative networks; introduction to hardware description languages.

255. Digital Signal Processing (3)
Prerequisite: ECE 107 or permission of coordinator. Discrete-time signals; Fourier transforms; random discrete-time signals; filtered random signals; correlation functions; power-spectral-density estimation; cross-spectral estimates; detection of signals in noise; estimation of signals in noise; recursive estimation of time-varying signals.

257. Optical Communications
and Lasers (3)
Quantum measure of light, linear, elliptical, and circular polarization; optical waveguide equations, ray and mode theory; source and detector characteristics; attenuation, dispersion, and noise effects; correlation, spectral density, noise equivalent bandwidth, coding, modulation, multiplexing techniques; systems and link design.

259. Radar System Design (3)
The nature and history of radar, the radar equation, PRF and range considerations, CW and FM radars. MTI and pulse-Doppler radars, tracking radars. Radar power generation, antenna types and design considerations, receivers, detection of signals in noise, extraction of information from radar signals, propagation of radar wave, the effects of clutter, weather and interference. Examples of radar system engineering and design.

290. Independent Study
(1-3; max total 6)
Prerequisite: graduate status in engineering or permission of instructor. Approved for *SP* grading.

291T. Topics in Electrical Engineering (1-3; max total 6)
Prerequisite: graduate status in engineering or permission of instructor. Selected electrical engineering subjects not in current courses.

Mechanical Engineering (M E)

211. Advanced Dynamics (3)
Prerequisite: M E 134 or permission of coordinator. Dynamics of mechanical systems with emphasis on equations of motion. Kinematics of particles, energy and momentum methods, variational methods, LaGrange's method, kinematics and plane motion of rigid bodies, kinetics of rigid bodies in three dimensions, mechanical vibrations.

220. Compressible Fluids (3)
Prerequisite: M E 156 or permission of coordinator. Review of the foundations of fluid mechanics and thermodynamics. The velocity of sound, mach number and angle, differences between incompressible, subsonic, and supersonic flow. Isentropic flow, working charts and tables, choking, operation of nozzles. Normal shock waves, ducts, shock tube analysis. Fanno and Rayleigh analysis, oblique shock waves, the Prandtl-Meyer equation. Lift and drag on bodies in supersonic flow. Method of characteristics.

221. Incompressible Fluids (3)
Prerequisite: M E 156 or permission of coordinator. The kinematics of liquids and gases, the LaGrangian and Eulerian methods, streak lines, stream tubes. Geometry of the vector field, stokes, and Gauss's theorems, acceleration of a fluid particle, homogeneous fluids and the equation of continuity. Integration of Eutor's equation, Bernoulli's equation. Potential motion and potential functions, source and sink potentials, the stream function. Vortex theory, surfaces of discontinuity.

223. Jet Engine Propulsion (3)
First-year graduate course in mechanics and thermodynamics of jet engine propulsion. Thermodynamics of fluid flow and engines, boundary layer theory, subsonic and supersonic inlets, combustors, fans, compressors, turbines, nozzles, inlet distortion, fuel controls, noise reduction, ramjets and scramjets.

224. Rocket Propulsion (3)
First-year graduate course in mechanics and thermodynamics of rocket engine propulsion. Nozzle theory and thermodynamics, heat transfer, flight performance, chemical rocket propellant performance, liquid propellants, solid propellants, rocket testing, advanced propulsion concepts.

225. Heat Transfer (3)
Conduction, convection, and radiation. One and two dimensional steady-state conduction, LaPlace's equation, numerical techniques. Transient heat transfer. Heisler charts, multiple-dimensional systems, boundary layers, Reynold's analogy. Forced and natural convection radiation heat transfer, Kirchoff's and Wien's laws, radiation shields.

227. Advanced Thermodynamics (3)
Prerequisite: M E 156 or permission of coordinator. Review of classical thermodynamics, Maxwell relations, equations of state, nonideal gases, experimental methods. The molecular theory of gases, Clausius and Van der Waals equations of state, velocity distribution. LaGrange's method, the principle of equipartition. Maxwell-Boltzmann statistics, micro- and macrostates. Quantum statistics based on the Bose-Einstein, Maxwell-Boltzmann, and Fermi-Dirac statistics.

229. Advanced Gas Dynamics (3)
Review of supersonic flow. Vibrational and chemical rate processes, nonequilibrium chemical rate equations, rate equations for dissociation and recombination. Flow with vibrational or chemical nonequilibrium. Nonequilibrium kinetic theory; evaluation of collision cross sections. Flow with translational nonequilibrium. Radiative transfer in gases, and approximate solutions of the equation of radiative transfer.

230. Aircraft Stability and Control (3)
First-year graduate course covering analytical tools, system theory, reference frames, and transformations, equations of unsteady motion, longitudinal aerodynamics, lateral aerodynamics, stability of steady flight, and response to control actuation. All stability derivatives will be discussed in detail, and examples and problems based on actual airplanes will be used.

232. Advanced Aircraft Stability and Control (3)
Prerequisite: M E 230. Continuation of M E 230. Validity of small disturbance theory, nonlinear equations of motion, steady state and dynamic stability and control of elastic airplanes. Frequency response methods, response to turbulence. Automatic flight control analysis and design, the human pilot in the control loop, stability augmentation, digital flight control systems, state vector methods.

241. Structural Analysis (3)
Prerequisite: M E 134 or permission of coordinator. Graduate-level course in the principles of structural mechanics. Stress, strain and displacements, static and dynamic loads, energy methods, virtual work, discrete and continuous system analysis, finite element analysis, elastic beams, plates, and frames; single and multi degree-of-freedom modal analysis. (Formerly M E 233)

243. Structural Dynamics (3)
Prerequisite: M E 241 or permission of instructor. Continuation of M E 241. Von Karman theory, shear deformation, geometry and equilibrium of shells, theory of vibrations, vibrations of aircraft structures, coupling with the aerodynamic equations, flutter, ground and flight structural test techniques. (Formerly M E 231)

250. Astrodynamics (3)
Introductory course in astrodynamics. Two-body orbital mechanics, orbit determination, basic orbital maneuvers, rendezvous, ballistic missile trajectories, lunar and interplanetary trajectories, orbital perturbations, launch trajectories, reentry, spacecraft dynamics and attitude control.

290. Independent Study
(1-3; max total 6)
Prerequisite: graduate status in engineering or permission of instructor. Approved for *SP* grading.

291T. Topics in Mechanical Engineering
(1-3; max total 6)
Prerequisite: graduate status in engineering or permission of instructor. Selected mechanical engineering subjects not in current courses.

Electrical and Computer Engineering

College of Engineering
and Computer Science

Department of Electrical and Computer Engineering
Nagy N. Bengiamin, *Chair*
Engineering East Building, Room 254
(559) 278-2726

B.S. in Electrical Engineering

B.S. in Computer Engineering

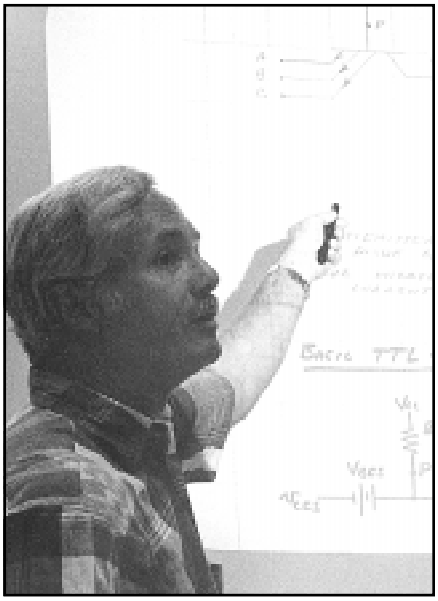
The Department

The Department of Electrical and Computer Engineering offers Bachelor of Science degrees in Electrical Engineering and Computer Engineering. Although many courses are common to both programs, there are significant differences between the graduation requirements for electrical engineering and for computer engineering. Students are advised to decide early in their program of study which major they intend to pursue.

Mission

The mission of the Department of Electrical and Computer Engineering is to fulfill the needs of the region and state by providing an undergraduate technical education in electrical engineering and computer engineering to a diverse group of students. Additionally, the department strives to continually update its strong program of study in order to qualify its graduates for positions in industry located in the region and beyond by providing sufficient breadth and depth in its program to assure its graduates a successful practice in the profession. At the same time, students are grounded on the rigorous scientific and theoretical foundations of the discipline in order not only to enable graduates to enter and be successful in any advanced-level educational program of their choosing, but also to be able to build upon this strong foundation and extend it to new depths.

The faculty members possess depth and breadth in their specialty areas and are active in bringing these experiences and skills to the classroom. The identifiable strengths of the academic program are the laboratory and hands-on experience for students, the proper attention given to the scientific and mathematical foundation of electrical engineering and computer engineering, and the rigor of upper-division courses coupled with design and culminating senior projects. The technical and liberal arts components of the curriculum provide the students with the opportunity for gaining self-development, technical competence, and awareness of economic and ethical responsibilities. The technical curriculum includes (l) basic engineering science, (2) core electrical and computer engineering subjects, and (3) a junior-/senior-level choice for more depth in communications and analog systems, power systems and controls, or digital systems and computers.



The department has a mandatory advising program to help students make sound academic decisions.

Electrical Engineering

The Electrical Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

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; laser and optical fiber communications; aircraft and missile guidance systems), computers and digital systems (computers, microprocessors, and microcomputers; artificial intelligence), physical electronics and optics (transistors; integrated circuits; optical display devices; lasers; optical fibers), 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 control systems (computer control, robotics, automated manufacturing, intelligent sensors).

Computer Engineering

Computer engineering is a discipline which allows the student to obtain expertise in the design, programming, and applications of computers. It prepares the graduate for professional practice or graduate studies. The program combines:

a. A strong emphasis on electrical engineering (primarily electronic circuits and systems)

b. A broad basis in mathematics, physical science, and general engineering

c. Fundamentals of computer science including programming methodology, software engineering, and operating systems

d. Introductory and advanced concepts in the design of computers and computer systems

A rich set of technical area courses is available to allow students to broaden their knowledge within any of several computer engineering areas.

Organizations

Student chapters of the Institute of Electrical and Electronic Engineers and Eta Kappa Nu (the national honor society for electrical engineers) are active in the department. The College of Engineering and Computer Science, in addition, has chapters of Tau Beta Pi, the Society of Women Engineers, the Society of Hispanic Engineers, and the National Society of Black Engineers.

Co-op Program

The department participates in the Cooperative Educational Program which allows students to integrate planned industrial experiences into their academic programs. Students interested in this program should contact the chair of the Department of Electrical and Computer Engineering and the campus co-op coordinator.

Administrative Academic Probation

A minimum GPA of 2.0 must be maintained in all courses taken in the College of

Engineering and Computer Science. Students who fail to maintain a 2.0 GPA in courses within their major may be placed on administrative academic probation. Failure to eliminate the grade point deficiency can result in disqualification from the College of Engineering and Computer Science.

Mandatory Advising

Students must complete mandatory advising with a faculty member at least once during each academic year. Students who fail to do so by the established deadline (usually around the end of April) will be prevented from participating in the STAR registration process prior to the start of classes.

Career Opportunities

According to a report by the American Electronics Association, a shortage of electrical and computer engineers is projected for the next several years; it is anticipated that computer engineering positions will increase more than any other major profession. New developments are evolving in optical communications, microelectronics, intelligent controls, computers, radar, microwave communications, and innovative alternative energy sources at an explosive pace which should assure a solid growth pattern for electrical and computer engineers into the foreseeable future.

Faculty

Nagy N. Bengiamin, *Chair*

Daniel C. Bukofzer
Albert A. Heaney
Robert W. Hecht
Chung K. Liu
Ramakrishna Nunna
Larry D. Owens
Robert D. Regier
Elden K. Shaw

Faculty and Facilities

The faculty, comprised of academically well-qualified engineers, have a wide range of teaching and industrial experience. Their backgrounds include significant research accomplishments, engineering teaching experience, consulting work, and related engineering experience.

Excellent facilities are housed in the Engineering East Building. A 52,000 square-foot engineering building addition provides additional classroom space, faculty offices, and expanded modern laboratories that include: a microcomputer laboratory, a CAD/CAM laboratory, and laboratories for microprocessors and digital systems, electronics, computer development, optical communications, digital control/robotics, special projects, and power systems.

Bachelor of Science Degree Requirements[1]

Electrical Engineering Major — *Units*

Major requirements 69

ECE 1, 71, 85, 85L, 90, 90L, 102, 115, 118, 120L, 121, 121L, 124, 125, 126, 128, 128L, 138, 138L, 155, 185A or 185B or 185C ..... (49)
C E 29 or M E 29 ..... (3)
I E 160, I E 182W ..... (5)
M E 136 ..... (3)
Technical Area Courses ..... (9)
Select mandatory technical area courses from no more than two of the following groups.
Electronics and Communications: ECE 134, 135, 136, 136L, 140, 144, 162, 166, 168, 171, 176
Computers and Digital Systems: ECE 106, 107, 132, 146, 148, 172, 173, 174
Power and Control Systems and Energy Conversion: ECE 151, 152, 153, 173; M E 116

Other requirements 67

General Education
Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 92-94 for G.E. listings.)
The following courses are required to satisfy both G.E. and additional requirements: MATH 75 [B4], CHEM 1A [B1], PHIL 20 [C2], ECE 114[8] [IB], PHIL 120 [IC], PL SI 120 [M/I]
Additional requirements
MATH 76, 77, 81
PHYS 4A; PHYS 4B, 4BL; PHYS 4C; choose one from MATH 121, 123, 124, 128, 171, 181, 182

Total 136

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

Advising Notes

1. Courses in mathematics, the physical sciences, or engineering taken *CR/NC* are not counted toward fulfillment of degree requirements in electrical engineering.
2. Electrical engineering majors might consider a math minor (see faculty adviser for details).
3. Since the electrical engineering major curriculum is very demanding, some students not fully prepared in mathematics and the physical sciences may take 4½ or more years to graduate rather than the traditional 4 years. Students not fully prepared in chemistry should consider taking CHEM 3A and 4 in lieu of CHEM 1A. If needed, students may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.

Recommended Program

First Semester — *Units*

ECE 1 (Engineering Profession, Ethics, and Public Policy) 1
ECE 71 (Engineering Computations) 3
ECE 85, L (Digital Logic Design) 4
G.E. Area A2[2] 3
MATH 75[3] (Mathematical Analysis I) ... 4
15

Second Semester

MATH 76 (Mathematical Analysis II) ... 4
PHYS 4A (Mechanics and Wave Motion) 3
G.E. Area A1[2] 3
CHEM 1A[3] (General Chem)[4] 5
PHIL 20[3] (Moral Questions) 3
18

Third Semester

ECE 115 (Principles of Computer Architecture) 3
MATH 77 (Mathematical Analysis III) ... 4
PHYS 4B, L (Electricity, Magnetism, and Heat) 4
G.E. Area B2[2] 3
G.E. Area C1[2] 3
17

Fourth Semester

ECE 90, L (Principles of Electrical Circuits) 4
ECE 118 (Microprocessor Architecture and Programming) 3
C E or M E 29 (Engineering Mech) 3
MATH 81 (Applied Analysis) 4
PHYS 4C (Light and Modern Physics) ... 3
17

See footnotes on page 305.

Fifth Semester

ECE 102 (Advanced Circuit Analysis) ... 3
ECE 114[8] (Physical Electronics) 3
ECE 120L (Computer Sys Lab) 1
ECE 124 (Linear Electric Circuit and Sys Analysis) 3
ECE 126 (Electromagnetic Theory and Appl I) 3
ECE 128, L (Electronics I) 4
17

Sixth Semester

ECE 121, L (Electromech Systems and Energy Conversion) 4
ECE 138, L (Electronics II) 4
I E 182W (Engineering Writing) 3
Technical Area Course[6] 3
G.E. Area D3 3
17

Seventh Semester

ECE 125 (Random Signals and Stochastic Sys Analysis) 3
ECE 155 (Control Systems) 3
Technical Area Course[6] 3
Mathematics Elective[7] 3
G.E. Area D1[2] 3
G.E. Area D2[2] 3
18

Eighth Semester

ECE 185 (Senior Design) 3
M E 136 (Thermodynamics) 3
Technical Area Course[6] 3
I E 160 (Engineering Economy) 2
PHIL 120[3,5] (Contemporary Conflicts of Morals) 3
PL SI 120[3,5] (International Politics) 3
17

See footnotes next page.

Bachelor of Science Degree Requirements[1]

Computer Engineering Major *Units*

Major requirements 64
ECE 1, 85, 85L, 90, 90L, 115, 118, 120L, 124, 125, 128, 128L, 148, 185A or 185B or 185C ..... (32)
C E 29 or M E 29 ..... (3)
I E 160, I E 182W ..... (5)
Computer Design Option
ECE 174 ..... (3)
C SCI 144, 150 ..... (6)
Technical Area Design Courses ..... (6)
ECE 106, 107, 132, 138, 138L, 140, 176
Technical Area Courses ..... (9)
ECE 134, 146, 155, 172
Other requirements 72
General Education
Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 92-94 for G.E. listings.)
The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 1A [B1], PHIL 20 [C2], ECE 114[8] [IB], PHIL 120 [IC], PL SI 120 [M/I]
Additional requirements
MATH 76, 77, 81; PHYS 4A-C, 4BL; C SCI 40, 41
Total 136

. Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

Advising Notes

1. Courses in mathematics, the physical sciences, or engineering taken *CR/NC* are not counted toward fulfillment of degree requirements in computer engineering.
2. Computer engineering majors might consider a math minor. (See faculty adviser for details.)
3. Since the computer engineering major curriculum is very demanding, some students not fully prepared in mathematics and the physical sciences may take more than the traditional 4 years to graduate. Students not fully prepared in chemistry should consider taking CHEM 3A and 4 in lieu of CHEM 1A. If needed, students also may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.

Recommended Program

First Semester *Units*

ECE 1 (Engineering Profession, Ethics, and Public Policy) 1
ECE 85, L (Digital Logic Design) 4
C SCI 40 (Intro to Programming and Problem Solving) 4
G.E. Area A2[2] 3
MATH 75[3] (Mathematical Analysis I) 4
16

Second Semester

MATH 76 (Mathematical Analysis II) 4
PHYS 4A (Mechanics and Wave Motion) 3
G.E. Area A1[2] 3
CHEM 1A[3] (General Chem)[4] 5
PHIL 20[3] (Moral Questions) 3
18

Third Semester

ECE 115 (Principles of Computer Architecture) 3
C SCI 41 (Intro to Data Structures) 4
MATH 77 (Mathematical Analysis III) 4
PHYS 4B, L (Electricity, Magnetism and Heat) 4
G.E. Area C1[2] 3
18

Fourth Semester

ECE 90, L (Principles of Electrical Circuits) 4
G.E. Area D1[2] 3
C E or M E 29 (Engineering Mech) 3
MATH 81 (Applied Analysis) 4
PHYS 4C (Light and Modern Physics) 3
17

Fifth Semester

ECE 114[8] (Physical Electronics) 3
ECE 118 (Microprocessor Architecture and Programming) 3
ECE 124 (Linear Electric Circuits and Systems Analysis) 3
ECE 128, L (Electronics I) 4
I E 160 (Engineering Economics) 2
C SCI 150 (Intro to Software Engr) 3
18

Sixth Semester

ECE 120L (Computer Sys Lab) 1
ECE 125 (Random Signals and Stochastic Sys Analysis) 3
ECE 148 (Analysis and Design of Digital Circuits) 3
Technical Area Design[6] 3
G.E. Area D2[2] 3
I E 182W (Engineering Writing) 3
16

Seventh Semester

ECE 174 (Advanced Computer Architecture) 3
G.E. Area B2[2] 3
Technical Area Design[6] 3
Technical Area Course[6] 3
C SCI 144 (Intro to Operating Systems) 3
G.E. Area D3[2] 3
18

See footnotes on next page.

Eighth Semester

ECE 185 (Senior Design) 3
Technical Area Course[6] 3
Technical Area Course[6] 3
PHIL 120[3,5] (Contemporary Conflicts of Morals) 3
PL SI 120[3,5] (International Politics) 3
15

[1] Engineering majors are exempt from G.E. Area A3, third course area C, Area E, Area ID.
[2] See pages 92-94 for G.E. listings.
[3] Satisfies G.E. requirement.
[4] Must complete MATH 75 first.
[5] Must complete 60 units, Area A1, Area A2, Area B4 and appropriate B1, B2, C1, C2, D1, D2, and D3 first.
[6] Select from the Technical Area Courses or Technical Area Design Courses list.
[7] Mathematics elective: select from MATH 121, 123, 128, 171, 181, or 182.
[8] Meets Area IB G.E. requirement.

COURSES

Electrical and Computer Engineering (ECE)

Note: Students may be expected to purchase supplementary materials for senior projects and special topic laboratory and activity classes.

1. Engineering Profession, Ethics, and Public Policy (1)
The electrical engineering profession and its career opportunities; engineering professionalism and ethics; ethics case studies, engineering code of ethics; introduction to engineering problem solving.

70. Engineering Computations Using C and FORTRAN (3)
Prerequisites: Students must take the ELM exam; students who do not pass the exam must record a grade of *C* or better in a college-taught intermediate algebra course; trigonometry. Use of FORTRAN and C computer languages in engineering analysis and design. A systematic development in program structure, specification, testing, and debugging.

71. Engineering Computations (3)
Prerequisites: Students must take the ELM exam; students who do not pass the exam must record a grade of *C* or better in a college-taught intermediate algebra course; trigonometry. Use of the C programming language in engineering analysis and design. A systematic development in program structure, specification, documentation, testing, and debugging.

85. Digital Logic Design (3)
Discrete mathematics, logic, and Boolean algebra. Number systems and binary arithmetic, logic gates, combinatorial logic, minimization techniques. Analysis and design of combinatorial circuits. Flipflops, multivibrators, registers, and counters. Introduction to sequential circuits and state machines. Synchronous state machine design.

85L. Digital Logic Design Laboratory (1)
Prerequisite: ECE 85 or concurrently. Usage, design, and implementation techniques for combinatorial and sequential circuits. Experiments utilizing logic gates, Karnaugh maps, multiplexers, decoders, programmable logic devices, latches, flipflops, counters and shift registers. Combinatorial and state machine design projects. Computer Assisted Engineering (CAE). (3 lab hours)

90. Principles of Electrical Circuits (3)
Prerequisites: ECE 70 or 71 or C SCI 40; PHYS 4B; MATH 77 or concurrently. Direct-current circuit analysis; circuit theorems; transient phenomena in RL and RC 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. (CAN ENGR 6 and 12)

90L. Principles of Electrical Circuits Laboratory (1)
Prerequisite: ECE 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) (CAN ENGR 6)

91. Introduction to Electrical Engineering (3)
Prerequisites: ECE 70 or C SCI 40, PHYS 4B, MATH 76. (No credit given for ECE 91 if taken after ECE 90.) Direct current circuit analysis, transient and AC steady state circuit analysis, basic electronics, diodes, transistors, digital systems, digital logic circuit, simple microprocessors, DC and AC machines.

102. Advanced Circuit Analysis (3)
Prerequisites: MATH 81, ECE 90. Transfer functions, tuned and resonant circuits, RLC transient circuit analysis, mutual inductance, transformers, two-port circuits, pole-zero analysis, Bode plots, stability concepts, circuit response to periodic inputs, Lapace solution techniques.

106. Switching Theory and Logical Design (3)
Prerequisite: ECE 85 or equivalent. Quine-McCluskey minimization; switching functions; finite and nonfinite state machines; state assignments; synchronous and asynchronous machines; incompletely specified sequential circuits; pulse-mode circuits.

107. Digital Signal Processing (3)
Prerequisites: ECE 70 or C SCI 40; ECE 85, 124. Data acquisition by computers, numerical evaluation of Fourier transforms, A/D and D/A conversion, digital filter design, programming, and emulation of a popular digital signal processor.

114. Physical Electronics (3)
Prerequisites: PHYS 4C, ECE 128 or concurrently. Semiconductor fundamentals: the valence bond and energy band models of solids, carrier densities and current components. Discrete devices: the pn junction diode, BJT, MOS FET, and JFET; the Schottky barrier diode and GaAs MESFET. Integrated circuits and VLSI Systems. Modern fabrication techniques for discrete and integrated devices.

115. Principles of Computer Architecture (3)
Prerequisites: ECE 85 and either C SCI 40 or ECE 70. Structural organization, hardware architecture and design of digital computer systems; binary representation of data; CPU, memory and I/O organization; register transfer and micro-operations; hardware/software design trade-offs. Introduction to RISC architecture and memory organization.

118. Microprocessor Architecture and Programming (3)
Prerequisite: ECE 115. Hardware architecture and programming models of a microprocessor. Assembly Language program specification, development, testing, and documentation. Modular programming, parameter passing, macros.

120L. Computer Systems Laboratory (1)
Prerequisite: ECE 118 or concurrently. Experiments on computer architecture and systems; logic analyzers; serial communications; hardware and software development. Design projects. (3 lab hours)

121. Electromechanical Systems and Energy Conversion (3)
Prerequisites: ECE 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: ECE 121 or concurrently. Experiments and computations on direct- and alternating-current machinery and on other energy-conversion devices and associated apparatus. (3 lab hours)

124. Linear Electric Circuit and Systems Analysis (3)
Prerequisites: ECE 90, 90L. Operational analysis of discrete and continuous linear circuits and systems: Laplace Transforms, Pole-Zero analysis, Bode Plots; Z-transforms, Fourier transforms; Fourier series; state-space representations, computer-aided solutions.

125. Random Signals and Stochastic System Analysis (3)
Prerequisites: MATH 81, ECE 124. Probability theory and statistical principles, random variables and their characterization, transformations of random variables, random processes, correlations and power spectral densities, noise characterization and noise figure, systems' response to stochastic inputs, matched filters, applications to communication and control systems.

126. Electromagnetic Theory and Applications I (3)
Prerequisite: ECE 90 or concurrently. Electrostatics; boundary value problems; magnetostatics; time-varying fields; Maxwell's equations. Transmission of electromagnetic energy.

128. Electronics I (3)
Prerequisite: ECE 90 or concurrently. Characteristics and properties of solid state devices; theory and analysis of electronic circuits; power supply design; device and circuit models; single- and multi-stage amplifier analysis and design; analysis of digital circuits; computer solutions as appropriate.

128L. Electronics I Laboratory (1)
Prerequisite: ECE 128 or concurrently. Experiments on static and dynamic characteristics of solid state devices in analog and digital electronic circuits; computer solutions as appropriate. (3 lab hours)

132. Design of Digital Systems (3)
Prerequisites: ECE 115, 118. Design of Digital Systems utilizing microprocessors; application of assembly programming language to input/output programming, interrupts and traps, DMA and memory management.

134. Communication Engineering (3)
Prerequisite: ECE 124. Mathematical modeling of signals; spectral density; linear and nonlinear modulation theory; demodulators; phase lock loops; link analysis; sampling theory; PCM and DM; digital communications; effect of noise on systems; link design; computer simulations.

135. Digital Communications (3)
Prerequisite: ECE 125. Principles, analysis methodology, statistical performance characteristics and design considerations of digital communication systems. Source and channel coding, Viterbi decoding, binary and M-ary digital AM, FM, PM, and hybrid modulation schemes. Noise performance of receivers, modem design. Computer simulations.

136. Electromagnetic Theory and Applications II (3)
Prerequisite: ECE 126. Plane wave propagation and reflection; waveguides; striplines and microstrip impedance matching, microwave circuits and S-parameters; amplifier power gain and stability, amplifier design, antenna analysis and design; methods for computer solution.

136L. Electromagnetic Theory and Applications Laboratory (1)
Prerequisite: ECE 136. Experiments on the transmission of electromagnetic energy through wires, waveguides, and space; filters and antennas; impedance matching; cross-over networks; location of faults on lines. (3 lab hours)

138. Electronics II (3)
Prerequisites: ECE 102, 124, 128, 128L. Analysis and design of high frequency amplifiers; high frequency models of transistors; operational amplifiers and applications; feedback amplifiers; oscillators, modulators, bandpass amplifiers, and demodulators for communications. Emphasis on modern design methods.

138L. Electronics II Laboratory (1)
Prerequisite: ECE 138 or concurrently. Design oriented experiments to study the characteristics, limitations, and design trade-offs of circuits from ECE 138. Emphasis on circuit and system design to meet preestablished specifications. Design project included; computer solutions as appropriate. (3 lab hours)

140. VLSI System Design (3)
Prerequisites: ECE 114, 115, 128. Emphasis on the design of a substantial, full custom VLSI system. Digital circuit design, fabrication principles, physical and electrical design rules, control and data path design techniques, system timing, design verification, simulation and testing. Project design requires utilization of engineering workstations running an industry standard CAD framework and incorporating a complete suite of IC design tools. Fabrication is available for potentially successful student design projects.

144. Integrated Circuit Design and Fabrication (3)
Prerequisite: ECE 114. Diffusion and ion implantation processes in silicon device fabrication; the planar process; CVD methodology in GaAs devices; design layout rules; impurity profile shaping, measurement, and its relationship to device performance; laboratory measurement and characterization techniques for ICs; laboratory demonstrations.

146. Computer Networking and Distributed Processing (3)
Prerequisites: ECE 115, 125. Analysis and design of modern computer networks: layered protocols, routing; flow and congestion control; packet, message, and circuit switching; error control and recovery; performance analysis. Local area networks, asynchronous transfer mode and ISDN.

148. Analysis and Design of Digital Circuits (3)
Prerequisites: ECE 85, 114, 128. Analysis and design of solid state digital circuits utilizing various logic families suitable for

integration: TTL, ECL, NMOS, CMOS; logic gates; multivibrators; ROM, PROM, EPROM, and EEPROM; SRAM and DRAM.

151. Electrical Power Systems (3)
Prerequisites: ECE 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.

152. Symmetrical Components and Short Circuit Analysis (3)
Prerequisites: ECE 121, 121L (or concurrently). Theory of symmetrical components and their use in power systems analysis; sequence impedances of system components; applications in fault calculations.

153. Power Electronics (3)
Prerequisites: ECE 121, 128. Characteristics, limitations, and circuit applications of power semiconductor devices; diode and phase controlled rectifier; DC-to-DC converters: DC-to-AC inverters; switching DC power supplies; power conditioners; uninterruptible power supplies; practical aspects of converter design.

155. Control Systems (3)
Prerequisites: MATH 81, ECE 124. Analysis, design, and synthesis of linear control systems; modeling, performance evaluation, frequency response, and stability.

162. Analog Integrated Circuits and Applications (3)
Prerequisite: ECE 138. Analysis of monolithic operational amplifiers; case studies; Widlar and Wilson current sources; linear and nonlinear applications; multipliers, phase-lock loops, phase detectors; higher order active filters; all-pass equalizers; D/A and A/D converters; oscillators, function generators; mixers, modulators, regulators; system design.

166. Microwave Devices and Circuits Design (3)
Prerequisite: ECE 136. Microwave theory and techniques: slow-wave structures, S parameters, and microwave devices, including solid-state devices such as Gunn, IMPATT, TRAPATT, and BARITT diodes, and vacuum tubes such as klystrons, reflex klystrons, traveling-wave tubes, magnetrons and gyrotrons.

168. Microwave Amplifier and Oscillator Design (3)
Prerequisite: ECE 136. Small-signal and large-signal amplifier designs such as high-gain, high-power, low-noise, narrow-band and broadband amplifiers; microwave oscillator designs such as high-power, broadband, Gunndiode and IMPATT oscillator designs; power combining and dividing techniques; reflection amplifier design and microwave measurements.

171. Quantum Electronics (3)
Prerequisite: ECE 126. Review of wave properties; cavity mode theory; radiation laws; theory and morphology of lasers; laser and fiber-optic communications; designs of optical communication systems and components.

172. Sequential Machine and Automata Theory (3)
Prerequisite: ECE 106. Structure of sequential machines; covers; partitions; decompositions and synthesis of multiple machines. State identification and fault detection experiments; memory characteristics of finite automata.

173. Digital Controls and Robotics (3)
Prerequisites: ECE 85, 121, 124. Introduction to digital controls; development and classification of robots; components and operation of robots, types of sensors; vision sensors; artificial intelligence; classroom demonstrations and practice with a robot.

174. Advanced Computer Architecture (3)
Prerequisites: ECE 115, MATH 107 or ECE 125. Advanced computing architecture concepts: pipelining; multiprocessing and multiprogramming; cache and virtual memory; direct memory access, local and system bus architectures; instruction set design and coding; CPU and system performance analysis.

176. Computer-Aided Engineering in Digital Design (3)
Prerequisites: ECE 120L or concurrently. Use of Computer-Aided Engineering tools in the design and implementation of digital systems utilizing Applications Specific Integrated Circuits. Design projects from specification through implementation using Field Programmable Gate Arrays (FPGAs) and Complex Programmable Logic Devices (CPLDs); simulation, timing analysis, Hardware Definition Languages. Hands-on exposure to current tools.

185A. Senior Design (3)
Prerequisites: senior standing in computer or electrical engineering or permission of instructor; I E 182W or concurrently. Design projects in the areas of electronics and/or communications; final typewritten reports required. Individual projects or a group project. Satisfies the senior major requirement for the B.S. in Computer or Electrical Engineering.

185B. Senior Design (3)
Prerequisites: senior standing in computer or electrical engineering or permission of instructor; I E 182W or concurrently. Design projects in the areas of computers and digital systems; final typewritten reports required. Individual projects or a group project. Satisfies the senior major requirement for the B.S. in Computer or Electrical Engineering.

185C. Senior Design (3)
Prerequisites: senior standing in computer or electrical engineering or permission of instructor; I E 182W or concurrently. Design projects in the areas power systems and/or control systems and robotics; final typewritten reports required. Individual projects or a group project. Satisfies the senior major requirement for the B.S. in Computer or Electrical Engineering.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191T. Topics in Electrical and Computer Engineering (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected electrical engineering subjects not in current courses.

193. Electrical and Computer Engineering Cooperative Internship (3-4)
Prerequisite: permission of adviser. Engineering practice in an industrial or governmental installation over a period of about seven months duration. Each period must span a summer-fall or spring-summer interval. This course cannot be used to meet graduation requirements. *CR/NC* grading only.

Mechanical and Industrial Engineering

College of Engineering
and Computer Science

Department of Mechanical and Industrial Engineering
Satya D. Mahanty, *Chair*
Engineering East Building, Room 154
(559) 278-2368

B.S. in Mechanical Engineering

B.S. in Industrial Engineering

The Department

The Department of Mechanical and Industrial Engineering offers Bachelor of Science degrees in Mechanical Engineering and Industrial Engineering. Both programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Mission

Our mission is to provide an educational program that will allow our students to meet or exceed the necessary level of academic preparedness for successful professional employment and for graduate study through continuous improvement in curricula and instruction.

Educational Objectives

1. Provide broad-based curriculum in mechanical and industrial engineering fundamentals.
2. Provide a basis for successful professional careers in fields associated with mechanical and industrial engineering.
3. Provide students with a strong foundation for graduate studies in mechanical and industrial engineering and related fields.
4. Provide students with hands-on experience through projects and laboratory courses.
5. Develop students' understanding of global issues.
6. Promote understanding of ethical and professional responsibilities.
7. Develop students' abilities to communicate effectively both orally and in written form.
8. Promote ability to work effectively in teams.

Faculty and Facilities

The department's faculty members have outstanding academic credentials which cover most major areas in mechanical and industrial engineering. In addition, most of the faculty have had distinguished careers in industry and are able, through their experiences, to help students develop the professional skills needed to solve engineering problems.

Excellent laboratory facilities emphasize computer interaction, the operation and use of instruments, and the experimental approach. The mechanical engineering laboratories are equipped with laser measurement systems, digital data acquisition systems and test apparatus which enable engineering students to study the effects of different parameters on the operation and performance of energy, fluid, aerospace, and other mechanical systems. The laboratory program also includes strong emphasis on computer-aided design.

Industrial engineering students gain valuable practical experience through state-of-the-art computer systems in conjunction with advanced robotics equipment used in the human factors, robotics, and manufacturing laboratories. Laboratory courses focus on computer-aided design, computer-aided manufacturing, computer-integrated manufacturing, materials handling, plant layout, and human factors engineering.

Co-op Program

The department participates in the Cooperative Education Program which allows the student to gain industrial experience — and recognize financial benefits — through projects with local companies.

Mandatory Advising

It is the policy of the department that every student see his/her assigned adviser at least once during the academic year.

Administrative Academic Probation

A minimum GPA of 2.0 must be maintained in all courses taken in the College of Engineering and Computer Science. Students who fail to maintain a 2.0 GPA in courses within their major may be placed on administrative academic probation. Failure to eliminate the grade point deficiency could result in disqualification from the College of Engineering and Computer Science.

Career Opportunities

Rapid technological advances in computers, robotics, and automation, combined with declining enrollments in engineering, have created a substantial demand for mechanical and industrial engineers. High-technology industries want mechanical and industrial engineers because of their technical versatility and adaptability to a broad range of engineering activities. Excellent opportunities exist in aerospace, computers, energy, manufacturing and fabrication, machine and tool design, public transportation, electronics, and a host of other industries.

Faculty

Satya D. Mahanty, *Chair*

Dennis C. Kuzma
Hamo Lalehzarian
Walter V. Loscutoff
Prakash T. Mahajan
Masud Mansuri
William W. Peng
John A. Seevers

Mechanical Engineering Program

Mechanical engineering is the use of basic science in the design and manufacture of components and systems. This requires the application of physical and mechanical principles in the development of machines, energy conversion systems, materials, and equipment for measurement and control. Knowledge of mathematics, physics, and chemistry lies at the core of this field. Application of this knowledge uses engineering technology — a disciplined way of thinking, modeling, and testing that enables development of new systems despite incomplete information and uncertainty.

The program in mechanical engineering provides basics in design and in thermal and fluid mechanics. All areas include statics, dynamics, materials, fluid mechanics, thermodynamics, and experimental methods. Application areas in design include mechanics of materials, applied mechanics, structural and manufacturing aspects of producing equipment, and vibrations. Application areas in thermal and fluid mechanics focus on energy conversion and include combustion, heat engines, refrigeration, and fluid flow.

Students should consult with their advisers to select the proper courses that emphasize their areas of interest.

Engineer-in-Training and Professional Engineering registration is strongly recommended as a first step in professional lifelong learning.

Bachelor of Science Degree Requirements

Mechanical Engineering Major *Units*

Major requirements 71
M E 1, 26, 31, 32, 116, 118, 134, 136, 140, 144, 145, 154, 155, 156 ..... (36)
C E 20, 121 ..... (6)
ECE 70, 90L, 91 ..... (7)
I E 90, 110, 160, 182W ..... (11)
Design Applications ..... (5)
Design Application Lab:
M E 143 (Mech Design Area) or M E 158 (Energy Area) ..... (2)
Design Application Area:
M E 164 (Machine Design) or M E 166 (Energy Systems Design) ..... (3)
Technical Area Courses ..... (6)
Take a minimum of six units from a combination of courses in *Group A* (Energy) and *Group B* (Machine Design).
Group A (Energy): M E 137, 146
Group B (Machine Design): M E 142, 162
A maximum of three units from Group C may be substituted for a course in either Group A or Group B with faculty adviser's approval.
Group C (General): M E 180, 190, 191T; I E 145, 155; ECE 121, 121L, 155

Other requirements 64
General Education
Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 92-94 for G.E. listings.)
The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 1A [B1], PHIL 20 [C2], M E 112 [IB], PHIL 120 [IC], PL SI 120 [M/I]
Additional requirements
MATH 76, 77, 81; PHYS 4A, 4AL, 4B, 4C

Total 135

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

Advising Notes

1. Courses in mathematics, the physical sciences, or engineering taken *CR/NC* are not counted toward fulfillment of degree requirements in mechanical engineering.
2. Mechanical engineering majors might consider a math, physics, or business minor.
3. Since the mechanical engineering major curriculum is very demanding, many students, especially those not fully prepared in mathematics, chemistry, and/or physics, take 4½ or more years to graduate rather than the traditional 4 years. Students not fully prepared in chemistry should consider taking CHEM 3A and 4 in lieu of CHEM 1A. If needed, students also may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.

Recommended Program

First Semester	*Units*
M E 1 (Intro to Mechanical Engineering)	1
M E 26 (Engineering Graphics)	3
ECE 70 (Engineering Computations Using C and Fortran)	3
MATH 75 (Mathematical Analysis I)	4
G.E. Area A1[2]	3
G.E. Area A2[2]	3
	17

Second Semester	
MATH 76 (Mathematical Analysis II)	4
PHYS 4A, L (Mechanics and Wave Motion)	4
G.E. Area B2[2]	3
G.E. Area D1[2]	3
G.E. Area D2[2]	3
	17

Third Semester	
M E 31 (Engineering Materials)	3
MATH 77 (Mathematical Analysis III)	4
PHYS 4B (Electricity, Magnetism, and Heat)	3
CHEM 1A (General Chemistry)	5
PHIL 20 (Moral Questions)	3
	18

Fourth Semester	
C E 20 (Engineering Mechanics: Statics)	3
M E 32 (Engineering Materials Lab)	1
ECE 90L (Elec Cir Lab)	1
ECE 91 (Intro Elec Engr)	3
I E 90 (Manufacturing Processes)	3
MATH 81 (Applied Analysis)	4
PHYS 4C (Light and Modern Physics)	3
	18

See footnotes on next page.

Fifth Semester

I E 110 (Statistical Analysis in Engineering) 3
M E 112[1] (Engineering Mechanics: Dynamics) 3
M E 136 (Thermodynamics) 3
C E 121 (Mechanics of Materials) 3
I E 182W (Engineering Writing) 3
G.E. Area C1[2] 3
18

Sixth Semester

M E 116 (Fluid Mechanics) 3
M E 118 (Fluid Mechanics Lab) 1
M E 134 (Dynamics in Machine Design) 3
M E 140 (Adv Engineering Analysis) ... 3
M E 144 (Adv Mech of Materials) 3
Technical Area Course (See *Major Requirements*) 3
I E 160 (Engineering Economy) 2
18

Seventh Semester

M E 145 (Heat and Mass Transfer) 3
M E 154 (Design of Machine Elements) 3
M E 155 (Elements of Systems Design) 3
M E 156 (Adv Thermodynamics — Fluid Mechanics) 3
Technical Area Course (See *Major Requirements*) 3
15

Eighth Semester

PHIL 120 (Contemporary Conflicts of Morals) 3
PL SI 120 (International Politics) 3
Design Applications 5
Design Application Lab:
M E 143 (Mech Design Area) or M E 158 (Energy Area) ..... (2)
Design Application Area:
M E 164 (Machine Design) or M E 166 (Energy Systems Design) ..... (3)
G.E. Area D3[2] 3
14

[1] Also counts as major GPA.
[2] See pages 92-94 for G.E. listings.

COURSES

Mechanical Engineering (M E)

1. Introduction to Mechanical Engineering (1)
Introduction to engineering design; case studies in mechanical engineering; problem-solving using the engineering approach; introduction to engineering code of ethics, mechanical engineering profession, and career opportunities.

26. Engineering Graphics (3)
Basic computer literacy required. Principles of orthographic projection, dimensioning, and descriptive geometry. Applications to the solution of engineering problems including the use of interactive computer graphics. (Two 3-hour lecture labs) (CAN ENGR 2)

29. Engineering Mechanics (3)
(Same as C E 29.) Prerequisites: MATH 77 (or concurrently); PHYS 4A. Not open to mechanical or civil engineering majors. Study of fundamental principles of statics and dynamics by scalar and vector methods.

31. Engineering Materials (3)
Prerequisites: CHEM 1A, PHYS 4A. Fundamental nature and properties of engineering materials; structure of matter and its effect on mechanical, electrical, magnetic, and thermal properties. (CAN ENGR 4)

32. Engineering Materials Laboratory (1)
Prerequisite: M E 31. Application of experimental methods to engineering materials. Study of stress and strain in metals; fatigue; hardness; toughness. (3 lab hours) (Formerly M E 131L; M E 31L)

112. Engineering Mechanics: Dynamics (3)
Prerequisite: C E 20. Development of principles of kinematics and kinetics in engineering.

116. Fluid Mechanics (3)
Prerequisites: CHEM 1A; M E 29 or C E 29 or M E 112 (or concurrently). Fundamentals of fluid mechanics as applied to engineering problems.

118. Fluid Mechanics Laboratory (1)
Prerequisites: I E 182W, M E 116 (or concurrently). Applications of experimental methods used in engineering practice to fluid systems. (One 3-hour lab)

134. Dynamics in Machine Design (3)
Prerequisites: M E 26, 112, C E 121 (or concurrently); MATH 81. Analytical, graphical, and computer solutions applied to design problems of machinery, mechanisms, and gears. Both closed- and open-ended homework problems plus a design project and report are required. (2 lecture, 3 lab hours)

136. Thermodynamics (3)
Prerequisites: CHEM 1A; M E 29 or C E 29 or M E 112 (or concurrently). Fundamentals of thermodynamics and heat transfer as applied to engineering problems.

137. Turbomachinery (3)
Prerequisites: M E 118 and 136. Applications of fluid mechanics and thermodynamics and rotor-fluid energy interchange. Steady flow problems of pumps, compressors, and turbines with incompressible and compressible fluids. Both closed- and open-ended homework problems.

140. Advanced Engineering Analysis (3)
Prerequisites: MATH 81, ECE 70, M E 112 (or concurrently), M E 116 (or concurrently), M E 136 (or concurrently). Development of the finite element method of engineering analysis; specific applications to heat flow, fluid flow, vibrations in mechanical systems, and stresses in mechanical component design using appropriate numerical techniques, closed-form solutions of partial differential equations and the digital computer.

142. Mechanical Vibration (3)
Prerequisites: M E 112, C E 121. Mathematical and physical basis of vibration theory with applications to engineering analysis and design. Includes transient and steady state phenomena, distributed and lumped parameter systems, coupled systems, and computer solutions.

143. Mechanical Design Laboratory (2)
Prerequisites: C E 121, I E 182W, M E 134. Application of theory and techniques of experimental stress analysis to the design of machine components, mechanical structures, and dynamic transducers. Group-design teams design and test a mechanical device or structure to simulate real-life client-engineer relationships. A final project report and an oral presentation are required. (1 lecture, 3 lab hours)

144. Advanced Mechanics of Materials (3)
Prerequisites: C E 121, ECE 70, MATH 81. Advanced topics in mechanics of materials.

145. Heat and Mass Transfer (3)
Prerequisites: ECE 70, MATH 81, M E 116, 136, 140. Analytical, numerical, and electrical analogy methods are used to solve a variety of heat transfer and mass transfer problems. Advanced topics in radiation, boundary layer flow, and heat exchanger design.

146. Air Conditioning (3)
Prerequisites: M E 116, 136. Theory and practice in air conditioning including psychrometrics, load estimating, heating and cooling systems, fluid design and controls.

154. Design of Machine Elements (3)
Prerequisites: I E 90; M E 134, 144. Design of machine elements and components using theory learned in prerequisite courses. Both individual and team-type open-ended design projects are required. Use of computers for design is required. (2 lecture, 3 lab hours)

155. Elements of Systems Design (3)
Prerequisites: M E 154 (or concurrently), senior standing. Introduction to the concepts and practice of the design of engineering systems. Students are required to complete preliminary designs of specified engineering systems. Experience in design is gained through setting specifications, innovation, design optimization, and social and economic aspects.

156. Advanced Thermodynamics — Fluid Mechanics (3)
Prerequisites: M E 116, 136. Advanced topics in thermodynamics and fluid mechanics including analysis of solar and nuclear systems as applied to engineering problems.

158. Energy Systems Laboratory (2)
Prerequisites: M E 118, 145, 156; I E 182W. Design of experiments to evaluate and/or simulate energy systems. Selection and calibration of instruments. Computer-aided data acquisition and data processing. Group projects and technical reports. (1 lecture, 3 lab hours)

162. Computer-Aided Design (3)
Prerequisites: M E 26, 140. Survey of computer applications for design, analysis of mechanical systems, and manufacturing of mechanical components. Typical programming language software packages used in industry (CAD/CAM and FEA) will be introduced.

164. Machine Design (3)
Prerequisites: M E 116, 136, 154, 155; I E 182W, 160 (or concurrently). Open-ended design problems of complete machine systems. Integration of prerequisite course material into final design project. Satisfies the senior major requirement for the B.S. in Mechanical Engineering. (Two 3-hour lecture-labs)

166. Energy Systems Design (3)
Prerequisites: M E 145, 156; I E 160, 182W. Design of conventional and alternative energy conversion systems; selection and integration of components of the system; use of codes and standards. Group project report required. Satisfies the senior major requirement for the B.S. in Mechanical Engineering.

180. Special Projects (2)
Prerequisites: senior standing in mechanical engineering, approved subject, I E 182W. 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191T. Topics in Mechanical Engineering (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected mechanical engineering subjects not in current courses.

193. Mechanical Engineering Cooperative Internship (2-4)
Prerequisite: permission of adviser. Engineering practice in an industrial or government installation. Each cooperative internship period usually spans a summer-fall or spring-summer interval. This course cannot be used to meet graduation requirements. *CR/NC* grading only.

Industrial Engineering Program

Industrial engineering deals 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.

The industrial engineering faculty are committed to providing all students the advanced technology background necessary for success and growth in their selected professions. A program of study is offered to all students through a carefully designed curriculum which includes engineering analyses for the design of man-machine systems, optimization of industrial systems, and the scientific management of engineering activities. Specialized training is available in the use of modern engineering tools and techniques such as computer assisted design (CAD), robotics, computer integrated manufacturing (CIM), quality engineering, and ergonomic (human factors) engineering.

Bachelor of Science Degree Requirements

Industrial Engineering Major	*Units*
Major requirements	**73**
I E 75, 85, 90, 95, 110, 111, 113, 115, 127, 130, 160, 163, 165, 170, 180, 182W	(41)
C E 29 or M E 29	(3)
ECE 70, 90L, 91	(7)
M E 26, 31, 116, 118, 136	(13)
Select at least one course from each of the following groups	(9)
Group A (Quality Engineering Science): I E 112, 120	
Group B (Design): I E 145, 148, 155	
Group C (Engineering Science): C E 121, 142; ECE 121	
Other requirements	**61**
General Education	
Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 92-94 for G.E. listings.)	
The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 1A [B1], PHIL 20 [C2], I E 114 [IB], PHIL 120 [IC], PL SI 120 [M/I]	
Additional requirements MATH 76, 77, 81; PHYS 4A, 4AL, 4B	
Total	**134**

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

Advising Notes

1. Courses in mathematics, the physical sciences, or engineering taken *CR/NC* are not counted toward fulfillment of degree requirements in industrial engineering.

2. Industrial engineering majors might consider a math or business minor.
3. Since the industrial engineering major curriculum is very demanding, many students, especially those not fully prepared in mathematics, chemistry, and/or physics, take 4½ or more years to graduate rather than the traditional four years. Students not fully prepared in chemistry should consider taking CHEM 3A and 4 in lieu of CHEM 1A. If needed, students also may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.

Recommended Program

First Semester — *Units*

I E 75 (Intro to Industrial Engr) 1
M E 26 (Engineering Graphics) 3
ECE 70 (Engineering Computations Using C and Fortran) 3
MATH 75 (Mathematical Analysis I) ... 4
G.E. Area A1[2] 3
G.E. Area A2[2] 3
17

Second Semester

I E 85 (Computer Methods in Industrial Engineering) 3
CHEM 1A (General Chemistry) 5
MATH 76 (Mathematical Analysis II) ... 4
PHYS 4A, L (Mechanics and Wave Motion) 4
16

Third Semester

I E 110 (Stat Anal in Engineering) 3
M E 31 (Engineering Materials) 3
C E/M E 29 (Engineering Mechanics) ... 3
PHYS 4B (Electricity, Magnetism and Heat) 3
G.E. Area D1[2] 3
G.E. Area D2[2] 3
18

Fourth Semester

I E 90 (Manufacturing Processes) 3
I E 95 (Human Factors in Ergonomics) 3
I E 111 (Work Measurements) 3
I E 160 (Engineering Economy) 2
MATH 77 (Mathematical Analysis III) 4
PHIL 20 (Moral Questions) 3
18

Fifth Semester

I E 182W (Engineering Writing) 3
ECE 90L (Elec Cir Lab) 1
ECE 91 (Intro Elec Engr) 3
MATH 81 (Applied Analysis) 4
G.E. Area B2[2] 3
G.E. Area D3[2] 3
17

Sixth Semester

I E 113 (Operations Analysis) 3
I E 115 (Qual Contr and Reliability Engr) 3
I E 127 (Human Factors Engr Design Lab) 1
I E 163 (Adv Topics in Engr Econ Analysis) 1
M E 116 (Fluid Mechanics) 3
M E 136 (Thermodynamics) 3
G.E. Area C1[2] 3
17

Seventh Semester

I E 130 (Production and Inventory Control) 3
I E 165 (Computer Integrated Manufacturing) 3
I E 170 (Engineering Management) 3
M E 118 (Fluid Mechanics Lab) 1
PHIL 120 (Contemporary Conflicts of Morals) 3
Additional Requirements (see *Major Requirements*) 3
16

Eighth Semester

I E 114[1] (Facilities Engineering) 3
I E 180 (Senior Design Project and Seminar) 3
PL SI 120 (International Politics) 3
Additional Requirements (see *Major Requirements*) 6
15

[1] Also counts as major GPA.
[2] See pages 92-94 for G.E. listings.

COURSES

Industrial Engineering (I E)

10. Engineering Skills (2)
Provides engineering students with experience in solving problems and presenting solutions in a logical manner, introduces students to subject areas common to most engineering disciplines and develops basic skills for solving problems through an engineering approach. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

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)

85. Computer Methods in Industrial Engineering (3)
Prerequisite: MATH 76 (or concurrently). Application of existing microcomputer software and the development of new programs to solve frequently encountered problems in engineering practice. Includes programming in BASIC and "C" languages. (2 lecture, 3 lab hours)

90. Manufacturing Processes (3)
Prerequisites: M E 26, 31. Processing techniques, including casting, welding, forming, and machining; capabilities and limitations of these techniques. (2 lecture, 3 lab hours; field trips required)

95. Human Factors in Ergonomics (3)
Introduction to principles of human factors in ergonomics, analysis of information processing, controls and displays, hand tools, physical work, anthropometry, workspace design, and environmental factors to improve quality of life and foster life-long learning. G.E. Breadth E1. (Formerly I E 125)

110. Statistical Analysis in Engineering (3)
Prerequisite: MATH 76. Fundamentals of probability and statistics. Applications of statistical methods to engineering problems.

111. Work Measurement (3)
Prerequisite: I E 110 (or concurrently). 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 lecture, 3 lab hours; field trips required)

112. Statistical Design of Experiments (3)
Prerequisites: I E 85, 110. 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)
Prerequisites: I E 85, 110, MATH 81. Application of quantitative and numerical techniques for analysis of complex operational problems.

114. Facilities Engineering (3)
Prerequisite: I E 90, 111 or permission of instructor. Feasibility study, process planning, material flow system design, materials handling system planning, facilities layout, location of facilities, economic analysis, implementation planning. (2 lecture, 3 lab hours)

115. Quality Control and Reliability Engineering (3)
Prerequisite: I E 110. Fundamentals of statistical quality control and reliability engineering. Sampling plans. Control charts. Reliability techniques.

120. Systems Safety Engineering (3)
Prerequisite: I E 110. 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.

127. Human Factors Engineering Design Laboratory (1)
Prerequisites: I E 95, 182W (or concurrently). Expands principles developed in the introductory human factors course for use in engineering design. (3 lab hours)

130. Production and Inventory Control (3)
Prerequisite: I E 113 or permission of instructor. Fundamental concepts of production and inventory planning, analysis and control; inventory and production costs; analysis of variations in demands, availability of supplies and optimum production schedules; use of computer simulation techniques; case studies.

145. Design of Automated Systems (3)
Prerequisite: I E 85 or permission of instructor. Study of fundamentals of manufacturing automated systems. Techniques and applications of computer to monitor and control industrial processes. Included topics are characteristics and applications of sensors and actuators, programming considerations, integration of CNC, CAD, CAM, etc. (2 lecture, 3 lab hours; field trips required)

148. Simulation of Industrial Systems (3)
Prerequisite: I E 110. Application of discrete-event simulation techniques for the solution of complex industrial problems; use of various computer simulation languages; review of Monte Carlo processes and digital simulation of continuous processes.

155. Design and Applications of Robotic Systems (3)
Prerequisites: I E 85, 90, senior standing. Introduction to the use of robotics for industrial automation. Components and operation of robot systems; programming of robots; robot implementation and industrial applications of robots. (2 lecture, 3 lab hours)

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.

163. Advanced Topics in Engineering Economic Analysis (1)
Prerequisite: I E 160. Process selection cost analysis, quantitative factors analysis, probabilistic models, inflation modeling and economical modeling of engineering decision problems.

165. Computer-Integrated Manufacturing (3)
Prerequisite: I E 145 or permission of instructor. Review the role of computers in manufacturing automation. Evolution and implementation techniques. CIM perspective and integrating technology. Includes CAD/CAM, FMS, robotics, MRPII, MIS, etc. Economic and social impact of CIM. (2 lecture, 3 lab hours)

170. Engineering Management (3)
Prerequisite: junior standing. Study of modern management techniques in engineering. A systems approach to planning and controlling of product/production costing. The computational techniques and the behavioral aspects of management/engineering decision-making are considered.

180. Senior Design Project and Seminar (3)
Prerequisites: senior standing in industrial engineering or permission of instructor; approved subject; I E 182W (or concurrently). A meaningful major design project which focuses on engineering practice and draws on past coursework, under the supervision of a faculty member. Final report and presentation is required, including evaluation of the design requirements, economic, and social considerations. Satisfies the senior major requirement for the B.S. in Industrial Engineering.

182W. Engineering Writing (3)
Prerequisites: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement; junior standing. The use of critical thinking in the engineering problem-solving process and documentation of the process through letters, reports, and engineering specifications. The use of oral technical presentation techniques typical of the engineering practice. Meets the upper-division writing skills requirement for graduation.

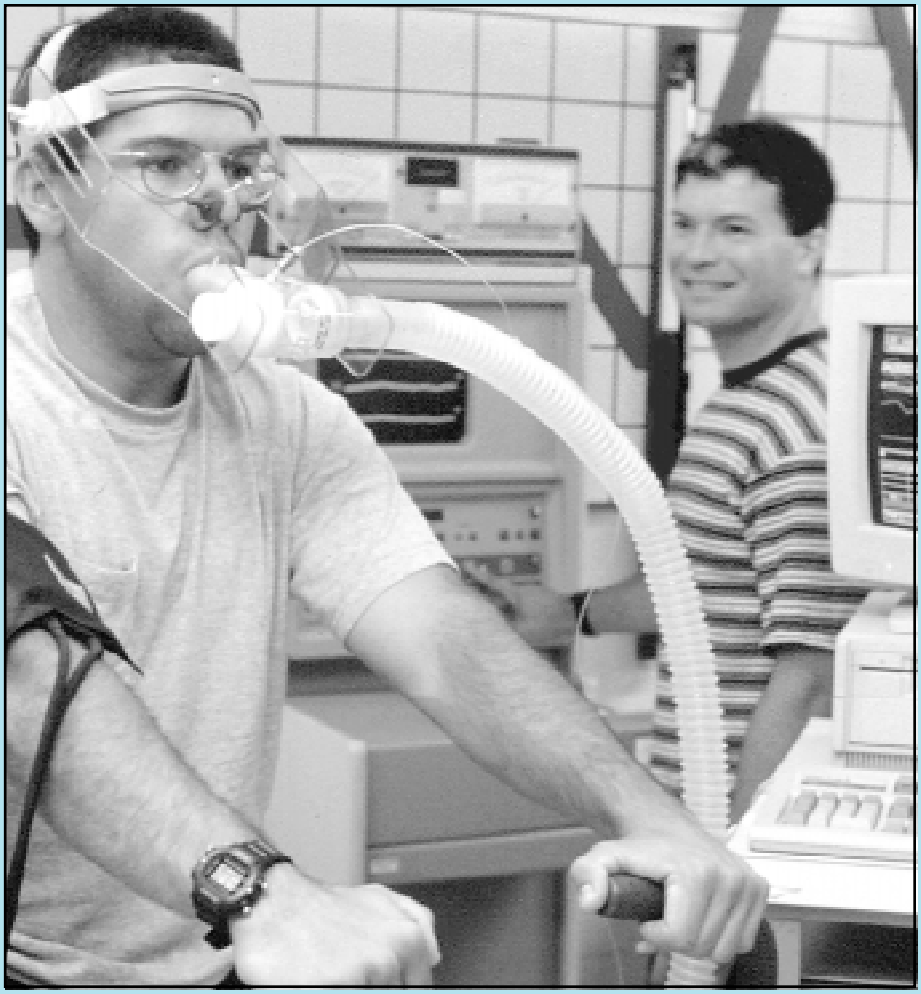
190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

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. Industrial Engineering Cooperative Internship (2-4)
Prerequisite: permission of adviser. Engineering practice in an industrial or government installation. Each cooperative internship period usually spans a summer-fall or spring-summer interval. This course cannot be used to meet graduation requirements. *CR/NC* grading only.

The College of Health and Human Services

McLane Hall, Room 191
Benjamin Cuellar, *Dean*, (559) 278-4004



The College of Health and Human Services includes the departments of Communicative Sciences and Disorders, Health Science, Kinesiology, Nursing, Physical Therapy, and Social Work Education. Gerontology and Recreation Administration and Leisure Studies are integral programs of the college .

The Mission of the College

The primary mission of the College of Health and Human Services is to provide a professionally oriented education at the baccalaureate level and to provide graduate programs in specialized disciplines related to health and human services. As a major academic unit in a comprehensive, regional university, the college is unique and important in educating health and human services professionals for the San Joaquin Valley. The college cooperates with other units of the university to provide a comprehensive curriculum required to effectively prepare qualified professionals.

The college provides an especially important leadership role in community services through participation of its faculty in organizations, boards, and a variety of agencies and by conducting workshops, symposia, in-service education and applied research. The college is also committed to the continuing education and the professional development of health and human services providers.

The academic disciplines of communicative sciences and disorders, gerontology, health science, kinesiology, nursing, physical therapy, recreation administration and leisure studies, and social work education within the college seek to foster interdisciplinary-holistic education for future health and human services providers.

Communicative Sciences and Disorders

Communicative Sciences and Disorders

Audiology, deaf studies, and speech-language pathology are concerned with the development, problems, and disorders found with people's speech, hearing, and language. These professions are devoted to providing diagnostic, rehabilitative, and educational services to children and adults with communicative problems.

Bachelor of Arts

The Bachelor of Arts degree in Communicative Disorders provides the students with a liberal arts foundation integrated with courses designed to provide a basic understanding of speech, language, and hearing development and communicative problems. Students pursuing deaf studies have two options: deaf education and interpreting. Students majoring in deaf education and speech-language pathology can continue their options in our graduate program.

Master of Arts

Education beyond the bachelor's degree is necessary for completion of the academic, credential, and licensure requirements leading to professional employment. Two professional option areas are available to the student:

Deaf Education. Our deaf education program gives you a broad background in bilingual-bicultural education, total communication, and cued speech philosophies along with speech, language, auditory training, deaf culture, and American Sign Language. This program includes all of the essential elements of a good education for deaf and hard-of-hearing children. The program is nationally accredited by the Council of Education of the Deaf (CED).

Speech-Language Pathology. Our speech and language pathology program provides you with a broad professional background in normal speech and language development, language disorders, voice disorders, articulation disorders, and fluency disorders. The program is nationally accredited by the Educational Standards Board (ESB) of the American Speech-Language-Hearing Association.

The undergraduate curriculum plus a master's degree in communicative disorders prepares you for one or more of the following: state licensure as a speech-language pathologist, national certification in speech-language pathology by the American Speech-Language-Hearing Association,

provisional certification in deaf education by the Council on Education of the Deaf, public school special education specialist, clinical rehabilitative services credential, and/or school multiple subject credentials.

Certificate in Conversational American Sign Language

A program of study leading to a Certificate in Conversational American Sign Language has become popular to many students pursuing professional fields and other majors on campus. The demand for health and human services professionals who can communicate effectively with deaf and hard-of-hearing children, youth, and adults has made sign language skills necessary.

Communicative Disorders Minor

A Minor in Communicative Disorders is also available for students in various education and health professions (nursing, health science, physical therapy, counseling, elementary and secondary education, special education, child development, linguistics, criminology, etc.) who are interested in expanding their understanding of children and adults with communicative disorders.

Facilities

As a student, you are given the opportunity to work in a well-equipped speech and hearing clinic. You can also gain practical experience in a variety of school, private practice, and hospital situations. Library facilities contain specialized collections including student access to local medical libraries. In the Anna Michelson Memorial Instructional Media Center, you have access to a wide range of therapy production materials such as films, video, clinical equipment, and professional journals.

University Speech and Hearing Clinic. The department operates an ongoing clinic that provides diagnostic, therapeutic, and counseling services to clients of all ages with a variety of different communication problems or disorders.

The clinic provides supervised clinical practice for students who are preparing to be professional speech-language pathologists and educators of deaf and hard-of-hearing children. As a valuable community resource, the clinic serves thousands of clients each year from the Fresno metropolitan area. The clinic is accredited by the Professional Services Board of the American Speech-Language-Hearing Association.

College of Health and Human Services

Department of Communicative Sciences and Disorders

Steven D. Wadsworth, *Chair*

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http://www.csufresno.edu/csd/

B.A. in Communicative Disorders

M.A. in Communicative Disorders

Options:

- Deaf Education
- Speech-Language Pathology

Minor in Communicative Disorders

Education Specialist Credential: Deaf and Hard of Hearing

Clinical Rehabilitative Services Credential

Certificate in Conversational American Sign Language

Career Opportunities

The department prepares you to work in various diagnostic and rehabilitation settings in preschool programs, elementary and secondary schools, colleges, hospitals, rehabilitation centers, private or community clinics, or private practice. Employment opportunities have been and are expected to remain very good.

Faculty

Steven D. Wadsworth, *Chair*

Ron M. Parker, *Graduate Coordinator*
Ron M. Parker, *Audiology Adviser*
Deaf Studies/Deaf Education Advisers:
Paul W. Ogden, Deborah S. Stryker
Speech-Language Pathology Advisers:
Don B. Freed, M. N. Hegde, Stuart I. Ritterman, Steven L. Skelton, Steven D. Wadsworth

Rita H. Humphreys, *Clinic Director*

Don B. Freed
M. N. Hegde
Paul W. Ogden
Ron M. Parker
Stuart I. Ritterman
Kenneth G. Shipley
Steven L. Skelton
Deborah S. Stryker
Steven D. Wadsworth

Bachelor of Arts Degree Requirements

Communicative Disorders Major *Units*

Major requirements 41-47
Concentration
Select one:
Audiology
CSD 80, 91, 95, 101, 102, 103, 105, 107, 109, 110, 116, 128, 131, 141, 172 ..... (41)
Deaf Education
CSD 80, 91, 92, 95, 102,106, 114, 123, 128, 131, 135, 139, 141, 162, 163, 164 ..... (46)
Interpreting
CSD 80, 91, 92, 95, 106, 123, 124, 135, 136, 139, 141, 166, 168, 169, 170, 175 ..... (47)
Speech-Language Pathology
CSD 80, 95, 101, 102, 103, 105, 107, 109, 110, 114, 115, 116, 122, 128, 131, 171, 172 ..... (47)
General Education 51
Electives and remaining degree requirements* 27-31
May be courses used to satisfy credential requirements or a minor in another field . See advising notes 4 and 5 for recommended electives.
Total 124

* This figure takes into consideration that CSD 92 and 139 are anticipated to satisfy a communication sciences and disorders major requirement as well as the requirement for General Education Breadth - Area C2 and General Education Integration - International/Multicultural (see *General Education*). Consult the department chair or faculty adviser for additional details.

Advising Notes

1. *CR/NC* grading is not permitted for CSD majors for any coursework required in the major, with the exception of specified clinical courses.
2. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
3. Students in CSD 110, 162, 163, 164, and other clinical, internship, and student teaching courses are required to show health certification that they are free from tuberculosis and rubella, and to purchase student clinic malpractice insurance for the clinical courses (see the University Speech and Hearing Clinic director for details).
4. PSYCH 101 is a required credential course than can also be used as an undergraduate elective.
5. A statistics course is a prerequisite to CSD 200, which is typically taken the first semester of graduate work. It is recommended that students take statistics as an undergraduate elective prior to applying to graduate school.

Certificate in Conversational American Sign Language

The Certificate in Conversational American Sign Language will be awarded to students who first complete the 15-unit program of study consisting of three advanced sign language classes and then pass the departmental proficiency interview in American Sign Language. The recipients of the certificate are considered fluent and possess the expressive and receptive communication skills needed to successfully communicate with deaf and hard-of-hearing children, youth, and adults.

The following list includes the five required courses. Students must complete all the coursework with a *C* grade or better.

Units

Required 15
CSD 106, 123, 124, 136, 139

Note: No course substitutions may be made without the department's approval.

Communicative Disorders Minor

A Minor in Communicative Disorders is designed to provide students in psychology, education, and the health professions with an appreciation and understanding of the problems and procedures related to people who have speech, language, and hearing disorders.

Units

Select one of the following:
Speech Pathology/Audiology
CSD 80, 91, 95, 101, 102, 109 ..... **18**
Deaf Studies
CSD 80, 91, 92, 135, 139, 141 ..... **18**

Note: With permission of the department chair, substitutions can be made.

Graduate Program

The master's degree is considered essential for the professional training needed for effective clinical practice in deaf education or speech-language pathology. The master's degree generally involves about two years of full-time study.

Admission Requirements. Students with bachelor's degrees in communicative disorders or a related field may apply for consideration. They must demonstrate the ability to excel at an advanced level. For consideration, submit the following: (1) proof of a minimum GPA of 3.0 in the last 60 units of any coursework and a minimum GPA of 3.0 in CSD coursework; (2) three letters of recommendation; (3) a letter of intent; and (4) Graduate Record Examination (GRE) scores.

Consideration for admission may include but will not be limited to the following: (1) students with outstanding clinical potential, (2) deaf and hard of hearing students, (3) students with disabilities, and (4) students with multicultural or bilingual experience.

Applicants who have specific deficiencies or need coursework may be accepted with conditionally classified status. Students must apply to the department for fully classified graduate standing as soon as any conditions of acceptance have been met. No more than 10 units of graduate work

taken under conditional classification can be used to meet the requirements of the master's degree.

Admission Procedures. Applications for the graduate program in communicative disorders are accepted until October 1 for the spring semester and February 1 for the fall semester. Applications received after these dates are considered the following semester. Application is a two-step process that involves submitting the following:

1. *To the University*
   - An Application of Admission and the Supplemental Application for Graduate Admission (forms *A* and *B* in the CSU application booklet)
   - Official transcripts from all universities and colleges other than California State University, Fresno
   - Official GRE scores
2. *To the Department*
   - Departmental application
   - Official transcripts from all universities attended (California State University, Fresno students may supply the unofficial transcripts issued by Admissions and Records.)
   - Official GRE scores
   - Three letters of recommendation (These letters should be written by instructors or other persons familiar with communicative disorders.)
   - Letter of intent

The departmental application, including information about the letter of intent, and letter of recommendation forms are available from the department. Students cannot be accepted into the graduate program until all materials are received by the university and the department. Students are encouraged to take their GRE *early* during their senior year to avoid delays in acceptance for graduate work.

Advancement to Candidacy. Each student in a master's degree program must file for advancement to candidacy. See *Admissions and Master's Degree Programs, Division of Graduate Studies.*

Graduate-Level Writing Competence. California State University, Fresno requires that students have graduate-level writing abilities before being advanced to candidacy for the master's degree. Students can demonstrate these abilities by taking CSD 200 and obtaining written clearance from the instructor. Deaf education students can take ERF 220 to satisfy the graduate-level writing requirements instead of CSD 200. Written clearance can be obtained from the department for students who have demonstrated graduate-level writing abilities in coursework equivalent to CSD 200.

Statistics. Any 3-unit, one semester statistics course (lower division, upper division, or graduate level) is required to complete the Master of Arts in Communicative Disorders. Students are encouraged to take the course during their senior year. Exceptions may be made with the consent of their faculty adviser.

Grade Requirements. To be eligible to receive the master's degree, a student must have maintained a *B* average with no more than two *C* grades on the approved Program of Study. Once a student has received three *C*s at any point in the graduate program, he or she will automatically be disqualified from the graduate program.

Master of Arts Degree Requirements

Communicative Disorders Major Units

Common Experience

Core: CSD 202 (Aural Rehabilitation) ... **3**
Clinical Lab **0**
Lab taken concurrently with CSD 202
Professional Topics Seminar **0**
Attendance is mandatory each semester
Options (select one) **27**

Deaf Education

CSD 200 or ERF 220;
CSD 201 or COUN 240;
CSD 255, 262, 263, 264;
3 units in approved electives* and CSD 268 *or* 6 units in electives* ..... (27)

Speech-Language Pathology

CSD 200, 204, 207, 210, 213, 214, 215, 216, 220 ..... (27)

Thesis or project **6**
Total **36**

Comprehensive Examination

Core: CSD 202 ..... **3**
Options (select one) **27**

Deaf Education

CSD 200 or ERF 220;
CSD 201 or COUN 240;
CSD 255, 262, 263, 264;
3 units in approved electives* and CSD 268 *or* 6 units in electives* ..... (27)

Speech-Language Pathology

CSD 200, 204, 207, 210, 213, 214, 215, 216, 220 ..... (27)

Written examination **0**
Total **30**

*Approved electives are as follows: CSD 190, CTET 228, CTET 230, LEE 138, LING 244.

Other coursework is developed with the adviser to reflect such factors as students' desires regarding thesis or project, individual needs and desires for training, meeting certain state or national requirements, etc.

Student Teaching and Internship. Students are required to take their final student teaching and internship (e.g. CSD 257, 258, 267, 268) during the last two semesters of their approved Program of Study and within the last 12 units of graduate coursework. Earlier final student teaching and internships are not permitted in the Communicative Sciences and Disorders Department.

Clinical Training. All students are involved in supervised clinical practicum experience during their graduate training. At least 350 clinical hours are required prior to receiving the M.A. degree. A minimum of 250 of these hours must be at the graduate level. These hours are gained at the University Speech and Hearing Clinic and in at least two other settings (internship, student teaching, residency program, etc.).

Thesis, Project, and Non-Thesis or Project Alternatives. A limited number of students may be permitted to undertake a thesis or project, depending on availability of the faculty committee members. Selection of students for these assignments is determined by their consistent demonstration of academic superiority in coursework and evidence of outstanding writing skills and research papers. Six units of credit are earned for a thesis or project. These units may be applied toward the unit requirements of the degree. (See *Criteria for Thesis and Project*.) Students considering a thesis or project need to consult the faculty very early in the graduate program. Selecting a thesis or project option is recommended for students who may at some point consider working toward a doctoral degree. Students who do not participate in a thesis or project complete written and oral comprehensive examinations.

Culminating Experience. A culminating experience is required of all California State University, Fresno master's degrees. Students in communicative disorders are involved with written examinations and an oral culminating experience.

Students choosing a non-thesis or project alternative take a written examination on specific areas of the field, as approved by an adviser, then take an oral examination on their written examination and subject matter within the field. For thesis and project students, their thesis or project is considered as the written examination. These

students are orally examined on the subject matter of their work and within the field. Information about these options is available from an adviser.

Certificate of Clinical Competence in Speech-Language Pathology. Completion of the master's degree fulfills all the academic and clinical practicum requirements for the Certificate of Clinical Competence (CCC) in Speech Pathology. A Clinical Fellowship Year (CFY) of paid, professional supervised experience is required along with passing the National Examination in Speech Pathology (NESPA) before the certificate is granted by the American Speech-Language-Hearing Association. A Certificate of Clinical Competence is required for employment in nearly all work settings except the public schools. All students are encouraged to acquire national certification regardless of the work setting they may choose.

California License as a Speech Pathologist. The master's degree fulfills all academic and clinical practicum requirements for the State License. A year of paid Required Professional Experience (RPE) is necessary along with passing the NESPA before the license is issued by the Department of Consumer Affairs. The license is required for employment in almost all settings except the public schools.

The CFY and RPE can be completed concurrently when graduates accept their first professional position.

Certification by Council on Education of the Deaf. For students specializing in deaf education, completion of the master's degree fulfills all the academic and clinical practicum requirements for Provisional Certification by the Council on Education of the Deaf, the national organization responsible for certifying teachers of the deaf. Professional level certification is available following three years of successful teaching under the supervision of a professionally certified educator of deaf and hard-of-hearing children. All students are encouraged to acquire national certification.

Credentials

Two major school credentials for employment are available through the Department of Communicative Sciences and Disorders. Students majoring in speech-language pathology complete their Clinical Rehabilitative Services Credential before they work as speech-language pathologists with individuals and/or small groups in one or several schools. Speech-language pathology students accepted into the graduate program in the fall of 1994 or thereafter must complete the master's degree before they are issued the Clinical Rehabilitative Services Credential.

Students in speech-language pathology must be approved for admission into the graduate program before the Clinical Rehabilitative Services (CRS) credential is issued. Deaf education students may pursue the Education Specialist Credential: Deaf and Hard-of-Hearing with or without pursuing the M.A. degree. They are trained to teach classes of deaf and hard-of-hearing children in early childhood, elementary, and secondary settings, as certified by CED. Students pursuing either credential must meet all admission requirements for the graduate program.

Students are not eligible to take any Communicative Sciences and Disorders (CSD) 200-level coursework without departmental acceptance into the M.A. or credential program. CSD 200-level coursework taken by deaf education students for a credential will not be included on a master's degree program of study unless the student has been admitted into the M.A. program. Students cleared as credential candidates by the department and the School of Education and Human Development are not automatically accepted into the department's graduate program.

Information regarding the two credentials is available from departmental credential advisers and the School of Education and Human Development. Students must see their advisers in regard to the upcoming changes in the credential programs.

Education Specialist Credential: Deaf and Hard of Hearing

	Units
Core: CSD 80, 95 (or LING 150); CSD 102, 106, 114, 128 and 131 (concurrently)	**19**
Deaf Education core: CSD 91, 92, 135, 139, 141, 162, 163, 164, 202, 255, 262, 263, 264	**39**
Clinical core: CSD 260 (1-6 units); CSD 258 (6 units); CSD 268 (6 units) or CSD 258 (12 units)	**13-18**
Generic core: CTET 100; H S 120	**6**
Total	**70-76**

Clinical Rehabilitative Services Credential

Language, Speech, and Hearing Services	*Units*
Generic courses: CSD 80, 95, 101, 102, 103, 105, 107 and 110 (concurrently), 109, 114, 115, 116, 122, 128 and 131 (concurrently), 171, 172; PSYCH 101	**50**
Advanced Specialization in Language, Speech, and Hearing: CSD 200, 202, 204, 207, 210, 213, 214, 215, 216, 220	**30**
Clinical core: CSD 257 (4-9 units), 209 (1 unit), 130 or 230 (10-15 units), 150 or 250 (5 units)	**20-30**
Total	**97-110**

COURSES

Note: Students must provide their own transportation in those courses requiring off-campus clinical instruction or observation and defray any resulting personal expense. Students involved with clinical practice must carry professional liability insurance and meet departmental health requirements.

Communicative Sciences and Disorders (CSD)

80. Introduction to Human Communication and Disorders (3)
An overview of speech, language and hearing, and disorders of communication; interrelations among audiology, deaf education, and speech-language pathology. (Formerly C D 80)

91. American Sign Language I (3)
Introduction to the appreciation, comprehension, and analysis of a language developed in a visual/gestural mode. American Sign Language, including its cultural/historical background, the role it plays in the deaf community, and its growing influence in American mainstream society. (Formerly CSD 133)

92. American Sign Language II (3)
Prerequisite: CSD 91. Further appreciation, comprehension, and analysis of the uniqueness of a visual/gestural language, including its cultural/historical background, and the role it has played in deaf communities in the United States and throughout the world. G.E. Breadth C2. (Formerly CSD 134)

95. Introduction to Speech and Language Development (3)
Study of normal verbal development; compilation of developmental milestones in speech and language acquisition. (Formerly C D 95)

101. Phonetics of American English (3)
Perceptual and physiological characteristics of American English speech sounds; application of phonetics to the study of normal and abnormal speech patterns and regional dialects. (2 lecture, 2 lab hours) (Formerly C D 101)

102. Anatomy and Physiology of Speech and Hearing (3)
Anatomic and physiologic bases of the speech and hearing mechanisms. (Formerly C D 102)

103. Speech and Hearing Science (3)
Physiological acoustics, psychoacoustics, acoustic phonetics, and perception of speech. (2 lecture, 2 lab hours) (Formerly C D 103)

105. Disorders of Articulation (3)
Prerequisites: CSD 80, 95, 101, 102. Seminar on the assessment and treatment of articulation and phonological disorders. (2 lecture, 2 lab hours) (Formerly C D 105)

106. Analysis of Language Acquisition by Deaf Children (3)
Prerequisite: ENGL 1. Comparative analysis of the structure of written language of normally developing and deaf children and youth. (Formerly C D 106)

107. Observation in Speech-Language Pathology (1-3; max total 3)
Prerequisites: CSD 80, 95, 101, 102, 103, 105; corequisite: CSD 110. Observation of assessment, treatment, parent counseling, and other clinical services in the University Speech and Hearing Clinic. (Formerly C D 107)

109. Disorders of Language in Children (3)
Prerequisites: CSD 80, 95, 101, 102. Language disorders in children and adolescents; description of clinical subgroups; assessment and treatment. (2 lecture, 2 lab hours) (Formerly C D 109)

110. Diagnostic Procedures (3)
Prerequisites: CSD 80, 95, 101, 102, 105. Corequisite: CSD 107 (1 unit). Principles and procedures of diagnostic evaluation of communicative disorders. (2 lecture, 2 lab hours) (Formerly C D 110)

114. Education of Exceptional Children (3)
Characteristics of exceptional children; diagnostic and instructional programs; legal and certification issues; observation. (2 lecture, 2 lab hours) (Formerly C D 114)

115. Disorders of Fluency and Voice (3)
Prerequisites: CSD 80, 95, 101, 102. Normal and deviant vocal productions; introduction to assessment and treatment principles in voice. Foundational principles of analysis, measurement, and management of fluency disorders in children and adults. (Formerly C D 115)

116. Treatment Procedures in Communicative Disorders (3)
Select one of the following prerequisites: CSD 105, 109, or 115. Treatment procedures that apply across disorders of communication; developing client-specific treatment programs. (2 seminar, 2 lab hours) (Formerly C D 116)

122. Communicative Disorders in Multicultural Populations (3)
Select one of the following prerequisites: CSD 105 or 109. Differentiation between speech-language disorders in culturally and linguistically diverse clients. Current research in specific diagnosis and remediation techniques for children and adults. Application to case studies.

123. American Sign Language III (3)
Prerequisites: CSD 91, 92. Continued study of grammatical structure of the lexicon of American Sign Language. Third semester emphasis on advanced receptive/expressive conversational and cultural skills for communication with deaf children and adults.

124. American Sign Language IV (3)
Prerequisites: CSD 91, 92, 123. Further development of receptive and expressive skills. Exclusive use of American Sign Language in a culturally appropriate and participatory fashion, to converse, narrate, teach, and engage in conversations with deaf children.

128. Observation in Audiology (1-3; max total 3)
Prerequisites: CSD 80, 95, 102; priority will be given to seniors; corequisite: CSD 131. Observation of audiologic testing. (Formerly C D 128)

131. Principles of Audiology (3)
Prerequisite: CSD 80, 95,102; priority will be given to seniors; corequisite: CSD 128. Hearing loss and its medical aspects; introduction to hearing conservation; assessment of hearing loss; interpretation of diagnostic test results. (Formerly C D 131)

135. Sign Variations for Classroom Use (3)
Prerequisites: CSD 91, 92, 123. Focus on signing skills and different models/systems of communication used with deaf and hard-of-hearing students in a classroom. (Formerly C D 135)

136. Sign Language Vocabulary for Professionals (3)
Prerequisites: CSD 91, 92, 135. Focus primarily on building extensive specialized vocabularies essential for gaining sign language fluency and conversational competence for professionals working and communicating with deaf and hard-of-hearing children and adults.

139. Deaf Culture (3)
Experiences faced by deaf people, and their varying degrees of participation in deaf culture/deaf community; social, emotional, vocational, intellectual, and linguistic aspects of deaf culture; historical and current struggles to overcome problems experienced by deaf people in American and international cultures. G.E. Multicultural/International MI. (Formerly C D 139)

141. Education of Deaf Children and Their Parents (3)
Study of deaf children in general, parent education, and various educational programs and services for deaf children and their parents. Emphasis on methods of instruction, education of deaf children, and families. (Formerly C D 141)

161. Instructional Technology with Deaf and Hard-of-Hearing Children (3)
Prerequisite: CTET 100. Principles, analysis, assessment techniques, and implementation of instructional technology for teaching deaf and hard-of-hearing students. Includes computer-based approaches for teaching deaf and hard-of-hearing individuals. (2 lecture, 2 lab hours) (Lab fee, $15) (Formerly C D 261; CSD 261)

162. Speech for Deaf and Hard-of-Hearing Children Youth (3)
Prerequisites: CSD 80, 91, 92, 95, 106; corequisite: CSD 135. Seminar on techniques to develop speech in deaf and hard-of-hearing children and youth; observation, demonstration, and practice with deaf and hard-of-hearing children and youth. (Formerly C D 162)

163. ASL and English Acquisition by Deaf Children and Youth (3)
Prerequisites: CSD 80, 91, 92, 95, 106, 135, 141. Teaching techniques to develop language in deaf and hard-of-hearing children and youth; construction of English sentences and grammar; comparative studies of various language curricula. (Formerly C D 163)

164. School Subjects for Deaf and Hard-of-Hearing Children and Youth (3)
Prerequisites: CSD 80, 91, 92, 95, 106, 135, 141; and permission of instructor. The process of teaching academic school subjects to deaf and hard-of-hearing children and youth; observation and demonstration. (2 lecture, 2 lab hours) (Formerly C D 164)

166. Introduction to Interpreting (3)
Prerequisites: CSD 95 or LING 150, CSD 136 (may be taken concurrently with 166), 139, 141. Study of the theoretical foundations and technical skills needed to interpret in professional settings for deaf and hard-of-hearing children and adults. The roles, responsibilities, and ethics of interpreters providing interpreting services in various professional settings.

168. Observation in Sign Language Studies (2)
Prerequisite: CSD 166. Observation of professionals using sign language in professional settings, such as: artistic, educational, health, legal, medical, mental health, rehabilitation, and social services settings.

169. Sign Language Interpreting I: Voice to Sign (3)
Corequisite: CSD 124. Emphasis on the development of the communication skills necessary for interpreting from spoken English to sign language in professional settings.

170. Sign Language Interpreting II: Sign to Voice (3)
Corequisite: CSD 124. Emphasis on the development of the communication skills necessary for interpreting from sign language to spoken English in professional settings.

171. Professional Writing in Communicative Sciences and Disorders (3)
Select one of the following prerequisites: CSD 105, 106, or 109. Principles of clinical and scientific writing in communicative disorders; exercises in writing professional and scientific reports. (Formerly C D 171)

172. Neural Bases of Speech, Language, and Hearing (3)
Prerequisites: CSD 80, 95, 101, 102. Neuroanatomical and neurophysiological bases of speech, language, and hearing; clinical implications of neuropathology. (Formerly C D 172)

175. Internship in Interpreting (3)
Corequisites: CSD 169, 170. Interpreting under supervision in professional settings such as: artistic, educational, health, legal, medical, mental health, rehabilitation, and social services settings. *CR/NC* grading only.

188T. Topics in Communicative Sciences and Disorders (1-3; max total 6)
Special courses offered on various topics not included in the regular curricula in speech, language, and hearing sciences and disorders. (Formerly C D 188T)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. (Formerly C D 190)

GRADUATE COURSES

(See *Course Numbering System*.)

Communicative Sciences and Disorders (CSD)

200. Graduate Studies and Research in Communicative Sciences and Disorders (3)
Prerequisite: statistics (H S 92 or equivalent). Introduction to graduate studies and methods of research in communicative disorders; concepts and methods of science and clinical research designs; graduate level professional and scientific writing skills. (Formerly C D 200)

201. Interviewing and Counseling in Communicative Sciences and Disorders (3)
Theory and practice in interviewing and counseling clients and families related to specific speech, language and hearing disorders. Techniques for altering and modifying behaviors that affect maximum growth and potential of the client and families. (Formerly C D 201)

202. Aural Rehabilitation (3)
Prerequisites: CSD 128, 131. Habilitative and rehabilitative procedures to assist deaf and hard-of-hearing individuals: amplification, speech-reading, auditory training, speech and language training; psycho-socio-educational issues. (2 lecture, 2 lab hours) (Formerly C D 202)

204. Seminar in Stuttering (3)
Prerequisite: permission of instructor. Research on stuttering in children and adults; assessment and treatment procedures. (Formerly C D 204)

207. Seminar in Neurogenic Language Disorders (3)
Prerequisite: CSD 172. Demography, etiology, and symptomatology of aphasia, traumatic brain injury, and dementia; medical and communication assessment; treatment and treatment efficacy research. (Formerly C D 207)

209. Speech-Hearing in Public School Environment (1)
Corequisite: CSD 257. Seminar in selecting assessment and remediation procedures for public school children with communicative disorders; demonstration and application of therapeutic procedures; organization and administration of school speech and hearing program. (Formerly C D 209)

210. Seminar in Communicative Disorders with Orofacial Anomalies (3)
Prerequisite: permission of instructor. Etiology and symptomatology of cleft palate and other orofacial syndromes in children; medical and communication assessment and treatment procedures. (Formerly C D 210)

213. Seminar in Motor Speech Disorders (3)
Prerequisites: CSD 102, 172. Etiology and symptomatology of apraxia, and dysarthria; assessment and treatment. (Formerly C D 213)

214. Seminar in Language Disorders of Infants and Toddlers (3)
Prerequisites: CSD 95, 109. Etiology, symptomatology, assessment, and habilitation of language disorders in infants and toddlers. (Formerly C D 214)

215. Phonological and Severe Speech Disorders: Communication Intervention, Augmentation, and Alternatives (3)
Advanced study in intervention of phonologic and severe speech disorders. The design, selection, and use of augmentative and alternative methods of communication; the populations for which they are appropriate; and issues related to assessment and treatment.

216. Seminar in Voice Disorders (3)
Information addressing significant clinical, theoretical, and scientific issues in the study, diagnosis, and treatment of voice disorders in children and adults. Presentation of case studies. Analysis of current research.

220. Seminar in Dysphagia and Traumatic Brain Injury (3)
The assessment and treatment of swallowing disorders and traumatic brain injury. Emphasis on functional treatment outcomes for both disorders.

230. Advanced Clinical Practice in Speech-Language Pathology (1-6; max total 24)
Prerequisites: CSD 80, 95, 101, 102, 103, 105, 107, 110. Supervised clinical practice in the diagnosis and treatment of communicative disorders; development of treatment programs, parent counseling; referrals; on- and off-campus clinical sites. *CR/NC* grading only. (Lab fee, $10) (Formerly C D 230)

250. Advanced Clinical Practice: Audiology (1-6; max total 24)
Prerequisites: CSD 103, 128, 131, graduate standing and permission of instructor. Supervised clinical practice in diagnosis and management of hearing problems. *CR/NC* grading only. (Lab fee, $10) (Formerly C D 250)

255. Seminar in Assessment of Deaf and Hard-of-Hearing Children and Youth (3)
Prerequisite: permission of instructor. In-depth examination of psychological, achievement, language, communication, and diagnostic assessment tools and unique administration procedures used with deaf children and youth, including an extensive independent child/youth study and evaluation, shared through discussions, student presentations, and written form.

257. Student Teaching: Speech-Language Pathology (4-9; max total 9)
Prerequisites: 5-15 units of CSD 130 or 230, including 150 supervised clinical hours; admission to the credential program; corequisite: CSD 209. Directed observation, participation, and clinical practice (100 hours minimum) under supervision. *CR/NC* grading only. (Formerly A S 164A; C D 164A; CSD 164A)

258. Student Teaching: Deaf and Hard-of-Hearing (6-12; max total 12)
Prerequisites: CSD 202, 255, 262, 263, 264. Teaching under supervision in a class for deaf or hard-of-hearing children and youth. Directed observation, participation, and weekly conference with university supervisor. *CR/NC* grading only. (Formerly C D 164B; CSD 164B)

260. Advanced Clinical Practice: Deaf Education (1-6; max total 12)
Prerequisites: CSD 135, 162, 163, 164. Supervised clinical participation and practice in teaching deaf and hard-of-hearing children and youth; parent counseling; on- and off-campus clinical sites. *CR/NC* grading only. (Lab fee, $10) (Formerly C D 260)

262. Seminar in Speech for Deaf and Hard-of-Hearing Children and Youth (3)
Prerequisites: CSD 162, 202, permission of instructor. Methods to develop oral communication for deaf and hard-of-hearing children and youth; demonstration and off-campus practicum. (2 lecture, 2 lab hours) (Formerly C D 262)

263. Seminar in Language for Deaf and Hard-of-Hearing Children and Youth (3)
Prerequisites: CSD 163, permission of instructor. Language problems of deaf and hard-of-hearing children and youth; techniques of remediation; use of specialized equipment and development of teaching materials. (2 lecture, 2 lab hours) (Formerly C D 263)

264. Seminar in School Subjects for Deaf and Hard-of-Hearing Children and Youth (3)
Prerequisites: CSD 164 and permission of instructor. Special problems and techniques of adapting pre- K-12 school curriculum to the needs of deaf and hard-of-hearing children and youth; demonstration and practice. Project required. (Formerly C D 264)

267. Externship in Speech-Language Pathology (1-6; max total 24)
Prerequisites: 5-15 units of CSD 230 and permission of instructor. Supervised externship in speech-language pathology; diagnosis and management of communicative disorders. *CR/NC* grading only. (Formerly C D 267)

268. Externship with Deaf Children and Youth (6)
Prerequisites: CSD 202, 255, 258, 262, 263, 264. Supervised externship in a residential school for deaf children and youth. Full time in residence for 8 weeks. *CR/NC* grading only. (Formerly C D 268)

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly C D 290)

298. Individual or Group Research Project (1-6; max total 6)
Prerequisite: consent of advisory committee. See *Criteria for Thesis and Project*. A written report on an individual or group research project for the master's degree. Approved for *SP* grading. (Formerly C D 298)

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation and submission of a thesis. Approved for *SP* grading. (Formerly C D 299)

IN-SERVICE COURSE

(See *Course Numbering System.)*

Communicative Sciences and Disorders (CSD)

300T. Selected Topics in Communicative Sciences and Disorders for Continuing Education (1-3; max total 6) (Formerly C D 300T)

Gerontology

College of Health
and Human Services

Interdisciplinary Gerontology Program

L. Jay Fine, *Interim Director*
Helen Young, *Department Administrative Assistant*
San Ramon 2, Room 45
(559) 278-5484
http://www.csufresno.edu/gerontology

Minor in Gerontology

Certificate in Gerontology

Gerontology

Gerontology is the study of aging. Our nation's steadily increasing older population is creating a unique demand for well educated individuals to understand the field of aging and competent professionals to work with elders.

The Interdisciplinary Gerontology Program offers a minor and a certificate in gerontology. Both are designed to prepare students to meet unmet and urgent needs in this rapidly developing field. The Interdisciplinary Gerontology Program attracts undergraduate students from all academic areas, e.g., reentry students, graduate students within social science and health professions, service providers, and elders seeking greater understanding of this stage of life.

The study of gerontology is based upon many important theories and concepts of aging, which are presented through an organized course of study. Core courses — gerontology and cross-listed interdisciplinary — are designed to present comprehensive biological, psychological, cultural and sociological theories related to the lifelong aging process. Concepts related to the influence of heritage, multicultures, wellness, exercise and creativity are emphasized. Information related to Healthy People 2000, services and resources; housing and environment; disabilities and rehabilitation; federal, state, and local agencies; social policies and programs for elders is presented.

Students have the opportunity to develop empathy for older adults as they explore communication and interaction with elders in a social setting. Current research findings are presented and research opportunities are available.

Program Responsibilities

The Gerontology Program is responsible for the Gerontology Minor, Gerontology Certificate, interdisciplinary cross-referenced courses and conferences on aging.

Other programs housed within the office of the Gerontology Program include the California Geriatric Education Center (CGEC) San Joaquin Valley Program — a statewide interdisciplinary center supported by a grant from the Bureau of Health Professions, Public Health Service — provides educational offerings for health professionals and faculty; Elderhostel Program, the Fresno Learning Activities in Retirement (FLAIR), Friendly Visitor Services, Geriatric Nursing Resource Center, and the Gerontology Education and Resource Center.

The Gerontology Program cosponsors the Central California Alzheimer's Diagnostic Disease Center and the Rohlfing Medical Lectureship Series. Gerontology Club, Elderfest, and continuing education for health professionals are also offered in cooperation with the Division of Extended Education.

Certification and recertification classes for administrators of Residential Care Facilities for Elderly (RCFE). CEUs for BENHA and CNAs are also offered.

Career Opportunities

The development of employment opportunities in the field of gerontology has emerged in response to the needs of a steadily increasing older population. Many occupational roles are available in different sites. These include but are not limited to: federal, state, county, and city agencies, senior citizen centers, adult day care centers, skilled nursing facilities, intermediate care facilities, acute care hospitals, medical centers, senior housing sites, retirement communities, home health agencies, hospices, legislative bodies, and community planning agencies. New programs are developing in Eldercare, case management, and consultation in business.

There is an increased recognition of the importance of designing and providing specialized programs in the private sector. Knowledgeable people work as consultants in banks, travel agencies, large corporations, insurance companies, educational agencies, publishing and broadcasting agencies, and department stores. The field is wide open for creative and innovative individuals.

Advisory Council and Program Faculty

The Interdisciplinary Gerontology Program Advisory Council provides overall curricular decisions, coordination, and collaboration. The Council is composed of representatives from the College of Agricultural Sciences and Technology, the College of Arts and Humanities, the Sid Craig School of Business, the School of Education and Human Development, the College of Engineering and Computer Science, the College of Health and Human Services, the College of Natural Sciences, and the College of Social Sciences.

Many members of the council teach gerontology courses in both the minor and certificate programs. Advisory Council members are: Judith Allender (Nursing), Carl Carmichael (Communication), Donald Coleman (Educational Research, Administration, and Foundations), Glen C. Doyle (Gerontology), William Fasse (Child, Family, and Consumer Sciences), John Franz (Employee Assistance Program), Diana Gilbertson (Business Management), Phil Kimble (Psychology), Vickie Krenz (Health Science), Hamo Lalehzarian (Engineering), Peggy Trueblood (Physical Therapy), Rose Lyon (Kinesiology), Elizabeth Nelson (Sociology), Matthew Sharps (Psychology), Alta Case Hall (Gerontology), and Katsuyo Howard (Student Life and Development).

Gerontology Minor

The Interdisciplinary Minor in Gerontology (study of aging) is open to students in any major. It is designed to serve undergraduate majors in business; communicative sciences and disorders; child, family, and consumer science; health science; nursing; kinesiology; physical therapy; psychology; recreation administration and leisure studies; social work education; and sociology. It is also designed to serve those currently working for service agencies for the aging as well as aging individuals who are interested in gaining greater insight into this period of their lives.

The minor consists of 15 semester units of credit. Students should register in the Gerontology Program Office and meet with the Gerontology Adviser if they plan to request a minor.

	Units
Required	9
GERON 10 or INTD 160; GERON 140, 161	
Electives*	6
GERON 111, 115, 117, 132, 134, 148, 150, 166, 180T	
Total	**15**

*Other gerontology courses may be approved as alternatives with permission of a gerontology adviser.

A special major in gerontology may be designed. The process for this is initiated through the Office of Advising Services, (559) 278-2924, Joyal Administration, Room 121.

Certificate in Gerontology

The Certificate in Gerontology will be awarded to students who complete an interdisciplinary program of study consisting of 15 units of upper-division courses in gerontology and a 3-unit prerequisite course. Students admitted to the program are expected to have had two years of college or two years of experience in the field of aging and some college courses.

Those who have completed the course of study are entitled to use the title "Gerontological Specialist." The following list includes the recommended content areas in the field of aging to be covered: an introductory course in gerontology, social policy, multicultural aging, physiological aging, psychological aging, sociological issues, and social services. Coursework must be completed with a *C* or better.

Prerequisite (3 units)
INTD 160 or GERON 10

	Units
Required	**6**
GERON 140, 161	
Electives*	**9**
Select 9 units from: GERON 103, 115, 117, 125, 148, 166 or 185	
Total	**15**

*Other gerontology courses may be approved as alternatives with permission of a gerontology adviser.

For further information, call or write:
L. Jay Fine, Director
Interdisciplinary Gerontology Program
College of Health and Human Services
5310 N. Campus Drive M/S PH102
Fresno, CA 93740-8019
(559) 278-5484

COURSES

Gerontology (GERON)

10. The Journey of Adulthood (3)
An introduction to gerontology; theories, concepts, perspectives, and research in the study of aging; psychological, physiological, and sociological changes; and cultural, ethnic and political issues. Intergenerational and multicultural activities. G.E. Breadth E1.

18. Women and Aging (3)
(See W S 18.) G.E. Breadth E1. (Formerly GERON 118)

100. Images of Aging in Contemporary Society (3)
Comprehensive overview of gerontology. Explores various images of aging with a multidisciplinary, multicultural approach based on biological, psychological, sociological, and cultural theories.

103. Maturity and Old Age (3)
(See PSYCH 103.)

111. Heritage and Aging (3)
Designed to explore various facets of aging. Covers the combined influence and effect of various aspects, including birth, year; cultural heritage; ethnicity, historical/political events; literature, theater, music and visual arts; science and technology.

115. Health Issues of Aging (3)
(See H S 115.)

117. Resource Management of Aging (3)
(See CSH 117.)

125. Social Services for the Aging (3)
(See S WRK 125.)

130. Mental Health and Aging (1)
Discusses the impact of mental disorders, especially Alzheimer's disease (AD) on older individuals and their caregivers. Covers diagnostic criteria and treatment modalities. Course is based on development theories, life course dynamics, and social psychology. (Formerly GERON 180T section)

132. Alzheimer's Disease (1)
Focuses on Alzheimer's Disease (AD) and other related dementias. Course will include a complete assessment, evaluation, and treatment of AD. (Formerly GERON 180T section)

134. Caregiving/Home (2)
Concepts, theories, and information about formal or informal caregiving. Latest research on caregiver stress and burden. Techniques for teaching the professional or family caregiver the correct methods to use to assess, provide, and evaluate care for frail homebound elders. (Formerly GERON 180T section)

140. Social Policy and Aging (3)
An introduction to policies, politics, and programs of an aging society. The course will examine the historical, social, cultural, economic, and demographic issues affecting the elderly and will provide an overview of federal and state legislation and programs for older Americans. (Formerly GERON 180T)

148. Biophysical Aspects of Aging (3)
(See KINES 148.)

150. Communication and Aging (3)
(See COMM 150.) (Formerly SPCH 188T section)

161. Multiculture/Aging (3)
Explores diversity and commonality among older Americans. Analysis of ways demographic, ethnic, cultural, location, and situation topics relate to gerontological concepts, research, and theories. Presents problems with health, socioeconomic, and minority issues. Discusses ageism, racism, and sexism. (Formerly GERON 180T section)

166. Social Gerontology (3)
(See SOC 166.)

180T. Topics in Gerontology
(1-3; max total 9)
Various topics in the field of aging; subjects such as Alzheimer's disease, health, aging, and elder abuse. Content varies from semester to semester.

185. Internship in Gerontology
(1-6; max total 6)
Prerequisites: upper division or graduate standing and permission of instructor. Supervised work experience in gerontology. May be coordinated with student's major, e.g., *business and gerontology*. *CR/NC* grading only.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.)*

Gerontology (GERON)

301. Topics in Gerontology
(1-3; max total 6)
Designed for professionals and pre-professionals working with elders. Topics such as: care of elders in settings such as acute, subacute, transitional, skilled nursing, residential facilities for elderly, long-term, and community; case management; caregivers; and chronic illness and dementia.

Health Science

College of Health
and Human Services

Department of Health Science
Vickie D. Krenz, *Interim Chair*
Janice Rutherford, *Administrative Support Coordinator*
McLane Hall, Room 196
(559) 278-4014
http://www.csufresno.edu/hlthsci

B.S. in Health Science
Options:
- Community Health
- Environmental Health Science/ Industrial Hygiene
- Health Administration
- Occupational Safety and Health

Master of Public Health (MPH)
Options:
- Environmental and Occupational Health
- Health Administration
- Health Promotion

Minor in Health Science

Certificate in Alcohol/Drug Studies

Health Science

The Bachelor of Science in Health Science and the Master of Public Health (MPH) are designed to prepare students for careers with official and voluntary health agencies at the federal, state, or local levels of government as well as the private sector.

The Master of Public Health degree is designed for individuals seeking a professional degree in public health. This degree is recognized throughout the world and is fully accredited by the Council of Education for Public Health (CEPH).

Bachelor of Science Degree

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 community health, environmental health science/industrial hygiene, health administration, and occupational safety and health.

Today there is an increasing emphasis upon health, health problems, and the resolution of these problems by all levels of government and by the industrial and military segments of our society. People are concerned about their health, and a concerned nation is in need of educated, trained, and sensitive individuals to provide assistance and action — actions that cater to the physical, psychological, and social needs of our country and developing nations throughout the world.

Master's Program

The mission of the program is to prepare public heath professionals for leadership roles in the fields of environmental/occupational health, health administration, and health promotion so that they may contribute to the process of improving the health of communities located within the San Joaquin Valley, California, and the southwest. This mission is fulfilled by attaining several program goals which address on a partnership basis the health needs of the ethnically and socioeconomically diverse populations living in the San Joaquin Valley and the southwest.

Coursework for the M.P.H. degree is varied and designed to provide the maximum opportunity for problem-solving approaches to the complex issues in the operation, environment, and human factors confronting the health care systems.

Career Opportunities

The options are designed to provide basic education for careers in environmental health, industrial hygiene, community health, occupational safety, public health, occupational health, and the allied health professions. Individuals may be employed by voluntary health agencies, hospitals, public health agencies, and in the private sector including industry and insurance companies. Career titles and specializations include: environmental control officer, risk control specialist, health industry sales, hazardous materials management, loss control specialist, health educator, safety and health specialist, health care administration, safety officer/manager, registered environmental health specialist, secondary teaching, university teaching, safety products sales, substance abuse, industrial hygienist, health promotion, environmental analyst, and disease control officer.

Faculty

Vickie D. Krenz, *Interim Chair*

Community Health:
Anthony M. Alcocer
Gerald W. Davoli
Sherman K. Sowby, *Adviser*

Environmental Health Science/Industrial Hygiene Advisers: Sanford M. Brown, Wayne N. Clark, Ronald C. Schultz, Christopher J. Tennant

Health Administration Advisers:
Donald L. Matlosz, Donald Pogoloff

Occupational Safety and Health Adviser:
Michael J. Waite

Credential Adviser: Sherman K. Sowby

MPH Adviser: Ronald C. Shultz

Bachelor of Science Degree Requirements

Health Science Major

The Health Science Bachelor of Science curriculum consists of a core of five courses providing a foundation of knowledge and skills critical to the theory and practice of the health professional. In addition, students complete a specialized cluster of courses in an option that provides the depth and breadth for the area. A variety of combinations between and within options is possible to meet professional goals. Some students choose to specialize in two or more areas of community health whereas others may meet the requirements for environmental health science/industrial hygiene and supplement this with occupational safety and health coursework. Still others may complete all requirements for two options such as environmental health science/industrial hygiene and occupational safety and health. However, university policy allows only one option to appear on the transcript and diploma.

A major in health science consists of a minimum of 42 units. To complete the major for the B.S. degree, students must complete the health science core (15), one of the options (27-33), and any additional requirements in related fields as specified. Students are encouraged to complete the additional requirements prior to the major courses as they may meet General Education requirements, and they provide a foundation for the courses in health science.

The General Education requirement, special course requirements, and electives, which may include a minor, complete the 82-85 units, totaling at least 124 units required for the B.S. degree.

Health science students are advised to obtain the advising booklet from the department office. The booklet includes the list of required courses. It is strongly recommended that students follow the coursework shown in the booklet. Students need to consult with their advisers for decisions regarding major and minor courses.

Health science majors may not apply credit/no credit (*CR/NC*) grading toward major requirements for a baccalaureate degree. All substitutions must be approved by the department chair.

Classes offered in the Health Science Department may require field assignments.

Degree Requirements

Health Science Core (15 units)
H S 92, 100, 109, 161, 163

Elect one option (27-28 units)
See options in the copy that follows.

The curriculum is designed to permit admission to master's and doctoral degree programs in health science at major universities throughout the country.

Community Health

Due to the increasing number of opportunities in the area of health, we have structured courses in personal, community, environmental, and international health to complement basic courses in safety, first aid, disease, drugs, and human sexuality. The curriculum is designed to prepare individuals not only to be competent instructors in the health areas, but to be health educators in many segments of our society. Upon completion of the degree, students would be eligible to take the certified test to become a Certified Health Education Specialist (CHES).

Industry, business, labor, and the military all seek knowledgeable individuals to plan and direct health delivery and information services. Advanced study in health systems and evaluation techniques of health systems is available to qualified undergraduate and graduate students.

Community Health Option

Requirements (27 units)*
H S 90, 110, 114, 124, 131, 133, 135

Elect 6 units from: H S 48, 104, 105, 111, 112, 115, 126, 129, 130, 152T, 182; NUTR 53, 54

Additional requirements (15 units)
BIOL 10 or 110; CHEM 3A, 3B; PHYAN 33

Environmental Health Science/ Industrial Hygiene

The environmental health science/industrial hygiene option prepares an individual for registration as an Environmental Health Specialist (REHS) and provides a balanced theoretical and applied understanding of the concepts and principles of industrial hygiene. The graduates of the program are employed by environmental health programs, industry, government, and research organizations.

The curriculum includes basic science courses, core courses in health science, and foundation courses in chemistry, biology, and health science, including epidemiology, toxicology, environmental health, and industrial hygiene. Graduates of this option will be academically prepared to contribute significantly to the improvement and maintenance of environmental health and the healthful working environments.

The program is accredited by the National Environmental Health Association and approved by the State Department of Health Services.

Environmental Health Science/ Industrial Hygiene Option

Requirements (27-28 units)
H S 105, 147, 160, 162, 165, 167, 168; 6 units approved electives

Additional requirements (25-26 units)
H S 90; BIOSC 1A, 1B; CHEM 3A, 4, 105 or CHEM 1A, 1B or CHEM 1B, 3A, 4; MICRO 20

Total for option (52-53 units)

Requirements for State of California Health Services for Registration (REHS). Those students who desire to become registered as an Environmental Health Specialist (REHS) and students who want to meet minimum standards of many industries for employment as an industrial hygienist must complete H S 175, CHEM 8, MATH 6 or 70, and PHYS 2A, 2B. Consult the department's adviser concerning substitutions, electives, and additions. (Approved by the State of California Department of Health Services and accredited by the National Environmental Health Association.) Individuals who wish to become

*See major adviser.

registered must meet current state requirements. These units are not part of the degree requirements but may be included among the elective and G.E. units.

Health Administration

The health administration option provides a broad based program to prepare the student for positions within the health care system. The curriculum is designed with an emphasis on exposing the student to the principles of health administration and the application of these principles. For more information, see the departmental adviser.

Health Administration Option

Requirements (27 units)*
H S 90, 151; H S 154 or PL SI 181 or MGT 104; ECON 162; MKTG 100

Elect 12 units from: H S 104, 114, 115, 129, 143, 168, 185F; HRM 150; MKTG 132; SOC 147

Additional requirements (12 units)
ACCT 3; ECON 40 and 50; H S 182 or IS 50; IS 105W or ENGL 160W

Occupational Safety and Health

The basic goals of the occupational safety and health option are to provide the specialized knowledge in the physical and social sciences that allow the individual to perform the functions within the scope of the professional safety and health position, and to successfully provide leadership to conserve life, health, and property. This option is designed to give students a thorough understanding of the great variety of problems met in the occupational safety and health field.

Occupational Safety and Health Option

Requirements (33 units)
*H S 105, 141, 143, 145, 147, 160, 168, 182; 185F (3 units); 3-unit approved elective

Additional requirements (14 units)
CHEM 3A, 3B or 8; FIN 143; PHYS 10

Students who desire to meet the recommendations for the Safety Professional should consult with the department adviser for the selection of General Education and elective courses.

*See department for substitutions.

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.

Certificate in Alcohol/Drug Studies

The Department of Health Science is participating in a certificate of special study awarded to those students who successfully complete a minimum of 12 units of interdisciplinary academic coursework in the area of alcohol and drug abuse. (For complete details, see *Health and Human Services Interdisciplinary Courses* in this catalog.)

Master of Public Health Degree Program

This program is designed to prepare students in the broad area of public health. It includes preparation in the public health core and in one of the following options: Environmental and Occupational Health, Health Promotion, or Health Administration. Each option includes a field experience and a culminating experience.

Each fall, the MPH program admits students who demonstrate high academic ability and promise and have the professional values and ethics appropriate to maintaining professional standards in the field. Applicants are expected to have a high degree of academic and professional preparation for this program and the ability to make significant contributions to the program.

Admission to the MPH program is a two-phase process. The first phase requires that a candidate meet the graduate divisions requirements for admission to the university, and the second phase is the admission to the MPH program. Applicants are required to complete the application booklet available in the department office.

A. Admission to the university: A candidate must have achieved an undergraduate GPA of 2.5 on the last 60 units and submit official copies of university transcripts, and scores on the GRE.

B. Admission to the MPH program: Candidates for admission to the program will be selected based on the following:
   1. Academic ability and preparation as demonstrated by:
      a. GPA in the major
      b. scores on the GRE
      c. official transcripts, and
      d. satisfactory completion of all prerequisites.
   2. Professional capabilities as demonstrated through:
      a. three letters of recommendation (from employers and at least one from a former faculty member)
      b. a statement of intent, and
      c. an oral interview.

Once admitted to the program the student will be assigned to a faculty adviser in the option selected, and under the adviser's direction the student will follow a pattern of study designed to be completed in three years of late afternoon and evening study. Admission commences during the fall semester, and each student is admitted for a specific term. If a student is admitted and is unable to start the program, he or she will have to reapply for admission to another term.

Graduate-Level Writing Competence. The university requires that students have graduate-level writing abilities before being advanced to candidacy for the master's degree. Students must demonstrate these abilities by taking PH 208 or 280 and completing the writing requirement(s) for those courses.

The MPH program is designed around the following framework:

	Units
Public Health Core	**18**
Option	**12**
Elective	**3**
Field Experience	**4**
Thesis or Project	**4**
Total	**41**

For additional information, please contact the Health Science Department at California State University, Fresno; 2345 E. San Ramon Avenue M/S MH30; Fresno, CA 93740-8031; (559) 278-8324.

COURSES

Health Science (H S)

48. First Responder and Emergency Care (3)
National Safety Council First Responder and Emergency Care course. Priorities of care, injuries, medical emergencies, crisis intervention, and casualty incidents. Includes bleeding, shock, fractures, poisoning, emergency childbirth, CPR Certification for meeting requirements. (2 lecture, 2 lab hours)

90. Contemporary Health Issues (3)
Significance of basic health problems applicable to the young adult and to society. G.E. Breadth E1.

91. Introduction to Human Sexuality (3)
Physiological, psychological, social, cultural, and developmental considerations for lifelong understanding related to sexuality. G.E. Breadth E1. (Formerly H S 124)

92. Public Health Statistics (3)
Prerequisites: Students must take the ELM exam; students who do not pass the exam must record a grade of *C* or better in a college-taught intermediate algebra course. Introduction to descriptive and inferential statistics as applied to evaluation and research in allied health. Central tendency and dispersion; central limit theorem; hypothesis testing; ANOVA; correlation, nonparametric methods. Interpretations of public health statistics. (2 lecture, 2 lab hours)

100. Community Health (3)
Public health services as they affect the community; investigation and analysis of community health problems.

104. International Health (3)
Prerequisite: H S 90. History and evaluation of programs of international health organizations; health problems on a world scale.

105. Risk Assessment and Analysis (3)
Human and environmental risks as they relate to injuries and illnesses; includes incident causation analysis and assessment. Areas of study encompass occupational safety, consumer products, human factors, environmental health, and human and property costs.

109. Epidemiology of Disease (3)
Prerequiste: H S 92. Modern concepts and principles of epidemiology; interaction of all agents, host, and environmental factors of communicable and noncommunicable diseases; problems of the aged.

110. Drugs, Society, and Health (3)
Examination of physical, neurological, emotional, social, and political factors affecting the use, misuse, and abuse of licit and illicit substances in contemporary American society. Applies models of addiction and compulsive behaviors to gambling, food consumption, and sexual behavior.

111. Alcohol and Alcoholism (3)
Physical, mental, and social factors related to the consumption of alcoholic beverages; the development of alcohol dependence.

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.

114. Health Behavior (3)
An introduction to the theory and practice of health behavior change. Covers individual behavior change methodologies and the effects of public and environmental change on individual health.

115. Health Issues of Aging (3)
(Same as GERON 115.) Basic principles and concepts of the aging process; includes the physical, social, emotional, and mental components of health. Benefits of health promotion and preventive action for the aging are also explored.

120. Elementary School Health Science Education (3)
Designed for the multiple subject teacher credential candidate (nonhealth science major) to meet current California legislative requirements including CPR Certification. Focus upon the methods, processes, and content used in the elementary schools for the teaching of health science. Student evaluation based on expected competencies.

121. Secondary School Health Science Education (2)
Designed for the single subject teacher credential candidate (nonhealth science major) to meet current California legislative requirements including CPR certification. Focus upon the methods, processes, and content used in the secondary schools for the teaching of health science. Student evaluations based on expected competencies.

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.

129. Rural Health (3)
Health problems of rural areas including community medical services, medical facilities, federal, state, and local legislation and administrative problems.

130. Women's Health (3)
(Same as W S 130.) Examines current crises/controversies in women's health care. Includes conventional/alternative approaches to treatment, management, and prevention with emphasis on self-care and promotion of optimum health.

131. Principles of Health Education (3)
Study of the foundations, theories, systems, and principles of health education. Includes an analysis of social, medical, and environmental factors on health-related behaviors.

133. Health Education Methods (3)
It is strongly recommended that students complete H S 114 and H S 131 prior to enrollment in H S 133. Health education program planning, implementation, and evaluation. Provides needs assessment, health education curriculum development, and presenting and evaluating a health education intervention with a client group.

135. Introduction to Human Disease (3)
Prerequisites: H S 90; PHYS 33. Concepts and principles of disease and dysfunction of the human body. Detection, diagnosis, treatment, etiology, pathogenesis, and prevention.

141. Occupational Ergonomics (3)
Studies the science of ergonomics as it relates to injury/illness prevention and the promotion of a quality work environment. Ergonomics is the evaluation of people and their tools, materials, and equipment in a work setting. (Formerly H S 166T)

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.

145. Occupational Safety and Environmental Health Management (3)
Concepts and principles dealing with the problems, processes, evaluation, and solutions in the development, implementation, and management of an effective environmental health and occupational safety program.

147. Evaluation of the Occupational Environment I (3)
General principles of investigation for chemical and physical hazards commonly encountered in the occupational environment. Sampling strategies, quantitative analysis, combustible gases, organic vapors, and nonionizing radiation. (2 lecture, 2 lab hours)

148. Evaluation of the Occupational Environment II (3)
Prerequisite: H S 147. Concepts and principles of investigative analytical methods for hazards commonly encountered in the occupational environment. Ionizing radiation, noise, metals, and particulates including asbestos. (2 lecture, 2 lab hours)

149. Control of the
Industrial Environment (3)
Prerequisites: H S 147, 168. Concepts and principles of controlling physical and chemical compounds in the industrial environment. (2 lecture, 2 lab hours)

151. Health Law and Legislation (3)
The theory and practice of managing inspection-based enforcement programs in health care and environmental health areas, with emphasis on legislation, procedure, and cases relating to public health.

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.

154. Health Care Administration (3)
Organizational design and managerial principles as they apply to the private sector of health care.

160. Principles of Toxicology (3)
Basic principles and concepts of toxicology with a particular emphasis on the regulation of environmental and industrial toxicants for man/woman.

161. Environment
and Human Health (3)
General principles of environmental health with a particular emphasis on the interaction between man/woman and the environment. Environmental epidemiology, water, wastewater, air, solid waste, ionizing radiation, and noise.

162. Environmental Health (3)
Basic principles and concepts of environmental health with a particular emphasis on health hazards, communicable disease control, contamination control, food protection, rodent control, managing special environments, planned environments, and environmental health organizations.

163. Public Health Administration (3)
Principles of public health administration, fundamentals of organization, and administration in public health.

165. Directed Group Study
in Environmental Health (3)
Prerequisites: 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.

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. (2 lecture, 2 lab hours) (Lab fee, $25)

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.

170. Health Effects
of Indoor Pollution (3)
A descriptive analysis of environments encountered at home and in the workplace with an emphasis on assessment of risk, health effects, and a review of federal regulations that apply to these environments.

175. Environmental Internship
(3-6; max total 6)
Prerequisites: completion of 21 units of the environmental health science/industrial hygiene option in the health science major. Provides practical experience in environmental health. The internship may be with a governmental agency or industrial situation or a combination, depending upon the student's need. *CR/NC* grading only.

182. Computers for
the Health Professions (3)
Introduction to the basic use and practical application of personal and mainframe computers in health-related professions. Laboratory use of computers covers word processing, SPSS, data entry, data management, principles of programming, and use of on-line databases. (2 lecture, 2 lab hours)

185F. Fieldwork 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. *CR/NC* grading only.

188. Health Education Internship
(3-6; max total 6)
Prerequisite: completion of 24 units with a minimum of a 3.0 GPA in the major or demonstration of competency in area of assignment. Provide formal practical experience in health education. The internship may be with the university's Student Health Service Peer Education Program, a governmental agency, a voluntary agency, private institution, or a combination, depending upon the student's need. *CR/NC* grading only.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Master of Public Health (PH)

(Only students who are formally admitted in the Master's of Public Health Program may enroll in the following courses.)

202. Advanced Public
Health Statistics (3)
Prerequisite: H S 92 or equivalent. Theories and limitations of parametric testing: ANOVA, MANOVA, and regression. Focus on nonparametric testing and small samples including Kruskal Wallis, Median and Fischer tests. Preparation of data for computer analysis and interpretation of results. Resource issues related to data collection.

203. Seminar in Community
Health Organization (3)
Prerequisite: H S 100. 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. (Formerly H S 203)

205. Risk Assessment Management (3)
Prerequisite H S 105. Development, organization, and administration of environmental health and occupational safety programs; individual research, risk assessment, analysis and evaluation of pertinent problems. Field assignments are required. (Formerly H S 205)

206. Environment
and Occupational Health (3)
Application and evaluation of environmental health principles to air, land, water, waste, and occupational health with emphasis on contemporary issues.

208. Health Promotion (3)
Focuses on behavioral change techniques derived from many areas of applied research including behavior modification and social interaction theory. Information emphasizes the health relevant principles in each domain and shows how they can be used to understand or change public health problems.

209. Advanced Concepts in Epidemiology (3)
Prerequisites: H S 92, 109 or equivalents; computer statistics program competency. Advanced principles and methods of epidemiology. Includes methods of organizing surveillance data, defining cases, testing hypotheses, analyzing effectiveness of methods, summarizing studies. Advanced statistical methods will be utilized with emphasis on interpretation of results.

210. Seminar in Health Services Administration (3)
Prerequisite: H S 163. Individual research, analysis, and evaluation of the organization, administration, and legal aspects of health programs. Field assignments are required. (Formerly H S 210)

213. Health Planning and Program Evaluation (3)
In-depth analysis of the principles and practices in comprehensive health planning and program evaluation. Field assignments are required. (Formerly H S 213)

221. Health and Disease of the Body Systems (3)
General principles of health and disease in the human body. Emphasis will focus on each organ system and the disease process. Preventive lifestyles will also be studied. Undergraduate preparation in anatomy and physiology is expected for each student.

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. (Formerly H S 222T)

225. Foundation in Health Promotion (3)
Prerequisite: PH 208. History and philosophy of health education. Psychological, sociological, economic, and political theories relevant to the mission and process of health education with special reference to schools and colleges.

242T. Seminar in Occupational Safety and Health (1-3; max total 15)
Prerequisites: 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. (Formerly H S 242T)

251. Health Care Economics (3)
Prerequisites: ECON 131 or FIN 120 or equivalent. Topics include demand and supply in health services sector; implications of public and private financing alternatives; constraints on manpower training and entry; equity and distribution competition and regulation; issues of productivity measurements and utilization; and political economy of health care.

253. Human Resources Management in Health Care (3)
The study of staffing, classification of labor, performance appraisal and other issues that apply to the diverse care providers within the health care milieu.

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. (Formerly H S 262T)

263. Air Quality Management (3)
Prerequisites: PH 202, 206, 209. Study of the concepts of air pollution including the analysis of relationships among sources, meteorology, health effects, monitoring, sampling, and emissions control systems. Current regulations will be reviewed with emphasis on interpretation and application of the regulations to industry.

264. Management of Water Pollution (3)
Prerequisites: PH 202, 206, 209. Analysis of the principles of water treatment and technical aspects of water pollution control, including cause and effect of water pollution.

265. Hazardous Materials Management (3)
Prerequisites: PH 202, 206, 209. Analysis and evolution of operations and processes for solid and hazardous materials generation, storage, processing and disposal, including the review of regulations and industrial applications.

266. Industrial Hygiene Principles (3)
Prerequisites: PH 202, 206, 209. Theory and practice of industrial hygiene with application of regulations to the recognition, evaluation and control of workplace hazards. Evaluation of industrial hygiene techniques and instrumentation in the solution of workplace hazards.

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. (Formerly H S 280)

285F. Fieldwork 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. Approved for *SP* grading. *CR/NC* grading only. (Formerly H S 285F)

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly H S 290)

298. Project (2-4; max total 4)
Prerequisite: advancement to candidacy for MPH degree in Health Science. See *Criteria for Thesis and Project*. A significant endeavor in health science that may include an educational booklet, audiovisual presentation, evaluation of a health agency, or the development of an experimental device or piece of equipment. A narrative component is required which will follow a formal format and shall include a written abstract. Approved for *SP* grading. (Formerly H S 298)

299. Thesis (2-4; max total 4)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading. (Formerly H S 299)

IN-SERVICE COURSE

(See *Course Numbering System.*)

Health Science (H S)

302. Selected Topics in Health (1-3; repeatable with different topics)
Topics in community health, environmental health, health services, and occupational safety and health for teachers, health professionals, and others.

Kinesiology

College of Health
and Human Services

Department of Kinesiology
Catherine G.R. Jackson, *Chair*
Rosa Rodriguez, *Department Administrative Assistant*
South Gym, Room 111
(559) 278-2016
http://www.csufresno.edu/pehp/programs

B.S. in Kinesiology
Options:
- Athletic Training
- Exercise Science
- General Kinesiology
- Physical Education

M.A. in Kinesiology
Professional Studies
Option: Exercise Science

Minors
- Coaching
- Physical Education

Single Subject Teaching Credential in Physical Education

Kinesiology

Kinesiology is a term which implies broad and inclusive study of human movement: art, science, historical evolution, roles in society, and impact upon personal lives and well-being. The academic discipline of kinesiology includes exercise physiology, biomechanics, athletic training, pedagogy and teaching, motor learning and control, sports psychology, sport sociology, sports philosophy, dance education, fitness and wellness, and coaching. Within the Department of Kinesiology at California State University, Fresno, there are four areas of curricular focus: pedagogy and teaching, exercise science, athletic training, and general kinesiology.

The Physical Education Option has a curricular emphasis upon pedagogy and teaching, and is designed for students with professional goals in teaching and coaching. Completion of this option fulfills the requirements for the Single Subject Matter Competency Program, which provides access to teaching credential programs and teaching careers in grades K-12.

The Exercise Science Option is focused upon applications of exercise, fitness, and wellness in clinical, preventative, rehabilitative, athletic performance, industrial, and laboratory settings. The option provides a broad and comprehensive background in the physical, biological, and technical sciences, and prepares the student for professional applications or advanced degree work and research in exercise science. Marketability and advancement within these professions can be enhanced by additional certification through such organizations as the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). Individual faculty and specific coursework can help students prepare for these certifications.

The Athletic Training (formerly Sports Medicine) Option is designed for students with professional goals in athletic training who are seeking certification by the Committee of Accreditation of Health Education Programs (CAAHEP), which is a division of the American Medical Association (AMA). The program has high academic and performance standards, which include 1,200 to 1,500 hours of field experience in a two-year program. The practicum experience may be completed on campus, where service is provided for all 19 intercollegiate sports, or in an affiliated off-campus setting. Students interested in this program must consult an athletic training adviser.

The Athletic Training Option is on impacted status (the number of applications received is greater than the number of vacancies). Therefore, admission to the option is very competitive; there is no waiting list. Only the most qualified applicants will be admitted. Applicants must reapply each time and compete with the entire applicant pool if not selected.

Note: California residents are given preference over out-of-state and international students as long as the option is on impacted status.

The General Option is designed for students interested in areas not served by the other three options in kinesiology. The General Option is not designed to prepare students for credential or certification programs. Rather, General Option students may find employment in a variety of health and business-related fields such as personal training, corporate fitness, medical equipment sales, or public safety.

A bachelor's degree in any of the four undergraduate options will effectively prepare students for graduate work within that specific area.

The Master of Arts degree program is designed to provide advanced study to extend competence in the areas of science, pedagogy, administration, and research techniques. The curriculum has the flexibility to promote professional applications, facilitate career advancement, or provide preparation for doctoral study. Class size and format promote experiential learning and quality interactions among students and faculty.

Activity Classes

A broad variety of activity classes is offered for students interested in physical activity and kinesthetic learning. The program objective is to develop knowledge, skills, and fitness through practical experience in movement and exercise. Activity courses are offered in aquatics, recreational dance, individual activities and team sports. Unique experiences are provided in areas such as bicycling, fencing, martial arts, yoga, and massage. These courses are open to students across the entire spectrum of physical abilities.

Facilities

The facilities for these programs include two gymnasiums, six racquetball/handball courts, a large matted area, two dance studios, a gymnastics apparatus area, a strength-training area, an all-weather track, multipurpose fields for softball, flag football, soccer, ultimate frisbee, and golf, an archery range, a swimming pool, a human performance lab, and an athletic training room.

Faculty

Catherine G.R. Jackson, *Chair*

Undergraduate Adviser: Consult department chair.

Rose M. Lyon, *Graduate Adviser*

Thomas C. Minniear, *Credential Adviser*

Rebecca Crumpton, *Athletic Training Adviser*

Kenneth R. Aldrich
Tim R. Anderson
O. Duane Ballard Jr.
Gordon Bloom
Virgina F. Chadwick
Jacobo O. Morales
Billie L. Poston
Joanne W. Schroll

Bachelor of Science Degree Requirements

Kinesiology Major *Units*

Major requirements 68-76

(See option requirements.)

Core Program ..... (13)
(required of all options)
KINES 20, 30, 104, 109, 113

Options (select one)..... (56-63)

Athletic Training Option ..... (62)
KINES 38, 43, 118, 136, 137, 138, 139, 140, 141, 142 (4 units), 143 (8 units), 165; H S 48, 90, 110; NUTR 147; PHYAN 64, 65; PH TH 105, 119

Exercise Science Option ..... (61-63)
KINES 38, 159 (or H S 92 or MATH 11), 116, 118; KINES 163 or 165, 167; BIOSC 1A; CHEM 1A or 3A, 3B or 8; H S 48; NUTR 147; PHYAN 64, 65; PHYS 2A
Select two from:
KAC 21, 24, 31, 39, 40, 42, 103
Select 12 units from:
KINES 137, 138, 139, 140, 148, 163 or 165, 199; NUTR 162T, H S 110, 111; PSYCH 177; ACCT 3, MGT 104, 106; BIOSC 1B, 140A, 140B; MICRO 20; PHYAN 130, 140, 151, 158, 163, 165, 172; CHEM 1B, 125, 128A, 128B, 150; PHYS 2B; C SCI 1, 10, 101; MATH 70; PH TH 119; I E 95; any one of COMM 3, 103, 116, or 170

General Kinesiology Option ..... (56-63)
H S 48 (or equivalent); NUTR 53 or 147 or KINES 180T (Exercise Nutrition and Body Composition); PHYAN 33 or 64/65; KINES 116 or 137; KINES 118; KINES 144 or 190 or 199
Select no less than 6 or more than 9 units from each of the following:
- KINES 38, 134, 138, 139, 148, 157, 163, 165
- KINES 32, 100, 124, 125A, 125B, 125C, 125D, 126, 128, 130, 132
- KINES 111, 120, 122, 136, 140, 141, 152, 153, 159, 167

Select three KAC courses**
Complete approved elective units. (See general option adviser.)

Physical Education Option ..... (55-58)
KAC 31; KINES 100, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 144, 152, 153, 157, 159; PHYAN 33; NUTR 53 or 54 or 147; H S 48 (or equivalent)
Select one from:
KAC 40, 41, 51
Select one from:
KAC 24, 60, approved 80T; DANCE 117A, 155A, 158A; CLS 107
Select one from:
KAC 17, 19, 20, 22, 27, 30, 46, 54

General Education 51

Electives* 1-21

Total 128

* This figure takes into account that up to 18 units of major requirements are anticipated to also satisfy the General Education requirements: COMM 3, H S 92, MATH 70, C SCI 1, CHEM 1A or 3A or PHYS 2A, BIOSC 1A, I E 95, H S 90, NUTR 53.

** KINES 32 requires concurrent enrollment in one of the following: KAC 6, 21, 24, 31, 33, 39, or 103. If KAC 6, 21, 24, 31, 33, 39, or 103 is selected with KINES 32, KINES 32 may not be used for KAC requirement.

Advising Notes

1. Mandatory advising is required of all students in this degree program. See the department for the name of your assigned adviser.
2. With the assistance of the department adviser, students may choose a sequence of courses that will prepare them for working with specific age groups or special populations, coaching, sports medicine, teaching physical education, and professional applications in the exercise sciences and fitness-related industries.
3. Students majoring in kinesiology may count a maximum of 12 units of activity courses (ATHL, KAC, DANCE) toward the 128 units required for a bachelor's degree. Repeat credit towards the kinesiology major is not allowed in any of these activity courses.
4. *CR/NC* grading is not permitted in courses for the kinesiology major, except in those courses which are designated *CR/NC* grading only.
5. General Education and elective units may be used toward a minor (see *departmental minors*) or supplemental credential. Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
6. Completion of the Bachelor of Science degree with the physical education option meets the requirements of the Single Subject Matter Competency Program.
7. Students interested in the athletic training option should consult the department regarding criteria for selection into this program.
8. A grade of *C* or higher in all required coursework is necessary for successful completion of the major. Any course required as a prerequisite must be completed with a grade of *C* or better before registration in the subsequent course.
9. Lower-division courses taken at other institutions may be accepted as being equivalent to lower-division requirements in the department. Petitions to have courses accepted should be completed during the first semester in the major.

Physical Education Teaching Credential Requirements

Units

Single Subject Credential in Physical Education

B.S. degree with option in physical education **128**
Professional preparation courses **37**
Total 165

Advising Notes

1. Students interested in obtaining a teaching credential are strongly advised to confer with the department's credential adviser at the beginning of their junior year.
2. Students must apply and be admitted to the School of Education and Human Development to begin education requirements. For prerequisites and other admission requirements, see the *Single Subject Credential Program* as listed under the Curriculum, Teaching, and Educational Technology Department.
3. The required courses, or their approved equivalents, in the B.S. degree and credential programs must be completed by all single subject credential candidates.
4. Verification that the waiver program has been completed and a recommendation for admission into the professional preparation program are the responsibility of the department credential adviser. These may be granted only after the prescribed B.S. degree waiver program has been completed.

Kinesiology Minor Requirements

Units

Coaching Minor

KINES 20 and 134; KINES 38, 116 or 118, and 162; NUTR 147 or KINES 180T (Exercise Nutrition and Body Composition) **15**
KINES 125A, or 125B, or 125C, or 125D **3**
KAC 31 and KINES 124; or KINES 126, or 130, or 132 ..... **3**
Coaching Internship (KINES 199) approved by dept. chair **2**
Total 23

Supplementary Authorization in Physical Education

(Formerly Physical Education Minor) — see Kinesiology Department's credential adviser.

Advising Notes

1. Students must consult with an adviser.
2. Advanced First Aid and CPR must be current at the time of graduation.

Master of Arts Degree Requirements

The Department of Kinesiology offers advanced study designed to enhance professional competencies in teaching, administration, and research in kinesiology. There may be curricular emphasis and specialization in pedagogy, administration, or exercise science in preparation for more advanced degrees, applied research, and careers (community college teaching, in-school or professional sport management, and in clinical settings.)

Specific requirements. The Master of Arts degree requires 30 units of advanced coursework, of which there is a common core of 9 units. Dependent on the option, 9-18 units are selected from specified courses, and 3-12 units of electives are chosen. The culminating experience may be a thesis, a project, or a comprehensive exam in professional studies; for the Exercise Science Option, the thesis or comprehensive exam plus internship may be selected.

Under the direction of a graduate adviser, each student designs a coherent program within the following framework:

M.A. in Kinesiology *Units*

(Professional Studies)

Core 9
KINES 230, 231, and 261
Required coursework 9
Select three from: KINES 223, 240, 241, 242, 244, 260, 262, 263, and 285
Electives 12
Any additional KINES 200-level courses or approved outside area courses
Culminating experience 0-6
KINES 299, 298, or comprehensive exam
Total 30

Exercise Science Option *Units*

Core 9
KINES 230, 231, and 261
Required coursework 12-18
With advisement, select from: KINES 222, 223, 233, 234, 236, 237, 238, and 285
Electives 3
Any KINES 200-level course or approved outside area course
Culminating experience 0-6
KINES 299 or comprehensive exam plus internship
Total 30

Advising Notes

1. The Master of Arts degree program in Kinesiology assumes undergraduate preparation equivalent to a California State University, Fresno major in kinesiology. Students may be required to take 12-15 prerequisite units.
2. All students must take a written qualifying exam before advancement to candidacy. The university graduate-level writing skills requirement is met by successful completion of this step.
3. See also the general graduate requirements listed under the *Division of Graduate Studies*.

COURSES

Note: Activity courses may be repeated for credit. Students may apply a maximum of eight units for the total degree requirements.

Aquatics (KAC)

4. Swimming for Beginners (1)
An introduction to aquatic safety, swim lore, self rescue, and the following strokes: freestyle, back crawl, breast stroke, butterfly, and side stroke. (Formerly PE AC 4)

6. Water Aerobics (1)
Water exercises which will be the vehicle to develop improved physical fitness or a therapeutic role with pool activities ranging from walking and jogging to resistance activities and hydrotherapy. (Formerly PE AC 6)

101. Advanced Lifesaving (2)
Prerequisite: 500-yard swim in 10 minutes or less. (Formerly PE AC 101)

103. Swim for Fitness (1)
Prerequisite: intermediate swim ability. Development of aerobic, cardiovascular fitness through swimming. Exposure to various swim programs and practice of a variety of swimming strokes. (Formerly PE AC 103)

Recreational Dance (KAC)

See *Theatre Arts* for additional dance classes.

12. Elementary Social Dance (1)
An introduction to a variety of dances. Includes the basic step and variations for the cha-cha, waltz, fox trot, swing, tango, and rumba. (Formerly PE AC 12)

14. Country Western (1)
Introduction to a variety of country western line, contra, circle, and partner dances. (Formerly PE AC 14)

112. Intermediate Social Dance (1)
Prerequisite: KAC 12 or equivalent. Refinement and added variations of dances learned in Elementary Social Dance as well as additional dances. (Formerly PE AC 112)

Individual Activities (KAC)

15. Basic Massage (1)
Fundamental massage techniques; types of massage and their usage; physiological and psychological effects of massage, classical Swedish massage strokes and their sequence. (Formerly PE AC 15)

16. Adapted Physical Activity (1)
Individually designed activity for disabled students. (Formerly PE AC 16)

17. Elementary Archery (1)
Instruction in archery skills, including care and construction of tackle. Emphasis on fundamental skills and shooting form. (Formerly PE AC 17)

18. Backpacking (2)
Limited to novice backpackers. (Estimated cost to student approximately $50 for supplies, transportation.) (Formerly PE AC 18)

19. Elementary Badminton (1)
Instruction in basic skills and techniques of badminton for singles, doubles, and mixed doubles play. Emphasis on basic skill development, rules, and strategy. (Formerly PE AC 19)

20. Elementary Bicycling (2)
Introduction to bicycling as a lifetime sport. Bicycle selection, care, and maintenance. Traffic laws and bicycle safety. Student must provide own 10-speed bicycle. Two all-day rides on Saturday. Medical clearance required. (Approximate course fee, $16) (Formerly PE AC 20)

21. Elementary Strength Training (1)
Basic knowledge and concepts of use of resistive exercises to increase muscular strength and endurance. The course stresses the physiological considerations of weight training, selecting exercises for basic programs, charting workouts, nutritional considerations, and the safety of weight training. (Formerly PE AC 21)

22. Elementary Bowling (1)
An introductory course which stresses fundamentals of the stance, approach and delivery, scoring, bowling terminology, etiquette, and league play. (Approximate course fee, $25) (Formerly PE AC 22)

24. Elementary Conditioning Exercises and Aerobics (1)
A variety of floor and step activities to develop and improve strength, flexibility, and cardiovascular endurance. (Formerly PE AC 24)

27. Elementary Fencing (1)
Instruction in the on-guard position, footwork, basic defensive and offensive skills, and judging a foil fencing bout. Emphasis on foil fencing. (Formerly PE AC 27)

30. Elementary Golf (1)
Beginning instruction on the techniques for putting, chipping, pitching, iron, and wood shots. Also includes rules and etiquette for golf. (Formerly PE AC 30)

31. Elementary Gymnastics (1)
Basic skills for balancing, stunts, tumbling, trampolining and apparatus work. (Formerly PE AC 31)

33. Fitness Walking (1)
Designed to improve physical and emotional health through walking for pre-set duration and intensity. Includes benefits, walking technique, weight loss plan, and pre- and post-fitness levels. (Formerly PE AC 33)

39. Jogging (1)
Instruction in the basic principles of fitness as they apply to a jogging program. Emphasis on learning how to train/workout, cardiorespiratory endurance, and proper walking/jogging techniques and flexibility. (Formerly PE AC 39)

40. Elementary Karate (1)
Japanese style of Shotokan Karate. (Formerly PE AC 40)

41. Judo (1)
Basic instruction in techniques for throwing, grappling skills, and limited self-defense. Students should achieve technical level of yellow belt. (Formerly PE AC 41)

42. Physical Training (2)
Unique overall fitness program emphasizing strength and endurance training. Designed to tone muscles, promote weight loss and increase stamina. Course is tailored to individual student needs. Program includes running, weight lifting, aerobics, stadium stair runs, sprints, push ups, and sit ups. (Formerly PE AC 42)

43. Taekwondo (1)
Korean marital art and Olympic event; emphasizes self-control, balance and coordination, flexibility, speed, self-defense, and Olympic-style sparring. (Formerly KINES 80T)

44. Kendo (1)
The art of Japanese fencing; emphasizes self-discipline, physical training, competition, and swordsmanship. (Formerly KINES 80T)

46. Elementary Racquetball (1)
Introduction to rules, etiquette, basic strategy, and a variety of shots, including the forehand and backhand drive, lob, pinch, kill, and back-wall. Also includes a variety of serves. (Formerly PE AC 46)

51. Self-defense for Women (1)
Instruction in the basics of personal defense and safety. Emphasis will be on awareness and prevention as well as techniques for dealing with an assailant. (Formerly PE AC 51)

54. Elementary Tennis (1)
Designed for players with little or no experience or for players with experience who want to review the basics. Topics to be covered include: tennis terminology, stroke fundamentals, game rules, basic positioning for singles and doubles play, footwork, and tennis etiquette. (Formerly PE AC 54)

60. Yoga (1)
Instruction and practice in the basics of Hatha Yoga. Includes beginning breathing patterns, relaxation techniques, physical postures, and concentration exercises. (Formerly PE AC 60)

117. Intermediate Archery (1)
Prerequisite: KAC 17 or equivalent. Refinements of basic shooting skills and shooting events at intermediate skill level. (Formerly PE AC 117)

119. Intermediate Badminton (1)
Prerequisite: KAC 19 or equivalent. Review of beginning level skills and introduction of intermediate level skills and strategies. Emphasis on technique and execution of skills. (Formerly PE AC 119A)

120. Cycling for Fitness (2)
Prerequisite: KAC 20 or equivalent. (Approximate course fee, $16) (Formerly PE AC 120)

121. Intermediate Strength Training (2)
Prerequisite: KAC 21 or equivalent. Information and experience in intermediate

strength training techniques for strength, power, muscular endurance, symmetry, and muscular hypertrophy (increase in size). (Formerly PE AC 121)

122. Intermediate Bowling (1)
Prerequisite: KAC 22 or equivalent, an average score of 130 or more, or permission of instructor. Refinement of bowling skills. Group and individualized instruction along with concentrated practice. (Formerly PE AC 122)

124. Intermediate Conditioning Exercises and Aerobics (1)
Prerequisite: KAC 24 or equivalent. Vigorous exercises for weight control, physical fitness, and total well-being. Designed for students with intermediate levels of fitness. (Formerly PE AC 124)

127. Intermediate Fencing (1)
Prerequisite: KAC 27 or equivalent. (Formerly PE AC 127)

130. Intermediate Golf (2)
Prerequisite: KAC 30 or equivalent. (Approximate course fee, $50) (Formerly PE AC 130)

140. Intermediate Karate (1)
Prerequisite: KAC 40 or equivalent. Japanese style of Shotokan Karate. (Formerly PE AC 140)

146. Intermediate Racquetball (1)
Prerequisite: KAC 46 or equivalent. Review of beginning racquetball skills and knowledge; practice at intermediate skill level leading to club or tournament play. (Formerly PE AC 146)

154. Intermediate Tennis (1)
Prerequisite: KAC 54 or equivalent. Review of beginning level skills and introduction of intermediate level tennis strokes and strategy. (Formerly PE AC 154A)

156. Triathlon (2)
Prerequisite: permission of instructor. Practice and development of swimming, cycling, and running skills to enhance performance in triathlon events. (Formerly PE AC 156)

Team Activities (KAC)

65. Basketball (1)
Participation-based course emphasizing basketball fundamentals such as passing, dribbling, and shooting, as well as basic fast break and offensive and defensive principles. (Formerly PE AC 65)

68. Soccer (1)
Instruction and practice in the basic fundamentals of soccer. Includes game rules, terminology, participation and competition drills, fundamental soccer skills, conditioning, principles of play, and appropriate sportsmanship. (Formerly PE AC 68)

71. Elementary Volleyball (1)
Instruction and practice in basic fundamentals of volleyball. Includes setting, serving, passing, blocking, rules and strategies, and practical applications of knowledge in game situations. (Formerly PE AC 71)

73. Softball (1)
Instruction and practice in playing skills, strategies, and rules of softball. Includes individual skill, offensive and defensive skills and concepts, modified game activities, and competitive opportunities. (Formerly PE AC 73)

80T. Topics in Kinesiology
(1-2; max total 8 if no topic repeated)
Participation in and investigation of selected physical activities not in current curriculum. (Formerly PE AC 80T)

171. Intermediate Volleyball (1)
Prerequisite: KAC 71 or equivalent. Review of basic skills and introduction of intermediate level skills and strategies. (Formerly PE AC 171A)

Kinesiology (KINES)

20. Fitness Development (1)
Fundamental and basic principles of development of physical fitness; integration of theory and practice. Physical performance and written requirements included. Prerequisite for many other kinesiology courses. (2 lab hours)

30. Introduction to Kinesiology: Historical and Professional Foundations (3)
Introduction to the professional foundations of kinesiology: physical education, exercise science, and sports medicine. Includes history, philosophy, concepts, programs, qualifications, careers, issues, and future of the discipline. (Formerly P E 30)

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 lecture, 2 lab hours) (Formerly P E 31)

32. Lifetime Fitness and Wellness (2)
Healthy lifesytle patterns, exercise, nutrition, and physiological hygiene. Prevention of chronic diseases. Long-term behavior modification. Includes physiological measurements, nutritional analysis, and principle of exercise. Requires concurrent enrollment in one of the following: KAC 6, 21, 24, 31, 33, 39, or 103. G.E. Breadth E1.

38. Introduction to Sports Medicine (3)
Designed for prospective coaches, athletic trainers, and health and physical educators. Aids in the recognition, evaluation, and care of athletic injuries. Techniques in taping, prevention, and rehabilitation of injuries. (2 lecture, 2 lab hours) (Formerly P E 106A)

43. Preliminary Sports Medicine Laboratory (1; max total 2)
Prerequisite: H S 48, KINES 20, KINES 38. Designed for prospective student athletic trainers. Practical clinical experience (200 hours per semester verified by on-site supervisor) at high schools sports medicine clinics and junior colleges, under supervision of an N.A.T.A. certified athletic trainer. *CR/NC* grading only. (Formerly KINES 75T section)

75T. Topics in Kinesiology
(1-3; max total 8)
Introductory topics in kinesiology not available through current curricula offerings.

100. Fundamental Skills and Concepts (2)
Prerequisites: KINES 20 (may be taken concurrently). Study and analysis of fundamental skills and movement patterns with applications in selected activities. Skills required for physical education major classes will be analyzed, evaluated, and practiced to improve performance level. (1 lecture, 2 lab hours)

104. Information Systems and Technology in Kinesiology (3)
Prerequisite: KINES 20. Introduction to computers with an emphasis on document production, choosing and using appropriate software, and accessing CD-ROM-based and on-line kinesiology databases. Contemporary computer hardware and software applications for the kinesiologist. (2 lecture, 2 lab hours)

109. Motor Learning (3)
Prerequisite: KINES 20. Principles of motor learning. The study of various theories. Application of theories and findings in presentations and planning of movement activities. (2 lecture, 2 lab hours)

111. The Olympic Games (3)
History, development, and significance of the Olympic Games; Olympism as a microcosm of cross-cultural, political, economic, and gender relationships. G.E. Integration ID. (Formerly P E 111)

112C. Officiating Track and Field (1)
Analysis and interpretation of rules for track; procedures, mechanics, and practice

in officiating. (1-2 hour lecture/lab) (Spring only) (Formerly P E 112C)

113. Physical Growth and Development (3)
Prerequisite: KINES 20 (may be taken concurrently); PHYAN 33 (or PHYAN 64 and 65) (or PHYAN 64 and PH TH 119). Physical growth and development from prenatal period through old age with emphasis on motor development. (Formerly P E 147)

116. Fundamentals of Biomechanics (3)
Prerequisites: KINES 20 (may be taken concurrently); PHYAN 33 (or PHYAN 64 and 65) (or PHYAN 64 and PH TH 119). Study of structural and mechanical properties of musculoskeletal system, associated movement function of human body, and applied physics. (2 lecture, 2 lab hours)

118. Fundamentals of Exercise Physiology (3)
Prerequisites/concurrent: KINES 20; PHYAN 33 (or PHYAN 64 and 65) (or PHYAN 64 and PH TH 119). The study and application of physiological bases of movement, work, response, and adaptation to exercise. Environmental conditions, gender, and age considered. (Formerly P E 156B)

120. Planning Strategies for Physical Education (3)
Prerequisites: KINES 20, 30. Must be taken concurrently with KINES 100. Corequisite: KINES 124, 126, 128, 130, or 132. Organization, presentation, and evaluation of in-class demonstrations. Philosophy of teacher preparation covered and developed through practice, observation, planning and presentations. (2 lecture, 2 lab hours)

122. Nontraditional Games and Outdoor Education (3)
Prerequisites: KINES 20 (may be taken concurrently). Study of a variety of recreational, multicultural, and nontraditional games, as well as outdoor education for lifelong participation. (2 lecture, 2 lab hours) (Formerly P E 108)

124. Analysis and Application: Tumbling and Gymnastics (2)
Prerequisites: KINES 20; KINES 100 and 120 concurrently; KAC 31. Study of biomechanical, physiological, and psychological principles underlying acquisition of skill in, and performance of, tumbling and gymnastics. Practical experience in learning, refinement, and analysis of skills, with focus upon appropriate teaching models and strategies. (4 lab hours) (Formerly P E 115D)

125A. Coaching Football (3)
Principles underlying participation in competitive football. (Spring only) (Formerly P E 125A)

125B. Coaching Basketball (3)
Principles underlying participation in competitive basketball. (Fall only) (Formerly P E 125B)

125C. Coaching Track and Field (3)
Principles underlying participation in competitive track and field. (Formerly P E 125C)

125D. Coaching Baseball (3)
Principles underlying participation in competitive baseball. (Fall only) (Formerly P E 125D)

126. Analysis and Application: Aquatics (3)
Prerequisites: KINES 20; KINES 100 and 120 concurrently; swimming skill test. Overview of aquatics: elementary through advanced skills (infant through adult). Emphasis on sequencing skills and water safety certification. Required to teach physical education in California public schools. (2 lecture, 2 lab hours) (Formerly P E 145A)

128. Analysis and Application: Dance Heritage Survey (3)
Prerequisites: KINES 20; KINES 100 and 120 concurrently; dance skill test. Observation, practice, and analysis of basic skills in ethnic and social dance forms. Understanding and appreciation of dance in diverse cultures. Study and practice of leadership skills in dance. (2 lecture, 2 lab hours) (Formerly P E 145D)

130. Analysis and Application: Individual/Dual Lifetime Activities (3)
Prerequisites: KINES 20; KINES 100 and 120 concurrently. Study, analysis, and practical experience in: teaching skills, concepts, strategies, and rules; presentation of techniques; skill evaluation; and organization of the instructional environment for archery, badminton, golf, racquetball, and tennis. (1 lecture, 4 lab hours)

132. Analysis and Application: Team Sports (3)
Prerequisites: KINES 20; KINES 100 and 120 concurrently. Analysis and performance of basic skills. Strategies in a variety of team sports commonly taught in public schools. Skill progressions, class organization to maximize participation, planning for activities, micro-teaching, and self-analysis of skills. (1 lecture, 4 lab hours)

134. Analysis and Application: Fitness (2)
Prerequisites: KINES 20; KINES 100 and 120 concurrently; KINES 116, 118. Basic principles, theory and practice of development, and maintenance of fitness for health and physical performance. Emphasis upon application for teachers and coaches. (4 lab hours) (Formerly PE 115K)

136. Psychology in Sports Medicine and Rehabilitation (3)
An examination of selected concepts in psychology as they relate to sports medicine. Psychological applications are studied in the following domains of sports medicine: prevention, recognition, immediate care, and rehabilitation.

137. Structural Biomechanics (3)
Prerequisites: KINES 20 (may be taken concurrently); PHYAN 64 or PH TH 119. Human movement: biological and mechanical bases, application of musculoskeletal considerations, and principles of mechanics to human movements. (Offered fall semester only.) (Formerly P E 156A)

138. Evaluation in Sports Medicine (3)
Prerequisites: KINES 20, 38, 137. Advanced study in sports medicine including injury recognition and evaluation procedures. (2 lecture, 2 lab hours) (Formerly P E 106B)

139. Therapeutic Modalities in Sports Medicine (3)
Prerequisites: KINES 20, 38; PHYAN 64 or PH TH 119. The theory and application of various therapeutic modalities used in the treatment of athletic injuries. (2 lecture, 2 lab hours) (Formerly P E 106C)

140. Rehabilitation in Sports Medicine (3)
Prerequisites: KINES 137, 138, 139. The development and application of rehabilitation and therapeutic exercise programs for the injured athlete. (2 lecture, 2 lab hours) (Formerly P E 106E)

141. Organization and Administration in Sports Medicine (3)
Prerequisites: KINES 20, 38, and senior status. Current issues in sports medicine, organization, administration, and professional preparation. (Formerly P E 106F)

142. Seminar in Sports Medicine (1; max total 4)
Taken concurrently with KINES 143. A seminar course designed to focus on and review the N.A.T.A competencies in sports medicine. *CR/NC* grading only.

143 A-D. Practicum in Sports Medicine (2; max total 8)
Prerequisites: KINES 20, 43; PHYAN 64 or PH TH 119; admission into Sports Medicine Option. Practical experience in sports medicine, involving all domains of athletic training: prevention, recognition, rehabilitation, administration, and professional development. 300 hours required. *CR/NC* grading only. (Formerly P E 107)

144. Field Experience in Teaching (2)
Prerequisites: KINES 100, 120. Open only to kinesiology majors with options in physical education. Supervised placement in physical education instructional settings at the elementary, middle, and high school levels. Includes a variety of practical learning experiences and seminar discussions. *CR/NC* grading only. (4 hours education workshop) (Formerly P E 144)

148. Biophysical Aspects of Aging (3)
(Same as GERON 148.) Theories of aging, biological mechanisms of the aging process, and the role of physical activity in those physiological functions influenced by age. (Spring only) (Formerly P E 148)

152. Physical Education for Children (3)
Prerequisite: minimum of junior standing. Theory, analysis, and study of movement experiences, skills and materials, appropriate for elementary level school children. (2 lecture, 2 lab hours) (Formerly P E 152)

153. Principles of Physical Education: Philosophical, Psychological, and Sociological (3)
Prerequisites: KINES 20, 30, senior status. Investigates philosophy, ethics, and psychosocial aspects in physical education. Reflects on the implications for today's society, the profession, curriculum development, and the individual. (Formerly P E 153)

157. Adapted and Inclusive Physical Education (3)
Prerequisites: KINES 134, Standard First Aid Certification, and CPR. The design, implementation, and evaluation of individually prescribed adapted physical education programs for the handicapped in school and special settings for students with disabling conditions. The philosophy and techniques of successful inclusion of individuals with disabilities in regular class settings. (2 lecture, 2 lab hours) (Formerly P E 157A)

159. Measurement and Evaluation (3)
Prerequisite: KINES 104 (may be taken concurrently). Selection, construction, evaluation, and administration of norm referenced/criterion referenced tests used in assessing performance and knowledge. Application of computer technology, basic statistical methodology, and interpretation of statistics. (Course fee, $15) (2 lecture, 2 lab hours) (Formerly P E 159A)

162. Coaching Concepts (3)
Current problems of coaches in the school setting; techniques of motivation, organization, and public relations. (Fall only) (Formerly P E 162)

163. Fitness and Wellness (3)
Prerequisite: KINES 118 or 161. Study, analysis, development, and practice of health related fitness and weight control programs for various populations. (2 lecture, 2 lab hours)

165. Performance Related Fitness (3)
Prerequisites: KINES 116, or 137; KINES 118. Physiological and biomechanical principles related to implementation of conditioning programs for athletic performance. Practical applications. Discussion of skill and performance-related components of physical fitness. (2 lecture, 2 lab hours)

167. Humanistic and Integrative Aspects of Exercise Science (3)
Prerequisites: ENGL 1; KINES 104. Integration of humanistic, physiological, and biomechanical aspects of exercise science through lectures, readings, discussions, and writing assignments.

180T. Topics in Kinesiology (1-3; max total 12)
Topics relating to analysis, performance, theory, current trends, and research in kinesiology not available through current curricula offerings. (Formerly P E 180T)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly P E 190)

199. Supervised Work Experience (1-2; max total 4)
Prerequisites: upper-division status, GPA 2.5 last 30 units, permission of department chair and instructor. *CR/NC* grading only. (Formerly P E 199)

GRADUATE COURSES

(See *Course Numbering System.*)

Kinesiology (KINES)

222. Biomechanics (3)
Prerequisites: KINES 116 or 137. Study of physical and mechanical bases of human movement. Mechanical properties of structural and active tissues, relation of these properties to tissue function. Application of principles of physics and mechanics to human movement and sport. Kinematic analysis of sport performances. (Formerly P E 222)

223. Scientific Bases of Motor Learning (3)
The psychophysiological study of motor learning and movement behavior. Evolution of theories and approaches utilized in the study of skill learning, and the examination of factors which facilitate or deter acquisition. Application of concepts through extensive laboratory experiences. (2 lecture, 3 lab hours) (Formerly P E 223)

230. Statistical Inference in Kinesiology (3)
Theory and nature of statistical inference; study of statistical methodology relating to the selection of the most appropriate statistical technique, and the interpretation of findings. Required of all M.A. candidates. (Approximate course fee, $15) (Formerly P E 230)

231. Research Methods in Kinesiology (3)
Seminar in research methods appropriate for physical education, exercise science, and related professions: use of information retrieval technology; critiquing, conducting and reporting research. Required of all M.A. candidates. (Formerly P E 231)

233. Advanced Exercise Physiology I: Metabolic and Neuromuscular Physiology (3)
Prerequisites: KINES 118; CHEM 3A, 3B. Detailed study of the biochemistry of energy metabolism, biophysical and functional concepts related to interaction of nerve and muscle, and response to training. Theoretical concepts supported by extensive practical experience in the human performance lab. (2 lecture, 3 lab hours) (Formerly P E 233)

234. Advanced Exercise Physiology II: Cardiovascular and Respiratory Physiology (3)
Prerequisites: KINES 118 . In-depth study of cardiovascular and respiratory concepts related to exercise, training, health, disease, and aging. Theoretical concepts are supported by extensive practical experience in the human performance lab. (2 lecture, 3 lab hours) (Formerly P E 234)

237. Design and Implementation of Resistance Training Programs (3)
Study of research findings and established scientific principles of resistance training for development of muscular strength, power, and endurance. Practical applications to technique, program development, and competition. (Formerly P E 237)

238. Exercise Testing, ECG, and Prescription (3)
Prerequisite: KINES 118. Detailed study of the American College of Sports Medicine Guidelines for Exercise Testing and Prescription. Theoretical concepts of screening, exercise testing, and prescribing exercise for apparently healthy populations and populations with special needs supported by extensive practical laboratory testing experiences. (2 lecture, 3 lab hours) (Formerly P E 238)

240. Facilities and Equipment in Kinesiology (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. (Formerly P E 240)

241. Administration in Physical Education and Sport (3)
Study of environmental factors which influence management of human resources of sport organizations in public and private sectors. Analysis and application of administrative/leadership theory to strategic planning, organizing, implementing and controlling programs in sport and physical education contexts. (Formerly P E 241)

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. (Formerly P E 242)

243. Administrative Issues in Sport and Physical Education Promotion (3)
Prerequisites: KINES 230, 231, 241, and MBA 214. The effective promotion of sport organizations, athletic and physical education programs. Emphasis is on the integration of promotional elements into the total marketing strategy of the organization, and the administration of fund-raising and corporate sponsorship plans. (Formerly P E 243)

244. Legal Aspects in Sport and Physical Education (3)
The study of legal principles and their implications for physical education and sport. Emphasis is on safety procedures, preventative measures, and legal responsibilities of teachers, coaches, and sport administrators. (Formerly P E 250T section, P E 244)

250T. Topics in Kinesiology (3; max total 6 if no topic repeated)
Advanced studies in theoretical research in selected topics. (Formerly P E 250T)

260. Historical Concepts in Kinesiology (3)
Interpretation of exercise and sport in western thought and practice, from 3000 B.C. to the present. (Formerly P E 260)

261. Philosophical and Ethical Inquiry in Kinesiology (3)
Philosophic/critical examination of current and classical literature in physical education, sport, and exercise science. Understanding systems of thought, their application; analysis of, as well as support for, points of view in verbal and written communication. Required of all M.A. candidates. (Formerly P E 261)

262. Social Implications of Sport (3)
Cultural and social factors related to play, games, and athletic contests; social parameters in the conduct and management of school athletic programs; emphasis on research studies. (Formerly P E 262)

263. Psychology of Sport (3)
An examination of the concepts in sports psychology, motivational variables, emotional states and personality variables; mental states, behavioral techniques and strategies; and issues in sports psychology. (Formerly P E 263)

264. Psychology of Coaching (3)
Examination of psychological components of the coaching profession. Explores coaching development, organization, training, and competition, as well as strategies for dealing with athletes and different coaching contexts. (Formerly KINES 250T)

285. Internship in Kinesiology (3-6; max total 6)
Prerequisite: completion of core courses curriculum (KINES 230, 231, 261) and three required courses. Work experience within the physical education, health-fitness industry, or sport administration setting, directed and evaluated by a qualified faculty member with appropriate supervision by an on-site professional. *CR/NC* grading only. (Formerly P E 285)

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading. (Formerly P E 290)

298. Project (3-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, submission, and/or demonstration of an original project. Creativity shall be a prime factor. Abstract required, e.g., choreograph gymnastic performance, organize square/folk dance program, compose audiovisual representation of sport forms. Approved for *SP* grading. (Formerly P E 298)

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading. (Formerly P E 299)

IN-SERVICE COURSES

(See *Course Numbering System.*)

Physical Education (P E)

310. Analysis of Team Activities (1-3; max total 12 if no area repeated)
Prerequisite: teaching or coaching experience or by permission of instructor. An analysis of the techniques, methods, procedures, and theory of team sports.

320. Analysis of Individual Activities (1-3; max total 12 if no area repeated)
Prerequisite: teaching or coaching experience, or permission of instructor. An analysis of the techniques, methods, procedures, and theories of individual activities.

Nursing

College of Health
and Human Services

Department of Nursing
Mariamma K. Mathai, *Chair*
Suzanne Shaw, *Department Administrative Assistant*
McLane Hall, Room 178
(559) 278-2041
http://www.csufresno.edu/nursing/nursing1.htm

B.S. in Nursing

M.S. in Nursing
Options:
- Clinical Specialization
- Primary Care/Nurse Practitioner

School Nurse Credential

Combined program:
Primary Care/Nurse Practitioner (M.S. Nursing) with School Nurse Credential

Nursing

The mission of the Department of Nursing is to offer quality nursing education to undergraduate and graduate nursing students. This education prepares nurses to make clinical decision-making skills based on theory and research. As life-long learners, graduates are prepared to deliver quality health care for increasingly diverse populations. Graduates will lead, supervise, delegate, manage, and evaluate care outcomes, as well as demonstrate the ability to act as consumer advocates in promoting wellness and facilitating change.

The scope of nursing practice is changing significantly. The professional nurse uses theory and research-based knowledge to provide direct and indirect care to individuals, families, groups, and communities.

In the role as designer, manager, and coordinator of care, nurses collaborate with patients and interdisciplinary care teams.

The department offers an undergraduate program which leads to the Bachelor of Science degree in Nursing, a postbaccalaureate School Nurse Credential Program with an option to pursue the master's degree in nursing, a graduate program leading to a Master of Science degree in Nursing, and a Post-Master's Nurse Practitioner Credential Program.

Undergraduate Program

The program requires six semesters of nursing courses in addition to two semesters of prerequisite requirements. The basic General Education requirements are the same for all majors. Upon completion of the sixth semester clinical course sequence, the student is qualified to take the National Council Licensure Examination (NCLEX-RN) and apply for the Public Health Nurse Certificate. California State University, Fresno's nursing program is accredited by the California Board of Registered Nursing and the National League for Nursing (NLN).

Clinical Facilities

A wide variety of clinical placements are available. Placement facilities include Community Hospitals of Central California, St. Agnes Medical Center, Valley Children's Hospital, Veteran's Administration Medical Center, HCA Cedar Vista Hospital, University Medical Center, Central Valley Indian Health, Associated Indian Services, Armenian Home, San Joaquin Gardens, the Kaiser Permanente Medical Group, and the health departments from Fresno, Madera, Kings, and Tulare counties.

Advanced Placement in the Nursing Major

Students seeking advanced placement must seek advisement from the department. Students are expected to meet all prerequisites for admission and meet filing deadlines specified for undergraduate students.

Registered Nurses with an associate degree in nursing may articulate at the junior level in the major. Registered nurses from diploma programs may seek advanced placement through credit by examination (see *Academic Placement — Credit by Examination*).

Registered nurses are in a separate admission pool from the generic nursing applicants.

Licensed Vocational Nurses are offered three options:

1. Generic Nursing Program
2. Transfer/Credit by Examination
3. Thirty-Unit Option (nondegree)

Health Related Personnel. Medical corpsmen, psychiatric technicians, and others are eligible for credit by examination under the university's policy as outlined in the current catalog.

Advanced placement in the major prepares qualified students to receive their B.S.N. The curriculum is designed to emphasize theory-based practice in nursing and to provide the foundation for graduate study. While pursuing the degree, students are encouraged to select their area of interest. They are also encouraged to collaboratively care for patients in a variety of settings: acute care, critical care, long care, ambulatory care, and home care.

Faculty

Mariamma K. Mathai, *Chair*

Judith Allender
Marlene A. Dehn
F. Ndidi Griffin
Janet Hild
Mary R. Ivan
Patricia R. Nuttall
Gozil M. Oxley
Cherie Rector
Michael F. Russler
Elizabeth H. Wilkerson

Policies and Procedures for B.S.N. Admission

Admission to the program is a two-step process: (1) admission to the university and (2) admission to the nursing major. A separate nursing program application must be submitted. Applicants must meet all criteria for admission to the university and to the nursing major.

1. Students applying to the university must do the following:
   a. File an application for admission to California State University, Fresno with the application fee and two official transcripts from each college or university previously attended.
   b. Transfer students with fewer than 56 transferable semester units must file ACT or SAT scores and high school transcripts by the document deadline.
   c. Students not in the major may apply to the university as prenursing majors.
2. Students must submit a nursing program application with documentation including one official transcript from each college or university attended by the application deadline.
3. Specific health criteria must be met. Students with recurrent infections or physical limitations that preclude meeting clinical course objectives may be unable to satisfactorily complete the requirements for a B.S. in Nursing. Contact the Nursing Department regarding any questions.

Eligibility to Apply to the Program. Students need:

- two natural science and two other prerequisite courses completed at the time of application
- to complete each prerequisite with a minimum *C* grade — *CR/NC* grades are not acceptable
- a GPA of 3.0 or above in all prerequisite courses
- maximum of two prerequisite courses may be repeated once to improve grade
- validated admission to California State University, Fresno for the term of program entry

All nine prerequisites must be completed before consideration for admission into the program. No prerequisite courses can be taken concurrently with the nursing courses. No exceptions.

Selection Criteria. The program is on impacted status (the number of applications received is greater than the number of vacancies for the program). Therefore, admission into the nursing major is very competitive; there is no waiting list. Only applicants with the highest composite scores in the nine prerequisite courses will be admitted. Applicants must reapply each time and compete with the entire applicant pool if not selected.

Note: California residents are given preference over out-of-state and international students as long as the program is on impacted status.

Selection for the Nursing Program:

a. Students will be ranked by grade point average in the nine prerequisites courses (prerequisites GPA).

b. Preference will be given to U.S. military veterans who meet minimum requirements for admission and who submit a DD214 showing a discharge date no more than four years prior to date application is submitted. Remaining applicants will be ranked by prerequisite GPA and admitted as enrollment quotas allow.

Application Filing Period

Fall admission: November 1– 30; applications are available October 1.

Spring admission: August 1-31; applications are available July 1.

Dates are subject to change. Contact the Nursing Admissions Office at (559) 278-3928.

The program application includes additional instructions and deadlines.

Note: Students who have been admitted to the major, have made no arrangements with the department, and fail to attend the first day of class will be dropped from the major and not considered for future admission.

For the university application form and admissions information, write to the Office of Admissions, California State University, Fresno. For further information regarding program admission curricula, write to the following address and enclose a self-addressed, stamped, legal-size envelope:

California State University, Fresno
Admissions: Nursing
College of Health and Human Services
2345 East San Ramon Ave. M/S MH25
Fresno, CA 93740-8031.

Policies and Procedures for Direct Transfer into the Nursing Major

1. Students must have completed at least two semesters or 12 semester units of nursing courses in the major (all other students must follow the admission procedures for basic or advanced placement majors).
2. Students must submit all transcripts, course descriptions of nursing courses, and two letters of recommendation from their current school to be considered for transfer.
3. Students must meet all California State University, Fresno criteria for admission and continuation in the major to be eligible for transfer.
4. Students are admitted and placed in the major at the discretion of the department chair.
5. Transfer students who have written notification of acceptance into the program enter the major on a space-available basis and must receive department permission to enroll in classes.

Leave of Absence from Nursing Program

1. Request for leave of absence:
   a. Students must request a leave of absence (LOA) in writing from the department chair. Students who don't request a LOA may not be readmitted into the major.
   b. Leaves will be granted only for students who have completed at least one semester in the program and are in good standing.
2. Request to return from leave of absence:
   a. Students must request in writing to be reinstated in the program specifying:
      • Date of LOA
      • Reason for LOA

- Disposition of circumstances requiring the LOA
- Activities (e.g., working in hospital) engaged in during LOA

b. Students will be notified in writing of requirements for returning to program, denial, or reinstatement.

c. Requirements for return may include any or all of the following, based on the discretion of the department chair:
   - Letters of recommendation from individuals such as counselors or physicians
   - Enrolling in up to 5 units of Independent Study to update theoretical and/or clinical skills

d. Students who receive written notice of reinstatement in the major return on a space-available basis and must receive permission from the department to enroll in classes.

Progression in the Major. Criteria for retention, progression, and graduation from the program include a minimum grade of *C* in each required course and each nursing course offered for a grade, and credit in courses offered for *CR/NC* grading only. Nursing and required courses may be repeated only once to achieve a *C* or credit grade. Any student who receives less than a *C* grade (or no credit) in two nursing courses will not be permitted to continue in the major. Refer to the *Student Handbook, Baccalaureate Degree Nursing Program*, for complete progression and retention policies.

Expenses. Students must be prepared to incur any additional cost such as uniforms, malpractice insurance, health insurance, stethoscopes, course materials, lab fees, etc., and be responsible for transportation to clinical facilities. A current CPR certification, a physical examination, and specific immunizations are required.

Bachelor of Science Degree Requirements

Nursing Major *Units*

Major requirements* 60

Select one program:

Generic students ..... (60)
NURS 10, 10A, 10L, 110, 110A, 110L, 111, 112, 121, 121L, 123, 123L, 124, 131, 131L, 132, 132L, 140, 140L, 141, 141L, 142, 145, 150, 150L, 151

RN students only ..... (60)
NURS 112, 136, 137, 141, 141L, 145, 150, 150L; nursing electives (3 units): NURS 134, 135, 140, 142, 151, 180T; 33 transfer nursing units

Prerequisite requirements 32
Courses which must be completed before entrance into the nursing major: CHEM 3A; PHYAN 64 and 65; NUTR 53; MICRO 20 or 140; ENGL 1; PSYCH 10; ANTH 2 or SOC 1 or 2; COMM 8 preferred (or COMM 3 or 7)

Additional requirements 9
Courses which are prerequisite to specific nursing courses: CFS 38; PHIL 20; statistics

General Education 51**
(See *General Education*)

Minimum Total 131**

* See the Nursing Department for course descriptions not found in this catalog and for advising.

** This figure takes into account that prerequisite and additional requirements may be used to satisfy up to 21 units of General Education.

Advising Notes

1. Several prerequisite units also may be used to satisfy General Education requirements.
2. It is anticipated that most of the units in additional requirements may be used to satisfy General Education requirements, including MICRO 20 or 140 (anticipated to fulfill the G.E. requirement for nursing majors only).
3. Students must complete the upper-division writing skills requirement in order to take NURS 145 and to graduate.
4. Optional *CR/NC* grading is not permitted in the nursing major.
5. Students are strongly encouraged to seek academic advising every semester and arrange an appointment.
6. All practicum courses (with suffix "A" or "L") require a minimum of three hours of clinical per unit of credit as a minimum to meet course objectives.

School Nurse Credential Program

Postbaccalaureate Health Services (School Nurse) Credential

The School Nurse Credential Program provides basic preparation for professional roles in school nursing. The program, approved by the California Commission on Teacher Credentialing, leads to the Professional Health Services (School Nurse Credential.) The Department of Nursing, in conjunction with the School of Education and Human Development, recommends qualified candidates for credentialing as providers of health services in California public schools (preschool, K-12, adult).

The program of study for credential students consists of a minimum of 27 units. Courses taken in NLN accredited baccalaureate programs may be accepted for the credential at the discretion of the Department of Nursing. A limited number of school nursing classes are offered through distance learning.

Units

Audiology coursework
- NURS 180T or CSD 188T
  - Audiology for School Nurses 3

Special Education coursework (select one)
- SPED 120
  - Teaching Students with Special Needs in General Education Settings 3
- CSD 114
  - Education of Exceptional Children 3
- PSYCH 168
  - Exceptional Children 3

Counseling coursework (select one)
- COUN 174
  - Introduction of Counseling 3
- COUN 200
  - Seminar in Counseling Techniques 3

Physical Assessment
- NURS 136
  - Health Appraisal* 3

Health Teaching
- NURS 137
  - Teaching Strategies for the Health Client* 3

School Nursing
- NURS 184
  - Introduction to School Nursing* 3

* Courses only available through regular enrollment in the university following acceptance into the Credential Program.

NURS 185
Seminar in School Nursing* 3
NURS 186
School Nurse Practicum I (elementary)* 3
NURS 187
School Nurse Practicum II (secondary)* 3

Advanced pathophysiology and pharmacology courses are recommended.

* Courses only available through regular enrollment in the university following acceptance into the Credential Program.

Note: A minimum of 15 units in the credential program must be taken on this campus. The use of any comparable course is contingent upon departmental approval. Coursework taken more than 10 years ago is not acceptable to meet program requirements.

An introductory statistics course and nursing theory/research course are required for admission into the School Nurse Credential Program.

A maximum of 9 units is allowed through courses taken in Extended Education or concurrent enrollment.

Proof of current California RN license, malpractice insurance, current CPR certification, and current valid Student Health Center clearance are required prior to enrollment in NURS 186 and 187.

The student must hold either a Certificate of Clearance or a Preliminary Health Services Credential prior to enrollment in NURS 186 and 187. Contact the credentials analyst, Education Building, Room 100, (559) 278-0300, for application information.

All admission requirements (credential program application form, admission to the university, all documents, and prerequisites) must be completed prior to enrollment in any of the nursing courses.

Admission Criteria

1. Baccalaureate degree in nursing from a NLN accredited program
2. Admission to the university at the postbaccalaureate level
3. Current California Registered Nurse License
4. California Public Health Nurse Certificate
5. Overall GPA of 2.5 and 3.0 in nursing
6. Three satisfactory letters of recommendation (at least one from a recent employer or nursing faculty)

Admission Procedures

1. Complete application for admission to postbaccalaureate standing, Admissions Office, Joyal Building. Forward copy of application to Department of Nursing, school nurse coordinator.
2. Complete Credential Program application (available from the Department of Nursing).
3. Attach official transcripts of previous academic work.
4. Attach photocopies of required documents (R.N. License, P.H.N. Certificate).
5. Submit three letters of reference/recommendation (forms available from Department of Nursing).
6. Arrange appointment with School Nurse Credential Program coordinator for program planning and advisement.

Note: All candidates are required to sign a statement on the application form regarding conviction or plea of nolo contendere for any violation of law other than minor traffic offenses.

Candidates with a conviction may be refused a Health Services Credential. For further information, contact the credentials analyst, Education Building, Room 100, (559) 278-0300.

Time Restrictions. All requirements for a Professional Health Services Credential must be completed within five years of the date of issuance of the preliminary credential.

Articulation with the Graduate Program

School Nurse Credential students are encouraged to obtain a master's degree. Specific questions about graduate program admission requirements and coursework should be directed to the graduate coordinator, Department of Nursing. Graduate students in either the Pediatric or Family Nurse Practitioner programs may take the articulated option in School Nursing, reducing the total number of units needed to meet the educational requirements for a School Nurse Credential (see *Graduate Program*).

Graduate Program

The department offers a NLN accredited program that leads to a Master of Science degree in Nursing. There are two pathways into the M.S.N. program for individuals with different educational backgrounds.

In addition to advanced practice in a clinical area, students elect a functional role as clinical specialist or nurse practitioner.

The purpose of nursing education at the master's level is to help students apply advanced theory and practice with advanced skills in complex client and community systems. It further seeks to provide students with advanced skills in leadership and research in order to improve the health care of individuals, families, and communities. The program provides a foundation for doctoral study in nursing.

Facilities. The diverse facilities of the community provide a wide variety of learning opportunities for individualized pursuit of student goals. Graduate and postbaccalaureate students have clinical placements which are consistent with their career goals.

Admission Criteria for B.S.N. Graduates

1. Admission to California State University, Fresno, Division of Graduate Studies
2. Baccalaureate degree in nursing from an NLN accredited program
3. Registered nurse license in California (may be waived for nurses licensed in another country)
4. Overall GPA of 2.5 with 3.0 in nursing
5. GRE must be completed within last five years. Scores will be used in the admission selection process.
6. Malpractice insurance
7. An introductory course in statistics
8. An introductory course in research
9. A physical assessment course that includes theory and practice; or validation of knowledge and skills for graduates of programs with integrated content
10. Current CPR certification

Admission Procedures

1. Request an application packet by writing to the following address and enclosing a self-addressed, stamped, legal-size envelope:
   California State University, Fresno
   Admissions:

Graduate Nursing Program
College of Health
and Human Services
2345 East San Ramon Ave.
M/S MH25
Fresno, CA 93740-8031.

2. Arrange to take the Graduate Record Examination. If in Fresno, contact California State University, Fresno's Division of Graduate Studies.
3. Request application from Nursing Department and submit completed form to Admissions Office, California State University, Fresno.
4. Request official transcripts of previous academic work to be forwarded to Admissions Office.
5. Submit Nursing Department application and required credentials.
6. Complete and submit Nursing Department graduate program written essay.

Admission to the program is limited to the fall semester; students with deficiencies are encouraged to meet the requirements in the previous spring semester.

DEADLINE FOR APPLICATION FOR ADMISSION TO THE PROGRAM IS MARCH 1.

Registered Nurses with a Baccalaureate Degree in a Field Other Than Nursing

This program is open only to students eligible for admission to graduate standing at California State University, Fresno, who have completed a nursing program in an accredited school, are registered, or eligible for registration as nurses in the state of California and who hold a bachelor's degree in a related field from an accredited university.

For admission to this program, students are required to meet the following criteria in addition to the regular criteria set for admission to the M.S.N. program:

1. Submission of resume of all past educational and employment experience. Resume should emphasize experience in leadership, community health, research, and writing for publication.
2. Review of resume by the graduate coordinator of the Nursing Department who establishes nursing courses the student must complete to obtain a comparable background to students graduating with a B.S.N. at California State University, Fresno.
3. Satisfactory completion of the individualized program established by the coordinator before enrolling in the regular M.S.N. program.
4. Admission to the Nurse Practitioner Program is not guaranteed, and all students must make application to the Nurse Practitioner Program.

Courses. Under the direction of the graduate coordinator, each student prepares and submits an individually designed program based on the following:

	Units
Core courses in nursing NURS 211, 212, 221, 223, 225, 228	**13**
Approved cognates (See *graduate coordinator for cognates.*)	**0-11**
Role specialization courses (See below.)	**20**
Thesis (NURS 299) or Project (NURS 298)	**3**
or	
Comprehensive Exam*	**0**
Minimum Total	**36**

* Additional approved 3-unit elective required for students taking the Comprehensive Exam.

Role Specialization (Options)
Clinical Specialization
NURS 229, 250, 251; 10 units clinical cognates
Primary Care Nurse Practitioner
Family
NURS 210, 264, 265, 266, 267, 277, 278
Pediatric
NURS 210, 264, 265, 266, 269, 279, 280
Geriatric
NURS 210, 264, 265, 266, 271, 281, 282

Thesis, Project, and Comprehensive Exam. The department offers students the option of writing a thesis, completing a project, or taking a written comprehensive exam on five areas of the field. Information about the options is available from an adviser in nursing.

Note: All practicum courses require a minimum of three hours of clinical work per unit of credit as a minimum to meet course objectives.

Advancement to Candidacy. Completion of 9 graduate units with a GPA of 3.0. Some students may have additional requirements as indicated by a faculty adviser.

Graduate students are responsible for policies and regulations of the Division of Graduate Studies and those specified in the graduate nursing program brochure.

Any nursing classes in the Role Specialization options area may be canceled because of insufficient enrollment.

Clinical Nurse Specialist

The Clinical Specialization Option prepares the graduate to assume a leadership role with advanced skills, knowledge, and competence in a specific area of clinical nursing. Students in this option actualize the role of the clinical specialist in a clinical setting with a master's prepared nurse preceptor. The student is responsible for writing objectives for the experience prior to the clinical placement. Arrangement for clinical placement is made after consultation with the appropriate faculty.

The purpose of the Clinical Specialization Option is to prepare nurses to prescribe and implement both direct and indirect nursing care and to articulate nursing therapies with other nursing personnel and other health providers.

Nurse Practitioner

The Primary Care/Nurse Practitioner Option prepares the graduate to provide primary health care to children, the elderly adult, and families. Classroom and clinical experiences focus on health assessment, health maintenance, and promotion, counseling, client education, and management of selected health problems. Practice in rural settings and with clients from diversified cultural backgrounds is emphasized.

Graduates meet the requirements for recognition as Pediatric, Geriatric, or Family Nurse Practitioners in California and may apply for ANA Certification.

The purpose of the Primary Care/Nurse Practitioner Option is to prepare nurses as specialists in primary care and to improve the availability, accessibility, and quality of primary care services in the central San Joaquin Valley.

Nurse Practitioner Option combined with School Nurse Credential

Students concurrently enrolled in an articulated School Nurse Credential Program and Nurse Practitioner Option Program (SNC/PNP or SNC/FNP) are prepared for work as school nurse/nurse practitioners in a variety of primary health care settings where services are provided to school-age children and their families, including school-based clinics. Students completing this articulated option meet the educational requirements for a Health Services (School Nurse) Credential and Pediatric or Family Nurse Practitioner certification and may apply for additional ANA certification as School Nurse Practitioners.

Students in the articulated SNC/PNP or SNC/FNP program must complete 11 units of School Nurse Credential Program coursework in addition to their graduate program of study for nurse practitioners. Additional courses required for the School Nurse Credential:

	Units
NURS 180T or CSD 188T Audiology for School Nurses	3
NURS 184 Introduction to School Nursing	3
NURS 185 Seminar in School Nursing	3
NURS 186 School Nurse Practicum I (elementary)	1
NURS 187 School Nurse Practicum II (secondary)	1

Note: Students selecting the comprehensive exam with 3-unit cognate option, rather than thesis or project options, may use 3 units from the coursework for the School Nurse Credential Program toward completion of the requirement for the master's degree.

Admission criteria and procedures for *both* programs must be met. Students must apply (and be accepted) to *both* the School Nurse Credential Program and the Graduate Program in Nursing. Consult the Graduate Coordinator *and* the School Nurse coordinator for advising.

COURSES

Nursing (NURS)

8T. Beginning Topics in Nursing (1-3; max total 6 if no topic repeated)
Not available for credit in the nursing major. Selected topics in nursing for prenursing and/or beginning nursing students. Explores topics not covered in regular nursing courses.

10. Basic Concepts and Care of Elderly Clients (3)
Prerequisites: admission to the major; corequisites: NURS 10A, 10L, 112. Overview of theoretical and scientific foundations of nursing practice. Introduction to physiological, psychological, sociocultural, and developmental variables affecting individuals throughout the life span. Emphasis on basic concepts of pharmacotherapeutics and wellness promotion throughout the life span.

10A. Basic Skills in Nursing (2)
Prerequisite: admission to the major. Corequisites: NURS 10, 10L ,112. Application of concepts from NURS 10 in simulated client situations, emphasis on assessment and interventions required to assist individuals in meeting their common health needs. (3 lab hours) (Formerly NURS 10S)

10L. Practicum in Basic Concepts of Nursing Practice (1)
Prerequisite: admission to the major. Corequisites: NURS 10, 10A , 112. Utilization of concepts from NURS 10 in selected health wellness settings. Supervised practice of health assessment, communication skills, and noninvasive nursing procedures. (6 clinical hours)

50. Cooperative Education in Nursing (1-5; max total 12; 80 hours/unit)
Prerequisites: current CPR certification; health clearance; NURS 10, 10A, 10L. Provides students enrolled in the nursing major an opportunity to obtain structured work-study experiences, under the supervision of registered nurses, in participating health care agencies. Opportunities for additional practice and development of confidence through application of previously learned knowledge and skills. *CR/NC* grading only; not applicable toward degree requirements.

110. Basic Concepts in Nursing (3)
Prerequisites: NURS 10, 10A, 10L, 112; CFS 38. Corequisites: NURS 110A, 110L, 111. Application of basic pathophysiology, pharmacotherapeutics, and assessment of clients across life span with emphasis on primary and secondary interventions, utilization of nursing process in care of clients with common health deviations.

110A. Advanced Skills in Nursing (2)
Prerequisites: NURS 10, 10A, 10L, 112. Corequisites: NURS 110, 110L, 111. Integration of knowledge and skills necessary for application in specific nursing diagnostic areas; emphasis on understanding the principles underlying the techniques and procedures required by clients with common health deviations. (6 lab hours) (Formerly NURS 110S)

110L. Practicum in Basic Concepts of Nursing (2)
Prerequisites: NURS 10, 10A, 10L, 112. Corequisites: NURS 110, 110A, 111. Application of nursing process to clients with common health deviations. Identification of risk factors associated with stressors and provision of nursing care directed toward primary and secondary interventions. (6 clinical hours)

111. Integrated Health Assessment (1)
Prerequisites: NURS 10, 10A, 10L, 112. Corequisites: NURS 110, 110A, 110L. Integration of health assessment techniques for clients at various stages of wellness, health, and disease. Principles of communication and history taking. Basic skills and arts necessary for conducting a physical and mental health examination.

112. Pathophysiology for Nurses (3)
Prerequisite: admission to the major. Corequisites: NURS 10, 10A, 10L. Study of the inter-, intra-, and extra-personal stressors leading to alterations in cardiac function, comfort, coping, elimination, immune response, metabolism, mobility, nutrition, respiration, role performance, and the implications for nursing practice.

121. Psychosocial Nursing (3)
Prerequisites: NURS 110, 110A, 110L, 111. Corequisite: NURS 121L. Current theories and concepts in the nursing care of clients with psychosocial disorders.

121L. Psychosocial Nursing Practicum (2)
Prerequisites: NURS 110, 110A, 110L, 111. Corequisite: NURS 121. Application of the nursing process to clients with psychosocial disorders. (6 clinical hours)

123. Concepts of Acute Illness in Adults (3)
Prerequisites: NURS 110, 110A, 110L, 111. Corequisite: NURS 123L. Secondary prevention of the acutely ill adult client/family with alterations in structure, energy, and resources due to intra, inter, and extrapersonal stressors upon flexible and normal lines of defense. Emphasis on the nursing process for reconstitution.

123L. Clinical Practicum: Acute Illness in Adults (2)
Prerequisites: NURS 110, 110A, 110L, 111. Corequisite: NURS 123. Application of nursing process in secondary prevention and care of acutely ill adults. (6 clinical hours)

124. Pharmacology in Nursing (2)
Prerequisites: NURS 110, 110A, 110L, 112. Pharmacological theory required for effective nursing practice. Principles of pharmacokinetics and pharmacodynamics.

131. Nursing of the Childrearing Family (3)
Prerequisites: NURS 121, 121L, 123, 123L, 124. Corequisite: NURS 131L. Introduction to current theories and concepts in the care of the pediatric client/family with emphasis on wellness and illness.

131L. Clinical Practice in Nursing of the Childrearing Family (2)
Prerequisites: NURS 121, 121L, 123, 123L, 124. Corequisite: NURS 131. Application of specific skills, theories, and concepts in the care of the pediatric client/family with emphasis on wellness and illness. (6 clinical hours)

132. Nursing the Childbearing Family (3)
Prerequisites: NURS 121, 121L, 123, 123L, 124. Corequisite: NURS 132L. Theoretical base and clinical knowledge for application in primary and secondary prevention in the nursing of the childbearing family. Introduction to high risk perinatal nursing.

132L. Clinical Practice in Nursing of the Childbearing Family (2)
Corequisite: NURS 132. Application of knowledge and technical skills in the nursing of the childbearing family during the intrapartum and postpartum periods with emphasis on the family as a unit. (6 clinical hours)

134. Geriatric Nursing: Concepts in Health Aging (2)
Prerequisites: NURS 121, 121L, 123, 123L. Exploration of theories and concepts relative to healthy aging, the nurse's role as a case manager in developmental and situational crises, and resources available to the nurse. Appropriate for nursing elective or RNs preparing for ANCC certification in gerontology.

135. Professional Transition (3)
Prerequisite: admission to the major with advanced standing. Introduction to theoretical and conceptual frameworks in nursing. Application to individual nursing practice. Opportunities for peer group support. Socialization into a B.S.N. program.

136. Health Appraisal (3)
Prerequisite: admission to the major or RN license. Health appraisal integrates psychosocial and pathophysiological processes including techniques of history taking and health assessment in nursing practice and knowledge of normal findings as well as common deviations. (2 lecture, 2 lab hours)

137. Teaching Strategies for the Health Care Client (2-3; max total 3, non-repeatable)
Prerequisite: upper-division status. Exploration of nurses' role as a teacher in health care setting. Principles of teaching and learning applied to teaching of individuals and groups. Opportunities for micro-teaching are provided. (Laboratory optional)

140. Concepts of Complex Clinical Nursing (2)
Prerequisites: NURS 131, 131L, 132, 132L. Corequisite: NURS 140L, 142. Theory and concepts relative to care of clients with complex health problems. Emphasis on synthesis of concepts and principles derived from nursing and other disciplines in implementation of primary, secondary, and tertiary prevention for clients of all ages.

140L. Practicum in Complex Clinical Nursing (2)
Prerequisites: NURS 131, 131L, 132, 132L. Corequisite: NURS 140. Clinical application of concepts and nursing process in care of clients of all ages with complex health problems. (6 clinical hours)

141. Concepts in Community Health and Home Health Nursing (3)
Prerequisites: completion of the Multicultural/International General Education requirement; PL SI 2 or 101; NURS 131, 131L, 132, 132L, 145. Corequisites: NURS 141L. Community and home health nursing principles, practices, and services to benefit client systems at the primary, secondary, and tertiary levels of prevention; recognizes the interrelatedness of nursing, public health, epidemiological, developmental, learning, and economic theories and concepts.

141L. Practicum in Community Health Nursing (3)
Prerequisites: NURS 131, 131L, 132, 132L. Corequisites: NURS 141. Application of primary, secondary, and tertiary prevention in the community with individuals, families, and groups. (9 clinical hours)

142. Critical Care Assessment (1)
Prerequisites: NURS 131, 131L, 132, 132L. Corequisites: NURS 140, 140L, 141, 141L. Study of the electrocardiogram and common dysrythmias, airway management, and ventilator therapy, with implications to nursing practice.

145. Nursing Theories and Research (3)
Prerequisites: statistics, NURS 121, 121L, 123, 123L, and upper-division writing. Application of nursing theories and the research process to nursing practice are explored. Focus includes historical evolution of contemporary theories in nursing, critique of current research, and computer applications to research.

150. Leadership and Health Care Economics (3)
Prerequisites: NURS 140, 140L, 141, 141L, 142, 145. Corequisite: NURS 150L, 151. Development of the nurse as a leader

in the health care delivery system. Development of negotiation, delegation, management, and critical thinking skills with recognition of the impact of a changing health care economics environment. (Course fee, $35)

150L. Leadership and Clinical Management (3)
Prerequisites: NURS 140, 140L, 141, 141L, 142, 145. Corequisites: NURS 150, 151. Development and application of leadership skills in a variety of health care settings. Covers using negotiation, delegation, management, and critical thinking skills while managing a client caseload with interprofessional team members in a cost effective manner. (9 clinical hours)

151. Senior Project (1)
Prerequisites: senior standing or permission of instructor; NURS 140, 140L, 141, 141L, 142, 145. Corequisite: NURS 150, 150L. Opportunity for students to build upon conceptual, theoretical, and research knowledge base. Students pursue in-depth study and practical application in areas of interest: management, conflict resolution, application of nursing theories, research, or community project. Satisfies the senior major requirement for the B.S. in Nursing.

180T. Topics in Nursing
(1-3; max total 12 if no topic repeated)
Selected topics such as aging, holistic nursing, transcultural nursing, assertiveness training for nurses, psychosocial aspects of nursing, etc. Some topics may have clinical component.

184. Introduction to School Nursing (3)
Prerequisites: NURS 136; PSYCH 168 or CSD 114 or SPED 120; admission to Health Services Credential Program. Role of the nurse in the school health program; parameters of school health practice.

185. School Nurse Seminar (3)
Prerequisites: NURS 136, PSYCH 168 or CSD 114 or SPED 120; admission to Health Services Credential Program. Role of nurse in school health program; school health practice within legal/administrative parameters and effective use of resources.

186. School Nurse Practicum I
(1-3; max total 3)
Prerequisites: school audiometrist certificate; NURS 184 prior to or concurrently; NURS 136 and SPED 120, or CSD 114, or PSYCH 168; or approved alternative coursework. Provision of full range of school health services in elementary school with a focus on special education. Direct supervision by credentialed school nurse required. Scheduled conference with preceptor and faculty. (3-9 clinical hours/week)

187. School Nurse Practicum II
(1-3; max total 3)
Prerequisites: School audiometrist certificate; NURS 185 prior to or concurrently; NURS 137; COUN 174 or COUN 200; or approved alternative coursework. Provision of full range of school health services in secondary school with focus on issues of adolescence. Participation in special projects. Direct supervision by credentialed school nurse required. Scheduled conferences with preceptor and faculty. (3-9 clinical hours/week)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System.*)

Nursing (NURS)

210. Health Assessment in Advanced Nursing Practice (3)
Prerequisites: NURS 136 or equivalent, pathophysiology, admission to the Graduate Program in Nursing. Refinement of history taking, physical diagnosis, psychosocial, and developmental evaluation of multicultural clients and families. Includes differential diagnosis, clinical decision making, and client management across the life span. Pharmacology and laboratory techniques incorporated. Includes clinical performance component. (2 lecture, 3 practicum hours)

211. Advanced Pharmacology (2)
Prerequisites: admission to the graduate program in nursing or permission of instructor. Concepts and theory relative to pharmacologic agents and devices utilized in health care by the advanced practice nurse. Content includes pharmacologic agents, physiologic/pathologic responses, and legal/ethical considerations for use with all age groups of clients.

212. Advanced Pathophysiology (2)
Prerequisites: admission to the graduate program in nursing or permission of instructor. The relationship between normal physiology and pathological phenomena produced by altered states is analyzed. Physiologic responses to illness and treatment modalities across the life span are examined. Synthesis and application of current research regarding pathological changes are emphasized.

221. Theories Foundations of Nursing Practice (2)
Prerequisite: admission to the graduate program in nursing. Selected theories from nursing and related fields are examined and evaluated with emphasis on application in complex health care systems. The relationship between theory, research, and clinical practice is explored.

223. Advanced Research Methodology in Nursing (2)
Prerequisites: admission to the Graduate Program in Nursing. In-depth study of research principles and techniques. Formulation of a comprehensive database, critical analysis of clinical issues, and application of research in the treatment regimen is incorporated.

225. Advanced Nursing Issues: Health Care Policy Ethics and Role Development (3)
Prerequisite: admission to the graduate program in nursing. The evolution of major issues relevant to advanced nursing practice is examined. Topics include: health care policy, organization, and financing; ethics; professional role development; and interdisciplinary communication and collaboration.

228. Clinical Health Promotion/ Human Diversity in Advanced Practice Nursing (2)
Prerequisite: admission to the graduate program in nursing. Establishes a theoretical foundation in health promotion, illness prevention, and maintenance of function across the health-illness continuum with individuals, families, and the community. The impact of human diversity in advanced practice nursing is examined.

229. Practicum in Advanced Clinical Nursing for the Clinical Specialist (3)
Prerequisites: admission to the graduate program in nursing; NURS 221. Applications of individual, family, and community systems theories and health appraisal skills in clinical practice settings. Transcultural and intergenerational factors are addressed. Creative strategies to client systems problem solving are implemented through application of theoretical models across interdisciplinary practice settings.

250. Seminar in Clinical Specialization (2)
Prerequisites: admission to graduate program in nursing, NURS 221. Advanced concepts of individual, family, and community theory are analyzed in relation to

the health promotion and reconstitution process of dysfunctional individuals, families, and communities.

251. Practicum in Clinical Specialization (4)
Prerequisites: admission to graduate program in nursing, NURS 229; NURS 250 prior to or concurrently. Analysis and implementation of all aspects of the clinical specialist role in practice settings. Family and group process theories are applied to nursing, client, and staff groups.

264. Practicum in Advanced Clinical Nursing for the Nurse Practitioner (3)
Prerequisites: California RN licensure, NURS 210, 221; NURS 265 concurrently. A practicum designed to prepare nurse practitioners to deliver health promotion and health maintenance services. Applications of individual, family, community, and nursing theories are addressed utilizing transcultural and intergenerational factors in interdisciplinary practice settings.

265. Nurse Practitioner Role in Primary Prevention (2)
Prerequisites: NURS 210, 221. Corequisite: NURS 264. Theoretical base for primary prevention: health maintenance, health promotion, health screening, health teaching, and anticipatory guidance for nurse practitioners. Case management techniques utilizing protocols/algorithms.

266. Nurse Practitioner Role in Secondary Prevention (2)
Prerequisites: NURS 264, 265. Theoretical base of secondary prevention in primary care settings. Assessment and management of acute self-limiting conditions. Use and development of algorithms/protocols for secondary prevention. Intensive pharmacology for nurse practitioners.

267. Practicum in Secondary Prevention, Family Nurse Practitioner (4)
Prerequisites: NURS 264, 265; NURS 266 prior to or concurrently. Supervised clinical practice in a primary care setting with emphasis on secondary prevention for clients of all ages. Students work directly with preceptor and faculty member. Complete assessment and case management. (One hour clinical conference per week.)

269. Practicum in Secondary Prevention, Pediatric Nurse Practitioner (4)
Prerequisites: NURS 264, 265; NURS 266 prior to or concurrently. Supervised clinical practice in a pediatric primary care setting with emphasis on secondary prevention. Students work directly with a preceptor and faculty member. Complete assessment and case management. (One hour clinical conference per week.)

271. Practicum in Secondary Prevention, Geriatric Nurse Practitioner (4)
Prerequisites: NURS 264, 265; NURS 266 prior to or concurrently. Application of knowledge related to management of acute, self-limiting and stable chronic conditions/families.

277. Family Nurse Practitioner Role in Tertiary Prevention (2)
Prerequisites: NURS 266, 267. Theoretical base for tertiary prevention for families in primary care settings. Assessment and management of chronic conditions requiring reconstitution. Development of protocols/algorithms for tertiary prevention. Integration of knowledge related to primary, secondary, and tertiary prevention.

278. Practicum in Tertiary Prevention, Family Nurse Practitioner (4)
Prerequisites: NURS 266, 267; NURS 277 prior to or concurrently. Supervised clinical practice in a primary care setting with emphasis on care of clients of all ages requiring tertiary prevention. Students work directly with a nurse practitioner and/or physician preceptor in a primary care setting. (One hour clinical conference per week.)

279. Pediatric Nurse Practitioner Role in Tertiary Prevention (2)
Prerequisites: NURS 266, 269. Theoretical base for tertiary prevention for children in primary care settings. Assessment and management of chronic conditions requiring reconstitution. Development of protocols/algorithms for tertiary prevention. Integration of knowledge related to primary, secondary, and tertiary prevention.

280. Practicum in Tertiary Prevention, Pediatric Nurse Practitioner (4)
Prerequisites: NURS 266, 269; NURS 279 prior to or concurrently. Supervised clinical practice in a primary care setting with emphasis on care of children requiring tertiary prevention. Students work directly with a nurse practitioner and/or physician preceptor in a primary care setting. (One hour clinical conference per week.)

281. Geriatric Nurse Practitioner Role in Tertiary Prevention (2)
Prerequisites: NURS 266, 271. Theoretical base for tertiary prevention for older adults in primary care settings. Assessment and management of chronic conditions requiring reconstitution. Development of protocols/algorithms for tertiary prevention. Integration of knowledge related to primary, secondary, and tertiary prevention.

282. Practicum in Tertiary Prevention, Geriatric Nurse Practitioner (4)
Prerequisite: NURS 266, 271; NURS 281 prior to or concurrently. Supervised clinical practice in assessment and management of acute, self-limiting, and stable chronic conditions of individuals and families.

288T. Seminar Topics in Advanced Clinical Nursing (1-3; max total 9)
Prerequisite: permission of instructor. Selected topics in specialized practice domains such as home health, cardiovascular, oncology, gerontologic, and rehabilitation nursing. Analysis and integration of research-based knowledge into the nursing process characterizing the specific practice domain are emphasized.

290. Independent Study (1-3; max total 3)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (3)
See *Criteria for Thesis and Project*. A project is defined as a systematic development of a plan for, or critical evaluation of, a significant undertaking or a creative work in nursing such as modularized curriculum and clinical protocols. Abstract required. Approved for *SP* grading.

299. Thesis (3)
Prerequisite: NURS 223. See *Criteria for Thesis and Project.* Preparation, completion, and submission of an acceptable thesis, based on an approved proposal, for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Nursing (NURS)

302T. Selected Topics in Nursing (1-6; repeatable with different topics)
Selected topics related to recent developments and advances in the knowledge and techniques of nursing. The purpose is to offer nurses, health personnel, and others the opportunity to study in-depth the selected topics related to specific clinical areas of nursing.

Physical Therapy

Physical Therapy

Physical therapists, or PTs, are health care professionals who evaluate and treat people with health problems resulting from injury, disease, or biomechanical dysfunction. Physical therapists are integral members of the primary care team and are involved in prevention of disability and promotion of positive health, as well as acting consultants in restorative care.

Physical therapy includes the following:

1. examining and evaluating patients with health-related conditions, impairments, functional limitations, and disability in order to determine a diagnosis, prognosis, and intervention;
2. alleviating impairments and functional limitations by designing, implementing, and modifying therapeutic interventions;
3. preventing injury, impairments, functional limitations, and disability while promoting and maintaining fitness, health, and quality of life in all age populations; and
4. engaging in consultation, education, and research.

Master of Physical Therapy

Physical therapy practice today is based on a well-developed body of scientific and clinical knowledge. Physical therapists apply knowledge from the basic, behavioral, and social sciences. Physical therapists must also demonstrate effective communication skills. Insight and sensitivity to the unique needs of diverse populations is essential to effectively maximize the individual's functional potential in society.

The physical therapy student will be educated with a thorough knowledge base and will be capable of critical thinking, ethical practice, and provision of service to meet the changing needs of society. Students learn effective analysis and interpretation of data with which to diagnose neuromusculoskeletal movement dysfunction, make treatment-planning decisions, and predict outcomes based on sound research principles.

The graduate will be prepared to assume the multidimensional roles of the master clinician including patient care, education, consultation, and administration of physical therapy services in the broad spectrum of physical therapy practice settings and across the broad age spectrum from neonates to geriatrics.

Individuals must possess a baccalaureate degree and complete all prerequisite requirements prior to beginning the professional major. Following successful completion of the professional curriculum, the student receives the M.P.T. degree.

Completion of a postgraduate internship is required to be eligible to seek a license to practice physical therapy in the state of California.

At present, the program is a six semester full-time course of study that prepares students for entry-level practice in a variety of clinical settings. The curriculum design is a regional integrated approach to patient management with special emphasis on problem solving. Substantial revisions in the master's program are being considered and will be implemented no later than the fall semester of 2003. Students preparing for admission are advised to stay closely in touch with the program for details. Changes will be distributed in brochures as they are finalized and posted on the department's Website at *http://www.csufresno.edu/physicaltherapy*.

Faculty and Facilities

The faculty is composed of physical therapists that collectively have advanced preparation in all major areas of physical therapy. Most have earned doctorates or advanced specialty certification. Together they represent extensive years of clinical experience. Many faculty members continue to engage in practice in tandem with their faculty responsibilities. Several have held significant positions of leadership in professional associations and have authored textbooks used nationally; several also publish regularly in professional journals. Their efforts have been recognized frequently with prestigious awards from the profession and the community.

Clinical laboratory experiences are conducted in a variety of health care facilities throughout the state of California and out of state on a limited basis.

Career Opportunities

Physical therapists practice in acute care or subacute care hospitals, private physical therapy offices, community health centers, industrial health centers, sports facilities, rehabilitation centers, nursing homes, home health agencies, schools, or pediatric centers. Others work in research institutions or teach in colleges and universities.

College of Health
and Human Services

Department of Physical Therapy
Kathleen A. Curtis, *Interim Chair*
Ora Shipe, *Administrative Support Coordinator*
McLane Hall, Room 188
(559) 278-2625
http://www.csufresno.edu/physicaltherapy

M.P.T., Master of Physical Therapy

Faculty

Kathleen A. Curtis, *Interim Chair*
Janet K. Duttarer
Joanne M. Laslovich
Gary L. Lentell
Robert K. Martin
Peggy Trueblood
Toni Tyner

Admissions to Master of Physical Therapy Graduate Program

The program admission process begins a year prior to planned entry into the Physical Therapy Program.

Admission to the university for postbaccalaureate students occurs in two phases: admission to the university and admission to the Division of Graduate Studies for Physical Therapy. Acceptance to the university does not guarantee admission to graduate studies. Only those students who are admitted to both the university and to graduate studies as physical therapy graduate students will be granted graduate student standing in the M.P.T. program. (Review *Graduate Studies* section in this catalog for graduate admissions).

Students with a bachelor's degree are eligible for unclassified postbaccalaureate status while completing prerequisite coursework.

Physical Therapy Applications are available: June 1

Physical Therapy Application Filing Period: September 1 through November 30

A complete application includes an information application, an official transcript from each institution attended including previous spring and summer terms, observation verification, and letters of reference. Late transcripts or documentation will result in not being considered. Follow program application instructions.

The screening committee reviews the following admission criteria:

1. Complete all prerequisites as listed. The applicant must have completed or must be currently enrolled in the following lower-division courses at time of application. All lower-division courses must be completed by the end of the fall semester prior to admission to the program.

   Lower division

   Anatomy
   Fresno State: PHYAN 64, 65
   Transfer: Human anatomy with lab and human physiology with lab

   Chemistry
   Fresno State: CHEM 3A, 3B or CHEM 1A, 1B
   Transfer: Inorganic and organic or biochemistry with labs

   Psychology
   Fresno State: PSYCH 10
   Transfer: General psychology

   Physics
   Fresno State: PHYS 2A, 2B
   Transfer: Physics with lab including mechanics, heat, light, sound, and electricity

   Statistics
   Fresno State: H S 92
   Transfer: Introduction to basic statistics

   Upper division
   PSYCH 166 (Abnormal Psychology)
   PSYCH 169 (Psychology of Disability)
   PHYAN 130 (Neuroanatomy)
   PHYAN 140 (Neurophysiology)
2. Only upper-division prerequisite courses may be completed during the spring term prior to admission to the program. It is highly recommended that the students complete Neuroanatomy (PHYAN 130) and Neurophysiology (PHYAN 140) prior to admission to the program. Outstanding applicants may be considered for admission with PHYAN 130 and 140 pending with the condition that they must be completed with a *C* or better during the first year of the program.
3. A grade of *C* or better in each prerequisite and a total prerequisite GPA of 3.0 is required. An overall GPA of 2.5 on the last 60 units completed is required. *CR/NC* grades, correspondence courses or independent study courses cannot be used for prerequisite requirements. Only those prerequisite courses completed by the end of the fall semester in which application is made will be counted toward ranking of candidates for selection into the major.
4. Provide evidence of knowledge of physical therapy through employment, volunteer work, or observation in a physical therapy department for a minimum of 100 hours. Fifty hours must be in a general acute care setting; 50 hours may be in a special area of practice. All observation hours must be under the supervision of a licensed physical therapist.
5. Participate in a personal interview.
6. Final transcripts from institutions other than Fresno State must be submitted as soon as grades are posted. Request transcripts prior to the end of the term.

Meeting the foregoing criteria does not guarantee acceptance into the major.

Students transferring from community colleges and other colleges or universities who meet the foregoing criteria are considered on the same basis as California State University, Fresno students applying for admission to the major.

For department application or admission information, write to the following address and enclose a self-addressed, stamped, legal-size envelope:

Admissions:
Department of Physical Therapy
College of Health and Human Services
California State University, Fresno
2345 E. San Ramon Ave. M/S MH29
Fresno, CA 93740-8031

Criteria for retention and progression in the program include a grade of *C* or better in each physical therapy course, an overall GPA of 3.0, and completion of all courses in the major.

Students must carry malpractice insurance, must purchase an appropriate laboratory coat, and must provide their own transportation to hospitals and clinics for off-campus classes and clinical laboratories. Additional laboratory fees may be required. Students must also provide for all expenses while taking the postbaccalaureate clinical internship. Expenses include student fees, housing, meals, and travel.

Requirements for the Master of Physical Therapy

	Units
Core Requirements	**45**
Biological Sciences PH TH 125, 126, 127, 128	(13)
Behavioral Sciences PH TH 142	(3)
Clinical Sciences[1] PH TH 120, 121, 123, 124, 130, 131, 132, 133, 134, 151, 152	(28)
M.P.T. Degree requirements	**41**
Core[2] PH TH 200, 201, 203, 204, 221, 222, 223, 226, 231, 232, 251, 252, 253, 292A, 292B	(35)
Electives PH TH 240-249	(6)
Comprehensive Examination	
Postgraduate Internship Certification requirements PH TH 275[3]	**12**
Total	**98**

[1] Open only to students who have been admitted into the physical therapy major.
[2] PH TH 251, 252, 253 and advanced practicum and PH TH 275 postgraduate internship are conducted in a variety of clinical facilities throughout the state. Students must provide for all expenses including housing, meals, and travel. These courses are offered *CR/NC* only.
[3] PH TH 275 must be completed to be eligible to take the state examination for licensure.

The Master of Physical Therapy program is open to all college graduates with a bachelor's degree who have met prerequisite requirements and show intellectual promise and ability to perform at a satisfactory level during their graduate studies.

Classified Graduate Standing. The applicant to be considered for classification in the graduate program must meet the following criteria:

1. Complete all prerequisite coursework with an overall GPA of 3.0 and a *C* or better in every course.
2. Earn an overall GPA of 2.5 in the last 60 units completed.
3. Receive a satisfactory score on the Graduate Record Exam. Students are encouraged to take the GRE early to avoid delays in acceptance for graduate work.
4. Have received or be eligible to receive a bachelor's degree.
5. Be recommended by the physical therapy faculty.

Advancement to Candidacy Requirements
1. Classified graduate student status
2. Earn a minimum GPA of 3.0 in all program graduate coursework and a *C* or better in every course.
3. Complete all clinical coursework with a satisfactory grade.
4. Demonstrate graduate level writing proficiency (assessment of a portfolio of writings is used).
5. Obtain approval from the faculty to take the department's comprehensive written or oral examination.

A culminating experience is required of all Fresno State master's degree candidates. Students in physical therapy satisfy the requirement through a written and/or an oral examination.

COURSES

Physical Therapy (PH TH)

105. Medical Terminology for Health Professionals (2)
Recommended for physical therapy majors, but open to all students. Study of word parts, definitions, spelling, analysis, synthesis, and use of medical vocabulary.

110. Patient Advocacy for Health Practitioners (3)
Prerequisite: PSYCH 10. May be taken concurrently with PSYCH 166. Recommended for health professions students, but open to all students. Exploration of psychosocial and cultural considerations and community resource management for persons with physical impairment. (Formerly HSW 101)

119. Neuro-Musculoskeletal Anatomy (3)
Cannot be substituted for PH TH 125. An in-depth study of the structure and function of the musculoskeletal system. Includes a laboratory utilizing cadavers and prosected material to integrate muscle and tendon attachments with bony landmarks. (2 lecture, 3 lab hours) (Instructional materials fee, $35)

120. Professional Orientation (1)
An introduction to the professional practice of physical therapy, including roles and functions within the health care delivery system and professional responsibilities.

121. Patient Management Skills (3)
Selected theory and clinical application of therapeutic modalities and procedures in the treatment of physical disabilities, including physical agents, exercise, and massage. (2 lecture, 3 lab hours)

123. Introduction to Supervision for Physical Therapy Services (1)
Prerequisite: PH TH 120. Principles of delegation of duties in provision of physical therapy services. Study of the role of the staff therapist in provision of health care services.

124. Research Methods in Physical Therapy (2)
Prerequisite: H S 92 or MATH 11. Study of research design and critical reading of research literature.

125. Applied Human Anatomy of the Musculoskeletal System (4)
Prerequisites: PHYAN 64, 65. Study of the structure and function of the neuro-musculoskeletal systems with emphasis on surface, muscle anatomy and joint anatomy, nerve and blood supply. Includes dissection lab and prosected materials. (3 lecture, 3 dissection lab hours) (Instructional materials fee, $35)

126. Applied Pathophysiology (4)
Prerequisites: PHYAN 64, 65. Advanced study of physiology of body systems and responses to normal aging, environmental influences and pathological dysfunction, including cardiovascular, pulmonary, endocrine, and integumentary systems. Includes dissection lab and prosected materials. (3 lecture, 3 dissection lab hours)

127. Neuromuscular Processes in Human Development and Aging (3)
The study of human development from birth to senescence with focus on concepts of motor and neurological development processes integral to evaluation and treatment intervention in neurological disability. (2 lecture, 3 lab hours)

128. Applied Human Anatomy and Biomechanics of the Neuro-musculoskeletal System (2)
Prerequisite: PH TH 125. Open to physical therapy majors only. Study of the structure, function and biomechanics of neuro-musculoskeletal systems with emphasis on joints, spine, and gait. Includes dissection lab and prosected materials. (1 lecture, 3 dissection lab hours) (Instructional materials fee, $35)

130. Evaluation and Clinical Management of Musculoskeletal Conditions I (4)
A study of musculoskeletal disabilities with emphasis on evaluation techniques, methods of therapeutic intervention, and program planning. Includes selected lectures by medical practitioners in the medical-surgical management of orthopedic conditions. (3 lecture, 3 lab hours)

131. Evaluation and Clinical Management of Musculoskeletal Conditions II (4)
Prerequisite: PH TH 130. A continuation of Evaluation and Clinical Management of Musculoskeletal Conditions I. (3 lecture, 3 lab hours)

132. Evaluation and Clinical Management of Neurological Systems I (3)
A study of neurological disabilities in therapeutic intervention and program planning. Includes selected lectures by medical practitioners in the medical-surgical management of neurological conditions. (2 lecture, 3 lab hours)

133. Evaluation and Clinical Management of Neurological Systems II (3)
Prerequisite: PH TH 132. Continuation of Evaluation and Clinical Management of Neurological Systems I. (2 lecture, 3 lab hours)

134. Evaluation and Clinical Management of Selected Body Systems (3)
Evaluation and therapeutic intervention in the clinical management of normal and pathological conditions of the cardiopulmonary and other selected body systems. (2 lecture, 3 lab hours)

142. Concepts of Patient Compliance (3)
Study of theories and concepts which influence patient management effectiveness and compliance.

151. Clinical Lab I (2)
Prerequisite: PH TH 121. Clinical experience under the direct supervision of academic faculty in selected hospitals. *CR/NC* grading only.

152. Clinical Lab II (2)
Prerequisite: PH TH 151. The application of physical therapy skills and procedures in selected hospitals. *CR/NC* grading only.

175. Postbaccalaureate Clinical Internship (12)
Prerequisite: PH TH 152. Final clinical experience for majors. The internship is 18 weeks of clinical experience at selected hospital settings throughout the state. Certification of internship completion is required before the graduate is eligible to take the state examination for licensure. *CR/NC* grading only.

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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

Physical Therapy (PH TH)

200. Advanced Anatomy and Pathokinesiology (4)
Prerequisites: PH TH 125, 128. Investigation of concepts of biophysics, analysis of normal and abnormal movement. Includes dissection of lab and prosected materials. (3 lecture, 3 dissection lab hours) (Instructional materials fee, $35)

201. Advanced Evaluation and Clinical Management of Cardiopulmonary Dysfunction (3)
Prerequisites: PH TH 126, 134. Investigation and analysis of evaluation and therapeutic intervention in the clinical management of the cardiovascular/pulmonary system. (2 lecture, 3 lab hours)

203. Advanced Evaluation and Clinical Management of Special Orthopedic Problems (3)
Prerequisites: PH TH 131, 200. Advanced specialized approaches to musculoskeletal disabilities with emphasis on evaluation techniques, therapeutic intervention and program planning for the patient with selected orthopedic problems. (2 lecture, 3 lab hours)

204. Advanced Evaluation and Clinical Management of Special Neurological Problems (3)
Prerequisites: PH TH 127, 133. Advanced specialized approaches to neurological disabilities with emphasis on evaluation techniques, therapeutic intervention and program planning for the patient with selected neurologic problems. (2 lecture, 3 lab hours)

221. Seminar in Clinical Decision Making I (2)
Use of decision analysis and case management theory to master concepts in clinical decision making. Analysis and research of patient problems, synthesis of physical therapy theory and integration of cultural, psychosocial, and community resources to formulate treatment consistent with contemporary practice.

222. Seminar in Clinical Decision Making II (1)
Prerequisite: PH TH 221. Continuation of Seminar in Clinical Decision Making I.

223. Seminar in Clinical Decision Making III (1)
Prerequisite: PH TH 222. Continuation of Seminar in Clinical Decision Making II.

226. Electrophysiologic Approaches to Patient Care (3)
Prerequisites: PH TH 121, 126; PHYAN 140. Exploration of advanced theories and principles related to the clinical use of electrophysiologic modalities. Includes electroneuromuscular stimulation for motor performance, nerve function, pain management and tissue repair. (2 lecture, 3 lab hours)

231. Seminar in Health Care Issues I (2)
Investigation and discussion of the health care delivery system and its impact on the delivery of physical therapy services.

232. Seminar in Health Care Issues II (2)
Prerequisite: PH TH 231. Investigation and discussion of administration and organization of physical therapy services in the health care delivery system.

240. Advances in Orthopedic Physical Therapy I (2)
Prerequisite: PH TH 203 or permission of instructor. Exploration of treatment of orthopedic problems.

241. Advances in Physical Therapy II (2)
Prerequisite: PH TH 240 or permission of instructor. A continuation of Advances in Orthopedic Physical Therapy I.

242. Advanced Clinical Anatomy I (2)
Prerequisite: PH TH 200 or permission of instructor. Exploration of clinical application of anatomical structures of joints.

243. Advanced Clinical Anatomy II (2)
Prerequisite: PH TH 242 or permission of instructor. A continuation of Advanced Clinical Anatomy I.

244. Advances in Management of the Aging Population (2)
Prerequisite: PH TH 127 or permission of instructor. Exploration of special approaches and considerations of intervention of conditions of aging.

245. Advances in Management of the Neurological Patient (2)
Prerequisite: PH TH 204 or permission of instructor. Exploration of advanced multisystem treatment approaches in neurorehabilitation.

246. Management Strategies for Independent Practice (2)
Prerequisite: permission of instructor. Exploration of strategies for developing and maintaining a physical therapy service in an independent environment.

247. Sports Injuries (2)
Prerequisite: PH TH 200 or permission of instructor. Exploration in advances in management of sports injuries.

248. Advances in Cardiac Rehabilitation (2)
Prerequisite: PH TH 201 or permission of instructor. Exploration of the components of implementing and maintaining multilevels of cardiac rehabilitation and the management of patients with cardiac disease.

249. Contemporary Issues in Delivery of Physical Therapy Services (2)
Prerequisite: permission of instructor. Exploration of emerging trends and issues in contemporary physical therapy practice.

251. Advanced Clinical Practicum I (2)
Clinical practice in selected health care facilities throughout the state. *CR/NC* grading only.

252. Advanced Clinical Practicum II (2)
Prerequisite: PH TH 251. Clinical practice in patient evaluation, treatment planning, and outcome evaluation in a variety of clinical settings located throughout the state. *CR/NC* grading only.

253. Advanced Clinical Practicum III (2)
Prerequisite: PH TH 252. Continuation of Advanced Clinical Practicum II. *CR/NC* grading only.

275. Postgraduate Clinical Internship (12)
Prerequisite: PH TH 253. Final experience for majors. The internship is 18 weeks of clinical experience at selected facilities throughout the state. Certification of internship completion is required before the graduate is eligible to take the state examination for licensure. *CR/NC* grading only.

290. Independent Study (1)
Supervised guidance for students who wish to do additional work on research. Approved for *SP* grading.

292A. Advanced Physical Therapy Research: Problem Formulation and Method (3)
Explores advanced topics in physical therapy research including conceptualization, operation utilization, design and sampling strategies. It allows students to prepare a proposal for an independently pursued, empirically based research project.

292B. Advanced Physical Therapy Research: Data Collection and Analysis (3)
Prerequisite: PH TH 292A. Examines advanced strategies for physical therapy research data collection and analysis. Students are able to independently collect data, analyze it and report findings from a research project.

IN-SERVICE COURSE

(See *Course Numbering System*.)

Physical Therapy (PH TH)

302T. Topics in Physical Therapy (1-6; repeatable with different topics)
Selected topics in physical therapy for practicing clinicians in the health fields.

Recreation Administration and Leisure Studies

Recreation Administration

The program offers a Bachelor of Science degree in Recreation Administration for individuals who are committed to the recreation and leisure services profession. While the General Education program provides students with a foundation in the liberal arts and sciences, the major in recreation administration allows students to acquire knowledge, understanding, ability, and skill necessary to successfully function in professional positions related to the major.

Faculty are committed to providing a quality professional preparation program in recreation and leisure services, founded on a competency based curriculum. Our graduates acquire specific competencies as identified by practitioners, faculty, and the National Recreation and Park Association. These competencies are related to leadership, program planning, recreation and leisure oriented activities, budgeting, evaluation of programs and personnel, history, professional ethics, philosophy, research techniques, public relations, communication skills, organizational systems, laws and legislation, facility management, administration, and therapeutic techniques.

Curriculum

Accredited by the National Recreation and Park Association Council on Accreditation, the program offers a B.S. degree and a Minor in Recreation Administration. Preparation is provided within the major for two distinct emphasis areas: leisure services management and therapeutic recreation.

Students in the recreation administration major complete a core of courses. These courses are designed to assist students in acquiring competencies related to the content of courses in principles of recreation, leadership and group dynamics, adventure-based programming, legal and financial aspects of recreation service, advanced program planning, organization and administration of leisure services, trends, research, and professionalism.

Within the leisure services management emphasis, students develop specific competencies in the areas of accounting, finance, business management, marketing, funding, resources, program planning and supervision, and facility management. Students in the therapeutic recreation emphasis acquire specific competencies related to the subject matter of courses in physiology, foundations of therapeutic recreation service, methods in therapeutic recreation, abnormal psychology, and individual and small group counseling.

Under the guidance of a practitioner, students in recreation administration and leisure studies may earn more than 1,000 hours of paid or voluntary hands-on experience in a variety of recreation, clinical, or leisure services agencies. In addition, they serve full-time internships with commercial recreation enterprises, public recreation agencies, nonprofit organizations, park-oriented agencies, hospitals, rehabilitation centers, and other service organizations.

Students may apply for an Honors Internship (out of state) if they achieve a major GPA of 3.3 and a cumulative GPA of 3.0. Additional requirements must also be met.

Career Opportunities

The recreation and leisure business comprises the second largest industry in the United States. Fresno State graduates have been very successful in securing professional positions as recreation therapists in hospitals, centers for the disabled, and rehabilitation facilities; recreation directors in schools, churches, youth agencies, detention centers, cities, and counties; state and federal recreation specialists; managers of resorts, membership clubs, travel and tourism, hotel guest services, employee services, armed forces recreation services, and others.

College of Health
and Human Services

Recreation Administration and Leisure Studies Program
L. Jay Fine, *Interim Coordinator*
Helen Young, *Department Administrative Assistant*
Psychology and Human Services Bldg., Room 121
(559) 278-2838
FAX: (559) 278-5267
http://www.csufresno.edu/recadmin/

B.S. in Recreation Administration
Emphases:
- Leisure Services Management
- Therapeutic Recreation

Minor in Recreation Administration

Certificate in Adventure-Based Programming

Certificate in Serving At-Risk Youth

Certificate in Special Event Planning

Faculty

L. Jay Fine, *Coordinator*
Jody Hironaka-Juteau
Andrew E. Hoff
Ralph W. Weber

Bachelor of Science Degree Requirements

Recreation Administration Major

	Units
Major requirements	**59-62**
The following courses are required of all candidates for this degree. Additional required courses dependent upon the selected emphasis are outlined following the core program requirements.	
Core Program	
RLS 55, 73, 73L, 128, 128L, 146, 179, 180	(19)
Emphases (select one)	(28-31)
Leisure Services	
Management Emphasis	
RLS 125, 131, 133, 135, 139, 184	(28)
Therapeutic Recreation Emphasis	
RLS 142, 144A, 144B, 148, 187; PHYAN 64; PSYCH 166	(31)
Recreation electives	(12)
All students must complete a minimum of 12 units from the following divisions with no more than 6 units taken from any one division except for those students electing area F.	
A. ART 20, 30, 40, 60, 70	
B. DRAMA 136, 137; MUSIC 9, 153; KINES 122, 130, 152	
C. PSYCH 36, 169; COUN 174	
D. RLS 75, 80, 101	
E. ACCT 3; B A 18; MGT 104, 106, 110; IS 50; MCJ 106	
F. PHYAN 65, 130; PH TH 110 Students who are interested in pursuing a graduate degree related to physical rehabilitation should elect area F.	
General Education	**51**
Electives and remaining degree requirements*	**15-24**
Total	**128**

Advising Notes

1. *CR/NC* grading is not permitted in the recreation administration major with the exceptions of RLS 75, 184, and 187.
2. General Education and elective units may be used toward a minor (see *departmental minor*). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
3. Students who must complete a course to fulfill the university writing requirement are advised to take IS 105W.
4. Only a grade of *C* or higher in RLS 55, 73, 73L, 128, 128L, 131, 142, 146, 179 and 180 will apply to the major in Recreation Administration.

Recreation Administration Minor

The Minor in Recreation Administration consists of 23 units. Students completing the minor develop a basic knowledge of leisure services management that has application in many diverse fields.

	Units
RLS 55, 73, 73L, 80 or 101, 128, 128L, 131, 133 or 146, 135	**23**

Certificate in Serving At-Risk Youth

The Certificate in Serving At-Risk Youth is awarded to students who successfully complete 12 units of upper-division coursework selected to provide an overview of the critical issues that face youth and the service concerns associated with meeting their needs. All coursework to be applied to this certificate must be completed with a minimum grade of *C* to be counted. The required units in COM S 101 must be in a placement approved by the faculty. Admission to the program requires the consent of the program faculty.

	Units
Required courses	**6**
RLS 113*	3
COM S 101*	3
Elective courses	**6**
Select 6 units from the following: CRIM 120, PSYCH 102; CFS 133S, 136; EHD 107, 108; COUN 150; RLS 106, 117	
Total	**12**

*COM S 101 and RLS 113 must be taken concurrently.

Certificate in Special Event Planning

The Certificate in Special Event Planning is awarded to students who complete a selective course of study in recreation administration and related courses. Students must complete a minimum of 12 units of upper-division coursework with a grade of *C* or better in all classes.

The Certificate in Special Event Planning is designed to prepare students to plan large community events such as street fairs, community festivals, convention center events, major fund-raising events, corporate events, and joint sponsorship events.

The certificate is appropriate for those students seeking employment in community-based recreation agencies, corporate recreation, community nonprofit organizations, convention centers, and any business dealing with special event planning.

	Units
Required courses	**8-9**
RLS 117	3
RLS 135	3
COM S 101	2-3
Elective courses	**3-4**
Select one class from the following:	
MCJ 106	4
MCJ 142	4
MGT 129	3
MGT 133	3
Total	**12**

Certificate in Adventure-Based Programming

The Certificate in Adventure-Based Programming is designed for students pursuing a professional interest in perceived risk and wilderness activities within settings such as youth organizations, church groups, travel and tourism, and schools and colleges. Adventure education will be explored through courses using group initiative and perceived risk activities to foster personal development. The certificate will center on preparing students to facilitate ropes courses, climbing walls, mobile initiative courses, and natural resource-based pursuits such as rock climbing, backpacking, cross-country skiing, and other outdoor activities.

Students will learn specific sequencing, processing, and leadership techniques for adventure education. They will gain insight into their own strengths and weaknesses related to interaction with on-going

psychodynamic processes and apply these techniques to diverse groups and special populations. All coursework to be applied to this certificate must be completed with a minimum grade of *C* to be counted. Admission to the program requires the consent of the program faculty.

	Units
Required courses	**6-7**
RLS 106	2
RLS 146	3
COM S 101	1-2
Elective courses	**5-6**
Select one class from the following:	
RLS 113	3
COUN 174	3
MGT 106	3
KINES 122	3
CTET 122	2
Total	**12**

COURSES

Recreation and Leisure Studies (RLS)

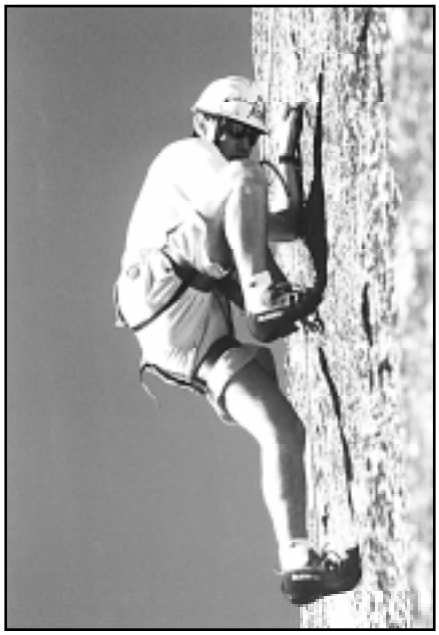
55. Introduction to
Recreation and Leisure Service (3)
Philosophical, theoretical, and historical basis for recreation service in contemporary American society; exploration of the various facets of recreation and leisure service including public, nonprofit, therapeutic, and commercial recreation. (CAN REC 2)

73. Leadership
in Recreation Service (3)
Theoretical and philosophical basis for leadership. Dynamics of leading recreation activities, developing basic program planning skills, and procedures for facility utilization.

73L. Leadership in
Recreation Service Laboratory (1)
Concurrent enrollment with RLS 73. Practical leadership experience in supervised recreation settings.

75. The Journey: An Adventure
Ropes Course Experience (1)
An experiential journey of self-awareness, esteem building, and group processing through initiative games and high ropes elements. *CR/NC* grading only. (Course fee, $30)

80. Lifelong Learning
in the Natural Environment (3)
Exploration of the social, psychological, and physiological implications of experiential learning and personal growth using experiences based in the natural environment. Dymanics of identifying personal interests and skills. Discovering resource-based learning opportunities in the leisure appropriate across the life stages. G.E. Breadth E1.



101. Leisure and Human Behavior (3)
Exploration of leisure as related to the individual and society. The forces and factors affecting its role on human behavior are examined within the context of current social issues. (Students may incur minimal expenses related to field trips.)

106. Challenge Course Facilitation (2)
Prerequisite: permission of instructor. Facility-based adventure programming skills, focusing on ropes courses and climbing walls, as well as activity sequencing, processing, and leadership skills for adventure education. Practice in safety, supervision, and maintenance of adventure facilities and sites.

113. Serving At-Risk Youth (3)
Examination of the forces and factors that place youth at risk. Review of service models and leadership styles that affect outcomes for at-risk youths with emphasis on agencies that have developed successful program approaches. (Formerly RLS 192T)

117. Special Event Planning (3)
Special techniques and requirements for planning and conducting large community functions such as street fairs, community festivals, major fund-raisers, corporate events, and joint sponsorship. Emphasis on community laws and regulations, activity selection and planning, advertising, and funding. Field trips and/or other off-campus experiences will be required. (Students may incur minimal expenses related to field trips.)

125. Understanding
Special Populations
in a Contemporary Society (3)
Basic understanding of different special populations including important terms, etiology, facilities, trends, and relationships to recreation.

128. Legal and Financial Aspects
of Recreation Service (3)
Prerequisite: RLS 55. Legal and financial aspects of recreation service; budget analysis, legal terminology, and their role in recreation administration.

128L. Legal and Financial Aspects
of Recreation Service Lab (1)
Prerequisites: RLS 55 and concurrent enrollment with RLS 128. The lab emphasizes the development of budgets for park, recreation and leisure service agencies through the use of a variety of computer programs.

131. Foundations of
Leisure Services Management (3)
Prerequisite: RLS 55. Historical and philosophical foundations of leisure service provisions by public, nonprofit, and commercial recreation agencies. Review of selected service providers including organization, assessment, service provision, legal base, funding profiles, and current trends analysis. (Field trips may be required.)

133. Recreation Facilities
Management and Operations (3)
Prerequisite: RLS 131. Emphasis will be on the management and operations of existing recreation facilities. Facility layout for use in activity presentation, safety procedures, staffing, risk management, and maintenance. (Field trips may be required.)

135. Leisure Services
Delivery Systems (3)
Prerequisite: RLS 131. Analysis and development of leisure service delivery systems, alternative funding sources, marketing promotion of programs and services, and an in-depth analysis of recreation feasibility plans.

139. Programming and Evaluation in Leisure Services Management (4)
Prerequisites: senior standing or permission of instructor; RLS 128, 135. Concepts and methods in developing, operating, and evaluating recreation programs and services in leisure service settings. Emphasis on costing, scheduling, and marketing programs for a variety of client groups. (3 lecture, 1 lab hour)

142. Foundations of Therapeutic Recreation Service (3)
Prerequisite: RLS 55. Historical review of therapeutic recreation; identification of special populations including the study of etiology, characteristics, terminology, and support systems; facility design, use, and adaptation; field trips to settings serving the mentally and physically handicapped, the developmentally disabled, the aged, the convalescent, and the socially deviant.

144A. Methods in Therapeutic Recreation (3)
Prerequisites: RLS 142; PHYAN 64; RLS 144B concurrently. Application of therapeutic recreation methods including assessment, program design, and evaluation.

144B. Facilitation Techniques in Therapeutic Recreation (3)
Prerequisites: RLS 142; RLS 144A concurrently. Practical experiences in applying therapeutic recreation intervention techniques.

146. Adventure Based Programming (3)
Prerequisite: permission of instructor. Adventure based programming skills will be explored through experiential activities on the Journey Ropes Course and other outdoor pursuits. (2 lecture, 1 lab hour) (Students will incur expenses related to required field trip.)

148. Programming and Evaluation in Therapeutic Recreation (4)
Prerequisites: senior standing or permission of instructor; RLS 128, 144A, 144B. Planning therapeutic programs for special populations. Practical program experiences with disability groups required. (3 lecture, 1 lab hour)

179. Supervision and Administration in Leisure Services (3)
Prerequisite: RLS 128 and may only be taken the semester prior to internship. Preparation for the role of supervisor of recreation and leisure services; recruitment, motivation, performance evaluation training and development, and other supervisory and management practices.

180. Senior Seminar (2)
Trends and issues, current research, professionalism, and internship search procedures in recreation administration.

184. Internship in Leisure Services Management (12)
Prerequisites: completion of all major, General Education, and university graduation requirements. Honors internship requires placement approval in RLS 180. Directed supervisory experience with a nonprofit, public, or commercial recreation agency. Individual development in administration, supervision, program planning, and public relations. Reports and conferences required. (It is recommended before registering for internship that students have the equivalent of 1,000 hours of recreation related experience, either paid or volunteer, in a recreation service agency.) *CR/NC* grading only.

187. Internship in Therapeutic Recreation (12)
Prerequisites: completion of all major, General Education, and university graduation requirements. Honors internship requires placement approval in RLS 180. Supervised, directed full-time experience in the field of therapeutic recreation; reports and conferences required. (It is recommended before internship registration that students have the equivalent of 1,000 hours of recreation related experience, either paid or volunteer, in the field of recreation service.) *CR/NC* grading only.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192T. Topics in Recreation Administration (1-3; max total 8; repeatable with different topics)
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.

IN-SERVICE COURSES

(See *Course Numbering System*.)

Recreation and Leisure Studies (RLS)

313. Recreation Activities (1-3; max total 6; repeatable with different topics)
Prerequisite: permission of instructor. Open to personnel working in recreation, students, and teachers. Design, application, and adaptation of activities and skills to various recreational settings. May be repeated for credit.

330T. Topics in Recreation (1-3; max total 6; repeatable with different topics)
Prerequisite: permission of instructor. Study and critical analysis of problems relating to organization, administration, supervision, and management of agencies engaged in recreational/leisure services. May be repeated for credit provided different fields are covered.

Social Work Education

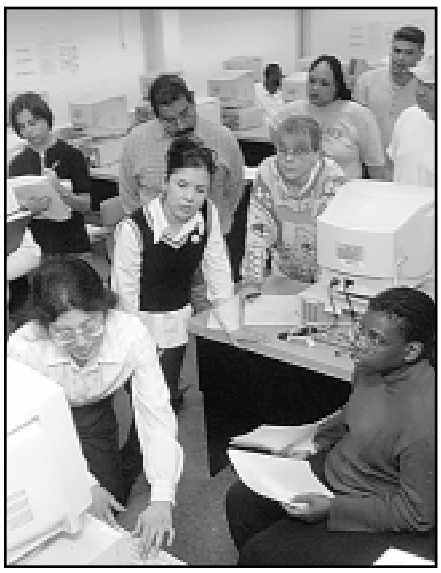
Social Work Education

The profession of social work is dedicated to meeting the diverse social service needs of special populations of individuals, families, groups, organizations, and communities. As a practice oriented profession, social work deals with social concerns that range from societal oppression to people's emotional/behavioral problems. The social work practitioner helps at risk populations which typically include the poor and homeless, abused/neglected children and adults, people of color, women, recent refugees, chronically mentally ill, developmentally disabled, physically ill or disabled, substance abusers, criminal offenders, and the aged.

In focusing on disadvantaged groups, social workers use a range of traditional and nontraditional methods to promote well-being, personal growth, and social justice, e.g., client and systems policy advocating, brokering, consulting individual, family, and group counseling/psychotherapy, mediating, researching, supervising, and teaching.

While the discipline of social work is deeply rooted in a rich, 100-year history of service, what social workers "do" is no longer traditionally defined. The role of the social worker is constantly expanding into innovative service fields wherever a compassionate response to human need is indicated.

The Department of Social Work Education offers two degree programs to educate beginning and advanced social work practitioners who can meet complex client needs within a diversity of public and private human service settings and who can perform in a variety of roles using multiple social work practice methodologies. The Bachelor of Arts degree program prepares students for beginning generalist social work practice as well as for graduate study in the human service field, including social work. The Master of Social Work prepares the learner for autonomous social work practice at multiple levels of intervention as well as for doctoral study in social work and related human service arenas. Both the B.A. and the M.S.W. programs are accredited by the Council on Social Work Education.



Faculty and Facilities

The faculty of the department represent a wide spectrum of theoretical orientations and approaches to professional social work practice. All have substantive practice experience and many have extensive research and social policy interests. In addition to the on-campus facilities of the university, the department uses the San Joaquin Valley's unique urban-rural configuration of people, agribusiness and social-political institutions, and the accompanying host of social service needs as the setting for in-the-field learning. Numerous public and private social service agencies in our region make their facilities and professional social work staff available for the internship/practicum element of the department's program. A representative sample of these settings include: Atascadero State Hospital; California State Department of Corrections, Human Resources Development, Social Services, Youth Authority; Fresno Community Hospital; St. Agnes Hospital; Valley Children's Hospital; Veterans Administration Hospital; Vietnam Outreach Center; and Area Agency on Aging. Internship/practicum experiences are also available in the schools, as well as the mental health, probation, and social services departments in the counties of Fresno, Kings, Madera, and Tulare.

College of Health
and Human Services

Department of
Social Work Education
G. "Vishu" Visweswaran, *Chair*
Carol Dupras, *Department Administrative Assistant*
Psychology and Human Services Building, Room 128
(559) 278-3992
http://www.csufresno.edu/socwork

B.A. in Social Work

M.S.W., Master of Social Work

Certificate in Alcohol/Drug Studies

Certificate in Cross-Cultural Competency

Career Opportunities

Graduates from the B.A. program typically find employment as social workers in county or state departments of social services; private agencies offering individual, group, or community services; poverty and mental health programs; social rehabilitation programs; human resources development programs for services to the handicapped, aged, and special population groups, medical and hospital programs, correctional programs, primary, secondary and higher education settings, and employee assistance programs in businesses and governmental agencies.

M.S.W. graduates can expect to hold additionally responsible but more advanced clinical, case management, training, administrative, program development or policy making/administrative positions in a broad spectrum of human service organizations.

The U.S. Department of Labor *Occupational Outlook Handbook 1994-95* projects the employment of social workers to increase faster than the average for all occupations through the year 2005 in response to the needs of a growing and aging population, especially in the Central California region. Special mention must be made regarding increased job opportunities in child welfare, mental health, substance abuse programs, school systems, and services for the elderly, as well as increased opportunities in rural areas.

Faculty

G. "Vishu" Visweswaran, *Chair*

Undergraduate Advisers:
James E. Aldredge, David L. Ellis, Sudarshan Kapoor, Serge C. Lee, Richard O. Salsgiver, Jane Yamaguchi

Graduate Advisers: All full-time faculty

Andrew J. Alvarado
Frederick W. Childers
Benjamin Cuellar
John B. Franz
Betty Garcia
Mark G. Hanna
Donna L. Hardina
Debra Harris
M. Lynn Jacobsson
Mitzi Lowe

Bachelor of Arts Degree Requirements

Social Work Major — *Units*

Major requirements 42
S WRK 20, 123, 130, 135, 136, 140, 141, 175, 176, 181 (12 units), 185

Additional major requirements 18
May also count toward General Education
ECON 25, 40, or 50 ..... (3)
H S 90, 129, or 135 ..... (3)
Approved upper-division electives (see list in department office) ..... (9)
Cultural Diversity — Ethnic Studies including African American Studies and American Indian Studies; Chicano and Latin American Studies, Asian American Studies, or Women's Studies ..... (3)
Six units from two of the following areas: Anthropology, Criminology, Psychology, or Sociology ..... (6)
Select three units from the following: S WRK 122T, 125, 128, 129 ..... (3)

General Education 51

Electives and remaining degree requirements* 13-25
(See *Degree Requirements*); may include a dual major or minor.

Total 124

*This figure takes into consideration that, with proper selection, 15 units of additional requirements for the social work major also may be applied toward fulfilling General Education requirements (see *General Education*). Consult the social work department chair or your faculty adviser for details.

Advising Notes

1. Approved course listings are available in the department office. Consult your faculty adviser for assistance in selecting a pattern of courses to fit your particular interests and goals.
2. *CR/NC* grading is not permitted in the social work major with the exception of S WRK 181.
3. General Education, additional requirements, and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4. Senior year internships are arranged by the field coordinator. Applications must be filed, interviews with the field coordinator, and agency selection interviews completed the semester *prior* to entering the field.
5. Students who have prior knowledge of Spanish but lack fluency are encouraged to take additional coursework in Spanish.
6. A booklet describing the program more fully is available in the department office.

Certificate in Alcohol/Drug Studies

The Department of Social Work Education is participating in a certificate of special study awarded to those students who successfully complete a minimum of 12 units of interdisciplinary academic coursework in the area of alcohol and drug abuse. (For complete details, see *Health and Human Services Interdisciplinary Courses* in this catalog.)

Certificate in Cross-Cultural Competency

A certificate of special study is awarded to those students who successfully complete a selective course of study of 12 units: two core courses and two related interdisciplinary electives. The certificate is designed to prepare students for professional practice in culturally diverse settings in the fields of business, education, health care, and human service. All coursework must be taken for a letter grade and completed with a grade of *C* or better in each of the six required units and six units of electives.

Units

Required courses 6
S WRK 136, 137

Elective courses 6
Take two 3-unit courses, each from different categories.
Language and Culture: ANTH 118, 123, 124; CLS 116; CSD 122, 139; ERF 140ECE; SPAN 125; GERON 111, 161; INTD 130; LING 110, 120, 130; PHIL 135, 138; PSYCH 178; COMM 120, 164
Health/Mental Health: AF AM 141; ANTH 117; CLS 158; H S 90, 100; PSYCH 169; W S 134; RLS 125
Ethnicity: AF AM 56, 135, 136, 142, 144, 148; A I S 100, 101, 103; ANTH 115, 116W, ASAM 110, 138, 140; CLS 126, 128, 141, 152, 154, 156; CRIM 174; ETH S 104W; SOC 111
Women: AF AM 137; CLS 162; GERON 18; H S 126, 130; HIST 101; SOC 132; W S 105, 120, 125, 135

Total 12

For more information, call the Department of Social Work Education at (559) 278-3992.

Credential Programs

As part of the M.S.W. degree, the Department of Social Work Education offers a program which satisfies the requirements for the Pupil Personnel Services Credential with Specializations in School Social Work and Child Welfare and Attendance Services. Advising and admissions information are available through the P.P.S. coordinator in the Department of Social Work Education.

Master of Social Work

This program is designed to prepare students for advanced, autonomous social work practice — capable of intervening at the individual, family, small group, organization, and community levels. Students will achieve competence in problem identification, assessment, development of intervention plans, and evaluation of practices. They will build cross-cultural awareness. Students will learn to use empowerment and social justice perspectives in intervention with client systems various sizes.

Students will complete a total of 60 units of graduate work, including 10 units of supervised internship with participating agencies in the community. They will prepare an acceptable master's project/thesis which investigates social problems and appropriate intervention strategies.

The program will prepare students for practice and advancement in the social work profession. Students will develop the knowledge and skills necessary to provide direct services, consultation, training, program development, practice evaluation, and social service research on behalf of clients and community for the advancement of the profession.

Students accepted to the program must maintain an average GPA of 3.0 in all coursework. They must also complete a project/thesis under faculty supervision. In addition, all students are expected to complete an internship experience in participating community agencies. The department will maintain on-going assessment and evaluation of internship through written evaluation procedures.

Master of Social Work Degree Requirements

In the 60-unit program, all students are required to take the following courses: S WRK 200, 203, 214, 215, 216, 220, 224, 227, 246, 247, 291, 250 and 251, in addition to completing a project (298) or an individual thesis (299), for a total of 47 to 49 units. In consultation with their faculty advisers, students also enroll in either S WRK 226 or 244 (3 units). The remaining 8 to 10 units may be selected from topics electives (S WRK 271T, 272T), S WRK 290 (Independent Study), or from other departments, subject to approval.

COURSES

Social Work (S WRK)

20. Introduction to Social Work (3)
Social, economic, political, historical, and philosophic components in development of social welfare and social work in western society.

122T. Topics in Social Work
(1-3; 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)
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.

125. Social Services for the Aging (3)
(Same as GERON 125.) Students will be acquainted with the common bio-psychosocial needs of the aging in the United States and the social services available to meet those needs. Within the context of social work values and problem-solving methods, attention will be given to issues of ethnicity, gender, and gaps in services.

128. Child Welfare (3)
History, development, and provision of child welfare services in the United States.

129. Treatment of Chemical Dependency (3)
Intervention and treatment of the chemically dependent and of family members; community resources; laboratory skills development.

130. Seminar in Social Work Processes (3)
Introduction to social work intervention.

135. Human Behavior and the Social Environment (3)
A general systems approach focused on the interaction of biological, psychological, and cultural phenomena with individuals, small groups, complex organizations, and communities.

136. Cultural Diversity and Oppression (3)
Cultural, economic, ethnic, social, and psychological considerations for helping members of groups who suffer oppressed status in our heterogeneous society. G.E. Multicultural/International MI.

137. Principles in Cross-Cultural Competence (3)
Prerequisite: S WRK 136. Theory of practice framework for skill-based cross-cultural competency in human services delivery; formulation of problems and interaction with diverse populations. Skills in practice and interaction with diverse clients in educational and business settings as well as in public and private human services agencies.

140. Seminar in Micro Practice (3)
Cannot be taken concurrently with S WRK 141. Must be taken concurrently with S WRK 181. Seminar emphasizing integration of human behavior and social environment theories with principles of beginning social work counseling techniques with individuals, families, and small groups.

141. Seminar in Macro Practice (3)
Cannot be taken concurrently with S WRK 140. Must be taken concurrently with S WRK 181. Analysis of and interventive strategies in large groups, organizations, and the community.

175. Seminar in Human Services Research (3)
Introduction to social work research and evaluation of social work practice. Focuses on the scientific method, research design, sampling strategies, cultural, gender, and ethical considerations as these relate to social work and social work practice.

176. Seminar in Data Analysis and Presentation (3)
Prerequisite: S WRK 175. Introduction to statistical methods with a focus on analysis and interpretation of data. Application of data analysis and statistical methods for the evaluation of social work practice.

180. Training in Public Services (1-2; max total 5)
Planned and supervised experience or study in a field of occupational specialization.

181. Field Instruction
(6; max total 12)
Prerequisites: senior standing; minimum 2.0 GPA; completion of G.E. writing, core and breadth; and S WRK 20, 123, 130, 135, and 136. Six units taken with S WRK 140; 6 units taken with S WRK 141. Guided social work practice experience with individuals, groups, families, and organizations. Liability insurance required during internships. *CR/NC* grading only.

185. Senior Capstone Seminar (3)
Open only to social work majors. Prerequisites: senior standing or permission of instructor, 5 units of S WRK 181. Culminating senior seminar integrating theory and practice of social work, current trends in the profession. Satisfies the senior major requirement for the B.A. in Social Work.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

Social Work (S WRK)

Note: Admission to the M.S.W. program is prerequisite to all graduate courses. Exceptions may be authorized by the department chair.

200. Social Welfare Policy I (3)
Philosophical and historical foundations of the profession of social work and the domain of social welfare. Includes review of major federally sponsored social policies and programs in the United States and the relationship between social problems, and programmatic professional responses.

203. Social Welfare Policy II (3)
Prerequisite: S WRK 200. Analysis of social welfare policies and program operations, including the linkage of social, economic, cultural, political, legislative, administrative and legal dimensions. Comparison of various policy analysis frameworks; the legislative process and involvement of social workers therein.

214. Human Behavior and Social Environment: Individuals and Families (3)
A bio-psycho-social system's perspective of the transactional context for the adaptive-maladaptive continuum of human behavior throughout the life span.

215. Human Behavior and Social Environment: Small Group, Organizational, and Community Behavior (3)
Theories of small groups, organizational, and community behavior from a social system's perspective.

216. Human Behavior and Social Environment: Cultural Diversity and Oppression (3)
Theoretical knowledge base and implications for advanced social work practice with culturally diverse and oppressed populations.

220. Seminar in Foundations for Social Work Practice (3)
Seminar about the development of social work practice, introducing the generalist approach to intervention with individuals, families, small groups, organizations and communities.

224. Seminar in Advanced Clinical Social Work Practice with Individuals (3)
Prerequisites: S WRK 200, 220 and concurrent enrollment in S WRK 250. Analysis and application of the theories, principles and techniques of clinical social work practice with individuals.

226. Seminar in Advanced Clinical Social Work Practice with Groups (3)
Prerequisites: S WRK 200, 220 and 224 and concurrent enrollment in S WRK 250 or 251. Analysis and application of the theories, principles and techniques of clinical social work practice with small groups.

227. Seminar in Advanced Clinical Social Work Practice with Couples and Families (3)
Prerequisites: S WRK 200, 220 and 224 and concurrent enrollment in S WRK 250 or 251. Analysis and application of theories, principles and techniques of clinical social work practice with couples and families.

244. Seminar in Social Work Practice with Small Groups (3)
Prerequisites: S WRK 200 and 220 and concurrent enrollment in S WRK 250 or 251. The theory and practice of social work with small groups, including task, natural support, and self-help groups.

246. Seminar in Social Work Practice with Formal Organizations (3)
Prerequisite: S WRK 200 and 220 and concurrent enrollment in S WRK 250 or 251. Theory and practice of the administration of formal social service organizations.

247. Seminar in Social Work Practice with Communities (3)
Prerequisite: S WRK 200 and 220 and concurrent enrollment in S WRK 250 or 251. Theory and practice of social work intervention with communities.

250. Field Instructed Practice (2-8; max total 8)
Prerequisite: permission of field coordinator. Advanced, field-instructed practice experiences in work with individuals, groups, families, formal organizations, and communities; applying the theories and concepts of social work practice. Students are required to carry liability insurance during internships. Approved for *SP* grading. *CR/NC* grading only.

251. Field Instructed Practice (2-8; max 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. Students are required to carry liability insurance during internships. Approved for *SP* grading. *CR/NC* grading only.

271T. Seminar in Social Work Specializations (1-3; max total 8)
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 (1-3; max total 8)
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.

273. Sex Therapy (3)
Prerequisite: permission of instructor. Emphasizes the recent developments in the understanding and identification of sexual disorders and, therefore, the appropriate means for therapeutic intervention. The focus is on commonly experienced sexual problems or disorders, treatment procedures, and evaluation of sexual therapy.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

291. Advanced Social Work Research (3)
Prerequisite: prior statistics course. Strategies for advanced social work research methodology and analysis.

298. Project (2-4; max total 4)
Prerequisite: S WRK 291. See *Criteria for Thesis and Project*. A project must evidence originality and independent thinking, appropriate form and organization, and a rationale. It must be described and summarized in a written abstract that includes the project's significance, objectives, methodology, and a conclusion or recommendation. Approved for *SP* grading.

299. Thesis (3-6; max total 6)
Prerequisite: S WRK 291. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System*.)

Social Work (S WRK)

301. Seminar in Social Work Topics (1-3; max total 15)

Health — Interdisciplinary Courses

Health and Human Services

The College of Health and Human Services offers the following interdisciplinary courses as general electives open to all students. These courses provide students with an opportunity to interact with various university disciplines that have a common purpose and with professionals who are working cooperatively in an interdisciplinary setting.

Certificate in Alcohol/Drug Studies

A certificate of special study is awarded to those students who successfully complete a minimum of 12 units of interdisciplinary academic coursework in the area of alcohol and drug abuse. Students seeking the certificate:

1. must have completed two years of college or two years of experience related to the field of alcohol/drug abuse
2. must be regularly enrolled in the university

All coursework must be taken for a letter grade and completed with a grade of *C* or better in each of the 9 required units and the 3 units of electives. The following list includes the course requirements for the certificate:

	Units
Requirements	**9**
H S 110: Drugs, Society, and Health	
H S 111: Alcohol and Alcoholism	
S WRK 129: Treatment of Chemical Dependency	
Elective(s)	**3**
CRIM 141: Alcohol, Drugs, and Criminality	(3)
S WRK 122T: Counseling the Family of the Alcohol/ Drug Abuser	(3)
W S 150T: Women, Children, and Alcohol	(1)
W S 150T: Women and Alcohol	(1)
CRIM 190, H S 190, S WRK 190, or W S 190: Independent Study on selected aspects of alcohol/drug abuse	(1)
Total	**12**

For more information, call the Department of Health Science at (559) 278-4014.

College of Health and Human Services
Benjamin Cuellar, *Dean*
McLane Hall, Room 191
(559) 278-4004

Certificate in Alcohol/Drug Studies

Certificate of Advanced Study in Interprofessional Collaboration

Certificate of Advanced Study in Interprofessional Collaboration

This 15-unit program consisting of five courses is offered through the College of Health and Human Services and the School of Education and Human Development. The program provides graduate students and practicing professionals a convenient way to gain essential skills in the area of interprofessional collaboration while earning university credit and an academic certificate at the completion of the program. See the *Special Programs* section of this catalog.

COURSE

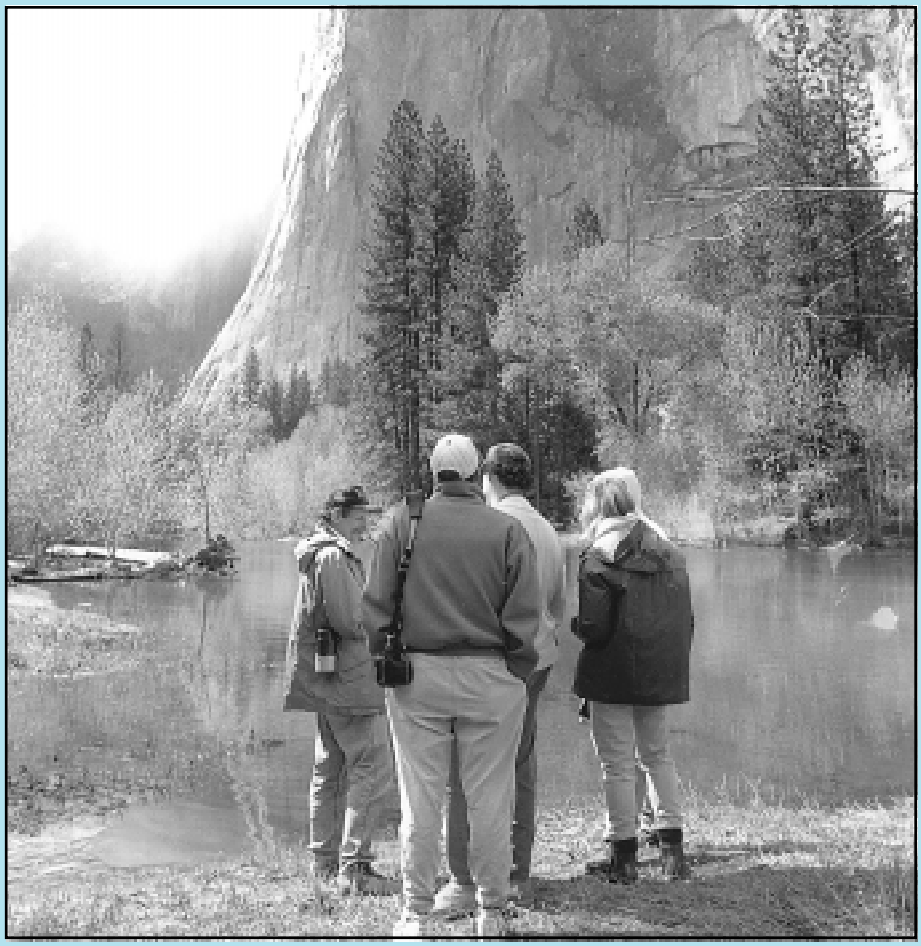
Interdisciplinary Health and Human Services (HHS)

10. Exploring Health Careers (2)
Explores various career choices available in the fields of health and human services. Used in conjunction with preprofessional preparation advisement program in the area of prehealth careers. (See *Preprofessional Preparation*.) (1 lecture, 2 lab hours) *CR/NC* grading only.

100T. Selected Topics in the Health Professions
(1-3; max total 6 if no topic repeated)
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. (Formerly HSW 100T)

The College of Science and Mathematics

Science Building, Room 101
Kin-Ping Wong, *Dean*, (559) 278-3936
http://erasmus.biol.csufresno.edu/schoolgn.html



The Mission of the College

The College of Science and Mathematics provides study for students in the areas of biology, chemistry, geology and environmental science, mathematics, physics, and psychology by offering courses in the majors. Support courses for nonscience majors such as agriculture, engineering, and the health professions and courses for the general education of all university students are also offered through the college. In doing so, our goal is to provide professional training at the undergraduate and graduate levels, to serve as a foundation for a career in science/mathematics, to provide preprofessional training in preparation for careers in medicine, dentistry, pharmacy, veterinary medicine, and other professions or for continued study at the graduate level.

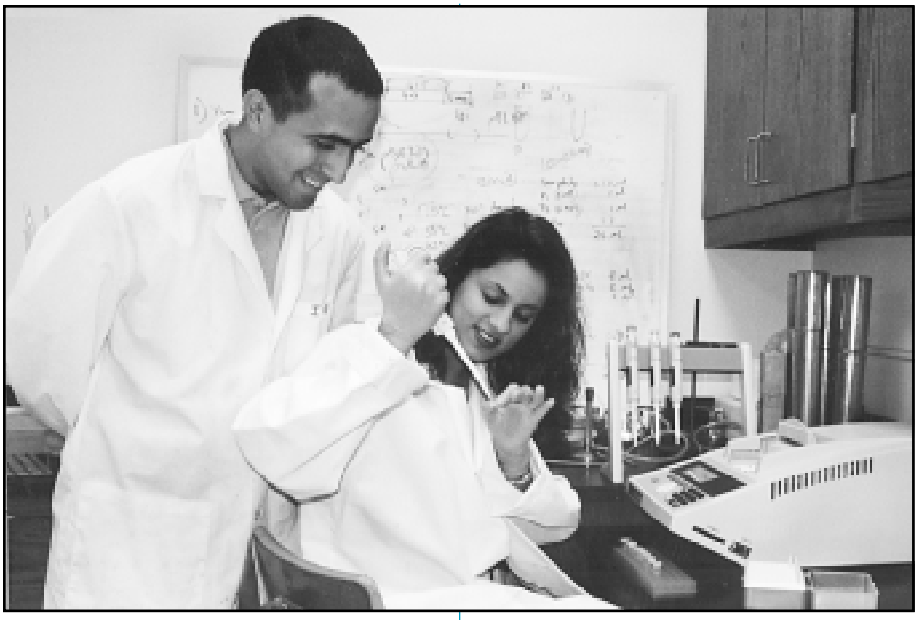
Furthermore, students and faculty members in the college conduct research and scholastic activities in their academic areas and in solving applied scientific problems of the region. These research activities are carried out among campus scientists along with investigators at other research centers.

The College of Science and Mathematics is involved with the school systems in science and mathematics teacher education.

The recruitment, retention, and education of underrepresented minorities and females in science and mathematics are also major emphases.

The College of Science and Mathematics includes the departments of Biology, Chemistry, Geology, Mathematics, Physics, Psychology, and Marine Science at Moss Landing Marine Laboratories. Special programs and facilities of the college include the Joint Bachelor's of Science degree in Environmental Science with UC Riverside, the Harold S. Downing Planetarium, a Geo-Information Systems (GIS) Center, the Science Careers Opportunity Program (SCOP), the Certificate in Biotechnology, the Humans and the Natural Environment (HNE) thematic cluster, and the South Pacific Semester.

Biology



Biology

Biology is the scientific study of life: its properties, its complexity, and its incredible variety. Biological studies may focus on objects as small as molecules or as large as whales. They range from the inner workings of cells to the structure of whole ecosystems, and they lead biologists from the tops of mountains and the deepest ocean trenches into sophisticated modern laboratories.

The Department of Biology offers a diversified undergraduate program that matches the breadth and excitement of modern biology and prepares students for the hundreds of career opportunities that use biology as a foundation. The Bachelor of Science degree is awarded to those students who successfully complete the core program and one of the following four options:

1. Organismic and General Biology allows students to develop a broad program that cuts across taxonomic lines or to specialize in a particular taxonomic group. This option is also appropriate for students planning to enter the field of clinical laboratory technology.
2. Molecular, Cellular, and Developmental Biology utilizes advanced technology to uncover the fundamental unifying processes of living things.
3. Physiology and Anatomy seeks to understand the mechanisms that operate within the individual organism.
4. Ecology and Evolutionary Biology focuses on the interrelationships between living organisms and their environments.

The biology major we offer has three programmatic goals:

1. To provide students with a solid foundation in all aspects of modern biology and also the intellectual skills that will serve as the basis for a lifetime of future achievement.
2. To provide students with the specialized educational opportunities that will allow them to compete successfully for careers in the biological sciences or for advanced studies in major doctoral programs.
3. To provide preprofessional students with the knowledge needed for advanced study in the many fields that build upon a biological foundation.

Our undergraduate biology major is excellent preparation for graduate programs in medicine, dentistry, pharmacy, forestry, veterinary medicine, optometry, doctoral programs, and many others.

The department offers a Master of Science degree in Biology for qualified students who wish to explore some part of biology in greater depth. It also participates in a postbaccalaureate certificate program in biotechnology.

Advising is an integral part of the departmental program and all biology majors are assigned Advisers. This student/faculty collaboration on program planning is undoubtedly one of the main reasons for the postgraduate successes of our students.

College of Science and Mathematics

Department of Biology
Fred E. Schreiber, *Interim Chair*
Virgie Lopez, *Administrative Support Coordinator*
Science Building, Room 106
(559) 278-2001
FAX: (559) 278-3963
http://erasmus.biol.csufresno.edu/

B.S. in Biology
Options:
- Ecology and Evolutionary Biology
- Molecular, Cellular, and Developmental Biology
- Organismic and General Biology
- Physiology and Anatomy

M.S. in Biology

M.S. in Marine Science

Minor in Biology

Biotechnology Certificate

Single Subject Teaching Credential in Science

Preprofessional advising in:
- Dentistry
- Forestry
- Medicine
- Pharmacy
- Veterinary Medicine

Faculty and Facilities

Faculty expertise spans the range of biology from molecular to ecological, with a broad representation of taxonomic specialties. Laboratories in upper-division major courses are taught by faculty, and individualized student/faculty research participation through independent study is encouraged.

The department is housed in a well-equipped, modern science building. Excellent greenhouse and animal care facilities provide support to the instructional program. Fresno's proximity to both the Sierra Nevada crest and the Pacific coast, provides an "outdoor laboratory" with numerous field trip opportunities that are rarely equalled at other institutions. Students with interests in marine biology can study at the Moss Landing Marine Laboratories (MLML).

Faculty

Fred E. Schreiber, *Interim Chair*

Brian Tsukimura, *Graduate Coordinator*
Bert Tribbey, *Marine Science Coordinator*
Gregor M. Cailliet, *Moss Landing Marine Laboratories Coordinator*
David M. Andrews, *Credential Adviser*
Undergraduate advisers are assigned by the department chair.

Raymond H. Abhold
Jorge A. Benitez Alejandro Calderon-Urrea
David L. Chesemore
S. Fai Cheuk
William K. Collin
Stephen Ervin
David E. Grubbs
Ethelynda E. Harding
Ruth A. Kern
Shirley A. Kovacs
Thomas E. Mallory
James P. Prince
Vivian A. Vidoli
Lorraine Wiley
Alice D. Wright
Lenore Yousef
Frederick W. Zechman

Bachelor of Science Degree Requirements

Biology Major

The Bachelor of Science degree in Biology is a 124-unit program. Of the total, 42 units are required to satisfy the university's General Education Program and 22 units are required by the Department of Biology to satisfy the core curriculum in biology. The core curriculum is a sequence of six courses required to be taken by all biology majors. The core curriculum builds the foundation upon which all further learning in biology will be based. Additional requirements, varying from 25-41 units depending upon the option choice the student selects, are specified courses from related fields outside the Department of Biology.

Each biology major must select one of the four option choices to complete the Biology Bachelor of Science degree requirements. All of the four option choices are flexibly designed. As a result, virtually any career goal in the life sciences and related fields can be accommodated by selecting the most appropriate option and by judiciously choosing specific courses within that option.

Academic advising is essential in making these option and course selections. Therefore, all biology majors are assigned faculty Advisers. Students majoring in biology should report to the Department of Biology office for assignment of an appropriate adviser. Students should meet with their adviser a minimum of two times a semester so the adviser can review the student's program and progress.

Students planning for graduate and professional schools should be aware that entrance requirements for those programs will often exceed the minimal requirements for a Biology B.S. degree, particularly in the ancillary fields of chemistry, physics, and mathematics. An adviser should be consulted for specific information on graduate and professional school requirements.

Biology Core

The biology core is required of all majors (see *Advising Notes* for all options, page 364.)

	Units
BIOSC 1A, 1B, 130, 140A-B, 180	22

In addition to the core, all majors must complete major and additional requirements in one of the four options described as follows:

Organismic and General Biology Option

This versatile option is designed for students who wish to explore the breadth of modern biology. It is highly recommended for students preparing for teaching careers. It is equally useful as preparation for a large variety of careers including clinical laboratory technology, and for additional studies in graduate and professional schools. By carefully selecting courses, students may use this option to obtain strong preparation for careers as botanists, zoologists, entomologists, microbiologists; or they may select courses that produce a broadly based program that does not emphasize a particular taxonomic group. Advising is critically important in this option. Students must consult a faculty adviser for help in determining the appropriate selection of courses and special requirements for their chosen fields.

	Units
Major requirements	**42**
Biology Core	*(22)*
Option requirements	*(20)*
A. Select one course from each of the following five listings	(16-20)
1. BOT 131, 132, 142, 144; MICRO 140, 181, 185; M SCI 131	
2. MICRO 171; ZOOL 120, 141, 148, 150, 171, 174, 177; M SCI 112, 113, 114	
3. BOT 133, 137; ECOL 174; PHYAN 134, 135, 158; M SCI 122; ZOOL 132	
4. BOT 130; GENET 172; MICRO 161; PHYAN 151, 158, 160, 163	
5. ECOL 151, 152, 158; 162; M SCI 103	
B. Biological Science Electives	(0-4)
Select one or more Biology Department courses to complete the option. Only one elective course may, be lower division.	
Additional requirements	**22**
1. CHEM 3A, 8, and 150	(10)
2. MATH 70 or 75	(4)
3. MATH 101 or PSYCH 42 or M SCI 104	(4)
4. One course selected from PHYS 2A; M SCI 142, 143; GEOL 1; SW 101	(4)
General Education	**51**
Electives and remaining degree requirements*	**18**
(See *Degree Requirements*); may be used toward a dual major or minor.	
Total	**124**

*It is anticipated that 9 units of the General Education requirement will be met by the following major and additional required courses: MATH 75, CHEM 3A, and BIOSCI 1A. Consult your major academic adviser for details.

Molecular, Cellular, and Developmental Biology Option

This degree option is intended for students who wish to study the molecular mechanisms underlying cellular structure and function as well as the molecular and cellular interactions occurring in the operation and development of organ systems. Molecular biology combines the knowledge and techniques of genetics, cell biology and biochemistry, forming a basis for in-depth inquiry into all aspects of biology. The option introduces students to molecular inquiry at several levels of organization and provides the requisite background for the many career opportunities in biotechnology. The

option also provides a solid foundation for graduate and professional studies emphasizing cellular and molecular processes, including the postbaccalaureate certificate of advanced studies in biotechnology offered by this department. Students preparing for the biotechnology certificate program should select a general microbiology course with laboratory and a biochemistry laboratory course among their elective courses.

Units

Major requirements 40
Biology Core ..... (22)
Option requirements ..... (18)
A. Molecular Biology ..... (4)
GENET 142
B. Cell Structure and Development ..... (3-4)
Select one from the following list: BOT 133, 137; GENET 172, PHYAN 134, 158
C. Cellular/Molecular Physiology of Organisms/Organ Systems ..... (3-5)
Select one from the following list: BOT 142; MICRO 161, 171, 181, 185; PHYAN 140, 160 (with lab 160L or without), 165; ZOOL 148
D. Molecular/Cellular Techniques ..... (3-4)
Select one from the following list: ECOL 174; GENET 171, 182
Note: A minimum of two laboratory experiences from B, C, and D are required.
E. Seminar ..... (1)
GENET 170
F. Choose one additional course from above or any upper-division biology course, including independent study or research ..... (0-4)
Additional requirements 37
1. CHEM 1A-B, 128A-B, 129A, 150 or 155 ..... (21)
2. PHYS 2A-B ..... (8)
3. MATH 70 or 75 ..... (4)
4. MATH 101 or PSYCH 42 ..... (4)

General Education 51
Electives and remaining degree requirements* 5
(See *Degree Requirements*); may be used toward a dual major or minor.)
Total 124

*It is anticipated that 9 units of the General Education requirement will be met by the following major and additional required courses: MATH 75, CHEM 1A, and BIOSCI 1A. Consult your major academic adviser for details.

Physiology and Anatomy Option

This degree program is designed to help students understand basic cellular phenomena and to analyze complex multicellular biological systems in preparation for medical, clinical, academic or research careers that require physiology as a foundation. The ultimate goal of physiology is to understand, in physical and chemical terms, the mechanisms that operate in living organisms. This option encompasses three major branches of physiology: cellular; systemic; and whole organism. Physiology is one of the central disciplines in biology and is of particular importance in the health professions and agriculture. This option offers excellent preprofessional preparation for medicine, dentistry, pharmacy, various careers requiring physiology, and for advanced graduate study. Students planning to enter professional and graduate programs should elect CHEM 1A-B and 128A-B rather than CHEM 3A and 8, and should consult an adviser about additional mathematics requirements as well.

Units

Major requirements 42
Biology Core ..... (22)
Option requirements ..... (20)
A. Select one course from each of these three lines ..... (9-12)
1. *Anatomy*: BOT 133; PHYAN 130, 134, 135; ZOOL 132, 141
2. *Molecular and Cellular Biology*: BOT 137; GENET 172; MICRO 161; PHYAN 160 and 160L
3. *Organismal Physiology*: BOT 130; PHYAN 151
B. Select two additional courses from the following list or from other courses listed in category A ..... (6-8)
GENET 172; PHYAN 64 or 65, 140, 158, 163, 165, 172
C. Biological Science Electives ..... (5)
Select sufficient Biology Department courses to complete the option. Only one elective course may be lower division.
Additional requirements 29-38
1. CHEM 3A or 1A-B, 8 or 128A-B, 109 or 129A, 150 or 155 ..... (13-22)
2. PHYS 2A-B ..... (8)
3. MATH 70 or 75 ..... (4)
4. MATH 101 or PSYCH 42 ..... (4)
General Education 51
Electives and remaining degree requirements* 2-11
(See *Degree Requirements*); may be used toward a dual major or minor.
Total 124

*It is anticipated that 9 units of the General Education requirement will be met by the following major and additional required courses: MATH 75, CHEM 1A, and BIOSCI 1A. Consult your major academic adviser for details.

Ecology and Evolutionary Biology Option

This degree program is intended for students who wish to study the interrelationships between living things and their environments. This option has a strong field component that takes full advantage of the outstanding natural environments conveniently located near our campus. Students in this program gain an in-depth understanding of ecology and evolution, and acquire the skills to apply that understanding to important question in freshwater, marine, and terrestrial systems, in fisheries and wildlife management, or other branches of applied ecology. Students completing this option are well prepared for entry into a wide range of environmental careers with governmental field research agencies, in

agriculture-related areas, environmental microbiology, environmental law and consulting firms, or for graduate programs leading to advanced degrees in ecology, management, and evolution. Students may obtain an emphasis in marine science by selecting electives offered at the Moss Landing Marine Laboratories. Faculty advising plays an important role in this program. Students must consult an adviser for help in selecting courses appropriate to their interests and career objectives.

Units

Major requirements 47
Biology Core ..... (22)
Option requirements ..... (25)
A. *Ecosystem Ecology*: Select one course from the following ..... (4)
ECOL 151, 152; M SCI 103**
At least one botany (BOT) or microbiology (MICRO) course must be selected from the following categories B-E.
B. *Physiology*: Select one course from the following ..... (3-4)
BOT 130, BOT 142; ECOL 174; MICRO 161; PHYAN 151
C. *Morphology and Classification*: Select one course from the following ..... (3-4)
BOT 131, 132, 142, 144; ECOL 174; MICRO 140; ZOOL 120, 132, 141, 150; M SCI 124**, 131**
D. *Autecology and Population Ecology*: Select one course from the following ..... (3-4)
ECOL 162, 171, 172, 174; ZOOL 152; M SCI 110**, 161**
E. Biological Science Electives ..... (9-12)
Select sufficient Biology Department courses, including those listed in categories A, B, and C, to complete the option. Only one elective course may be lower division.

Additional requirements 21-22
1. CHEM 3A, 8, and 150 ... (10)
2. MATH 70 or 75 ..... (4)
3. MATH 101 or PSYCH 42 ..... (4)
4. Consult your adviser to select one course from the following ..... (3-4)
PHYS 2A; M SCI 142**, 143**; GEOL 2, 112; SW 101

General Education 51
Electives and remaining degree requirements* 13-14
(See *Degree Requirements*); may be used toward a dual major or minor.

Total 124

*It is anticipated that 9 units of the General Education requirement will be met by the following major and additional required courses: MATH 75, CHEM 1A, and BIOSCI 1A. Consult your major academic adviser for details.
** M SCI courses are offered only at Moss Landing Marine Laboratory.

Advising Notes for All Options within the Bachelor of Science in Biology

1. B.S. biology majors who have taken introductory sequences other than BIOSC 1A and 1B must consult with their faculty adviser or department chair for equivalency evaluation prior to beginning their upper-division coursework.
2. CHEM 1A may be taken as a substitute for CHEM 3A, and CHEM 128A and 128B may substitute for CHEM 8. The reverse substitutions are not permissible. Premedical students should take CHEM 1A and 1B and 128A and 128B instead of CHEM 3A and 8.
3. B.S. biology majors selecting options in Molecular and Cellular Biology or in Physiology can complete a Minor in Chemistry with the addition of CHEM 105. Consult the chemistry department chair for details (see *Chemistry Minor*).
4. No General Education Integration course offered by the Department of Biology may be used to satisfy the General Education requirements for biology majors.
5. *CR/NC* grading is not permitted in the biology major.
6. General Education, additional, and elective requirements may be used toward a dual major or minor (see *Dual Major* or departmental *minor*). Consult the appropriate department chair, program coordinator, or faculty adviser for additional information.

Suggested Sequence of Courses for B.S. Degree in Biology

The following comments on timing and sequence are intended for full-time students who plan to complete the B.S. degree in four years. Students with extensive extracurricular obligations should make appropriate timing adjustments to avoid overloads. See your adviser for assistance.

A total of 124 units must be completed for all biology B.S. degree options. In addition to courses required for the major, full-time students should add General Education requirements and electives to bring semester totals to 15-17 units. Electives may include minor and credential requirements. (See *Degrees and Credentials*.)

During the first two years, both resident and transfer students should complete most General Education requirements, BIOSC 1A and 1B, all lower-division additional requirements for the option they have selected, and any lower-division electives that might be selected within that option. BIOSC 130, 140A-B, and statistics should be completed as early as possible but no sooner than the term in which 60 units of coursework are completed and 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, for General Education, and for the electives in biology and other fields. BIOSC 180 is a senior requirement and must be taken during the fourth year.

Biology Minor

The Minor in Biology may be earned by completing the 22-unit biology core: BIOSC 1A, 1B, 130, 140A-B, 180.

Bachelor of Arts in Natural Sciences

Teaching Credential — Biology Emphasis

The B.A. in Natural Sciences serves as a waiver program for the Single Subject Teaching Credential in Science. This degree program is designed for students who wish to become high school science teachers. The full program is described in the Natural Science section in this catalog. The program consists of two parts. The Core requirements are courses required of all natural science students and the Emphasis provides training in biology, chemistry, earth science, or physics. Students

may also earn the credential while obtaining a degree in biology. The B.A. in Natural Sciences with the Biology Emphasis is as follows.

	Units
Core requirements	**37-38**
Biology[1]	(12-13)
BIOSC 1A or BIOL 15[1], BIOSC 1B, BIOSC 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology[1]	(8)
GEOL 1 and 3 (or 15), GEOL 168	
Natural Science	(3)
N SCI 106	
Physical Science	(4)
P SCI 21	
Biology Emphasis	**42-44**
CHEM 8 or 128A	(3)
PHYS 2A, 2B[2]	(8)
P SCI 168	(3)
MATH 70 or 75	(4)
MATH 101 or PSYCH 42	(4)
BIOSC 140A, 140B, 180	(10)
MICRO 140	(4)
Select one course: BOT 131, 132, 144; MICRO 171; ECOL 151, 152, 162; ZOOL 120, 141, 148, 150, 174, 177	(3-4)
Select one course: BOT 130; MICRO 161; PHYAN 151, 163	(3-4)
General Education	**51**
Electives and remaining degree requirements[3,4]	**0-6**
Total	**124**

Advising Notes for the Natural Sciences Major

1. BIOL 15 and GEOL 15 are part of the Humans and the Natural Environment Cluster. See the *Natural Science Interdisciplinary Courses* section in this catalog. GEOL 15 is equivalent to GEOL 1 and 3.
2. Substitutions may be made with the permission of the appropriate department chair. PHYS 4A-B-C with labs 4AL, 4BL is recommended instead of PHYS 2A-B for those students well-prepared for physics.
3. This figure takes into account that 9-12 units required for the major are expected to count toward General Education as follows: CHEM 1A (3 units), BIOSC 1A or BIOL 15 (3 units), GEOL 168 (3 units), and 3 units if MATH 75 is selected. Consult your major adviser for details.
4. Students should be sure to take sufficient upper-division units in their General Education courses and electives to satisfy the university requirement of 40 upper-division units for graduation.

Graduate Programs

The Biology Department offers the Master of Science degree in Biology with the opportunity for specialization in several areas of study. Among these areas are ecologically oriented field studies; molecular and cellular biology; physiology at both invertebrate and vertebrate levels; entomology; microbiology; parasitology; botany; systematics; animal behavior. The program also prepares candidates for teaching various biological science disciplines at the primary and secondary education levels. A further objective of the master's program is to provide a foundation for those seeking advanced education at universities offering the doctorate or other professional degrees. The Biology Department has further informational materials available upon request.

The Biology Department and the university are located in a region uniquely suited to the pursuit of projects that are environmentally oriented. High Sierra, foothill, coastal, and forest environments are all within three hours drive of California State University, Fresno. Facilities are available at the campus for studies involving genetic recombination, electron microscopy, use of radioactive materials, and metabolic studies on all living forms. Cooperation with local physicians and hospitals provides additional opportunities to pursue medically oriented research.

The Biology Department is a member of a consortium that manages and operates the Moss Landing Marine Laboratory (MLML). MLML is located on the California coastline between Santa Cruz and Monterey. A master's candidate interested in pursuing marine science studies must meet California State University, Fresno Biology Department master's candidate requirements as well as those of MLML. Such candidates are encouraged to consult the Biology Department's MLML coordinator for information and to read the MLML information presented at the end of this section.

Master of Science Degree Requirements

The Master of Science degree program in Biology assumes preparation equivalent to a California State University, Fresno 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.

There are five steps that must be completed for the Master of Science degree in Biology:

1. Admission to graduate standing (constitutes admission to the university)
2. Admission to classified graduate standing (constitutes admission to the department program)
3. Advancement to candidacy (formalizes thesis committee and research project)
4. Completion of a thesis and associated requirements
5. Completion of all additional requirements for award of master's degree

Normal progress toward the Master of Science degree in Biology requires that classified graduate standing be achieved in the first semester of graduate study and that advancement to candidacy be granted the following semester. Completion of the thesis and all other program requirements will normally require two additional semesters of study. Procedures for completing these steps are outlined in the following sections. Students should meet with the departmental graduate coordinator at the earliest possible date. Students are personally responsible for ensuring that all graduate degree requirements have been met in sequence; therefore, each student should read the procedures thoroughly to be sure all requirements are understood.

Admission to Graduate Standing

Admission to the university is handled through the Admissions Office of California State University, Fresno. For admission to postbaccalaureate/graduate standing, a student must have completed a

four-year college program and hold an acceptable baccalaureate degree from an accredited institution with a grade point average of 2.5 in the last 60 units.

To be considered for classified standing in biology, the following additional steps are required of students planning to enter the biology graduate program.

1. Take the Aptitude and Subject Biology, or Molecular, Cellular, and Developmental sections of the Graduate Record Examination prior to application. Information about dates, fees, and application procedures may be obtained through the Division of Graduate Studies. The Biology Department requires that GRE advanced scores be current. Scores dating from five years previous to application are not considered valid.
2. Contact the graduate coordinator in the Biology Department prior to registration for assignment of a temporary faculty adviser who will assist in the planning of initial courses. Students may request the assignment of any biology faculty member to serve in this capacity.
3. Meet with the temporary adviser prior to registration and develop an approved initial program of at least 9 units that is mutually agreeable to the student and the adviser. These courses are to be entered on the "Approved Preliminary Program" form (available from the Biology Office) and signed by the student, temporary adviser, and departmental graduate coordinator. This will constitute the Approved Initial Graduate Program. These courses may or may not be included on your Advancement to Candidacy Application; make-up classes, for example, are not included. All students are required to have the "Approved Preliminary Program" form approved and on file prior to registration. Upon completion of conditional status, the student must file for classified standing.

Admission to Classified Graduate Standing

Admission to classified graduate standing constitutes official admission into the graduate program in the Department of Biology and requires the approval of the Biology Department. Classified standing must be attained no later than the semester in which a student completes 10 units, including transfer and postbaccalaureate credit, to be used toward the master's degree; students should attempt to obtain classified graduate standing as early as possible in their graduate careers to avoid possible loss of units. Normal progress toward the degree requires that this be accomplished in the first semester of graduate work.

Students applying for classified standing should be sure they have submitted an "Approved Preliminary Program" form to the departmental graduate coordinator.

Admission to classified graduate standing must be recommended by the graduate coordinator in consultation with the Graduate Committee of the Biology Department. To be recommended, the student must demonstrate competency in verbal or written communication, quantitative analytical skills and disciplinary knowledge.

Competencies may be demonstrated in the following manner:

1. For verbal or written communication, students must achieve either (1) 60th percentile on the verbal portion of the general GRE or (2) a grade of *B* or better in an upper-division writing course. In exceptional cases the Graduate Committee may consider alternative evidence of verbal or writing skills.
2. For quantitative analytical skills, students must achieve either (1) a quantitative GRE score of 60th percentile or better or (2) a *B* or better in a mathematics class at least at the level of MATH 70 (introductory calculus).
3. For disciplinary knowledge, students must achieve at least one of the following:
   a. A score on the subject Biology section of the GRE of 60th percentile or better. The subject Biochemistry, Cell and Molecular Biology section will fulfill this requirement *only in conjunction with coursework in ecology*.
   b. No less than a grade of *B* in each of the upper-division core courses or their equivalents. Equivalency will be determined by the graduate coordinator in consultation with faculty teaching the core courses at this university.
   c. No less than a grade of *C* in each of the upper-division core courses or their equivalents, as well as an overall GPA of 3.0 or better for at least 25 semester units of upper-division lecture or lecture/laboratory courses in natural science.

On recommendation, students will be assigned to one of the following three categories:

1. Classified graduate standing will be assigned to students meeting the standards in verbal written communication, quantitative analytical skills, and disciplinary knowledge.
2. Conditional classified standing will be assigned to students meeting a majority of the classification standards yet having specific identifiable deficiencies that may be easily corrected within a single semester. While this classification gives students the opportunity to remedy identified deficiencies, those remedial courses taken to correct deficiencies may not be applied to the graduate program.
3. Nonclassified standing will be assigned to students who do not meet the classification standards or whose deficiencies will require more than one semester for remediation.

Students recommended for classified graduate standing may proceed with the completion of requirements for advancement to candidacy, the next step in the graduate program. Students granted conditional classified status or denied admission (remaining in postbaccalaureate unclassified standing) will not have been admitted to the graduate program in biology and must attempt to increase their classification score to gain classified standing. The graduate coordinator will provide further information on how this may be accomplished.

When any requirements for a change in graduate standing have been completed, the student must see the graduate coordinator and file appropriate forms with the graduate division.

Advancement to Candidacy

Acceptance to classified graduate standing indicates that the student's academic background and perceived ability are sufficiently high to merit admission into the biology graduate program. Advancement to candidacy signifies that the student has developed a coherent program of study for the Master of Science degree that meets with the approval of the Biology Department. Advancement to candidacy requires the establishment of the Thesis Committee, identification of the thesis topic, and the approval of all coursework that must fit within the following framework:

	Units
Courses in 200-series	**21**
Electives (May be 100- or 200-series)	**9**
Total	**30**

No less than 18 units of the approved coursework must be in the biological sciences. Nine units must be completed prior to advancement to candidacy. The Biology Department also requires that at least 10 units of approved coursework be completed after advancement to candidacy.

Units completed during the semester that advancement is achieved will be considered to have been completed after advancement to candidacy. Students must also show competence in writing skills through an appropriate examination or course. Normal degree progress requires that advancement to candidacy be achieved in the semester following admission to classified standing. A student must be advanced to candidacy, possess a GPA of 3.0 or better, and file a Thesis Committee Assignment Form before enrolling in thesis (BIOL 299).

A complete list of the steps required for advancement to candidacy is available from the departmental graduate coordinator.

Completion of a Thesis

The Master of Science in Biology requires completion of a research thesis (BIOL 299). The thesis must show originality, appropriate organization, clarity of purpose, critical analysis, and accuracy and completeness of documentation where needed. Critical and independent thinking are required. The finished thesis must meet standards appropriate for publication in the scholarly journals of the field. A colloquium is required of all students before graduation. Additional information on the completion of the thesis is available from the departmental graduate coordinator.

Completion of All Requirements for Award of Master of Science Degree in Biology

In addition to the aforementioned requirements, in order to receive the Master of Science in Biology the student must:

1. Maintain a GPA of 3.0 or better in all graduate coursework undertaken from the date of embarking on the first course of the approved program. Students wishing to explore other academic areas without jeopardizing this grade point average should attempt to use the *CR/NC* grade option for this purpose.
2. File an application for the granting of the Master of Science degree and pay the diploma fee. Applications should be submitted during the first two weeks of the semester (or the first week of a summer session) in which the degree is to be completed and are available from the Division of Graduate Studies, Thomas Administration, Room 132.

Master of Science Degree Requirements

Marine Science Major

This degree program — to be offered as an interdepartmental degree in cooperation with Moss Landing Marine Laboratories (MLML) — provides the opportunity for students to acquire a practical and theoretical education in the marine sciences to prepare them for careers as marine specialists, scientists, and teachers. The program at Moss Landing provides extensive field and laboratory work for advanced study in the marine sciences, which is not duplicated on individual CSU campuses.

The Master of Science in Marine Science degree program is administered through MLML and a consortium campus with emphasis on biology, geology, or other department, depending on the choice of the student. The prospective student must meet the entrance requirements for the home campus department and will be accepted into classified or conditionally classified status by normal procedures at that campus (see previous information for biology procedures summary). Conditionally classified students must become classified by home campus procedures. MLML may impose additional requirements for classification.

The Thesis Committee will be composed of at least three members, including one faculty member from MLML (who is ordinarily the thesis adviser) and, at the discretion of the home campus, a representative of that campus. The other member or members of the Thesis Committee may be from MLML, the home campus, or elsewhere with the approval of the thesis adviser. The final colloquium must be given at the home campus.

Additional MLML Degree Requirements Including Coursework. A student becomes eligible for the master's degree in marine science after the following requirements have been satisfied:

	Units
Courses in 100-series (requires any three of the following five courses: M SCI 103, M SCI 141, M SCI 142, M SCI 143, M SCI 144)	**12**
Courses in 200-series (including 2 units of M SCI 285T, 286T or 287T, and 4 units of M SCI 299)	**15**
Electives (course[s] in the 100- and/or 200-series) approved by Thesis Committee	**3**
Total	**30**

Note: Quantitative Marine Science, M SCI 104, does not count toward the degree.

Biotechnology Certificate Program

California State University, Fresno offers a Certificate of Advanced Study Program in Biotechnology. This intensive one-year postbaccalaureate program emphasizes molecular biology and a wide range of laboratory skills at the forefront of modern biotechnology. The biotechnology field is growing rapidly and, as new products and applications are commercialized, there is increased need for highly skilled personnel capable of working in both research and production areas. Enrollment is limited to 12 to 15 students per year who work closely with faculty in a variety of lecture and laboratory courses. Among the techniques studied are purification of biological macromolecules, gene splicing, DNA sequencing, culturing of mammalian cells, hybridoma production, and plant cell culturing and cloning.

The certificate program can lead to potential careers in expanding fields, such as drug and hormone production in the pharmaceutical industry, monoclonal antibody production for medical diagnostics and therapeutics, crop improvement, industrial bioprocessing, forensic science, bioremediation, and medical research. The program also provides a background for further postgraduate studies in fields such as biochemistry, molecular biology, and agricultural biotechnology. Some of the courses may also be used at California State University, Fresno as components of master's degree programs in biology, chemistry, plant science, and related departments.

Program courses include: Molecular Biology (BIOL/CHEM 241A-B), Techniques in Protein Purification (BIOL/CHEM 242), Nucleic Acid Technology Lab (BIOL/CHEM 243), Cell Culture/Hybridoma Laboratory (BIOL/CHEM 244), Micropropagation (PLANT 102), and Seminar in Molecular Biology/Biotechnology (BIOL/CHEM 248).

Admission to the program requires a bachelor's degree with an overall GPA and science GPA of 3.0 or better. Upper-division courses in genetics (minimum 3 units), biochemistry with a laboratory (minimum 5 units), and microbiology with a laboratory (minimum 4 units) are also prerequisites for entrance into the program. Consult with the Biotechnology Program coordinator for determining recommended or equivalent courses.

Upper-Division Course Numbers

Biology Department upper-division course numbers provide information on course level and scheduling. Courses with higher numbers have more prerequisites. Courses with numbers less than 120 are not intended for use on biology majors. Numbers in the range 120 to 149 are third year courses requiring only lower-division prerequisites; 150 to 169 courses require some part of the upper-division core as prerequisite; and course numbers 170 or greater are more specialized fourth year courses. For schedule planning, in general: odd numbered upper-division courses are generally offered in the fall; even numbered courses are generally offered in the spring; course numbers ending in zero are offered both fall and spring; and courses offered irregularly end with a nine.

COURSES

Biology (BIOL)

10. Life Science (3)
Not open to students with credit in BIOSC 1A. How living things work and why they work that way. Biology from chemical and physical foundations to ecological and evolutionary processes. Biology and its relationship to human affairs. G.E. Breadth B2. (2 lecture, 2 lab hours)

15. An Ecological Approach to Life Science (5)
Concurrent enrollment in GEOL 15, N SCI 15, S SCI 15 required. Portion of *Humans and the Natural Environment* Cluster. An introduction to biological concepts and investigational methods in the natural environment. Lecture, lab, and fieldwork. See *Humans and the Natural Environment*, Natural Science — Interdisciplinary Courses section. G.E. Breadth B2. (HNE program field trip fee, $300)

100. Nature Study (3)
Not allowable for credit for biological or physical science majors or minors. Prerequisite: a college level biology course. 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)

110. Human Ecology (3)
The study of the relationships between humans and their environment, both natural and manmade; emphasis on scientific understanding of root causes of current environmental problems.

189T. 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Biological Science Core (BIOSC)

1A. Introductory Biology (4)
Course one of two-semester sequence required of all biology majors. Thematic introduction to the unifying concepts of life science: chemical basis of life; cellular processes; energy metabolism; genetics; evolution. G.E. Breadth B2. (3 lecture, 3 lab hours)

1B. Introductory Biology (5)
Prerequisite: BIOSC 1A. Course two of a two-semester sequence required of all biology majors. Continuation of thematic introduction to the unifying concepts of life science: classification and diversity of life; survey of the living organisms; physiology; ecology and environmental biology. (3 lecture, 6 lab hours)*

130. General Ecology (3)
Prerequisites: BIOSC 1A and 1B; an introductory statistics course; MATH 70 or equivalent recommended. Required of all biology majors. The structure, function, organization, and regulation of populations, communities, and ecosystems. The role of evolution in environmental relationships. (2 lecture, 3 lab or field hours)*

140A-B. Genetics and Cellular Biology (3-4)
Prerequisites: BIOSC 1A, 1B and CHEM 8 or 128A. Two-semester sequence required of all biology majors. Fundamentals of inheritance and cellular biology for both prokaryotic and eukaryotic systems, including an introduction to the underlying molecular mechanisms. BIOSC 140A and either CHEM 150 or 155 are prerequisites to BIOSC 140B. (A: 3 lecture hours; B: 3 lecture, 3 lab hours)

180. Evolution (3)
Prerequisites: senior standing or permission of instructor; BIOSC 130, 140A-B. Required of all biology majors. Evolutionary processes and patterns. Satisfies the senior major requirement for the B.S. in Biology.

Botany (BOT)

10. Plant Biology (3)
Not open to students with credit in BIOSC 1B. Structure, function, and development of plants. G.E. Breadth B2. (2 lecture, 2 lab hours)

*Late afternoon, Saturday and/or overnight field trips may be required.

130. Plant Physiology (4)
Prerequisites: BIOSC 1A and 1B; CHEM 1A or 3A; or permission of instructor; organic chemistry recommended. General metabolism and related processes. (2 lecture, 6 lab hours)

131. Vascular Plants (4)
Prerequisites: BIOSC 1A and 1B or permission of instructor. 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)

132. Nonvascular Plants (3)
Prerequisites: BIOSC 1A and 1B or permission of instructor. Comparative structure and phylogeny of the fungi, algae, mosses, and liverworts. (2 lecture, 3 lab hours)

133. Plant Anatomy (3)
Prerequisites: BIOSC 1A and 1B or permission of instructor. Structure and development of flowering plants at the cellular and tissue levels. (2 lecture, 3 lab hours)

137. Plant Growth and Development (3)
Prerequisites: BIOSC 140A or permission of instructor. Processes involved in plant growth with emphasis on the development of form in higher plants and the experimental approach. (2 lecture, 3 lab hours)

142. Phycology (4)
Prerequisites: BIOSC 1A and 1B or permission of instructor. Morphology, cytology, ecology, physiology, economic importance, and cultivation of the algae. (2 lecture, 6 lab or field hours)*

144. Plant Taxonomy (4)
Prerequisites: BIOSC 1A and 1B or permission of instructor. Principles of plant classification; local flora. (1 lecture, 9 lab or field hours)*

Ecology (ECOL)

135. Marine Biology (3)
Prerequisite: a college biology course. 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)

151. Terrestrial Ecology (4)
Prerequisite: BIOSC 130. The interaction of organisms and communities with the physical and biotic environment, with emphasis on the biotic communities of Central California. (3 lecture, 3 lab or field hours)*

152. Aquatic Ecology (4)
Prerequisite: BIOSC 130. Physical-chemical features of inland waters as related to their biology; community structure and function, ecological interactions, adaptations, and identification of aquatic organisms. (3 lecture, 3 lab or field hours)*

162. Microbial Ecology (4)
Prerequisites: BIOSC 130 and MICRO 140. Physiological ecology of microorganisms; interactions of microorganisms with abiotic and biotic factors in the environment; microbial habitats including soil, water, and organisms; techniques of microbial ecology (field and laboratory). (3 lecture, 3 lab hours)*

171. Fisheries Biology and Management (3)
Prerequisite: BIOSC 130; statistics strongly recommended. Ecology and management of fisheries; techniques for studying fish populations; quantitative methods for assessing fish stocks; environmental requirements and habitat improvement methods; acquisition and application of information to obtain maximum benefit from fishery resources. Inland fisheries emphasized. (2 lecture, 3 lab or field hours)*

172. Wildlife Biology and Management (4)
Prerequisite: BIOSC 130. 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, 6 lab or field hours)*

(See also *BOT*, *MICRO*, *ZOOL* courses.)

174. Systematic Biology (3)
Prerequisite: BIOSC 1A and 1B; BIOSC 140A-B recommended. Modern theory and methods of phylogenetic analysis applied to the study of biodiversity and evolution. (2 lecture, 3 lab hours) (Formerly BIOL 189T)

Genetics (GENET)

120. Introduction to Genetics (3)
Not open to biology majors and students with credit in BIOSC 140A. Prerequisites: BIOSC 1A and 1B or equivalent. Principles of biological inheritance, including gene structure, gene function, statistical methods, problem solving, and human genetics.

142. Molecular Biology (4)
Prerequisites: BIOSC 140A; CHEM 150 or 155. Corequisite: BIOSC 140B. The study of genome structure and fluidity, prokaryotic and eukaryotic gene expression, genomics, and bioinformatics. (3 lecture, 3 lab hours)

170. Seminar in Cellular and Molecular Biology (1)
Prerequisites: GENET 142 or permission of instructor. Trends and breakthroughs in cellular and molecular biology accessed through the primary literature. (1 seminar hour)

171. Experimental Molecular Genetics (4)
Prerequisite: BIOSC 140A-B. The nature of genetic information, its mutation, transfer, and recombination in cells. (2 lecture, 6 lab hours)

172. Developmental Biology (4)
Prerequisite: BIOSC 140A-B. 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. (3 lecture, 3 lab hours)

182. Microbial Genetics (4)
Prerequisite: BIOSC 140A; MICRO 140 recommended. Genetic variation, gene transfer, and regulation of gene expression in model microbial systems and medically and industrially important microbes. (3 lecture hours, 3 lab hours)

Microbiology (MICRO)

20. Introductory Microbiology (4)
Not open to students with credit in MICRO 140. Prerequisites: CHEM 3A; CHEM 3B or 8; plus a college course in the biological sciences. Introduction to microbiology; principles and selected applications. (3 lecture, 3 lab hours)

140. Microbiology (4)
Prerequisites: BIOSC 1A, 1B; organic chemistry. Emphasis on prokaryotes (bacteria); microbial physiology, genetics, ecology, classification, and identification;

*Late afternoon, Saturday and/or overnight field trips may be required.

applications of microbiology. Prerequisite to most upper-division microbiology courses. (2 lecture, 6 lab hours)

161. Microbial Physiology (4)
Prerequisite: MICRO 140. Structure, function, energy metabolism, growth, and regulatory mechanisms of microorganisms. (2 lecture, 6 lab hours)

171. Protozoology (3)
Prerequisites: BIOSC 130, 140A-B. The biology of pro*tozoan organisms. (2 lecture, 3 lab ho*urs)

181. Bacte*ri*ology of Human Disease (5)
Prerequisite: MICRO 140; PHYAN 160 recommended. Bacterial, etiological agents of human disease. (3 lecture, 6 lab hours)

185. Virology (4)
Prerequisite: MICRO 140; P*HYAN 160 recommended. Inquiries* into the unique nature of viruses; methods of analysis, structure, and replication. Virus-host interac*t*ionsared**ESCRIBEDFROMBACT**erial,*plant, and animal vir*us ***groups. Conside***rable emphasis is placed on diagnosis of viruses infecting humans including epidemiology and viropathology. (2 lecture, 6 lab hours)

(See also BOT 142; ECOL 162; GENET 171; PHYAN 160; ZOOL 148.)

Physiology/Anatomy/
Development (PHYAN)

33. Human Anatomy and Physiology (5)
Three units allowed for students with prior credit in human anatomy; 2 units allowed for students with prior credit in human physiology. An integrated study of the structure and function of the human body. (4 lecture, 3 lab hours) (Course fee, $25)

64. Functional Human Anatomy (3)
Not open to students with credit in PHYAN 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) (Course fee, $25)

65. Human Physiology (5)
Not open to students with credit in PHYAN 33. College chemistry and human anatomy recommended. Homeostasis in the human body; how organ systems function to maintain life; *dynamic and adapt*ive systems at the molecular, cellular, and organ level. (4 lecture, 3 lab hours)

110. Human Reproductive Physiology, Aging, and Death (3)
Human reproduction, structures, functions, and control systems; the relationship between sexual reproduction and aging; the physiology and aging of specific systems, such as the cardiovascular system; medical and cultural definitions of death. G.E. Integration IB.

130. Neuroanatomy (4)
Prerequisites: anatomy and physiology. Macroscopic and microscopic study of the structure a**ND FUNCT***ional* relationships of the mammalian nervous system. (3 lecture, 3 lab hours)

*Late afternoon, Saturday and/or overnight field trips may be required.

*Late afternoon, Saturday and/or overnight field trips may be required.

M SCI 112, 113, 122, 1

4, 125. Biology electiv
MSCI103,104. MarineScience(MSCI) 103.M-
arine Ecology (4) Prerequisites: ecol
gy and statistics (or concurrent registrat
on in M SCI 104) or permission of instructo-
r. A field-oriented introduction to t
e interrelationships between marine and-
estuarine organisms and their environment with-
emphasis on quantitative

data collection and analysis. (2 lec
ture, 6 lab or field hours) 104. Quant
tative Marine Science (4) Prerequisite: c-
ollege mathematics. The mathematical meth
ds for analysis of biological, chemical
and physical data from the marine environme-
nt; experimental design, parametric and

nonparametric statistics.
3 lecture, 3 lab or field hours) 105. Mar-
ine Science Diving (3) Prerequisites: uppe
-division science major; thorough ph
sical examination; ability to pass swimming
test. Skin and SCUBA diving course; pool-t-
raining culminates in 10 ocean dives. Topic
include diving physics, physiology, d
ving environments, night diving, and rese-
arch diving. Successful completion give

NAUI and MLML certification. (1 lectur
, 6 lab or field hours) 110. Introductio
to Marine Behavior (4) Prerequisite: M S
I 103 or permission of instructor. Basic
heoretical concepts of animal behavior,
stressing the causation, development, and
evolution of behavior. E

phasis is on the marine environme
t. (3 lecture and 3 lab hours) 112. Marine Bir-
ds and Mammals (4) Prerequisite: upper-d-
ivision vertebrate zoology; M SCI 103 recom-
mended. Systematics, morphology, e
ology, and general biology

of marine birds and mammal
(2 lecture, 6 lab or field hours) 113. Mar
ne Ichthyology (4) Prerequisite: co
lege zoology or equivalent. Taxonomy, mo
phology, and ecology of marine fishes. B-
oth field and laboratory work concentrate
on the structure, function, and habits of m
rine fishes and the ecological interactio
s of these fishes with their b

otic and ab
tic surroundings. (2 lectur
6 lab or field hours) 122. Marine Inve
tebrate Embryology (4) Prerequisite

permission of instructor. Survey of principles of developmental biology, concentrating on experimental evidence obtained using invertebrate material. Laboratory observations cover the embryology of lower invertebrates, molluscs, crustacea, enchinoderms, and protochordates. (2 lecture, 6 lab or field hours)

124. Marine Invertebrate Zoology I (4)
Prerequisite: college zoology or permission of instructor; M SCI 103 recommended. A field-oriented introduction to the structure, systematics, evolution, and life histories of the major phyla. (2 lecture, 6 lab or field hours)

125. Marine Invertebrate Zoology II (3)
Prerequisite: college zoology or permission of instructor; M SCI 103 and M SCI 124 recommended. A field-oriented introduction to the structure, systematics, evolution, and life histories of the minor phyla. (1 lecture, 6 lab or field hours)

131. Marine Botany (4)
Prerequisite: M SCI 103 recommended. Introduction to the plants of the sea, marshes, and dunes, with emphasis on the morphology, taxonomy, and natural history of seaweeds and vascular plants. (2 lecture, 6 lab or field hours)

135. Physiology of Marine Algae (4)
Prerequisites: M SCI 103, 131, 144. Develops physiological basis for understanding the adaptation of marine algae (seaweeds and microalgae) to their environment. Students will learn modern methods in physiological research, covering areas such as photosynthesis, respiration, enzyme activity, and biochemical composition. (2 lecture, 6 lab hours)

141. Geological Oceanography (4)
Prerequisite: M SCI 142 or 143 or concurrently. Structures, physiography, and sediments of the sea bottom and shoreline. (2 lecture, 6 lab or field hours)

142. Physical Oceanography (4)
Prerequisite: college algebra; college physics recommended. An introduction to the nature and causes of various oceanic motions including currents, waves, tides and mixing, and the physical properties of seawater including transmission of sound and light; does not require calculus. (3 lecture, 3 lab or field hours)

143. Chemical Oceanography (4)
Prerequisite: one year of college chemistry. An introduction to the theoretical and practical aspects of the chemistry of the oceans, including major salts, dissolved gases, nutrient ions, carbonate system, transient tracers, and shipboard sampling techniques. (2 lecture, 6 lab and field hours)

144. Biological Oceanography (4)
Prerequisites: general biology and general chemistry. The ocean as an ecological system. Emphasis is on the complexity of organismal-environmental interaction of the plankton, the transfer of organic matter between trophic levels and nutrient cycles. Laboratory includes methods in sampling, shipboard techniques, identification of plankton, and current analytical techniques. (2 lecture, 6 lab or field hours)

161. Marine Fisheries (4)
Prerequisite: college mathematics, M SCI 104, or permission of instructor; M SCI 103 recommended. An introduction to fishery biology, including the concepts of 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)

173T. Topics in Marine Biology (1-4)
Prerequisite: permission of instructor. The study of a selected area in marine biology (morphology, physiology, ecology, etc.). Subjects will vary depending on student demand and availability of instructors. (Lecture and/or laboratory)

174T. Topics in Oceanography (1-4)
Prerequisite: permission of instructor. The study of selected areas in oceanography; subject varies depending on student demand and availability of instructors. (Lecture and/or laboratory)

175T. Topics in Marine Science (1-4)
The study of a selected area in the marine sciences. The subjects vary depending on student demand and availability of instructors. (Lecture and/or laboratory)

177. Microscopic Techniques (3)
Prerequisites: 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; max total 6)
Prerequisite: permission of instructor. Faculty directed study of selected problems; open to undergraduate students with adequate preparation. Approved for SP grading.

GRADUATE COURSES

(See Course Numbering System.)

Marine Science (M SCI)

202. Marine Instrumental Analysis (4)
Prerequisites: M SCI 142, 143. Theory and use of advanced instrumentation; advanced field and laboratory techniques for the interpretation of data collected in marine science research. (2 lecture, 6 lab or field hours)

204. Sampling and
Experimental Design (4)
Prerequisites: M SCI 103, 104. Basic design of experiments and field sampling, including random sampling, systemic sampling, subsampling, survey techniques, and design of single and multifactor experiments using randomized and block experimental designs.

211. Ecology of Marine Birds
and Mammals (4)
Prerequisites: M SCI 103, 104, 112. Community approach to the ecology of marine birds and mammals using experimental and sampling methodology. Examines the distribution, abundance, trophic ecology, and behavior of birds and mammals in Elkhorn Slough and Monterey Bay. (2 lecture, 6 lab hours)

212T. Advanced Topics
in Marine Vertebrates (1-4)
Prerequisites: M SCI 112 or 113 and permission of instructor. Advanced considerations of the ecology, physiology, and phylogeny of fishes, birds, or mammals; emphasizing current literature and research. (Lecture and/or laboratory)

221T. Advanced Topics
in Marine Invertebrates (1-4)
Prerequisites: M SCI 124 and permission of instructor. Advanced considerations of the ecology, physiology, and phylogeny of the various invertebrate phyla emphasizing current literature and research. (Lecture and/or laboratory)

222. Biology of the Mollusca (4)
Prerequisites: 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. Biology of Seaweeds (4)
Prerequisite: M SCI 131 or permission of instructor. Lectures-discussions on marine macroalgal biology with extensive reading of original literature. Ecologically oriented individual research projects involving laboratory culture and field experimentation. (2 lecture, 6 lab or field hours)

233T. Advanced Topics in Marine Ecology (1-4)
Prerequisites: M SCI 103 and permission of instructor. Selected topics and current issues in marine ecology; subjects vary depending on student demand and availability of instructors. (Lecture and/or laboratory)

234. Advanced Biological Oceanography (4)
Prerequisite: M SCI 144 or permission of instructor. Experimental techniques in biological oceanography with emphasis on problems important in plankton ecology. Lectures, labs, and discussions of current research problems. An individual research project involving analytical tools will be required. (2 lecture, 6 lab or field hours)

242. Plate Tectonics (3)
Prerequisite: M SCI 141 or permission of instructor. Historical background, modern theory, and geophysical evidence of continental drift; seafloor spreading and plate tectonics; examinations of the impact of the recent revolution in historical geology.

244. Paleoceanography (4)
Prerequisite: M SCI 141 or permission of instructor. 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. (2 lecture, 6 lab or field hours)

245. Deep Sea Sedimentation (4)
Prerequisite: M SCI 141 or permission of instructor. Study of the types of marine sediment found in the deepest parts of all oceans; the sedimentary processes responsible for the deposition, preservation, and redeposition of these sediments. (2 lecture, 6 lab or field hours)

251. Marine Geochemistry (4)
Prerequisite: quantitative analysis, year of calculus, or permission of instructor. 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)

261. Ocean Circulation and Mixing (4)
Prerequisite: M SCI 142; college physics strongly recommended. 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)

262. Satellite Oceanography (4)
Prerequisite: M SCI 142, 144, or permission of instructor; M SCI 263 and computer literacy recommended. Physical principles of remote sensing of earth's oceans, including satellite systems, oceanographic applications of satellite imagery, and image processing methods. Labs involved use PC and Unix workstation image processing. (2 lecture, 2 lab hours)

263. Application of Computers in Oceanography (4)
Prerequisites: M SCI 104, college math, permission of instructor. Lecture, discussion, practical experience with a multi-user computer for marine science applications: use of existing programs and subroutine libraries; computer communications; scientific programming for data I/O and analysis. Semester project required. (2 lecture, 6 lab hours)

271. Population Biology (3)
Prerequisites: M SCI 103 and 104 or permission of instructor. 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)

272. Subtidal Ecology (4)
Prerequisites: MLML diver certification and marine ecology; knowledge of marine algae, invertebrates, and statistics recommended. The ecology of nearshore rocky subtidal populations and communities with emphasis on kelp forests; lectures and discussions of original literature; fieldwork with SCUBA including group projects on underwater research techniques and community analysis, and individual research on ecological questions chosen by student. (2 lecture, 6 lab or field hours)

274T. Advanced Topics in Oceanography (1-4)
Prerequisite: permission of instructor. The study of a selected area in oceanography. Subjects vary depending on student demand and availability of instructors. (Lecture and/or laboratory)

280W. Scientific Writing (3)
Prerequisites: graduate standing, permission of instructor. Techniques and strategies of scientific writing used for proposals, journal submissions, and abstracts of meetings. Students will develop their writing skills by preparing, editing and rewriting manuscripts.

285T. Seminar in Marine Biology (2; max total 4)
Prerequisite: permission of instructor. Seminar will be held on topics changing each semester; each student will be required to give at least one seminar.

286T. Seminar in Marine Geology (2; max total 4)
Prerequisite: permission of instructor. Seminar will be held on topics changing each semester; each student will be required to give at least one seminar.

287T. Seminar in Oceanography (2; max total 4)
Prerequisite: permission of instructor. Seminar will be held on topics changing each semester; each student will be required to give at least one seminar.

295. Research in the Marine Sciences (1-4; max total 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 Criteria for Thesis and Project. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for SP grading.

Chemistry

College of Science and Mathematics

Department of Chemistry
Joseph R. Gandler, *Chair*
Rosalina Messer, *Administrative Support Coordinator*
Science Building, Room 380
(559) 278-2103
http://www.csufresno.edu/chem

B.A. in Chemistry

B.S. in Chemistry

M.S. in Chemistry

Minor in Chemistry

Single Subject Teaching Credential in Science

Biotechnology Certificate

Chemistry

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, chiropractic, 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 non-science 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 are 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.

Faculty

Eighteen Ph.D. members are in the Department of Chemistry. Our faculty provide excellent research opportunities in analytical, biochemistry, inorganic, organic, and physical chemistry. The broad interests within the faculty have resulted in interdisciplinary research projects in collaboration with scientists and professors in other science areas: agricultural chemistry, biotechnology, clinical chemistry, forensics chemistry, chemical physics, enology, nutritional science, and molecular biology. Research projects have involved local facilities such as the California State Crime Laboratory, University Medical Center, UCSF Fresno Medical Education Program, USDA Research Station, U.S. Veteran's Administration Hospital, U.S. Forest Laboratory, and Valley Children's Hospital.

Facilities

All upper-division and graduate chemistry laboratories and support areas are housed in our science building. Eight four-station graduate laboratories are well equipped, with access to modern instrumentation. Instrumentation in the department includes: Varian EM 360 and Gemini 200 FT NMR spectrometers, GC-MS, atomic absorption spectrometers, Fourier Transform IR (FTIR), liquid scintillation counter, Lambda 6, Shimadzu, HP Diode-Array, spectrophotometers, spectrofluorometer, radiation equipment, liquid chromatographs, high speed refrigerated centrifuges, gas chromatographs, and Unix workstations for advanced computational chemistry. The university library includes many journal subscriptions in chemistry plus numerous texts and related books.

Career Opportunities

Because of the increasing technological nature of our society, chemistry graduates will find an impressive array of options and exciting opportunities in a wide range of fields. A chemistry degree can provide preparation for a career as a professional chemist in areas such as basic research, environmental protection, instrumentation, new product and process development, and education. There is an increasing need for technical expertise in expanding fields such as agricultural chemistry, biotechnology, forensic science, clinical chemistry, food science, occupational safety, and environmental monitoring. Careers for chemists in the academics include university teaching and science teaching in the secondary school — an area that will expand greatly in the future. In addition there is a need for technically trained people in nontraditional areas such as marketing and sales, scientific information, patent law, and health and safety. The baccalaureate degree can also provide a strong foundation for studies at medical, dental, veterinary, and pharmacy schools. Students with chemistry degrees have been notably successful in these areas.

Chemistry

Faculty

Joseph R. Gandler, *Chair*
Ronald L. Marhenke, *Graduate Coordinator*

Sydney Bluestone
Richard P. Ciula
David L. Frank
Barry H. Gump
Donald K. Kunimitsu
Kimberly A. Lawler
Barbara J. Mayer
C. Dean Mitchell
Kin C. Ng
Howard K. Ono
Stephen A. Rodemeyer
Jose Sy
Joe D. Toney
Kin-Ping Wong
David L. Zellmer
Stanley M. Ziegler

Undergraduate Programs

Chemistry Majors: The Bachelor of Arts degree with a major in chemistry consists of a total of 124 units including 37-39 units of chemistry. The Bachelor of Science degree with a major in chemistry consists of a total of 124 units including a minimum of 46 units in chemistry.

High School Preparation: The high school preparation for majors in the Department of Chemistry should include: algebra (2 years), plane and solid geometry, trigonometry, chemistry, and physics.

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.

Bachelor of Arts Degree Requirements

The Bachelor of Arts degree in Chemistry is intended primarily for those students who plan to take extensive coursework in other areas in addition to chemistry. This degree is suitable for prehealth professional students (premedical, predental, etc.), secondary school teaching credential students, and biochemistry students oriented toward biotechnology and the health professions. This degree is *NOT* intended for students who anticipate a career in chemistry, or who expect to continue their education in pursuit of graduate degrees.

Note: Chemistry majors may not take courses listed in category A or B for *CR/NC* grades.

	Units
A. The B.A. Chemistry Major	**37-39**
Core Program	
CHEM 1A, 1B, 102, 108, 128A, 128B, 129A, 155	(30)
Emphasis	
CHEM 156	(3)
Elect two courses from CHEM 129B, 142, 153, 241A, 241B	(4-6)
B. Additional requirements	**32-35**
BIOSC 1A, 1B	(9)
Elect two courses from BIOSC 140A, BIOSC 140B, MICRO 140 or other approved courses	(7)
MATH 75, 76 (MATH 77 strongly recommended)	(8)
PHYS 2A, 2B (or PHYS 4A, 4AL, 4B, 4BL, 4C strongly recommended)	(8-11)
C. Remaining General Education requirements*	**42**
D. Electives and remaining degree requirements	**8-13**
(See *Degree Requirements*); may be used toward a dual major or minor.	
Total	**124**

*It is anticipated that CHEM 1A; PHYS 2A (or 4A, 4AL); BIOSC 1A; and MATH 75, which are required by the major, will also meet General Education requirements.

The following is an example of a program for the B.A. in Chemistry:

First Semester — Fall	*Units*
CHEM 1A	5
MATH 75	4
ENGL 1	3
HIST 11 or 12 or PL SI 2	3
	15
Second Semester — Spring	
CHEM 1B	5
MATH 76	4
PHYS 2A or 4A, 4AL	4
HIST 11 or 12 or PL SI 2	3
	16
Third Semester — Fall	
CHEM 128A	3
CHEM 129A	2
PHYS 2B or 4B, 4BL	4
BIOSC 1A	4
General Education	3
	16
Fourth Semester — Spring	
CHEM 128B	3
CHEM 102	5
BIOSC 1B	5
Electives or General Education	3
	16
Fifth Semester — Fall	
*CHEM 108	4
*CHEM 155	3
BIOSC 140A	4
Electives or General Education	5
	16
Sixth Semester — Spring	
**CHEM 156	3
BIOSC 140B or MICRO 140	4
Electives or General Education	8
	15
Seventh Semester — Fall	
Electives or General Education	15
Eighth Semester — Spring	
Electives or General Education	15
Total	**124**

* Offered fall semester only.
** Offered spring semester only.

Bachelor of Science Degree Requirements

The Bachelor of Science degree in Chemistry is intended for students who plan a career in chemistry. The B.S. degree is accredited by the American Chemical Society. Students who satisfactorily complete this program are recommended by the department for certification as graduate chemists by the American Chemical Society. The B.S. degree prepares students to enter the job market or for graduate study leading to an advanced degree, such as a Master of Science or Doctor of Philosophy.

Note: Chemistry majors may not take courses listed in category A or B for *CR/NC* grades.

	Units
A. The B.S. Chemistry Major	**46**
CHEM 1A, 1B, 102, 106, 110A, 110B, 111, 123, 124, 128A, 128B, 129A, 129B, 155	
B. Additional requirements	**23**
MATH 75, 76, 77; PHYS 4A, 4AL, 4B, 4BL, 4C	
C. Remaining General Education requirements*	**45**
D. Electives	**10**
Recommended: CHEM 130, 140T, 142, 153, 156, 160, 190	
Total	**124**

* Of the 51 required General Education units, it is anticipated that 6 will be satisfied by PHYS 4A and 4AL and MATH 75.

Transfer students are strongly urged to consult their adviser.

Many of the courses listed in the degree requirements have chemistry or other prerequisites. For that reason, the following sample program leading to a B.S. in Chemistry is provided. This sample program emphasizes the need to take course sequences in mathematics and physics prior to CHEM 110A. In addition, it specifies certain semesters for some courses that are offered only once a year. Finally, this program is constructed in such a way as to leave adequate time for independent study experience (CHEM 190) in the senior year.

If a student wishes to deviate significantly from this sample program, particularly in regard to chemistry, physics, and mathematics requirements, it is very important that an alternate program be developed in consultation with a departmental adviser. Any course substitutions or other changes to degree requirements can only be initiated by submitting a written request to the chair of the Chemistry Department.

First Semester — Fall	*Units*
CHEM 1A	**5**
MATH 75	**4**
ENGL 1	**3**
HIST 11 or 12 or PL SI 2	**3**
	15

Second Semester — Spring	
CHEM 1B	**5**
MATH 76	**4**
PHYS 4A, 4AL	**4**
HIST 11 or 12 or PL SI 2	**3**
	16

Third Semester — Fall	
CHEM 128A	**3**
CHEM 129A	**2**
MATH 77	**4**
PHYS 4B, 4BL	**4**
General Education	**3**
	16

Fourth Semester — Spring	
CHEM 128B	**3**
CHEM 129B	**2**
CHEM 102	**5**
PHYS 4C	**3**
General Education	**3**
	16

Fifth Semester — Fall	
*CHEM 110A	**3**
*CHEM 155	**3**
*CHEM 123	**3**
CHEM or other elective	**2**
General Education	**5**
	16

Sixth Semester — Spring	
**CHEM 110B	**3**
**CHEM 111	**3**
**CHEM 124	**2**
General Education	**8**
	16

Seventh Semester — Fall	
*CHEM 106	**4**
Chemistry or other elective	**3**
CHEM 190 (recommended) or other elective	**3**
General Education	**4**
	14

Eighth Semester — Spring	
CHEM 190 (recommended) or other elective	**3**
Chemistry or other elective	**3**
General Education	**9**
	15

Total	**124**

* Offered fall semester only.
** Offered spring semester only.

Bachelor of Arts in Natural Sciences Degree Requirements

Chemistry Emphasis

The B.A. in Natural Sciences serves as a waiver program for the Single Subject Teaching Credential in Science. With this credential you are able to teach any introductory science class, i.e., earth, general, life, or physical science along with the courses in your chosen emphasis. Students interested in teaching chemistry in high school may pursue a B.A. in Natural Sciences with a chemistry emphasis (see specific course requirements below). For additional information see the listing under Natural Science or see the science credential adviser.

	Units
Core requirements	**37-38**
Biology[1]	(12-13)
BIOSC 1A or BIOL 15[1], BIOSC 1B, BIOSC 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology[1]	(8)
GEOL 1 and 3 (or 15), GEOL 168	
Natural Science	(3)
N SCI 106	
Physical Science	(4)
P SCI 21	
Chemistry Emphasis	**42**
PHYS 2A, 2B[2]	(8)
P SCI 168	(3)
MATH 75	(4)
MATH 76	(4)
CHEM 128A	(3)
CHEM 102, 108, 128B, 129A, 139, 155	(20)
General Education	**51**
Electives and remaining degree requirements[3,4]	**5-6**
Total	**124**

Advising Notes for the Natural Sciences Major

1. BIOL 15 and GEOL 15 are part of the Humans and the Natural Environment Cluster. See the *Natural Science Interdisciplinary Courses* section in this catalog. GEOL 15 is equivalent to GEOL 1 and 3.
2. Substitutions may be made with the permission of the appropriate department chair. PHYS 4A-B-C with labs 4AL, 4BL is recommended instead of PHYS 2A-B for those students well-prepared for physics.
3. This figure takes into account that 12 units required for the major are expected to count toward General Education as follows: CHEM 1A (3 units), BIOSC 1A or BIOL 15 (3 units), GEOL 168 (3 units), and MATH 75 (3 units). Consult your major adviser for details.
4. Students should be sure to take sufficient upper-division units in their General Education courses and electives to satisfy the university requirement of 40 upper-division units for graduation.

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 (CHEM 1A and 1B or 3A and 4), Organic Chemistry (CHEM 8 and 109 or 128A-B and 129A), and Quantitative Analysis (CHEM 105).

Those students requiring additional upper-division chemistry units may choose from courses such as: CHEM 125, 150, 151, 153, 155, and 156.

Graduate Program

The mission of the graduate program in chemistry is guided by the mission of the university; it seeks to provide comprehensive undergraduate and graduate degree instruction for qualified students, and to contribute to the needs and well being of the people of the San Joaquin Valley and California.

The California State University, Fresno graduate program in chemistry is primarily oriented toward two groups of students: students who are preparing themselves for employment in chemistry-based occupations (including teaching) and students interested in additional training in chemistry and biochemistry to prepare for advanced Ph.D. graduate work.

For students in the first category, the program stresses strengthening the student's chemistry background while also providing advanced training in both theory and research — training that is very beneficial in today's competitive job market. Furthermore, the program also strives to meet local and regional needs for individuals with advanced training in chemistry and biochemistry, needs that are strongly tied to the agricultural nature of the valley.

For students in the second category, the program's emphasis on improving chemistry background and basic research skills prepares students for work at the Ph.D. level and enhances their chances for success.

Master of Science Degree Requirements

The Master of Science degree program in Chemistry assumes undergraduate preparation equivalent to a California State University, Fresno B.S. in chemistry. Each new student is required to take the Diagnostic Placement Examinations in four fields of chemistry (physical, organic, analytical, and inorganic or biochemistry) to provide a basis for program planning. These are taken at the beginning of the first semester of residence. Twenty-one of the 30 units required for the degree must be in chemistry.

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

Graduate-Level Writing Proficiency Requirement

Students will have satisfied this requirement if they have graduated from an institution that has an official upper-division writing proficiency requirement. Students will have to demonstrate that such a requirement was in force at the time of their graduation.

Students will have satisfied this requirement if they pass an upper-division course which has been designated as fulfilling the upper-division writing proficiency requirement, or if they have passed the appropriate California State University, Fresno standard examination in writing proficiency.

Students will have satisfied this requirement if they demonstrate satisfactory English competency on term papers required in one of the following graduate level chemistry courses: CHEM 211, 215, 220, 222, 241A, 242, 226, 227, 230, 235, 260, or 280. The term papers will be graded for English competency. Before taking the course, the student must petition the Chemistry Department Graduate Committee to have papers in a particular course accepted as fulfilling the English requirement.

If a student does not satisfy the writing skills requirement by other means, the student will be required to take ENGL 160W or some other course accepted as equivalent by the Chemistry Department Graduate Committee.

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 in the copy that follows. Other courses may be specified after examination of the student's record and performance on the departmental diagnostic examinations.

Plan A

M.S. Degree with Thesis	*Units*
Courses in chemistry, including at least 24 units in 200 series (see *specific requirements)*	**24**
Approved electives in chemistry or related fields	**6**
Total	**30**

Specific requirements: CHEM 201 (1 unit); 280 (at least 2 units); 295 (2 units); 299 (4 units); and 3 units each from 4 of the 5 following groupings: (i) CHEM 211 or 215, (ii) 220 or 222, (iii) 225, 226, or 227, (iv) 230 or 235, (v) 241A or 242. CHEM 260 recommended.

Other courses may be specified after examination of the student's record and his or her performance on the departmental diagnostic examinations.

Plan B

M.S. Degree with Comprehensive Examination	*Units*
Courses in chemistry, including at least 24 units in 200 series (see *specific requirements)*	**24**
Approved courses in chemistry or related fields may include biology, engineering, geology, mathematics, physics, etc.) according to the student's objective	**6**
Total	**30**

Specific requirements: CHEM 201 (1 unit); 280 (at least 2 units); 295 (2 units); and 3 units each from 4 of the 5 following groupings: (i) CHEM 211 or 215, (ii) 220 or 222, (iii) 225, 226, or 227, (iv) 230 or 235, (v) 241A or 242.

Other courses may be specified after examination of the student's record and his or her performance on the departmental diagnostic examinations.

Instead of a thesis, a student must successfully complete a final comprehensive examination consisting of two parts: (a) a general written examination in chemistry; (b) an examination dealing with a specific area of chemistry. See department for *Policy Statement — Plan B Comprehensive Examination.*

Biotechnology Certificate Program

California State University, Fresno offers a Certificate of Advanced Study Program in Biotechnology. This intensive one — year postbaccalaureate program emphasizes molecular biology and a wide range of laboratory skills at the forefront of modern biotechnology. The biotechnology field is growing rapidly, and as new products and applications are commercialized, there is increased need for highly skilled personnel capable of working in both research and production areas. Enrollment is limited to 12 to 15 students per year, who work closely with faculty in a variety of lecture and laboratory courses. Among the techniques studied are purification of biological macromolecules, gene splicing, DNA sequencing, culturing of mammalian cells, hybridoma production, and plant cell culturing and cloning.

The Certificate Program can lead to potential careers in expanding fields, such as drug and hormone production in the pharmaceutical industry, monoclonal antibody production for medical diagnostics, crop

improvement, industrial bioprocessing and medical research. The program also provides a background for further postgraduate studies in fields such as biochemistry, molecular biology and agricultural biotechnology. Some of the courses may also be used at California State University, Fresno as components of master's degree programs in biology, chemistry, plant science, and related departments.

Courses include: Molecular Biology (BIOL/CHEM 241A-B), Techniques in Protein Purification (BIOL/CHEM 242), Nucleic Acid Technology Lab (BIOL/CHEM 243), Cell Culture/Hybridoma Laboratory (BIOL/CHEM 244), Micropropagation (PLANT 102), and Seminar in Molecular Biology/Biotechnology (BIOL/CHEM 248).

COURSES

Chemistry (CHEM)

1A. General Chemistry (5)
CHEM 1A not open to students with credit in CHEM 1B. Students with credit in CHEM 3A receive only 1 unit of credit. Prerequisites: high school chemistry or CHEM 15, and completion of the General Education B4 area requirement. Fundamental principles of chemistry, including the wave mechanical model of the atom, chemical bonding and structure, valence bond, VSEPR and molecular orbital theory; stoichiometry, thermochemistry, oxidation-reductions, and states of matter. G.E. Breadth B1. (3 lecture, 6 lab hours)* (CAN CHEM 2)

1B. General Chemistry and Qualitative Analysis (5)
Prerequisite: CHEM 1A or CHEM 4 with a grade of *C* or better. Acid-base theory; chemical kinetics; equilibrium (acid-base, hydrolysis, and solubility); thermodynamics, electrochemistry; selected topics in nuclear chemistry, coordination chemistry, and/or chemistry of selected groups. (3 lecture, 6 lab hours)* (CAN CHEM 4)

3A. Introductory General Chemistry (4)
No credit for CHEM 3A after 1A. High school chemistry or CHEM 15 recommended. Prerequisite: completion of the General Education B4 area requirement. For nonscience majors. Composition of matter and physical and chemical changes; fundamental laws and principles; atomic and molecular structure; acid-base theory, redox and equilibria; qualitative and quantitative theory and techniques. G.E. Breadth B1. (3 lecture, 3 lab hours)*

3B. Introductory Organic and Biochemistry (3)
No credit for CHEM 3B to students with credit in 1B. Primarily for students in health-oriented professions; not a substitute for CHEM 8. Prerequisite: CHEM 3A. Introduction to the basic concepts of organic and biochemistry. Structure and behavior of organic and biological compounds, metabolism, and regulation.

4. Introduction to Chemical Theory (3)
No credit for CHEM 4 after CHEM 1A. Not recommended for the health-oriented professions. Prerequisite: CHEM 3A. Beginning and intermediate development of the concepts of chemistry, including the laws and principles of atomic and molecular structure, stoichiometry, nomenclature, ionic equilibria, and energy relationships. *CHEM 3A and 4 are equivalent to CHEM 1A.*

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 3A. Lectures, discussions, and demonstrations of fundamental principles; structure and chemical behavior of organic compounds.

10. Chemistry and Society (4)
Not open to students with credit in college chemistry; for nonscience majors. Prerequisite: completion of the General Education B4 area requirement. The significance of chemical principles in contemporary society; benefits and hazards relative to areas such as energy, health, diet, environment, and agriculture. G.E. Breadth B1. (3 lecture, 2 lab hours)* (Formerly CHEM 1)

15R. Preparation for Chemistry (3)
Prerequisite: one year of high school algebra. Recommended for students without high school chemistry who are interested in taking additional chemistry or science courses. Basic principles and concepts of chemistry with an emphasis on problem solving. Preparation for CHEM 1A and CHEM 3A. *CR/NC* grading only. Not applicable to baccalaureate degree requirements. (Formerly CHEM AR)

102. Analytical Chemistry (5)
For chemistry majors; recommended for other science majors. Prerequisites: CHEM 1B (with a grade of *C* or better), 128A, and MATH 76. Students with credit in a similar lower-division quantitative analysis course will receive only one additional unit of credit. Introduction to principles and methods of analytical chemistry. (3 lecture, 6 lab hours)*

105. Quantitative Analysis Laboratory (4)
Not open to chemistry majors. Prerequisites: CHEM 4 (CHEM 1B recommended), CHEM 8 (or concurrently). Laboratory study of principles and methods of quantitative analysis. (2 lecture, 6 lab hours)*

106. Analytical Measurements Laboratory (4)
Prerequisites: CHEM 102 (with a grade of *C* or better), CHEM 110A and PHYS 4C, or permission of instructor. Principles and methods of analytical measurements of organic and inorganic substances by instrumental and non-instrumental techniques. (2 lecture, 6 lab hours) (Fall semester)*

108. Introductory Physical Chemistry (4)
Prerequisites: MATH 76 (MATH 77 strongly recommended), CHEM 8 or 128A and PHYS 2A, 2B (PHYS 4A, 4AL, 4B, 4BL, and 4C strongly recommended). Basic treatment of gas laws, thermodynamics, phase equilibria, properties of solutions, kinetics, and spectroscopy. (Fall semester)

109. Elementary Organic Chemistry Laboratory (3)
Not open to chemistry majors. Prerequisite: CHEM 8 or 128B or concurrently. Laboratory study of the carbon compounds with coordinating lectures. (1 lecture, 6 lab hours)*

110A-B. Physical Chemistry (3-3)
Prerequisites: MATH 77; CHEM 1B, 8 or 128A; CHEM 110A requires PHYS 4B; CHEM 110B requires PHYS 4C or permission of instructor. 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. (CHEM 110A fall semester; CHEM 110B spring semester)

111. Physical Chemistry Laboratory (3)
Prerequisite: CHEM 110B or concurrently, CHEM 102. May not be taken concurrently with 106. Techniques of physical measurements, error analysis and statistics;

* In all lab courses, the wearing of approved safety glasses is mandatory.

ultra-violet, infrared, and nuclear magnetic resonance spectroscopy; dipole moments, viscosity, calorimetry, kinetics, phase diagrams, thermodynamic measurements, and report writing. (1 lecture, 6 lab hours) (Spring semester)*

123. Advanced Inorganic Chemistry (3)
Prerequisites: CHEM 1B, 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, special topics. (Fall semester)

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. (6 lab hours) (Spring semester)*

125. Laboratory Instrumentation (3)
Not open to chemistry majors. Prerequisites: CHEM 8 or 128A 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)*

127. Organic Problems (1)
Prerequisites: CHEM 8 or 128A; 128B concurrently. Designed to review organic chemistry, in particular for those students who have taken only a brief course in organic chemistry. *CR/NC* grading only; not applicable to the requirements of a major in chemistry.

128A-B. Organic Chemistry (3-3)
For chemistry majors; recommended for premedical students and other science majors. CHEM 128A not open for credit to students with credit in CHEM 8. Prerequisites: CHEM 1B or CHEM 4 with a grade of *C* or better; for CHEM 128B: CHEM 128A with a grade of *C* or better. Introduction to structure and reactivity of principal classes of organic compounds with emphasis on theory and mechanism.

129A-B. Organic Chemistry Laboratory (2-2)
Prerequisites: CHEM 128A or concurrently for 129A; CHEM 128B or concurrently *and* CHEM 129A for 129B. CHEM 129A must be taken before CHEM 129B. Laboratory study of the methods, techniques, syntheses, and instrumentation or representative classes of organic compounds; introduction to research techniques by way of independent projects; introduction to qualitative organic analysis. (6 lab hours)*

130. Organic Analysis (3)
Prerequisites: CHEM 102, 128B, 129B. 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)*

139. Chemistry and the Consumer (3)
Prerequisite: CHEM 3B, 8, or 128A. The impact of chemistry on society and individual lives. Topics selected from: foods as chemicals, food additives, drugs and medication, petrochemistry and the source of chemicals, pesticides and agricultural chemicals, chemical ethics, and current topics of interest.

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.

142. Introduction to Biotechnology (3)
Prerequisite: CHEM 150 or permission of instructor. Emphasizes the principles and industrial utilization of recombinant DNA, monoclonal antibodies, enzyme and cell immobilization, fermentation technology, and downstream processing.

150. General Biochemistry (3)
Prerequisite: CHEM 8. (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)
Prerequisites: 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.

155. Fundamentals of Biochemistry (3)
Primarily for chemistry majors; recommended for premedical students and graduate students in the sciences. Prerequisite: CHEM 128B. (CHEM 155 and 153 together constitute a year sequence.) Structure, function, and metabolism of chemical entities in living systems. (Fall semester)

156. Biochemical Laboratory Techniques (3)
Prerequisites: senior standing or permission of instructor; CHEM 150 or 155 (or concurrently), 102 or 105, 109 or 129A. Provides the student with a range of techniques and methodology appropriate to the study or phenomena at the biochemical, cellular, and organismic levels. Satisfies the senior major requirement for the B.A. in Chemistry. (1 lecture, 6 lab hours) (Spring semester)*

160. Research Techniques (3)
Prerequisite: senior standing or permission of instructor. Concepts in the design of experiments. Development of practical research skills through the planning and undertaking of a short laboratory project. Satisfies the senior major requirement for the B.S. in Chemistry. (1 lecture, 6 lab hours)*

170. Chemistry in the Marketplace (3)
Not open to chemistry majors. Prerequisites: completion of General Education Quantitative Reasoning and Area B2 Breadth requirements, completion of CHEM 1 or 3A or 1A. The impact of chemistry and chemicals on society and individual lives. G.E. Integration IB. (3 lecture hours)

171. Fireworks, Gemstones, and Dyes: The Science of Color (3)
Primarily for non-science majors. Prerequisites: completion of General Education Quantitative Reasoning and Area B Breadth requirements. The chemistry and physics behind the color of objects and color perception, and the interaction of light with matter. G.E. Integration IB. (2 lecture, 3 lab hours)

190. Independent Study
(1-3; max total 6)
Prerequisite: CHEM 160 or permission of instructor. See *Academic Placement — Independent Study*. Approved for *SP* grading.

* In all lab courses, the wearing of approved safety glasses is mandatory.

GRADUATE COURSES

(See *Course Numbering System.*)

Chemistry (CHEM)

201. Chemistry Laboratory Teaching Techniques (1)
Laboratory safety, lab lecture techniques, equipment setups, grading, etc. Primarily for teaching assistants in chemistry.

211. Chemical Thermodynamics (3)
Prerequisites: CHEM 110A, 110B, 111. Principles of thermodynamics; application to chemical problems; introduction to statistical methods, calculation of thermodynamic functions from spectroscopic data.

212. Chemical Applications of Group Theory (1-2; max total 2)
Prerequisites: CHEM 110A, 110B. Introduction to symmetry operations, point groups and their properties. Application of group theory to chemical problems such as; selection rules for electronic, IR, Raman and microwave activity, molecular orbital theory, transition metal complexes, hybridization, and other chemical topics.

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)
Prerequisites: CHEM 110A, 110B. 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.

222. Advances in Inorganic Chemistry (3)
Prerequisites: CHEM 110A, 110B, 128B. Seminar on recent advances in inorganic chemistry. Topics may include, but are not limited to, organometallic chemistry, solid-state chemistry, nonmetallic complexes, and the chemistry of rare-earth compounds.

225. Separation Methods in Chemistry (1-3)
Prerequisites: CHEM 106 and 129B. Seminar on the theory, application, and literature of various separation methods for organic and inorganic analysis. May include laboratory.

226. Electrochemistry (1-3)
Prerequisite: CHEM 106. Seminar on the theory, application, recent developments, and literature of electrochemistry and electrochemical methods of organic and inorganic analysis. May include laboratory.

227. Analytical Spectroscopy (1-3)
Prerequisites: CHEM 106, 110A, 110B, or permission of instructor. Theory, instrumentation, and application. Recent developments and literature of spectroscopic techniques. May include laboratory.

230. Advanced Organic Chemistry (3)
Prerequisites: CHEM 128B, 129B. Seminar on recent advances in organic chemistry including reaction mechanisms and synthetic applications with references to current literature.

235. Physical Organic Chemistry (3)
Prerequisites: CHEM 110A, 110B, 128B. Seminar in application of modern theoretical concepts to the chemical and physical properties of organic compounds.

240T. Topics in Advanced Chemistry (1-3)
Seminar covering special topics in one of the areas of chemistry: analytical, biochemistry, inorganic, organic, physical. Some topics may have a laboratory.

241A-B. Molecular Biology I-II (3-3)
(Same as BIOL 241A-B.) Prerequisites: BIOSC 140A-B, CHEM 150 or 155, or permission of instructor. BIOL/CHEM 241A is prerequisite for BIOL/CHEM 241B. Current topics in molecular biology are addressed, including protein and nucleic acid structure, DNA replication, transcription, translation, prokaryotic and eukaryotic regulation, mechanisms of exchange of genetic material, and recombinant DNA technology.

242. Techniques in Protein Purification and Analysis (3)
(Same as BIOL 242.) Prerequisite: CHEM 151 or 156 or permission of instructor. Corequisite: BIOL/CHEM 241A. Deals with the technologies relevant to protein isolation, purification, analysis, immobilization, and modification in micro and macro quantities. (1 lecture, 6 lab hours)

243. Nucleic Acid Technology Lab (3)
(Same as BIOL 243.) Prerequisites: BIOL/CHEM 241A and 242. Corequisite: BIOL/CHEM 241B. A lecture/laboratory course focusing on the technologies used in nucleic acid chemistry; specifically, synthesis, translation, mutagenesis, and genetic engineering. (1 lecture, 6 lab hours)

244. Cell Culture and Hybridoma (3)
(Same as BIOL 244.) Prerequisites: MICRO 185 or PHYAN 160 and 160L. The theory and practice of *in vitro* propagation of eukaryotic cells, including growth characteristics, metabolic requirements and genetic analysis. Cloning, fusion and generation of monoclonal antibody (hybridoma) are presented relative to cultured cell biology and application to biotechnology. (1 lecture, 6 lab hours)

248. Seminar in Molecular Biology and Biotechnology (1-2, max 4)
(Same as BIOL 248.) Prerequisite: admission into the Biotechnology Certificate Program. Reviews and reports on current literature in various aspects of biotechnology and molecular biology.

260. Advanced Research Techniques (3)
Prerequisites: classified standing, permission of instructor. Advanced concepts in the design of experiments. Development of practical research skills through the planning and undertaking of a short laboratory project. (1 lecture, 6 lab hours)

280. Seminar in Chemistry (1; max total 3)
Approved for *SP* grading.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

295. Research (2)
Prerequisite: permission of instructor. Independent investigations of an advanced character for the graduate student with adequate preparation. Approved for *SP* grading. (May include conferences, laboratory, library.)

299. Thesis (4)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

Geology

College of Science and Mathematics

Department of Geology
C. John Suen, *Interim Chair*
Evangelina "Vengie" Balli,
Administrative Support Coordinator
McLane Hall, Room 285
(559) 278-3086
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B.S. in Geology

B.A. in Natural Sciences
Option: Earth Science

M.S. in Geology
Option: Applied Geology

Minor in Geology

Why study geology? What is it?

- *Continents adrift and colliding*
- *Natural resources*
- *Energy resources and waste disposal*
- *Floods and landslides*
- *Construction siting and materials*
- *Fossils and evolution*
- *Surface and underground waters*
- *Volcanoes and earthquakes*
- *Mountain building and erosion*
- *4.6 billion years of earth history*
- *Environmental education*
- *Remote sensing and spacial information analysis*

Geology

The Department of Geology at California State University, Fresno offers courses leading to the Bachelor of Science and Master of Science in Geology — as well as the Bachelor of Arts in Natural Sciences and the Minor in Geology — which are especially well-suited for primary and secondary teachers.

Coursework and research emphasize field and laboratory investigations of geologic problems. Our field orientation takes advantage of the university's proximity to the Sierra Nevadas, the California Coast Ranges, coastal California, and the desert provinces. This unique location gives faculty and students access to an unparalleled geologic laboratory all within short trips from the university.

The department's close relationship with state agencies and the private sector enables many students to pursue internships or part-time work in geology while they complete their degrees.

California State University, Fresno geology students study active volcanism in New Zealand.

The Bachelor of Science degree prepares students for employment in petroleum geology, mineral exploration, land-use planning, environmental assessment, hydrology, and engineering geology, or for teaching earth science or physical science at the secondary level. The Master of Science program provides a graduate degree for students who want to work in industry or government on the professional level, for students who want to teach earth science in junior college, or for students who wish to pursue further graduate study.

Our applied geology option specializes in engineering geology, hydrogeology, or exploration geology fields, which have the strongest employment potential.

Students may also participate in coursework and research in marine geology and oceanography offered through Moss Landing Marine Laboratories in Monterey Bay. Consult the chairs of the Geology and Biology departments. See *Moss Landing Marine Laboratories, Biology Department.*

Facilities and Support

Department equipment includes:

- X-ray fluorescence spectrometer and X-ray diffractometer
- Polarizing microscopes for transmitted and reflected light petrography
- Cathode luminoscope for microscopic study of textures
- Heating-freezing stage for microscopic study of fluid inclusions
- Rock preparation laboratory, which includes crushing and mineral separation facilities, as well as diamond saws and lapping machines for preparing thin and polished sections
- Remote Sensing/Geo Information Systems (GIS)
- Microcomputers and peripherals
- IBM and SUN engineering workstations
- Electronic mapping lab
- Field and laboratory equipment for water chemistry studies
- Field geophysical instruments: 12 channel seismograph, single channel seismograph DC resistivity meter, magnetometer/gradiometer, laptop computer
- Two four-wheel drive vehicles and three other field vehicles

Career Opportunities

Career pathways in the geosciences can lead to occupations in:

- environmental, planetary, engineering, structural, petroleum, and mining geology
- volcanology, mineralogy, and hydrogeology
- soil science, sedimentology, and geoarcheology
- oceanography, paleontology, and geomorphology

Undergraduate Program

Geology Major. The bachelor's degree with a major in geology consists of 125-133 units, including 44-45 units of geology. For general degree requirements see *Degree Requirements*. Students planning graduate study are advised to meet the foreign language requirements of the institutions they plan to attend.

High School Preparation. Adequate high school preparation for a major in geology will facilitate the progress of students through our program. This preparation should include: algebra (2 years), plane and solid geometry, trigonometry, chemistry, physics or biology, and English (4 years).

Faculty

C. John Suen, *Interim Chair*
Frederika J.M. Harmsen,
Graduate Adviser

Arthur H. Barabas
Bruce A. Blackerby
Roland H. Brady
Stephen D. Lewis
Robert D. Merrill

Bachelor of Science Degree Requirements

Geology Major *Units*

Major requirements 44-45
Lower-division requirements
GEOL 1 or 15, 12 and 13 concurrently, 30 ..... (10-11)
Upper-division requirements
GEOL 100, 101, 102, 104, 106, 107, 108A, 108B; two of the following: GEOL 105, 110, 122 ..... (28)
Upper-division geology electives (see *Note 2*) ..... (6)

Additional requirements 29-30
CHEM 1A, 1B; MATH 75; MATH 76 or GEOL 177 and one of MATH 77, GEOL 180 or C SCI 101; PHYS 2A, 2B

General Education* 45

Electives and remaining degree requirements 7-11
(see *Degree Requirements*); may be used toward a minor

Total 125-131

* Of the 51 required General Education units, it is anticipated that 6 will be satisfied by CHEM 1A, 1B and MATH 75 if intermediate algebra was completed in high school (see *General Education*). Consult the Geology Department or your faculty adviser for details.

Advising Notes

1. "Additional requirements" courses may be applied to satisfy requirements of General Education, or a minor, as appropriate. They also may be taken *CR/NC* (see *Credit/No Credit Grading*).
2. No more than 1 unit of GEOL 160 may be used to fulfill the upper-division elective requirement. GEOL 154, 155, and 168 are not applicable toward geology major requirements.
3. No General Education Integration course offered by the Department of Geology may be used to satisfy the General Education requirements for geology majors.
4. *CR/NC* is not permitted in the geology major with the exception of GEOL 3, 30, and 160.
5. No more than 1 unit of GEOL 3 will be permitted.
6. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.

Geology Minor

A Minor in Geology consists of 20 units of coursework approved by a departmental faculty member and must include 6 upper-division units.

Bachelor of Arts in Natural Sciences

Earth Science Emphasis

The B.A. in Natural Sciences is designed primarily to meet the needs of students interested in pursuing a teaching career in the sciences at the secondary level. Students interested in satisfying the waiver program in the natural sciences should consult an appropriate adviser in their academic program. Contact either the Department of Geology or the Office of the Dean, College of Science and Mathematics.

The degree is also a suitable choice for students with a general interest in earth science and interest in pursuing a career in environmental science, law, medicine, dentistry, optometry, and other areas for which the breadth of scientific coverage of this degree is advantageous.

For a full description of the degree, including all of the emphases, see the *Natural Science Interdisciplinary Courses* section in this catalog. The B.A. in Natural Sciences with the Earth Science Emphasis is as follows:

Units

Core requirements 37-38
Biology[1] ..... (12-13)
BIOSC 1A or BIOL 15[1], BIOSC 1B, BIOSC 130
Chemistry ..... (10)
CHEM 1A, 1B
Geology[1] ..... (8)
GEOL 1 and 3 (or 15), GEOL 168
Natural Science ..... (3)
N SCI 106
Physical Science ..... (4)
P SCI 21

Earth Science Emphasis 43
CHEM 8 or P SCI 168 ..... (3)
PHYS 2A, 2B[2] ..... (8)
GEOL 12, 30, 100, 101, 102, 105, 106, 112, 155 ..... (26)
Select two courses:
GEOL 110, 114, 117, 124; GEOG 111 ..... (6)

General Education 51

Total[3,4] 124

Advising Notes for the Natural Sciences Major

1. BIOL 15 and GEOL 15 are part of the Humans and the Natural Environment Cluster. See the *Natural Science Interdisciplinary Courses* section in this catalog. GEOL 15 is equivalent to GEOL 1 and 3.
2. Substitutions may be made with the permission of the appropriate department chair. PHYS 4A-B-C with labs 4AL, 4BL is recommended instead of PHYS 2A-B for those students well-prepared for physics.
3. This figure takes into account that 12 units required for the major are expected to count toward General Education as follows: CHEM 1A (3 units), BIOSC 1A or BIOL 15 (3 units), GEOL 168 (3 units), and MATH 75 (3 units). Consult your major adviser for details.
4. Students should be sure to take sufficient upper-division units in their General Education courses and electives to satisfy the university requirement of 40 upper-division units for graduation.

Graduate Program

The Department of Geology offers graduate courses of instruction and research leading to the Master of Science degree. The graduate courses are designed to meet the needs of individuals with several different career goals. Accordingly, the objectives of the program are as follows: (1) to prepare students for enrollment in Ph.D. programs in geology and related sciences, (2) to prepare students for employment as professional geoscientists with industry or government, and (3) to further the content knowledge and teaching skills of secondary school and junior college teachers in the earth sciences.

Graduate studies offered in traditional geology include sedimentary geology (paleoecology, diagenesis, depositional environments, basin analysis, stratigraphy); structural geology and field mapping; petrology (plutonic, volcanic, sedimentary, metamorphic, and mineralized and hydrothermally altered rocks); and geochemistry.

In addition to classical geology, the graduate program offers studies in applied geology. The curriculum is usually interdisciplinary with an environmental focus, involving coursework in geology, civil engineering, chemistry, soil sciences, and other areas. Three applied geology emphases are offered: (1) engineering and geotechnical geology, (2) hydrogeology (physical or

chemical options), and (3) ore deposits. Students of applied geology are encouraged to undertake theses involving support and supervision by professionals in private and public sectors.

University requirements are met through satisfactory completion of core courses and specialty courses in the curriculum emphasis.

Core courses. All students in the graduate program are required to complete the following core courses:

GEOL 201 Seminar in Geology (3 units)
GEOL 299 Thesis (6 units)

In addition, students studying applied geology should take the following courses before or during their graduate experience:

GEOL 114 Engineering Geology (3 units)
GEOL 117 Hydrogeology (3 units)
GEOL 124 Geochemistry (3 units)

All other students not in applied geology must complete GEOL 201 and one of the following three courses: GEOL 114, GEOL 117, or GEOL 124.

Master of Science Degree Requirements

The graduate program for the Master of Science degree in Geology is based on the equivalent of the undergraduate major in geology at California State University, Fresno. Two-thirds of the 30 units required for the degree must be in geology, and at least 21 of the 30 units must be 200-series courses. For specific requirements consult the geology graduate program coordinator; for general requirements see *Division of Graduate Studies*. (See also *Admission to Graduate Standing*, *Advancement to Candidacy*, *Program Requirements*, *Foreign Language Requirements*, and *Criteria for Thesis and Project*.)

Under the direction of his/her graduate faculty adviser, each student prepares and submits an individually designed program within the following framework: courses including at least 21 units in 200-series.

	Units
Specific requirements (see next section)	**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 adviser	**10**
Approved electives in geology or related fields	**0-6**
Total	**30**

Specific Requirements. Students in applied geology should follow the curriculum specified for each of the three emphases. Modifications may be made with approval of the graduate faculty adviser. GEOL 299 (may be taken in 2-6 unit increments, 6 units total). An oral presentation of thesis is required. Graduate students of geology doing a thesis on a foreign country must be proficient in the language in which source materials are published.

COURSES

Geology (GEOL)

1. Natural Disasters and Earth Resources (4)
Prerequisite: MATH 4R or second-year high school algebra. Processes and materials which produce the different geologic resources and hazards (earthquakes, volcanoes, floods, landslides). Plate tectonic theory (including continental drift) as the unifying model to explain geologic phenomena. Emphasizes the relationship between geology and humans. G.E. Breadth B1. (3 lecture, 2 lab hours; optional field trips) (CAN GEOL 2)

3. Geology Field Trip (1; max total 3)
Extended weekend field trip to areas of geologic interest including Yosemite National Park, Death Valley, or coastal California. May be repeated. Nonmajors encouraged. *CR/NC* grading only. (Field trip fee may be required.)

12. Mineralogy (3)
GEOL 13 concurrent in the geology major. Prerequisite: high school chemistry. Properties, relationships, uses origin of minerals; determination of common minerals by physical and other tests. Field trips may be required. (2 lecture, 3 lab hours)

13. Crystallography (1)
GEOL 12 concurrent in the geology major. Prerequisite: trigonometry. Symmetry, structure, standard nomenclature, reference systems of crystals. (3 lab hours)

15. The Earth and Its History (5)
Portion of *Humans 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 fieldwork. G.E. Breadth B1. (HNE program field trip fee, $300)

20. Atmospheric Science and Pollution (4)
Physical and chemical principles applied to the study of the atmosphere, evolution of Earth and its atmosphere, biogeochemical cycles, atmospheric pollution, and global atmospheric change and the environmental crisis. Field trips may be required. (3 lecture hours, 2 lab hours.)

30. Introductory Field Methods (2)
Prerequisites: GEOL 1 or 15, MATH 5. Introduction to methods and instruments used in geologic fieldwork. *CR/NC* grading only. (6 lab/field hours) (Weekend field trips required; field trip fee may be required)

100. Optical Mineralogy (2)
Prerequisites: GEOL 12, 13. Optical properties of minerals; identification of minerals by optical methods. Theory and use of petrographic microscope. (1 lecture, 3 lab hours)

101. Igneous and Metamorphic Petrology (4)
Prerequisites: GEOL 30, 100; CHEM 1B (or concurrently). Origin classification, textures, structures, and geologic setting of igneous and metamorphic rocks; examination of samples in outcrop, hand specimen, and thin section. Weekend field trips required. (3 lecture, 3 lab hours)

102. Sedimentology (3)
Prerequisites: GEOL 30, 100, 101 (or concurrently). Origin, classifications, textures, and structures of sedimentary rocks; examination of samples in hand specimen and thin section. Weekend field trips required. (2 lecture, 3 lab hours)

104. Scientific Writing (2)
Prerequisite: A passing grade on the Upper-Division Writing Exam, or completion of an upper-division writing course. Organizing and writing the scientific report. Critical evaluation of literature. Presentation of maps, charts, illustrations. Peer reviews. Oral presentation and term paper required. (1 lecture, 3 lab hours)

105. Geomorphology (3)
Prerequisite: GEOL 1 or 15. Landforms, 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. Field trips required. (2 lecture, 3 lab hours)

106. Structural Geology (3)
Prerequisites: upper-division writing skills requirement must be satisfied; GEOL 30, trigonometry, PHYS 2A (or concurrently). Recognition, representation, and interpretation of structural features of the earth's crust. Includes consideration of theoretical and mechanical principles involved in deformation of solid bodies. Study of regional tectonics and major structural provinces. Field trips required. (2 lecture, 3 lab hours)

107. Advanced Field Methods (3)
Prerequisites: GEOL 30, 101, 102, 104, 106. Field trips to areas of diverse geology; observation, description, and mapping of geologic phenomena. Includes written reports of areas selected for study. Students should contact the department for details. (9 lab hours usually including fieldwork on weekends or during January intercession and spring vacation) (Field trip fee may be required)

108A. Field Geology (4)
Prerequisites: senior standing or permission of instructor; GEOL 107; GEOL 108B concurrently. Geologic reconnaissance and mapping in field groups. *Usually conducted in early summer*. When taken concurrently, GEOL 108A and 108B satisfy the senior major requirement for the B.S. in Geology. Approved for *SP* grading. (Field trip fee may be required)

108B. Field Geology — Reports (1)
Prerequisites: senior standing or permission of instructor; GEOL 108A concurrently. Written presentation of fieldwork conducted in GEOL 108A. When taken concurrently, GEOL 108A and 108B satisfy the senior major requirement for the B.S. in Geology. Approved for *SP* grading. (1 lecture hour)

110. Invertebrate Paleontology (3)
Prerequisites: GEOL 112 and ZOOL 10. Invertebrate structures and development of prehistoric animals; introduction to stratigraphic importance of fossils. Field trips may be required. (2 lecture, 3 lab hours)

112. Planet Earth through Time (3)
Credit not allowed after completion of GEOL 2.Prerequisite: MATH 4R or second-year high school algebra. Principles of geology used in the interpretation of the history of Earth as revealed in rocks and their fossils. Includes origin of the solar system, evolution of atmosphere and oceans, origin of life, rise and fall of the dinosaurs, plate tectonics, and ice ages. G.E. Integration IB.

113. Stream Habitat Restoration (3)
Prerequisites: GEOL 1 and/or BIOL 10 or instructor consent. Investigation of stream geology, hydrology, and biology relevant to restoring stream habitat. Includes collecting and interpreting lab and field data as well as a service project restoring local stream. Recommended for students in biology, geography, ecology, range management, civil engineering, and environmental science. Service-learning course. Field trips required. (2 lecture, 3 lab hours) (Formerly GEOL 150T)

114. Engineering Geology (3)
Prerequisites: GEOL 1 and trigonometry. Introduction to techniques and theory of geotechnical investigations. Includes field and lab techniques in soil and rock mechanics, rock logging, geophysics, slope stability, engineering hydrogeology, stereo analysis, seismic engineering. Recommended for students in geology or civil engineering. Field trips required. (2 lecture, 3 lab hours)

115. Ore Deposits (3)
Prerequisites: GEOL 101, 106, college chemistry. Geology, mineralogy, distribution, and occurrence of common ore minerals essential in industry; genesis and localization of metallic minerals. Field trips may be required. (2 lecture, 3 lab hours)

117. Hydrogeology (3)
Prerequisites: GEOL 1 or 15; MATH 72 or 75; and GEOL 124 and MATH 76 recommended. The hydrologic cycle; surface water processes; stream flow and hydrograph; properties of porous geologic materials; principles of groundwater flow; water wells; geology of groundwater occurrence; water quality and pollution. Field trip required. (2 lecture, 3 lab hours)

118. Applied Geophysics (3)
Prerequisites: GEOL 1, PHYS 2A and completion of or concurrent enrollment in PHYS 2B. Presents an overview of geophysics as applied to problems in exploration, engineering, and environmental geology. Emphasizes hands-on methods of data acquisition and interpretation that entry-level geologists will most likely encounter including gravity, magnetics, seismic refraction, ground-penetrating radar, down-hole surveys, and electrical resistivity. Field instrumentation is used throughout. (2 lecture, 3 lab hours) (Formerly GEOL 130T)

122. Stratigraphy (3)
Prerequisites: GEOL 30, 102. Stratigraphic principles and recognition of stratigraphic units. Emphasis on tectonostratigraphic concepts. (2 lecture, 3 lab/field hours)

124. Geochemistry (3)
Prerequisites: CHEM 1A and 1B and GEOL 1 or 15; GEOL 12 and 101 recommended. Chemistry applied to earth processes and evolution. Reactions involved in origin and transformations of natural waters, rocks, and minerals. Crystal chemistry and behavior of elements and isotopes. Field trip required; laboratory project. (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: engineering geology, 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.

150T. Studies in Earth Science (1-3; max total 6)
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.

154. Introductory Earth Science (3)
Not applicable to the B.S. in Geology. Appropriate for liberal studies majors and K-6 teachers. Earth systems interactions demonstrated through hands-on activities, experiments, and field work. Topics based on state and local science content frameworks, including recognition, origin, and use of rocks and minerals; geologic time and fossils; interpretation of landscapes and the rock record; and plate tectonics. (2 lecture, 2 lab hours, 1 hour arranged) (Formerly GEOL 151)

155. Discovering Earth Science (3)
Not applicable to the B.S. in Geology. Prerequisites: GEOL 1, 15, or 112, or permission of instructor. Appropriate for students and 7-12 teachers seeking a secondary school science credential. Activity-based discovery of earth science and its integration with other sciences. Topics based on national standards, and state and local science content frameworks, including energy in the earth system; geochemical cycles; the dynamic interactions between the lithosphere, atmosphere, and hydrosphere; and the origin and evolution of the earth system and its place in the universe. (2 lecture, 2 lab hours, 1 hour arranged)

160. Field Studies (1-4; max total 4)
Prerequisite may be specified by instructor. Field trips during weekends or winter/spring recess to geologically important and significant areas such as the Grand Canyon, Baja California, the Sierra Nevada, Death Valley. (Field trip fee may be required.)

167. Oceans and Atmosphere (3)
Integrated introduction to sciences of oceans and atmosphere: their origin and evolution; plate tectonics; ocean currents, waves, and tides; atmospheric circulation and El Niño; production and life; and environmental issues and concerns. G.E. Integration IB.

168. California's Earth System (3)
Not applicable to B.S. in Geology. Interaction of earth, water, air, and life in California's earth system over geologic time. Human interaction with the environment. G.E. Integration IB.

169. Environmental Geology (3)
Prerequisite: GEOL 1. Examination of the interaction between humans and earth, with emphasis on earth features and processes that are hazardous to humans. Field trips required. (2 lecture, 3 lab hours)

177. Quantitative Methods for Earth (3)
Prerequisites: GEOL 1; MATH 75. Applications of mathematical techniques and quantitative methods in earth science; introduction to basic skills, including statistical methods, numerical techniques, matrix operations, and spatial analysis. (2 lecture, 3 lab hours) (Formerly GEOL 150T section)

180. Computer Applications in Geology (3)
Use of computers in geology, focusing on such applications as multi-dimensional graphics, desktop mapping, communications, online resources, modeling. (2 lecture, 3 lab hours) (Formerly GEOL 130T section)

185. Remote Sensing for the Natural Sciences (3)
Prerequisite: General Education Breadth, Area B; GEOG 105 recommended. Introduction to remote sensing techniques, including ultraviolet, visible, and infrared electromagnetic sensors, both space and aircraft based, and acoustic methods. Laboratory exercises will use examples from geology, agriculture, and society. Familiarity with computers required. (2 lecture, 3 lab hours)

186. Earth Science Applications of GIS (3)
Prerequisite: GEOG 107 recommended. Spatial information management, analysis, interpretation, and display using computer methods. Map concepts, spatial relationships, database design, and spatial analysis of data. Laboratory exercises using geologic map data, faults, earthquake epicenters, stream habitats and restoration, and endangered species. Familiarity with computers required. (2 lecture, 3 lab hours)

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System*.)

Geology (GEOL)

201. Seminar in Geology (3)
Prerequisite: graduate standing. Seminar covering advanced and evolving topics in the earth sciences. Requirements include active discussion participation, frequent oral presentation, and written research papers. Satisfies Graduate Writing Skills requirement. (3 seminar hours)

202. Geology Laboratory Teaching Techniques (1)
Laboratory safety, lab lecture techniques, earth and environmental science activity design, equipment setups, student evaluation methods and grading, peer teaching assessment, leading field trips, etc. Primarily for teaching associates in geology. *CR/NC* grading only. (One 2 hour lab)

210. Analysis of Faults and Earthquakes (3)
Prerequisites: GEOL 106 and 107. Includes plate tectonic theory; kinematics and dynamics of fracturing and faulting; formation and propagation of seismic waves; recognizing and quantifying seismic potential; remote sensing and geophysics in applied fault studies. Field projects and oral presentations required. (2 lecture, 3 lab hours)

217T. Topics in Hydrogeology and Environmental Geology (2-3; max total 6 if no topic repeated)
Prerequisite: major in geology and/or permission of instructor. Studies of current issues and recent research topics which may include groundwater contamination, environmental pollution, and hazardous and nuclear waste management. Readings from books, journals, and government publications. Independent research and oral presentation required. Laboratory activities may be required. (Formerly GEOL 217)

220. Groundwater Hydrology (3)
Prerequisites: GEOL 117. MATH 77 recommended. Principles of flow through porous and fractured media; groundwater hydraulics in the saturated and unsaturated zones; contaminant transport; introduction to groundwater models. (2 lecture, 3 lab hours)

224. Geochemistry of Natural Waters (3)
Prerequisite: GEOL 124. Chemical evolution of natural waters through water-rock interactions, mixing, evaporation, and contamination. Modeling using solution chemistry, equilibrium thermodynamics, and kinetics. Field methods, laboratory analysis, and computer manipulation of data. Field trip required; library and laboratory projects. (2 lecture, 3 lab hours)

231. Depositional Systems (3)
Prerequisites: GEOL 102 and 105. Investigation of modern and ancient depositional systems. Field trip required. (2 lecture, 3 lab hours) (Formerly GEOL 206)

232. Basin Analysis Seminar (3)
Prerequisites: GEOL 102 and 106. Topics may include: basin styles, tectonics and sedimentation, seismic stratigraphy, subsidence and thermal history, and petroleum plays. Research paper and oral presentation required. (Formerly GEOL 250T)

250T. Topics in Geology (1-3)
Prerequisite: major in geology and/or permission of instructor. Advanced studies of such areas as petrology, marine geology, and regional stratigraphy. Some topics may have labs and field trips.

251T. Topics in Engineering Geology (1-3)
Prerequisites: major or minor in geology; permission of instructor. Advanced studies in areas such as slope stability, ground water monitoring, drilling and core logging, water sampling, hazardous waste site investigations, and geophysical instrumentation.

271. Volcanology (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)

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

Mathematics

Mathematics

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 hand, it is an indispensable tool for expressing and understanding ideas in the sciences, engineering, and an increasing number of other fields. As a consequence, employment opportunities for mathematicians have been expanding in recent years. The courses offered by the department are designed to develop skills in and an appreciation and understanding of both roles.

Because there are so many different areas in which a trained mathematician can find employment or continue studies, the department offers a large number of electives within the mathematics major. By selecting appropriate courses, students have considerable flexibility to accommodate their individual interests. Students should consult with a department adviser for specific recommendations as to which electives are suited to their career paths.

Electives in applied mathematics prepare students to assume positions in technical industries or government employment, or to continue advanced studies in the applied area.

Electives in pre-college teaching in mathematics provide students with the necessary background for obtaining a California Single Subject Teaching Credential in mathematics. In order to complete the credential requirements, a fifth year of education courses, classroom observation, and practice teaching is needed. At the present time, there is an increasing demand for well-trained people in this area.

Electives in pure mathematics prepare students for the pursuit of graduate studies leading to advanced degrees and employment at the college or university level, or research in industry.

Electives in statistics and probability provide a foundation for students planning to work as statisticians for industry or government agencies. They also can enhance employment opportunities in the bioscience and health-related fields. Statistics courses (in addition to MATH 75, 76, and 77) are essential for the first two Actuarial Examinations offered by the Society of Actuaries.

Faculty

Ronald L. Wagoner, *Chair*
Larry W. Cusick, *Graduate Coordinator*
Undergraduate Advisers:
All full-time faculty
Credential Advisers: Agnes Tuska, Norman T. Woo
Margretha Bentz, *ILE Coordinator*
Robert F. Arnold
Sean Cleary
Moses E. Cohen
Della C. Duncan
Ernesto Franco
Noal C. Harbertson
Harold B. Haslam
Merrilee K. Helmers
Rudolph M. Najar
Hussain Sayid Nur
Hugo S. Sun
Peter Tannenbaum

Bachelor of Arts Degree Requirements

Mathematics Major

The requirement for entrance to the major and minor programs is completion of two years of algebra as well as courses in geometry and trigonometry, or a sequence of courses containing their equivalents, such as MATH 4R and 5.

It is strongly recommended that such study be completed before entrance to the university.

Total Course Requirements for the Bachelor's Degree: 124 units. See *Baccalaureate Degree Requirements* for complete details on general degree requirements. A minimum of 40 units, including those required for the major, must be upper division.

College of Science and Mathematics

Department of Mathematics
Ronald L. Wagoner, *Chair*
Diana Carmichael, *Administrative Support Coordinator*
Peters Business Building, Room 381
(559) 278-2992
http://www.csufresno.edu/math/

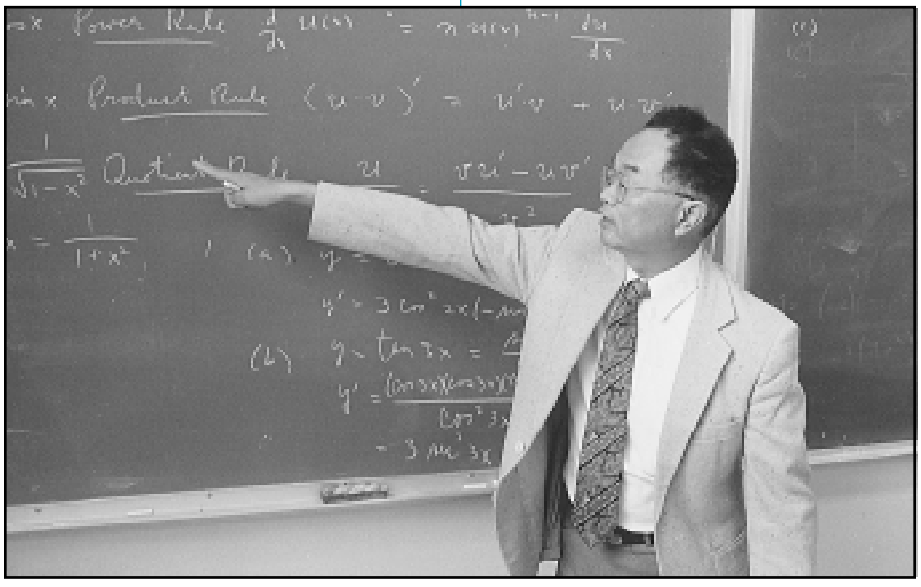
B.A. in Mathematics

M.A. in Mathematics

Minor in Mathematics

Single Subject Teaching Credential

	Units
Major requirements	**43-48**
Core curriculum	(27-28)
MATH 75, 76, 77	(12)
MATH 151, 152	(8)
MATH 171	(4)
MATH 128 or 165 or 172	(3-4)
Elective curriculum	(15-20)
Five mathematics courses, upper-division or MATH 81, excluding MATH 100, 133, 134, 137, 138	



Additional requirements	**7**
C SCI 40	(4)
PHYS 4A[1]	(3)
General Education[2]	**51**
Electives	**18-26**
Total	**124**

Major Advising Note

1. PHYS 4AL is not required for the math major. If students wish to include PHYS 4A as a General Education Breadth course, they must also take PHYS 4AL.
2. MATH 75 satisfies the Quantitative Reasoning requirement within General Education Foundation courses. It also satisfies the requirement within General Education Core courses, for students under 1998-1999 or earlier catalogs.

Mathematics Minor

The minor requires 20 units in mathematics, MATH 75 or above, including at least two upper-division classes, excluding MATH 100, 133, 134, 137, and 138.

Minor Advising Note

1. Courses in the minor may be taken *CR/NC*, subject to university regulations.

Advising Requirements

Mandatory advising at least once a semester is required of all majors in the degree programs. See the department chair for assignment to an adviser.

Grade Requirements

All courses required as prerequisites for a mathematics course must be completed with a grade of *C* or better before registration will be permitted. All courses taken to fulfill major or minor requirements must be completed with a grade of *C* or better.

Duplication of Courses

No credit will be allowed for:	*If taken after completion of:*
MATH 5	MATH 72 or 75
MATH 6	MATH 71 or 75
MATH 70	MATH 72 or 75
MATH 75	MATH 76
MATH 76	MATH 77
MATH 77	MATH 81
MATH 101	MATH 108

Single Subject Credential Program Subject Matter Competency in Mathematics*

MATH 75, 76, 77
MATH 151, 152
MATH 171
MATH 128 or 165 or 172
MATH 101, 114, 116, 143, 145, 161
PHYS 4A
C SCI 40

See the description of the Single Subject Credential Program under *Curriculum, Teaching, and Educational Technology* in this catalog.

*Approved by the Commission on Teacher Credentialing, State of California.

Graduate Program

The requirement for entrance to the graduate program is completion of undergraduate preparation equivalent to a California State University, Fresno major in mathematics.

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

Prior to advancement to candidacy, the candidate must pass the department's Graduate Qualifying Exam. This exam is given in two parts: analysis and algebra.

Master of Arts Degree Requirements

The Master of Arts degree program in Mathematics is designed to provide preparation for work in industry, for high school and community college teaching, and for advanced graduate study in mathematics.

Language Requirement. There is no foreign language requirement for the master's degree. However, any student preparing for graduate work in mathematics is advised to meet the foreign language requirements of the university in which the graduate work will be taken, since most graduate programs do not leave time for language study. Such preparation normally involves at least two of the languages: French, German, Russian.

Under the direction of the graduate adviser, each candidate prepares and submits for approval a coherent program individually designed within the following framework:

	Units
At least 21 units of mathematics in the 200 series	**21**
Approved electives (no more than 6 units in a related field)	**9**
Total	**30**

Specific requirements: MATH 228, 251, 271, 298.

The MATH 298 research project culminates in a written and oral report to the Department of Mathematics.

COURSES

Mathematics (MATH)

4R. Entry Level Mathematics (4)
Covers all topics in the ELM exam. (I) *Data Interpretation, Counting, Probability and Statistics* (reading, interpreting, and manipulating data, the Multiplication Principle, permutations and combinations, basic probability laws, means, medians, and expected values); (II) *Geometry* (basic Euclidean geometry, congruence and similarity, coordinate geometry, basic right angle trigonometry); and (III) *Algebra* (manipulating algebraic expressions, solving equations and inequalities, investigating functions and their graphs). *CR/NC* grading only; not applicable towards baccalaureate degree requirements.

4RA. Entry Level Mathematics (3)
Arithmetic review; *Algebra* — manipulating algebraic expressions (polynomial), solving equations and inequalities (linear), and investigating functions and their graphs (linear); *Geometry* — basic Euclidean geometry, congruence and similarity, coordinate geometry, and basic right angle trigonometry. *Note*: MATH 4RA together with MATH 4RB is equivalent to MATH 4R. Enrollment is limited to first-time freshmen who score 370 and below on the ELM exam. *CR/NC* grading only; not applicable toward baccalaureate degree requirements. (Formerly MATH ILR)

4RB. Entry Level Mathematics (3)
Prerequisite: MATH 4RA. Arithmetic review; *Algebra* — manipulating algebraic expressions (rational and radical), solving equations and inequalities (quadratic), and investigating functions and their graphs (quadratic); *Data Interpretation, Probability, and Statistics* — reading, interpreting, and manipulating data, the Multiplication Principle, permutations and combinations, basic probability laws, means, medians, and expected values. *Note*: MATH 4RB together with MATH 4RA is equivalent to MATH 4R. Enrollment is limited to first-time freshmen who score 370 and below on the ELM exam. *CR/NC* grading only; not applicable toward baccalaureate degree requirements. (Formerly MATH ILR)

4RL. Entry Level Mathematics Laboratory (1)
Prerequisites: concurrently enrolled in MATH 4R and assigned to laboratory after taking placement examination. Laboratory does not count toward baccalaureate degree. Extra review and practice with skills essential to success in intermediate algebra. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

5. Trigonometry (3)
Prerequisite: students must meet the ELM requirement. 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*.) (CAN MATH 8)

6. Precalculus (4)
Prerequisite: students must meet the ELM requirement. Basic algebraic properties of real numbers; linear and quadratic equations and inequalities; functions and graphs; polynomials; exponential and logarithmic functions; analytic trigonometry and functions; conics; sequences, and series. (CAN MATH 16)

10A. Structure and Concepts in Mathematics I (3)
Prerequisite: students must meet the ELM requirement. Designed for prospective elementary school teachers. Development of real numbers including integers, rational and irrational numbers, computation, prime numbers and factorizations, and problem-solving strategies. Meets Area B4 G.E. requirement for liberal studies majors.

10B. Structure and Concepts in Mathematics II (3)
Prerequisite: MATH 10A. Designed for prospective elementary school teachers. Counting methods, elementary probability and statistics. Topics in geometry to include polygons, congruence and similarity, measurement, geometric transformations, coordinate geometry, and connections between numbers and geometry with selected applications.

11. Elementary Statistics (3)
Prerequisite: students must meet the ELM requirement. 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. (CAN STAT 2)

14. Introduction to Discrete Mathematics (3)
No credit if taken after MATH 75. Prerequisite: students must meet the ELM requirement. Set theory, relations and functions, logic, proof techniques, number systems.

25. Mathematica (1)
Prerequisites: MATH 70, 71, 75 (may be taken concurrently) or permission of instructor. In addition, students must meet the ELM requirement. Use of Mathematica™ software as an exploratory tool in Mathematics. Examples drawn from a broad range of Mathematics. *CR/NC* grading only.

41. Number Systems (3)
Not open to mathematics majors. Prerequisite: students must meet the ELM requirement. Designed for elementary credential students. Development of the 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. (CAN MATH 4)

43. Elementary Problem Solving (3)
Prerequisite: students must meet the ELM requirement. The purpose of this course is to develop problem-solving skills using elementary mathematics.

45. What is Mathematics? (3)
Prerequisite: students must meet the ELM requirement. Covers topics from the following areas: (I) The Mathematics of Social Choice; (II) Management Science and Optimization; (III) The Mathematics of Growth and Symmetry; and (IV) Statistics and Probability. G.E. Foundation B4.

61. Geometry and the Imagination (3)
Prerequisite: students must meet the ELM requirement. Topics in Geometry. May include, but is not restricted to, tilings and tessellations, regular polyhedra in 3 and 4 dimensions, ruler and compass constructions, map coloring.

70. Mathematical Analysis for Life Sciences (4)
No credit if taken after MATH 72 or 75; one unit of credit if taken after MATH 71. Prerequisite: students must meet the ELM requirement. Functions and graphs, limits, derivatives, antiderivatives, differential equations, and partial derivatives with applications in the Life Sciences.

71. Elementary Mathematical Analysis I (3)
No credit if taken after MATH 70, 72, or 75. Prerequisite: students must meet the ELM requirement. Review of algebra, real numbers, inequalities, functions, graphs, finite induction, limits, differentiation of algebraic functions and applications to extrema, mean value theorem, l'Hôpital's rule.

72. Elementary Mathematical Analysis II (3)
No credit if taken after MATH 75; 2 units of credit if taken after MATH 70. Prerequisites: 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)
Two units of credit if taken after MATH 70; 3 units of credit if taken after MATH 71; 2 units of credit if taken after MATH 72. Prerequisite: elementary geometry, intermediate algebra, trigonometry, or MATH 6. In addition, students must meet the ELM requirement. Inequalities, functions, graphs, limits, continuity, derivatives, antiderivatives, the definite integral, and applications. Using Mathematica™ software as an exploratory tool. G.E. Foundation B4. (CAN MATH 18)

76. Mathematical Analysis II (4)
Prerequisite: MATH 75. Transcendental functions, techniques of integration, improper integrals, conic sections, polar coordinates, infinite series. Using Mathematica™ software as an exploratory tool. (CAN MATH 20)

77. Mathematical Analysis III (4)
Prerequisite: MATH 76. Vectors, three dimensional calculus, partial derivatives, multiple integrals, Green's Theorem, Stokes' Theorem. Using Mathematica™ software as an exploratory tool. (CAN MATH 22)

81. Applied Analysis (4)
Prerequisite: MATH 77. Introduction to ordinary linear differential equations; solutions by power series and Laplace transforms. Solution of systems of equations. Introduction to Fourier series. Using Mathematica™ software as an exploratory tool.

90. Directed Study (1-3; max total 3)
Independently arranged course of study in some limited area of mathematics either to remove a deficiency or to investigate a topic in more depth. (1-3 hours, to be arranged)

100. Exploring Mathematics (3)
Prerequisite: MATH 10B. A problem-solving approach to topics from game theory, combinatorics, mathematical modeling, and finite geometries.

101. Statistical Methods (4)
Prerequisite: MATH 70, 71, or equivalent; no credit if taken after MATH 108. Application of statistical procedures to examples from biology, engineering, and social science; one- and two-sample normal theory methods; chi-square, analysis of variance, and regression; nonparametric methods. Computerized statistical packages are used.

107. Introduction to Probability and Statistics (3)
Prerequisite: MATH 77 (may be taken 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)
(Similar to PHIL 145; consult department.)
Prerequisite: MATH 75. An informal treatment of the theory of logical inference, statement calculus, truth-tables, predicate calculus, interpretations applications.

114. Discrete Structures (3)
Prerequisite: MATH 76. Counting techniques, matrix algebra, graphs, trees and networks, recurrence relations and generating functions, applied modern algebra.

116. Theory of Numbers (4)
Prerequisite: MATH 75. Divisibility theory in the integers, primes and their distribution, congruence theory, Diophantine equations, number theoretic functions, primitive roots, indices, the quadratic reciprocity law.

118. Graph Theory (3)
Prerequisite: MATH 77. Trees, connectivity, Euler and Hamilton paths, matchings, chromatic problems, planar graphs, independence, directed graphs, networks.

121. Numerical Analysis I (3)
Prerequisites: MATH 77 and working knowledge of *C*, Fortran, or Pascal. Zeros of nonlinear equations, interpolation, quadrature, systems of equations, numerical ordinary differential equations, and eigenvalues. Use of numerical software libraries.

123. Topics in Applied Mathematics (3)
Prerequisite: MATH 77. Vector spaces and linear transformations, eigenvalues 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.

128. Applied Complex Analysis (3)
Prerequisite: MATH 77. Analytic functions of a complex variable, contour integration, series, singularities of analytic functions, the residue theorems, conformal mappings; emphasis on engineering and physics applications.

133. Number Theory for Liberal Studies (3)
Prerequisite: completion of at least one university-level mathematics course (MATH 5 or above). The historical development of the concept of number and arithmetic algorithms. The magnitude of numbers. Basic number theory. Special numbers and sequences. Number patterns. Modular arithmetic. (Formerly N SCI 140T section)

134. Geometry for Liberal Studies (3)
Prerequisite: completion of at least one university-level mathematics course (MATH 5 or above). The use of computer technology to study and explore concepts in Euclidean geometry. Topics include, but are not restricted to, properties of polygons, tilings, and polyhedra.

137. Exploring Statistics (3)
Prerequisite: at least one university-level mathematics course (MATH 5 or above). Descriptive and inferential statistics with a focus on applications to mathematics education. Use of technology and activities for student discovery and understanding of data organization, collection, analysis, and inference.

138. Exploring Algebra (3)
Prerequisite: at least one university-level mathematics course (MATH 5 or above). Designed for prospective school teachers who wish to develop a deeper conceptual understanding of algebraic themes and ideas needed to become competent and effective mathematics teachers.

143. History of Mathematics (4)
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 modern times. Theorems with historical significance will be studied as they relate to the development of modern mathematics.

145. Problem Solving (3)
Prerequisite: MATH 76. 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 (4)
Prerequisite: MATH 76. Equivalence relations; groups, cyclic groups, normal subgroups, and factor groups; rings, ideals, and factor rings; integral domains and polynomial rings; fields and field extensions.

152. Linear Algebra (4)
Prerequisite: MATH 77. Vector spaces, linear transformations, matrices, determinants, eigenvalues and eigenvectors, linear functions, inner-product spaces, bilinear forms, quadratic forms, orthogonal and unitary transformations, selected applications.

161. Principles of Geometry (3)
Prerequisite: MATH 77. 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 (4)
Prerequisite: MATH 77. Sets, real numbers as a complete ordered field, its usual topology, functions of a real variable, limits, continuity, uniform continuity, differentiability, generalized mean value theorem, Riemann integrals, series of functions, uniform convergence, and Fourier series of integrable functions. (Formerly MATH 171A)

172. Intermediate Mathematical Analysis II (4)
Prerequisite: MATH 171. Differentiation of functions of several variables, applications of partial differentiation, functions of bounded variation, rectifiable curves, theory of Riemann-Stieltjes integration, multiple integrals and line integrals, improper Riemann-Stieltjes integrals. Inverse and implicit function theorems.

181. Differential Equations (3)
Prerequisite: 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)
Prerequisites: 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

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.

198. Senior Project (3)
Prerequisites: senior standing or permission of instructor; MATH 151, 171, and 152. Independent investigation and presentation of an advanced topic in mathematics. Satisfies the senior major requirement for the B.A. in Mathematics.

GRADUATE COURSES

(See *Course Numbering System.*)

Mathematics (MATH)

202. Fundamental Concepts of Mathematics (3)
Prerequisites: 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: graduate standing or permission of instructor. Linear spaces and spectral theory of operators.

224. Optimization Methods (3)
Prerequisite: graduate standing or permission of instructor. 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. Representation theorems of Weierstrass and Mittag-Leffler, normal families, conformal mapping and Riemann mapping theorem, analytic continuation, Dirichlet problem.

251. Abstract Algebra I (3)
Prerequisite: undergraduate abstract algebra. Groups, rings, integral domains, and fields.

252. Abstract Algebra II (3)
Prerequisite: MATH 251. Rings and ideals, modules, linear and multilinear algebras, representations.

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)
Prerequisites: 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: MATH 172. Theory of sets; cardinals; ordinals; function spaces, linear spaces; measure theory; modern theory of 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

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. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System.*)

Mathematics (MATH)

302. Topics in Mathematics for Teachers (1-3; max total 6 if topic not repeated)
Prerequisite: permission of instructor. Topics in modern mathematics with special emphasis for teachers.

Physics

College of Science and Mathematics

Department of Physics
Michael J. Zender, *Chair*
Daunette Dryden, *Administrative Support Coordinator*
McLane Hall, Room 169
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B.S. in Physics

M.S. in Physics

Minor in Physics

Minor in Physical Science

Single Subject Teaching Credential in the Sciences

Physics

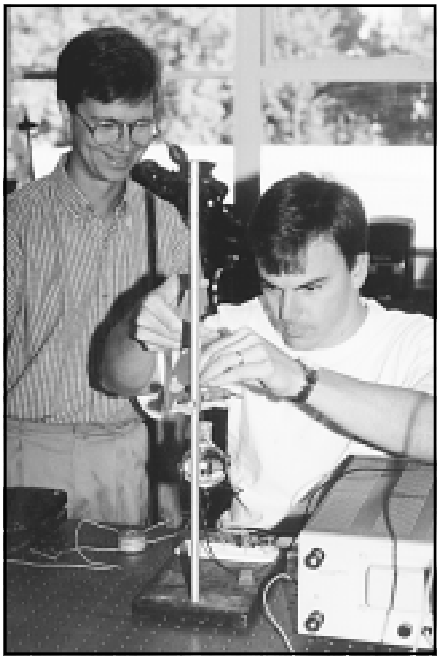
The fascination of physics is that it is so fundamental: the continuing attempt to understand how things work. It combines observational and experimental grappling with nature to get the facts of behavior, with the creative synthesis of these facts into theories and laws of nature, often beautiful in their simplicity and universality.

Albert Einstein said, "They [the laws of theoretical physics] should form the basis from which a picture of all processes of nature can be derived by thoughtful deduction — and these include also the processes of life." He also said, "The deeper we search, the more we find there is to know, and as long as human life exists, I believe it will always be so."

More specifically, physics includes the study of the fundamental particles that make up nuclear particles, of electromagnetic, gravitational, atomic and nuclear forces, of energy, of light and heat, of electronics and the structure of materials, of the interiors of the earth and the stars.

Faculty and Facilities

Our faculty came here to teach and do research. Several faculty members have research projects involving students.



Classes are small; our upper-division and graduate classes run from two to 15 in enrollment. Physics majors get to know each other very well. They develop friendships with peers, faculty, and staff, which extend beyond graduation.

We have two medium-power lasers, which enhance our capabilities in modern optical studies, including Raman spectroscopy and nonlinear optics. The department has well-equipped research laboratories with laminar flow hoods, evaporative and ion beam sputtering chambers, and high temperature ovens for thin film research. We also have a fully-equipped scanning probe microscope with low current scanning tunneling, lateral force and intermittent contact atomic force imaging capabilities — contained in an environmentally controlled chamber for research involving the self assembly of biomolecules. A dedicated networked computer houses an SPM image library for K-12 education purposes.

Another ongoing research project involves fullerenes, the cage-like molecules formed entirely from carbon. We are able to produce gram quantities of fullerenes in our computer-controlled plasma generator. Current fullerene projects include the measurement of the polarizability and electric dipole moments of metal-doped fullerenes.

High energy particle physics experiments and semiconductor research dealing with solar cells and optical fibers are also part of our current experimental efforts. Two faculty members do theoretical work in particle physics and field theory and several are interested in physics pedagogy.

In addition, our physical facilities have just undergone a multimillion dollar renovation. The renovation project substantially improves both our research and teaching capabilities.

The Downing Planetarium. The Downing Planetarium, which is operated by the Physics Department, was completed during the 2000 spring semester. The planetarium features a computer-controlled Spitz A3P star projector and a main theater which seats 74 in reclining seats under a thirty-foot dome. The facility includes a teacher resource center and presents multimedia shows on a daily basis. Physics students have the opportunity to participate in presenting the shows and to assist in planetarium operation.

A remote robotic observatory (which will be situated in the nearby foothills) is in the planning stage. Students interested in astronomy will be able to perform observation projects using a computer-controlled 16" Schmidt-Cassegrain telescope and a CCD camera. The telescope will be controlled from campus and students will be able to electronically download images on campus without having to go to the telescope site.

Career Opportunities

Approximately half of our bachelor's and master's degree graduates have gone directly into graduate school at various institutions, pursuing master's or doctoral degrees in physics or related fields. The other half have found employment in teaching, in industry, in government, and in the medical professions. We have also observed a recent increase in the demand for high school physics teachers.

Physics graduates have the versatility, knowledge, and analytical skills necessary to adapt quickly to the opportunities which arise in the dynamic world of modern science and high technology. Our graduates report interesting, exciting careers with increasing levels of responsibility and satisfaction.

Faculty

Michael J. Zender, *Chair*

Vanvilai Katkanant,
Undergraduate Adviser

Manfred Bucher, *Graduate Adviser*

Parameswar Hari, *Preoptometry Adviser*

Gerardo Munoz, *Premedical Adviser*

Steven J. White,
Downing Planetarium Director

Raymond Hall
Floyd L. Judd
Brandt Kehoe
Douglas Singleton
James P. Vesenka

Bachelor of Science in Physics

The B.S. in Physics offers preparation appropriate to employment in government and industry involving a range of activities from laboratory work to technical sales. It also offers appropriate background preparation for graduate study in physics and a large number of other fields. With an appropriate choice of electives, it provides a very strong premedical, predental, or preoptometry program.

Beyond professional goals, the study of physics provides a deep understanding of fundamental processes which underlie our physical world and fosters methods of inquiry which promote intelligent analysis generally.

Bachelor of Science Degree Requirements

Physics Major	*Units*
Physics requirements	**47**
(see *note 1*)	
Physics core	(30)
PHYS 4A, 4AL, 4B, 4BL, 4C, 102, 104, 105A, 105B, 107A, 110	
Upper-division electives	(17)
Includes courses in physics and, with approval, in related fields. Students planning to pursue graduate study in physics are strongly encouraged to take PHYS 107B, 115, 130, 140, 162, and 170A (see *note 2*)	
Additional requirements	**31-33**
(see *notes 1* and *4*)	
MATH 75, 76, 77, 81; CHEM 1A, 1B; IT 53; C SCI 15 or 40 or ECE 70	
General Education	**51**
(see *note 3*)	
Electives	**0-1**
(see *notes 3 and 4*)	
Total	**124-125**

Advising Notes

1. *CR/NC* grading is not permitted in the physics major. Additional requirements, however, may be taken *CR/NC* (see *Credit/No Credit Grading)*.
2. Courses outside the Department of Physics may be substituted for physics upper-division electives with prior approval of the department chair.
3. It is anticipated that 6 units of coursework required for the major will count toward General Education requirements.
4. Students should be sure to take sufficient upper-division units in their General Education courses and electives to satisfy the university requirement of 40 upper-division units for graduation.

Suggested Sequence of Courses for the B.S. in Physics

The list below is a suggested schedule of courses for the major for students planning to complete the suggested pregraduate study sequence in four years.

In addition to the specific courses listed below, General Education requirements and electives should be included to bring the total to 15-17 units per semester. A total of 124 units must be completed for the Bachelor of Science degree. (See *Degree Requirements*.)

1st Year:	PHYS 4A, 4AL; CHEM 1A, 1B; MATH 75, 76; Computer Programming
2nd Year:	PHYS 4B, 4BL, 4C; I T 53; MATH 77, 81
3rd Year:	PHYS 102, 104, 105A, 105B, 110, 150, 170A
4th Year:	PHYS 107A, 107B, 115, 130, 140, 162; plus upper-division electives

Physics Minor

	Units
PHYS 4A, 4AL, 4B, 4BL, 4C	**11**
PHYS 102	**3**
Other upper-division physics	**6**
Total	**20**

Bachelor of Arts in Natural Sciences

Physics Emphasis

The B.A. in Natural Sciences is designed primarily to meet the needs of students interested in pursuing a teaching career in the sciences at the secondary level. Students interested in satisfying the waiver program in the natural sciences should consult an appropriate adviser early in their academic program. Contact either the Department of Physics or the Office of the Dean, College of Science and Mathematics.

The degree is also a suitable choice for students with a general interest in physics and interest in pursuing a career in law, medicine, dentistry, optometry, and other areas for which the breadth of scientific coverage of this degree is advantageous.

A full description of the degree, including all of the emphases available, can be found in the *Natural Sciences Interdisciplinary Courses* section in this catalog. The B.A. in Natural Sciences with the Physics Emphasis is as follows:

Bachelor of Arts Degree Requirements

Natural Sciences Major	*Units*
Core requirements	**37-38**
Biology[1]	(12-13)
BIOSC 1A or BIOL 15[1], BIOSC 1B, BIOSC 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology[1]	(8)
GEOL 1 and 3 (or 15)[1], GEOL 168	
Natural Science	(3)
N SCI 106	
Physical Science	(4)
P SCI 21	
Physics Emphasis	**45**
CHEM 128A	(3)
P SCI 168	(3)
MATH 75, 76, 77,81	(16)
PHYS 4A, 4AL, 4B, 4BL, 4C	(11)
PHYS 102, 105A, 107A, 140	(12)
General Education	**51**
Electives and remaining degree requirements[3,4]	**2-3**
Total	**124**

See *Advising Notes* on next page.

Advising Notes for the Natural Sciences Major

1. BIOL 15 and GEOL 15 are part of the Humans and the Natural Environment Cluster. See the *Natural Sciences Interdisciplinary Courses* section in this catalog. GEOL 15 is equivalent to GEOL 1 and 3.
2. Substitutions may be made with the permission of the appropriate department chair. PHYS 4A-B-C with labs 4AL, 4BL is recommended instead of PHYS 2A-B for those students well-prepared for physics.
3. This figure takes into account that 12 units required for the major are expected to count toward General Education as follows: CHEM 1A (3 units), BIOSC 1A or BIOL 15 (3 units), GEOL 168 (3 units), and MATH 75 (3 units). Consult your major adviser for details.
4. Students should be sure to take sufficient upper-division units in their General Education courses and electives to satisfy the university requirement of 40 upper-division units for graduation.

Waiver Program for the Single Subject Credential in the Sciences

Students interested in satisfying the waiver program in the Natural Sciences should consult an appropriate adviser early in their academic program.

Physical Science Minor

The Physical Science Minor offers an opportunity for both nonscience and science majors to diversify into important and interesting fields. It consists of 21 units of courses selected according to one of the patterns listed in the copy that follows:

	Units
A. CHEM 3A and 3B*	**7**
PHYS 2A and 2B*	**8**
Upper-division electives**	**6**
	21
B. CHEM 10	**3**
PHYS 2A and 2B*	**8**
GEOL 1	**4**
Upper-division electives**	**6**
	21
C. CHEM 3A and 3B*	**7**
PHYS 10	**4**
GEOL 1	**4**
Upper-division electives**	**6**
	21

For chemistry, geology or physics majors, all courses must be outside the major department. The revised program must be approved by the chair of the major department.

* CHEM 1A may be substituted for CHEM 3A, and CHEM 1B may be substituted for CHEM 3B. PHYS 4A and 4AL may be substituted for PHYS 2A, and PHYS 4B and 4BL may be substituted for PHYS 2B.

** The upper-division electives may be any upper-division courses for which the student is qualified, from the three departments. Courses with very few prerequisites are CHEM 139; GEOL 105, 114, 154, 168, 169; PHYS 100, 145; P SCI 106, 131, 168.

Graduate Program

The Department of Physics offers graduate instruction and research leading to the Master of Science degree.

For general information, read the *Graduate Studies* section in this catalog, and in particular, the sections on *Admission to Graduate Standing, Advancement to Candidacy, and Program Requirements*. The minimum entrance requirements are a GPA of 2.5 over the last 60 units, satisfactory scores on the GRE General Examination, and good references. Although the GRE scores are not the only, or most important, criteria used in the admission process, we generally look for scores above 600 on the quantitative portion of the exam or for a total above 1,000 on the combined quantitative and verbal portions. The GRE General Examination must be taken before applying for admission.

It is important to achieve classified standing quickly, before completion of 10 units. The next step is advancement to candidacy, after completion of at least 9 units of graduate study with a minimum GPA of 3.0 and satisfaction of the writing proficiency requirement. Advancement is dependent upon achieving a satisfactory score on the Advanced Physics GRE Subject Examination.

Teaching assistantships are usually available, as is general financial aid. For some forms of financial aid, application must be completed before the end of February.

For specific questions, consult the chair of the department or the graduate adviser.

Master of Science in Physics

The objective of our M.S. program is to build a firm basis for subsequent Ph.D. study in physics or in related fields, for positions in industry, and for teaching at the community college level. We offer a broad-based academic program with the opportunity for specialized theoretical or experimental research. Students completing degrees have successfully pursued all three of these career goals — with roughly equal numbers going to doctoral programs and industry, and a smaller number directly into teaching.

Areas of research in which our current faculty are active include condensed matter theory and experiment, dipolar magnetism, Fullerene research, laser Raman spectroscopy, classical and quantum field theory, particle physics theory and experiment, scanning probe microscopies, the biophysics of self-assembled biomolecules, and physics pedagogy.

Under the direction of the graduate adviser and the graduate faculty, a coherent program, directed toward the student's goal in graduate study and designed within the framework outlined in the copy that follows, is prepared and submitted to the department. There is a standard core of classical mechanics (PHYS 203), classical electrodynamics (PHYS 220A, B) and quantum mechanics (PHYS 222A, B) which is strongly recommended for students planning to pursue further graduate study — and, at least in part, for all students. Other courses, both from within and from outside the department, can be used to complete the 30 unit master's program. A culminating experience, consisting of either a project (PHYS 298) plus a competency examination or a thesis (PHYS 299), is required.

Undergraduate education equivalent to a physics major at California State University, Fresno is necessary for admission. Note the other requirements under *Graduate Program.*

	Units
Physics graduate courses	**21**
PHYS 298 or 299 (minimum)	(3)
Additional graduate courses in physics	(18)
Students planning further graduate study should include PHYS 203, 220A-B, 222A, and 222B.	
Upper-division or graduate electives in physics or related fields	**9**
Total	**30**

COURSES

Physics (PHYS)

2A. General Physics (4)
Prerequisite: completion of General Education Quantitative Reasoning requirement. Topics and concepts in Newtonian mechanics of point particles and rigid bodies, energy, properties of fluids, heat and thermodynamics, waves and sound. G.E. Breadth B1. (3 lecture, 3 lab hours) (CAN PHYS 2)

2B. General Physics (4)
Prerequisite: PHYS 2A. Topics and concepts in light, electricity, magnetism, atomic structure, relativity, quantum nature of light and matter, nuclear structure and radiation. (3 lecture, 3 lab hours) (CAN PHYS 4)

4A. Mechanics and Wave Motion (3)
Prerequisite: MATH 76 (may be taken concurrently). Topics in classical Newtonian mechanics including linear and circular motion; energy; linear and angular momentum; systems of particles; rigid body motion; wave motion and sound. G.E. Breadth B1.

4AL. Laboratory in Mechanics and Wave Motion (1)
Corequisite: PHYS 4A. Introduction to laboratory methods. Experiments in mechanics, waves, and sound. G.E. Breadth B1. (3 lab hours)

4B. Electricity, Magnetism, and Heat (3)
Prerequisites: PHYS 4A; MATH 77 (may be taken concurrently). Topics in classical physics including heat and thermodynamics, electrostatics, electric fields and potential, currents and AC and DC electric circuits, magnetic fields, electromagnetic induction.

4BL. Laboratory in Electricity, Magnetism, and Heat (1)
Corequisite: PHYS 4B. Experiments in electricity, magnetism, heat, and thermodynamics. (3 lab hours)

4C. Light and Modern Physics (3)
Prerequisites: PHYS 4B; MATH 77. Maxwell's Equations, geometrical optics; electromagnetic radiation; physical optics; introduction to special relativity; quantum physics; and the physics of atoms, nuclei, and the solid state.

10. Conceptual Physics (4)
Prerequisite: MATH 45 (may be taken concurrently). Basic ideas of physics and their relationship to the everyday environment. Physical phenomena, misconceptions, terminology, scientific method, and metric system. Memorable demonstrations in lectures; household-related experiments in the lab. G.E. Breadth B1. (3 lecture, 2 lab hours)

90. Directed Study (1-2; max total 3)
Prerequisite: any university-level physics course. Individually arranged course of study in some limited area of physics, either to remove a deficiency or to investigate in more depth. (1-2 hours to be arranged)

100. Concepts of Modern Physics (3)
Prerequisite: General Education Quantitative Reasoning and Area B Breadth requirements. Conceptual development of relativity and quantum theory. Demonstration of abstract concepts with mechanical analogues; visualization with diagrams. G.E. Integration IB. (3 lecture hours)

102. Modern Physics (3)
Prerequisite: PHYS 4C. Fundamental concepts of atomic and nuclear structure, transitions and radiation. 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 Condensed Matter Physics (4)
Prerequisite: PHYS 4C. Shop techniques and safety instructions. Basic concepts in condensed matter 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, 9 lab hours)

105A-B. Analytical Mechanics (3-3)
Prerequisite: PHYS 4C. (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)
Prerequisites: 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)
Prerequisites: PHYS 4C, 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. Practical experience in using lasers and optical instruments. (2 lecture, 3 lab hours)

115. Quantum Mechanics (3)
Prerequisites: PHYS 102, 105A, 170A (may be taken concurrently), MATH 81. Historical background, postulates, meaning, and methods of quantum mechanics; applications to atomic phenomena.

130. Advanced Laboratory (2)
Prerequisite: PHYS 102. Advanced experiments in atomic and nuclear physics. Radiation safety. Gamma ray, X-ray, and particle detection and spectroscopy. X-ray fluorescence analysis, Mossbauer, coincidence, Compton scattering and radiation attenuation experiments. Statistics, error analysis. Projects. (6 lab hours)

136. Radiation Physics (3)
Prerequisite: PHYS 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)
Prerequisites: PHYS 2A, 2B or 4A, 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.

150. Astrophysics (3)
Prerequisites: MATH 75 and PHYS 2A, 2B or PHYS 4A, 4B and 4C. Introduction to celestial mechanics, spectral classification, stellar atmospheres and interiors, star formation and evolution, variable stars, neutron stars, pulsars, black holes, the nature of galaxies, and the expansion of the universe. (Formerly PHYS 175T)

Classes are small; our upper-division and graduate classes run from two to 15 students. Physics majors get to know each other very well. They develop friendships with peers and faculty that extend beyond graduation.

162. Condensed Matter Physics (3)
Prerequisites: PHYS 102, or CHEM 110B and permission of instructor, or CHEM 215. 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. Mathematical Physics (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, chaos theory, 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 chair.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

GRADUATE COURSES

(See *Course Numbering System*.)

Physics (PHYS)

203. Classical Mechanics (4)
Advanced treatment of classical analytical mechanics including Lagrange's and Hamilton's formulation of the laws of motion, special relativity, small oscillation theory, hydrodynamics. (Formerly PHYS 203A-B)

220A-B. Advanced Electricity and Magnetism (3-3)
Electromagnetic theory and its applications; electrostatics, boundary-value problems in electrostatics, dielectrics, multipoles, magnetostatics, Maxwell's equations, electromagnetic radiation, optical properties of materials, wave guides and resonant cavities.

222A. Quantum Mechanics I (3)
Prerequisite: PHYS 115. Quantum Dynamics: representations and pictures, path integrals, evolution operator, propagators. Angular Momentum: orbital and spin, addition. Perturbation Theory: time-independent and time-dependent problems, sudden and adiabatic approximations. Scattering: Lippman-Schwinger equations, scattering matrix, Born approximation, partial waves.

222B. Quantum Mechanics II (3)
Prerequisite: PHYS 222A. Identical Particles: fermions and bosons, second quantization. Electromagnetic Fields: radiation field, photons, coherent states, vacuum state and Casimir effect, interactions with charged particles. Relativistic Quantum Mechanics: Klein-Gordon and Dirac equations, relativistic hydrogen atom, perturbation theory and Feynman diagrams.

262. Advanced Condensed Matter Physics (3)
Binding and crystal structure, crystal electron theories, elementary excitations, transport theories, crystal defects, superconductivity.

270. Advanced Mathematical Physics (3)
Prerequisite: PHYS 170A. Covers three topics: group theory, including continuous (Lie) groups, Lie algebras, and an introduction to the theory of representations, Green's functions and their applications to physical problems, and integral equations including diagrammatic methods of solution.

272. General Relativity (3)
Prerequisite: PHYS 203. The principle of equivalence, tensor calculus in curved spacetimes, the Einstein-Hilbert equations, the Schwarzschild solution tests of general relativity, gravitational radiation, introduction to cosmology.

275T. Topics in Contemporary Physics (1-3; max total 6)
Advanced topics in such areas as modern optics, plasma physics, high energy physics, astrophysics, nuclear physics, biophysics. Some topics may have labs.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project (2-6; max total 6)
Prerequisite: permission of instructor. Scholarly investigation by the advanced graduate student as a culminating experience for the master's degree, including a written project report and an oral defense, and followed by a competency exam. Approved for *SP* grading.

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

PHYSICAL SCIENCE COURSES

Physical Science (P SCI)

ASTRONOMY

21. Elementary Astronomy (4)
Prerequisite: MATH 45 (may be taken concurrently) or second-year high school algebra. Concepts, theories, important physical principles, and history of astronomy. Stellar properties, distances, and evolution. Three field trips for observing with telescopes. G.E. Breadth B1. (3 lecture, 2 lab hours)

OTHER

106. History of Physical Science (3)
The development of our understanding of the physical world from ancient times to the 20th century with an emphasis on astronomy, mechanics, thermodynamics, and the nature of matter. An exploration of the evolution of ideas.

131. Concepts of Classical Physics from Babylon to Maxwell (3)
Prerequisites: General Education Quantitative Reasoning and Area B Breadth requirements. Concepts, theories, and laws of classical physics. Mathematics, astronomy, mechanics, light, electricity, magnetism, thermodynamics, chemistry, and the atom. G.E. Integration IB.

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; future energy demands and ways of evaluating alternatives.

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*.)

Physical Science (P SCI)

305. Physical Science for Secondary School Teachers (3; max total 6 in any one field)
Prerequisites: secondary credential and two years of teaching experience. Objectives, content, and instructional materials for the physical sciences; fundamental principles and recent developments. Emphasis may be on chemistry, geology, or physics.

350. Physical Science for Elementary School Teachers (3-6; max total 6 in any one field)
Maximum total credit 12 units; not more than 6 units in one field. Prerequisite: elementary credential. Selection of source materials and aids available for illustration of fundamental concepts and principles in physical science; laboratory work in construction, operation, and use of demonstrations and experiments in the elementary school.

Psychology

College of Science and Mathematics

Department of Psychology
Aroldo Rodrigues, *Chair*
Beverly Karau, *Administrative Support Coordinator*
Psychology and Human Services Bldg., Room 234
(559) 278-2691
http://psych.csufresno.edu

B.A. in Psychology

M.A. in Psychology

M.S. in Psychology

Pre-M.B.A. Option

Minor in Psychology

Pupil Personnel Credential with an Advanced Specialization in School Psychology

Psychology

Psychology is concerned with the scientific study of human behavior and consciousness, and the applications of these findings to the areas of home, school work, and social relations. It covers topics such as learning, cognition, motivation, personality, psychophysiology, sexuality, group processes, cultural factors, and abnormal behavior. Psychology is an area for students interested in learning about the behavior of humans and other organisms.

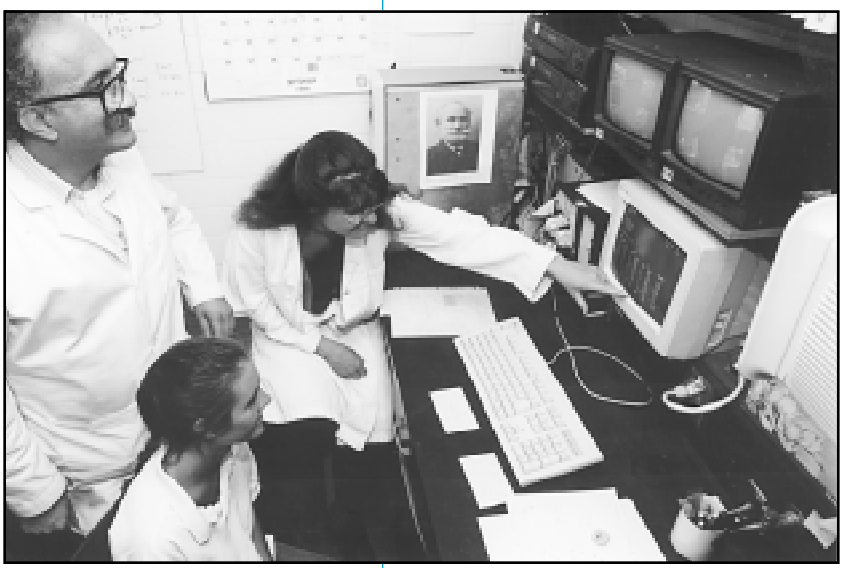
The Department of Psychology provides a variety of opportunities for students. We have an undergraduate major that can be tailored as a strong liberal education, a preprofessional degree or as preparation for graduate study in psychology. In addition, we have two advanced degrees providing professional training in psychology. Our program gives considerable emphasis to psychology as an empirical science, including research design, data analysis and interpretation, and computer skills.

As preparation for graduate work in psychology, our undergraduate major is one of the strongest and most respected in the CSU System. Our better students do well in the Ph.D. programs into which they are often accepted. Our undergraduate program provides a solid background for liberal arts majors choosing to enter business or other more specialized vocations immediately after graduation.

Faculty and Facilities

All full-time and some part-time members of the department hold Ph.D. degrees in psychology and many are licensed as psychologists for private practice by the state of California. Our faculty represents a wide range of theoretical orientations and interests that include most of the major areas in American psychology.

A comprehensive test library is maintained for programs in the testing and clinical areas. Complete video facilities are available for preparing training materials and for research and instruction. Several university computer terminals are located in the department area and the department has several microcomputers of its own for instruction and research. A computerized Bio-lab is also available for training and research in biofeedback and psychophysiological studies. The Department of Psychology employs technicians who construct specialized equipment for research and teaching purposes.



Career Opportunities

In addition to learning theoretical views and research methods, students often have the opportunity to apply psychological principles of counseling and testing in community settings. Students who earn the M.S. degree obtain certification as school psychologists. There are openings in mental health, public schools, community colleges, and other agencies for these advanced students.

Current surveys show that about one-third of psychology graduates become employed in business and related vocations, one-third in education, and one-third in clinical and counseling vocations.

The B.A. degree does not train a person to work as a professional psychologist. However, a number of jobs related to psychology can be entered without advanced education. Some examples are employment interviewers, personnel managers, market researchers, management trainees, probation officers, and mental health workers.

Our 30-unit M.A. degree provides a strong background for further graduate study toward the doctoral (Ph.D.) degree. In the 79-unit M.S./School Psychology degree, students learn many clinical skills (psychotherapy, psychological assessment, etc.) that lead to employment possibilities in the schools and mental health settings.

Professional psychologists are employed in colleges and universities as instructors, researchers, and counselors. State and federal governments utilize psychologists in a variety of agencies and settings (mental hospitals, rehabilitation centers, prisons, employment testing, and personnel work). Finally, some psychologists are in private practice as counselors and psychotherapists, or consulting psychologists.

Faculty

Aroldo Rodrigues, *Chair*

Christine Edmondson,
Undergraduate Adviser

Marilyn S. Wilson, *Graduate Adviser*

Sergio Aguilar
Barbara H. Basden
David R. Basden
Thomas E. Breen
Douglas Cody Brooks
Karen T. Carey
Constance J. Jones
Robert V. Levine
Terry G. Newell
Paul C. Price
Jean M. Ritter
Matthew J. Sharps
Michael J. Thackrey
Lynnette C. Zelezny

Bachelor of Arts Degree Requirements

Psychology Major	*Units*
Major requirements	**40**
A. *Core Courses* (all required): PSYCH 10, 42, 144	(11-13)
B. *Basic Knowledge and Skills* (select 2): PSYCH 36, 60T*, 145, 166	(5-6)
C. *Basic Applications* (select 1): PSYCH 136, 162, 169, 173, 175, 176	(3-4)
D. *Advanced Applications* (select 1): PSYCH 143, 149, 160T, 177, 179	(3-4)
E. *Advanced Content* (select 2): PSYCH 150T*, 154, 155, 156	(6-8)
F. *Advanced Processes* (select 2): PSYCH 120T*, 121, 122, 124, 125, 128	(6-8)
G. *Integration* PSYCH 182	(4)
H. *Psychology Electives* (see *Advising Notes)*	
General Education	**51**
Electives and remaining degree requirements** (See *Degree Requirements*); may be used toward a dual major or minor.	**33-39**
Total	**124**

* See *Advising Note 6.*

** This figure is based upon anticipated double counting of some courses for both General Education and the major. Consult the psychology department chair or department advising office for additional details.

Advising Notes

1. Students desiring to major in psychology must do the following before being permitted to enroll in restricted, 100-level psychology courses (courses with prerequisites):
   a. formally apply to the major, at which time they will be placed in a pre-psychology major category, and
   b. complete PSYCH 10, 42, and 144 (or their equivalents) with grades of *C* or better and have earned a cumulative grade point average of at least 2.0.

   Students may apply for upper-division psychology major status in the Psychology Department Advising Office during the semester in which they expect to successfully complete the degree requirements. Approval will be contingent upon satisfactory fulfillment of these requirements.

   All students, including transfer students and students changing to the psychology major, must request the Psychology Department to screen their transcripts (to be provided by the student) for successful completion of the requirements before enrollment in restricted, 100-level psychology courses will be permitted. Currently enrolled students who wish to change to the psychology major must first obtain the change-of-major form in the Office of Advising Services, Joyal Administration, Room 121.
2. Psychology majors may not receive General Education credit for G.E. Integration courses offered by the Department of Psychology.
3. *CR/NC* grading is not permitted in the psychology major.
4. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
5. Although not required, psychology electives may be applied toward the major.
6. Must receive approval from the major adviser for course to fulfill a major requirement.
7. For pre-M.B.A. major option: both ECON 40 and 50 may also be used to fulfill G.E. course requirements.

Pre-M.B.A. Major Option

The pre-M.B.A. psychology major option is intended for students who wish to combine comprehensive training in the field of psychology with coursework preparing them for jobs in business and/or future graduate training in business administration. The option is aimed at two groups of students:

1. Students who wish to complete a major in psychology, while at the same time prepare for jobs in business, industry, and government that emphasize both psychology and business skills upon completion of their B.A. degree.
2. Psychology majors who wish to enter an M.B.A. or other business-related graduate program upon completion of their B.A. degree. The option is designed to allow these "pre-MBA" students to complete many or all of the prerequisite courses required by typical M.B.A. programs, and all of those in the Craig program at Fresno State.

The option is especially designed for psychology majors who wish to apply for the Craig M.B.A. program at Fresno State. By completing the requirements of the pre-business option, students will be allowed to waive all of the Group 1 coursework usually required for the M.B.A. degree at Fresno State. Furthermore, students who maintain a minimum GPA of 3.4 over their last 60 units and in the pre-business psychology major, and receive a score of 570 on the GMAT, will be guaranteed admission into the Craig M.B.A. program at Fresno State. It should be noted that although these minimum scores guarantee admission, students not meeting these requirements will also be considered and are encouraged to apply.

Pre-M.B.A. Major Option	*Units*
Major option requirements	**59**
A. *Core Courses* (all required): PSYCH 10, 42, 144	(11-13)
B. *Basic Knowledge and Skills* (select 1): PSYCH 145 or IS 50 *and* (select 1): PSYCH 36, 60T*, or 166	(5-6)
C/D. *Applications*: MKTG 100 and MGT 104; or MGT 110	(6)
E. *Advanced Content* (select 2): PSYCH 150T*, 154, 155, 156	(6-8)
F. *Advanced Processes* (select 2): PSYCH 120T*, 121, 122, 124, 125, 128	(6-8)
G. *Integration:* PSYCH 182	(4)
H. *Psychology Electives* (see *Advising Notes)*	

* See footnotes on next page.

I. *Additional pre-business requirements* (all required): ECON 40, 50**, ACCT 4A, FIN 120, B A 174, MGT 124 ..... (20)

General Education 51

Electives and remaining degree requirements 11-14

Total 124

* See *Advising Note 6.*
** See *Advising Note 7.*

Preprofessional Preparation

A psychology major is often used as preparation for other professions. For pre-professional programs in law, dentistry, medicine, and the ministry, see the *Preprofessional Preparation* units section and consult an adviser in the psychology department.

Credential Programs

The Department of Psychology offers the M.S. degree. Degree requirements coincide with those of the Pupil Personnel Services Credential with an Advanced Specialization in School Psychology.

Application forms and advising are available through the coordinator of the School Psychology Program within the Psychology Department.

Applied Behavior Analysis Training

Our Applied Behavior Analysis (ABA) program meets the academic content required for certification by the California Association for Behavior Analysis (Cal-ABA). People with this certification and a bachelor's degree can find employment in state-funded centers for the developmentally disabled. Behavior analysts and specialists design and implement behavior change programs in a variety of settings including homes, group homes, care facilities, and hospitals. Our training gives students necessary coursework in theoretical foundations, basic research, and applications for applied behavior analysis. Courses can be applied to both the psychology major and to the ABA training. The following classes comprise the training program:

Units

1. *Core Courses in Psychology*
   PSYCH 10, 42, 144 ..... (13)
2. *Theory/Basic Processes/Basic Content*
   PSYCH 121, 136, 155 ..... (11)
3. *Applications*
   PSYCH 170T, 177 ..... (7)
4. *Field Work (recommended)*
   PSYCH 179 ..... (4)

For additional information or advising, contact the Department of Psychology.

The Department's Honors Program

The Department of Psychology Honors Program has two major components that are completed over the course of one year. Students participate in a seminar (PSYCH 183A and 183B - Honors Seminar) designed to provide an advanced survey of research and theory in several major substantive areas of psychology. In addition, over the course of the year, honors students conduct their own honors project under the supervision of a faculty mentor. The program provides the opportunity for highly qualified, advanced psychology students to sharpen their analytical abilities, refine their writing skills, and expand their knowledge of psychology. The honors project itself is an opportunity for students to apply the knowledge and skills they have acquired as psychology majors to a particular question. Minimum criteria for application to the program include at least 18 units in psychology courses completed, GPA of at least 3.5 in psychology and 3.5 for overall in last two years coursework, and a letter of recommendation from the faculty mentor. Applications are accepted in the spring semester for the following academic year. See also the *Smittcamp Family Honors College* section of the catalog for further information about honors programs available at the university.

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. Completion of the requirements for either master's degree prepares students for positions in community mental health service agencies, school settings, community college teaching, research, or entry into Ph.D. or Psy.D. programs in Psychology.

Admission to the Master of Arts and Master of Science programs in Psychology is based upon the satisfactory completion of prerequisite courses selected from the core courses required for the California State University, Fresno undergraduate major in psychology, or their equivalent. Potential graduate students should submit transcripts of all academic work and three letters of recommendation. In addition, students must submit scores from the GRE general test and the subject test in psychology to be considered for admission. School Psychology program applicants must submit scores from the CBEST as well and complete other prerequisites as outlined in the department's application. All students must submit applications to both the Division of Graduate Studies and the Department of Psychology.

Admission to the graduate program in psychology is based on the evaluation of a student's capacity to successfully complete Master's level work. The graduate committee uses multiple criteria to assess an applicant's qualifications including coursework completed, grades, test scores, essays, and letters of recommendation. In addition, an applicant's professional interests and goals are evaluated in terms of the interests of the faculty and the resources of the Department of Psychology. Separate evaluations of applicants are made for the M.A. general/experimental program and the M.S. School Psychology program. Although many applicants meet our minimum admission requirements, we are limited in the number of positions available and many qualified applicants cannot be offered admission.

Admission to classified graduate standing requires a minimum undergraduate grade point average of 3.0, as well as a minimum grade point average of 3.0 in undergraduate psychology courses, a combined GRE Aptitude Test score of 1,000 or higher, and a score on the GRE Subject Test in Psychology equivalent to the 60th percentile or higher. Applicants lacking minimum scores in one area with compensating strengths in other areas may apply. The Department of Psychology does not typically admit unclassified students into the graduate program.

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

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.

Core Course Requirements for M.A. and M.S. Degrees

Units

PSYCH 244 ..... **4**
PSYCH 200T or 250T or 255T (one course) **3-4**

PSYCH 220T or 225T (one course). **3-4**
PSYCH 231* **3**
PSYCH 299 (Thesis) **3-6**
Total **12-17**

*Grades of *A* or *B* must be earned in PSYCH 231 and PSYCH 244 for graduation credit in these courses.

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 graduates for entry into doctoral programs in general experimental, developmental, social, or clinical psychology, and may serve as preparation for community college teaching or professional employment requiring a master's degree.

	Units
Core requirements (see section just prior)	**16-21**
Electives in psychology or related fields	**9-14**
Total	**30**

See the department for other recommendations 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 three-year, full-time graduate program and requires a minimum of 79 units. Practicum experience is required during the first two years of coursework. The internship experience, completed during the third year of the program, requires a minimum of 1,200 hours with at least half of these hours completed in a school setting.

	Units
Core requirements (see previous column)	**16-21**
Electives (see below)	**51**
Internship in School Psychology (PSYCH 267)	**12**
Total	**79-84**

Students with an interest in clinical psychology should include the following courses among their electives: PSYCH 281 or 282 (4 units), 283T (3-4 units).

Students who wish to become eligible for the Pupil Personnel Credential with a specialization in School Psychology as granted by the California Commission on Teacher Credentialing should contact the department for application materials and additional information.

The following electives, in addition to the core requirements, may be used to obtain a M.S. degree in Psychology:

PSYCH 200T, 225T, 277, 278, 279 (21 units); PSYCH 281, 284, 285, 288 (16 units); COUN 201, 240; PSYCH 220T, 255T, 270T, 283T (19 units)

Students with an interest in School Psychology should complete their practicum in a school setting. Contact the department for further details and other requirements.

Specific requirements for advancement to candidacy for all degrees and credentials include a score above the 60th percentile (ETS norms) on the GRE Subject Test in Psychology.

COURSES

Psychology (PSYCH)

10. Introduction to Psychology (4)
Not open to students with more than 6 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. G.E. Breadth D3. (3 lecture, 2 lab hours) (CAN PSY 2)

36. Biological Psychology (3)
Role of the nervous system in mediating sensory processes, motivation, emotion, sleep and dreams, language, cognitive processes, learning and memory, and mental disorders. (CAN PSY 10)

40T. Topics in Research Design and Statistics (2-8; max total 12 if no topic repeated)
Prerequisite: PSYCH 10. Introductory research methods and statistics in psychology. Introduction to scientific procedures and empirical research. Participation in research, data analysis, and APA research report writing. (May include lab hours)

42. Introductory Statistics (4)
Prerequisites: PSYCH 10; students must take the ELM exam; students who do not pass the exam must record a grade of *C* or better in a college-taught intermediate algebra course. Basic statistical methods for analysis of data; parametric tests of significance; linear regression and correlation; analysis of variance; introduction to nonparametric techniques. (May include lab hours)

60T. Psychology as a Behavioral Science (1-5; max total 6 if no topic repeated)
Must receive approval from the major adviser for course to fulfill a major requirement. Problems in approaching man as a social animal; sections in basic or applied processes in personality, interpersonal relations, social environment, and group participation. (May include lab hours)

61. Personal Adjustment (3)
Not open to students with credit in PSYCH 171. General adjustment behavior with regard to health, social, academic, and emotional problems; application of principles for prevention of health, social, academic, and emotional problems. G.E. Breadth E1.

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)
(Same as GERON 103.) Psychological study of maturity and old age; physiological and sociological considerations.

120T. Topics in General Psychology (2-5; max total 12 if no topic repeated)
Must receive approval from the major adviser for course to fulfill a major requirement. Prerequisites: PSYCH 42 and 144 or permission of instructor. 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. (May include lab hours)

121. Learning and Memory (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. 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 (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. Initiation and continuation of behavior, acquisition, and modification of motives. (May include lab hours)

123. Developmental Psychobiology (4)
Biological and psychological foundations of behavioral development. Topics include issues in developing systems, genetics and

evolution of behavioral development, behavioral embryology, comparative development of nervous systems, development of cognitive and affective behaviors, and ecological and multicultural influences on biobehavioral development. G.E. Integration ID. (Formerly PSYCH 120T)

124. Sensation and Perception (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. Study of sensory and perceptual processes in vision, touch, and hearing. Emphasis is placed on how basic perceptual principles operate in everyday life as well as in lab settings.

125. Physiological Psychology (4)
Prerequisites: PSYCH 42 and 144 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. Cognitive Neuroscience (3)
Biological mechanisms which mediate cognitive processes. Topics include the nervous system substrates for perception memory, language, cerebral lateralization and specialization, attention, and consciousness. G.E. Integration IB.

128. Cognitive Psychology (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. An introduction to theory and research in human information processing. Topics include attention, mental representation, imagery, problem solving, reasoning, language, and other higher mental processes.

132. Psychology of Sexuality (3)
Prerequisite: upper-division standing. Psychological aspects of human sexual behavior: influence on personality, various behavioral manifestations and pathologies.

136. Human Learning and Behavior (3)
Open to majors and nonmajors. 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.

140T. Topics in Psychological Methods (4; max total 8 if no topics repeated)
Must receive approval from the major adviser for course to fulfill a major requirement. Prerequisite: PSYCH 10. Research methods and statistics in psychology: introduction to scientific procedures, experimental research, survey research, and qualitative research. Participation in research, data analysis and APA research report writing. (May include lab hours)

143. Intermediate Computer-based Statistical Analysis (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. Intensive computer-based study of analysis of variance with research emphasis. Topics include single and multifactor designs both with and without repeated measures, multiple comparisons, trend tests, analysis of covariance and multivariate analysis of variance. (May include lab hours)

144. Research Designs and Experimental Methods (5)
Prerequisite: PSYCH 10 and PSYCH 42. Basic course in experimental psychology: research design and inferential statistics; introduction to scientific procedures and methods in psychology; participation in research, data analysis, and report writing. (May include lab hours)

145. Computer and Information Skills in Psychology (3)
A survey of computer and information skills in the behavioral sciences. Applications of information technology include use of word processors, electronic communications, spreadsheets, statistical packages, and other specialized computer programs for psychology. Emphasis will be on developing information competence including locating, gathering, organizing, and reporting computer-based information. (May include lab hours)

149. Psychological Testing (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. 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)
Must receive approval from the major adviser for course to fulfill a major requirement. Prerequisites: PSYCH 42 and 144 or permission of instructor. Wholistic levels of analysis in psychology such as personality, social, individual differences, and developmental; conceptual and empirical issues. (May include lab hours)

154. Personality (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. Major contemporary theories of personality; techniques for research in personality. (May include lab hours)

155. Developmental Psychology (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. Empirical and theoretical treatment of human development throughout the life span; genetic, physiological, and sociocultural influences upon development; physical, emotional, motivational, intellectual-cognitive, and social facets of development. (May include lab hours)

156. Social Psychology (4)
Prerequisite: PSYCH 42 and 144 or permission of instructor. Examination of the interaction between social environments and behavior. Application of social psychological theories and principles to interpersonal relationships, education, work,

health, and the media. (May include lab hours) (Formerly PSYCH 134)

160T. Topics in Clinical Processes
(2-5; max total 12 if no topic repeated)
Prerequisite: PSYCH 42 and 144 or permission of instructor. Examination of individual behavior and small-group processes; include such topics as clinical psychopathology, sensitivity training, and intragroup dynamics, consciousness, dreams, and imagination.

162. Introduction to Clinical Psychology (4)
Overview of clinical psychology, including history, ethics, applied roles, conceptual and technical approaches to assessment and intervention, applying to graduate school, and anticipated future developments.

166. Abnormal Psychology (3)
Study of the origins, symptoms, and treatments of behavioral and personality disturbances from childhood through senescence; application of current DSM.

168. Exceptional Children (3)
The atypical child; etiology, symptomatology, nosology, recognition, and recommendations.

169. Psychological Aspects of Physical Disability (3)
Psychological theory and research pertaining to physical disability and disabled persons. Attitudes regarding disability and the impact of disability on individual behavior. Primarily deals with blindness, deafness, orthopedic handicap, and epilepsy, and secondarily with cardiovascular disease, cancer, and diabetes.

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. (May include lab hours)

171. Adjustment and Mental Health (3)
Addresses how basic psychological principles facilitate adjustment to the problems, challenges, and demands of modern living. Emphasizes critical thinking through application of principles and consideration of multicultural issues.

173. Environmental Psychology
(3-4; max total 4)
The scientific study of the effects of human behavior on the environment and the psychological effects of the environment on human behavior. Topics include issues related to overpopulation, pollution, urbanization, noise, and environmental disaster, as well as environmental policies and grassroots movements worldwide. G.E. Integration ID.

174. Introduction to Counseling (3)
(See COUN 174.)

175. Family Counseling (3)
Theory and application of major counseling models. Family problems, relationships and systems. Application of child development principles, relevant communication theory and current research to therapy with couples, families, children, and groups.

176. Industrial Psychology (3)
Occupational assessment, training procedures, production efficiency, morale determinants, human engineering, decision processes, organization theory.

177. Behavioral and Cognitive Change Techniques (4)
Prerequisites: PSYCH 42 and 144 or permission of instructor. Introduction to learning principles and their applications to behavioral and cognitive change. Methods and techniques used for changing self, children, adolescents, and adults. (3 lecture hours, 1 practicum hour arranged)

178. Culture, Social Class, and Development (3-4; max total 4)
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.

179. Supervised Field Experience (4)
Open only to psychology majors. Prerequisites: PSYCH 42 and 144 or permission of instructor. Supervised field experience in community settings. Placements may include schools, hospitals, institutions for the aged, community service agencies, and legal settings, depending on student interests. Regular class meetings.

180T. Seminar in Psychology
(1-5; max total 12 if no topic repeated)
Prerequisites: 9 units in psychology, permission of instructor. Undergraduate seminar in specialized areas, new developments and synthesis of psychological processes, thought, and theory.

182. History and Systems (4)
Prerequisite: senior standing or permission of instructor; 12 upper-division units in the major. Historical, philosophical, and scientific background in psychology; review and integration of theoretical issues and current systems in the field. Lecture and discussion. Satisfies the senior major requirement for the B.A. in Psychology.

183A-B. Honors Seminar
(1-3; max total 6)
Prerequisite: application and acceptance into the department's honors program. Advanced experience in psychology for selected majors that includes critical and creative thinking about topics in psychology, individualized research training, and exploration of options in psychology. (Formerly PSYCH 180T)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

199. Senior Thesis (2-4; max total 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.*)

Psychology (PSYCH)

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)

231. Ethics in Psychology (3)
(Same as A ETH 200.) Prerequisite: permission of instructor. Study of ethical issues, values, and problems in psychological research and practice. Topics include subject risk, confidentiality, court decisions, and licensing laws. Seminar format with student presentations.

240T. Seminar in Quantitative Methods for Behavioral Research (2-4; max total 15 if no topic repeated)
Prerequisite: PSYCH 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 Research Methods and Theoretical Issues (4)
Prerequisite: PSYCH 143 or permission of instructor. Examination of recent theories, advanced research methods, and statistical techniques in behavioral research. (May include 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)

267. Internship in School Psychology (3-18; max total 18)
Prerequisites: PSYCH 281, 284, 285, 288, and permission of instructor. University and school-based supervised internship in school psychology.

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 multicultural issues. For students in the fields of business, communications, education, psychology, and the social sciences. (May include lab hours) *CR/NC* grading only.

272. Seminar in Lab Teaching (1; max total 4)
Enrollment restricted to and required of graduate students teaching discussion sections in psychology laboratories. Class discussion of teaching techniques and procedures used to demonstrate principles in introductory psychology. Course may be repeated for a maximum of 4 units credit. *CR/NC* grading only.

277. Role and Function of the School Psychologist (3)
Prerequisites: graduate standing and admittance to School Psychology Program. State and federal education codes and court decisions related to the practice of school psychology; types of community resources and referral services. Includes supervised practicum experience in schools.

278. Intervention and Prevention in School Psychology (4)
Prerequisite: PSYCH 277, 279, 282, and 288. Roles and responsibilities of the school psychologist including prevention, individual and group techniques for early intervention, and strategies for modification of individual programs and educational environments. Includes supervised practicum experience.

279. Consultation and Supervision (4)
Prerequisite: PSYCH 277 and 288. Types of consultation services offered by school psychologists and variables which influence consultation effectiveness including organizational and systems issues. Emphasizes development of consultation and supervisory skills. Includes supervised practicum experience.

281. Interviewing and Individual Psychotherapy (4)
Prerequisites: a course in abnormal or clinical psychology and permission of instructor. Basic interviewing skills including intake and interviews for diagnostic and therapeutic purposes. Review of current models and theories of psychotherapy. Development of applications using video taping and supervised practicums.

282. Cognitive and Behavior Therapy (4)
Prerequisites: a course in learning or behavior modification and permission of instructor. Historical and current trends, research issues, and designs. Application of the behavior approach in a variety of settings. Includes supervised practicum experience.

283T. Topics in Clinical Intervention (3-4; max total 12 if no topic repeated)
Prerequisite: permission of instructor. Advanced study in specialized areas in clinical and school intervention. May include topics such as clinical hypnosis, health psychology, family therapy, group therapy, individual and group intervention in schools, etc. Practicum training usually included. Topics may not be repeated. *CR/NC* grading only.

284. Assessment of Intellectual Abilities (4)
Prerequisites: a course in psychological testing and permission of instructor. Review of theories of intelligence. Administration, scoring, and interpretation of individual and group measures of intelligence. Supervised practicum includes case studies of learning problems and the role of intelligence measures in assessment batteries.

285. Assessment of Learning and Developmental Problems (4)
Prerequisite: PSYCH 284. Administration, scoring, and interpreting measures of learning disorders, physical-motor development, psychomotor abilities, social maturity, tests, school achievement, and vocational selection. Supervised practicum emphasizing proscriptive and rehabilitative recommendations in case studies.

288. Advanced Applied Behavior Analysis (4)
Prerequisite: PSYCH 177. Applied use of classical and operant conditioning and social learning theory as behavior change techniques. Emphasis will be on functional assessment of behavior, including structured observations and behavior rating instruments. Students will also learn to develop and evaluate single subject research designs. Includes supervised practicum experience.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

299. Thesis (3-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree in compliance with Psychology Department regulations. Approved for *SP* grading.

Science and Math — Interdisciplinary

Science and Mathematics

The goal of the College of Science and Mathematics is to provide professional training at the undergraduate and graduate levels. To achieve this goal, our programs of study serve as foundations for careers in science and mathematics. They provide professional training in preparation for careers in medicine, dentistry, pharmacy, veterinary medicine, and other professions.

The college consists of the departments of Biology, Chemistry, Geology, Mathematics, Physics, and Psychology. Degree programs are listed separately. The college provides study for students in the areas of biology, chemistry, geology and environmental science, mathematics, physics, and psychology by offering courses in the majors; support courses for non-science majors such as agriculture, engineering, and the health professions; and courses for the general education of all university students.

The college requires faculty members to possess the appropriate terminal degree recognized in their discipline. The college has 90 permanent faculty members; all hold the doctoral degree in their discipline. Doctorates held by faculty were granted by some of the most prestigious universities in the nation and abroad. Furthermore, students and faculty members conduct research and scholastic activities in their academic areas as well as solve applied scientific problems of the region. This research activity is carried out among campus scientists along with investigators at other regional research centers.

The College of Science and Mathematics also is involved with the school systems in science/mathematics teacher education. Important emphasis is placed on the recruitment, retention, and education of underrepresented minorities and females in science and mathematics majors.

The College of Science and Mathematics and the United States Department of Agriculture (USDA) — Agricultural Research Services (ARS) have a cooperative agreement to service and promote the Natural Sciences Scholars Program (NSSP). The NSSP provides scholarships and research experiences to encourage minority and disadvantaged students to enter USDA research related professions.

The USDA Forest Service Partnership is designed to bring together existing and new community resources to increase college enrollment and graduation of Hispanics and other minority and disadvantaged students in natural resources and related fields.

B.S. degree in Environmental Sciences*

This special interdisciplinary program leads to a B.S. in Environmental Sciences jointly conferred by California State University, Fresno and the UC, Riverside. Qualified students admitted into this program are concurrently registered at both universities but pay student fees *only* to the campus where they are in residence. There are minimum residence requirements by both universities. Students can take courses at both campuses in person or through distance learning. The B.S. in Environmental Sciences has three degree options: (1) Earth Sciences, (2) Life Science, and (3) Behavioral, Policy, and Health Sciences. The curriculum is designed to provide an interdisciplinary education in life, physical, or social sciences directed towards the understanding and the solution of today's environmental problems. For further information call Dr. John Suen, Geology Department, (559) 278-7888 or (559) 278-3086.

Math and Science Teacher Education

The college offers baccalaureate degree programs in mathematics and natural science that serve as waiver programs leading to the Single Subject Teaching Credential in Mathematics and Science. In science, a student can select the Single Subject Teaching Credential with an emphasis in Biology, Chemistry, Earth Science, or Physics. For more information, call Agnes Tuska (Math Education) at (559) 278-2992 or Dave Andrews (Science Education) at (559) 278-2001.

College of Science and Mathematics

Kin-Pong Wong, *Dean*
Science Building, Room 101
(559) 278-3936

B.A. in Natural Sciences

Biotechnology Certificate

Humans and the Natural Environment (HNE)

(18-unit thematic cluster)

A cluster of intensive field courses is presented at the introductory level. Concurrent registration in the four courses listed in this section is required. Fifteen of the 18 units of credit are applied to General Education requirements. This course of study (fall semester only) involves approximately one month of instruction in various field locations with significant time in several of the locations. A special fee of $300 is charged for transportation and food on field trips. For further information, contact the dean's office at (559) 278-3936.

BIOL 15	An Ecological Approach to Life Science (5)
GEOL 15	The Earth and Its History (5)
N SCI 15	Environmental Science (3)
S SCI 15	Humans in the Natural Environment (5)

Biotechnology Certificate Program

The college offers a one-year postbaccalaureate Certification of Advanced Study in Biotechnology. This intensive program of study emphasizes molecular biology and a wide range of laboratory skills at the forefront of modern biotechnology. The certificate program can lead to potential careers in expanding fields such as: drug and hormone production in the pharmaceutical industry, monoclonal antibody production for medical diagnostics, crop improvement, industrial bioprocessing, and medical research. The program also provides a strong background for advanced studies in biochemistry, molecular biology, and agricultural biotechnology. For further information, call Howard Ono (Chemistry) at (559) 278-2103 or Shirley Kovacs (Biology) at (559) 278-2001.

Marine Science

The college offers a Master of Science degree in Marine Science in cooperation with Moss Landing Marine Laboratories. The program at Moss Landing provides

*The B.S. in Environmental Science is pending approval.

extensive field and laboratory work for advanced study to prepare students for careers as marine specialists, scientists, and teachers. For further information, call the Biology Department at (559) 278-2001.

South Pacific Semester

Relying on the uniqueness of New Zealand and Australia, the college offers an intensive program of study during alternate spring semesters in biology and geology along with other disciplines such as art, business, and anthropology. Students will be required to enroll for a minimum of 15 units, most of which may be applied in satisfaction of some General Education requirements. When offered, this program, which has special subsistence and travel expenses for students, will be limited in size and will encompass dates not exactly coinciding with normal spring semester dates. For additional information and a brochure about this unique program, contact the dean's office at (559) 278-3936.

Preprofessional Programs

Preprofessional programs are available for students who plan to transfer to other institutions for the completion of professional curricula in such fields as medicine, veterinary medicine, dentistry, pharmacy, optometry, and chiropractic. For further information call:

Premedical
Lenore Yousef ..... (559) 278-2001
Predental
Fred Schreiber ..... (559) 278-2001
Preveterinary
Frederick Zechman ... (559) 278-2001
Prepharmacy
Howard Ono ..... (559) 278-2001
Preoptometry
Parameswar Hari ..... (559) 278-2371
Prechiropractic
Raymond Abhold ..... (559) 278-2001
Preosteopathic
Francisco Pineda ..... (559) 278-4748

Bachelor of Arts Degree Requirements

Natural Sciences Major

The Bachelor of Arts degree in Natural Sciences serves as a waiver program for the single subject teaching credential in Science. With the Science Credential, you are able to teach any introductory science class, i.e. earth, general, life, or physical science along with the courses in your chosen emphasis. For additional information, see the listing under the Biology, Chemistry, Geology or Physics departments or see the Science Credential Adviser, David Andrews, at (559) 278-2412.

	Units
Core requirements	**37-38**
Biology[1]	(12-13)
BIOSC 1A or BIOL 15[1], BIOSC 1B, BIOSC 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology[1]	(8)
GEOL 1 and 3 (or 15), GEOL 168	
Natural Science	(3)
N SCI 106	
Physical Science	(4)
P SCI 21	
Emphasis (select one)	**42-49**
Biology	(42-44)
CHEM 8 or 128A	(3)
PHYS 2A, 2B[2]	(8)
P SCI 168	(3)
MATH 70 or 75	(4)
MATH 101 or PSYCH 42	(4)
BIOSC 140A, 140B, 180	(10)
MICRO 140	(4)
Select one course: BOT 131, 132, 144; MICRO 171; ECOL 151, 152, 162; ZOOL 120, 141, 148, 150, 174, 177	(3-4)
Select one course: BOT 130; MICRO 161; PHYAN 151, 163	(3-4)
Chemistry	(42)
PHYS 2A, 2B[2]	(8)
P SCI 168	(3)
MATH 75	(4)
MATH 76	(4)
CHEM 128A	(3)
CHEM 102, 108, 128B, 129A, 139, 155	(20)
Earth Science	(52)
CHEM 8 or P SCI 168	(3)
PHYS 2A, 2B[2]	(8)
GEOL 12, 30, 100, 101, 102, 105, 106, 112, 155	(27)
Select two courses: GEOL 110, 114, 117, 124; GEOG 111	(6)
Physics	(45)
CHEM 128A	(3)
P SCI 168	(3)
MATH 75, 76, 77, 81	(16)
PHYS 4A, 4AL, 4B, 4BL, 4C	(11)
PHYS 102, 105A, 107A, 140	(12)
General Education	**51**
Electives and remaining degree requirements[3,4]	**0-6**
Total	**124**

Advising Notes for all Options within the Natural Sciences Major

1. BIOL 15 and GEOL 15 are part of the Humans and the Natural Environment Cluster. See the *Natural Science Interdisciplinary Courses* section in this catalog. GEOL 15 is equivalent to GEOL 1 and 3.
2. Substitutions may be made with the permission of the appropriate department chair. PHYS 4A-B-C with labs 4AL, 4BL is recommended instead of PHYS 2A-B for those students well-prepared for physics.
3. This figure takes into account that 9-12 units required for the major are expected to count toward General Education as follows: CHEM 1A (3 units), BIOSC 1A or BIOL 15 (3 units), GEOL 168 (3 units) and, depending on emphasis and choice, MATH 75 (3 units). Consult your major adviser for details.
4. Students should be sure to take sufficient upper-division units in their General Education courses and electives to satisfy the university requirement of 40 upper-division units for graduation.

COURSES

Natural Science (N SCI)

1. The Art and Practice 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. *CR/NC* grading only.

1A. Integrated Science: Physics and Chemistry (3)
Integrated science: basic concepts and misconceptions in physics and chemistry and their relation to the everyday environment. Memorable demonstrations in lecture, household-related experiments, and experiments of special interest to K-6 teachers. (2 lecture, 2 lab hours)

1B. Introductory Earth and Life Science (4)
Prerequisite: N SC 1A. General principles of earth science and biology with an emphasis on subjects appropriate to K-6 teacher

training. Applications to everyday experiences are emphasized. (3 lecture, 2 lab hours)

4. Science and Nonsense:
Facts, Fads, and Critical Thinking (3)
Use of language, thought, and logic in science, distinguishing science fact from science fiction. Inductive and deductive methods, judgment, opinion, belief, and knowledge. A critical examination of contemporary pseudoscientific issues (creation "science," UFOs, astrology, etc.) G.E. Foundation A3.

15. Environmental Science:
An Integrative Course (3)
Concurrent enrollment in BIOL 15, GEOL 15, and S SCI 15 required. Portion of *Humans and the Natural Environment* Cluster. A study of the interrelationships among the anthropological, biological, and geological aspects of man/woman and the natural environment. Team taught. *CR/NC* grading only. (HNE program field trip fee, $300)

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.

100. Chemistry for Liberal Studies (3)
Not open to engineering students. Prerequisite: completion of General Education Foundation and Area B Breadth requirements. Emphasizes chemistry as a process rather than a collection of facts, laws, and theories. Designed especially for students planning careers as elementary school teachers.

101. Biology for Liberal Studies (3)
Not open to engineering students. Prerequisite: completion of General Education Foundation and Area B Breadth requirements. Emphasizes biology as a process rather than a collection of facts, laws, and theories. Designed especially for students planning careers as elementary school teachers.

102. Physics and Astronomy
for Liberal Studies (3)
Not open to engineering students. Prerequisite: completion of General Education Foundation and Area B Breadth requirements. Introductory physics and astronomy with emphasis on hypothesis formation, analysis, and testing. Everyday observations and materials will be used to the extent possible to facilitate the transfer of concepts and techniques to the elementary classroom. (2 lecture, 2 lab hours)

106. Reigning Theories of Science (3)
Examination of historically important scientific theories from the perspective of science as a human enterprise. Role of philosophy, religion, culture, and nationalism in the acceptance/rejection of theories. Research paper, class presentation required.

110. Practicum in Medicine (2)
Prerequisite: permission of instructor. Offered in association with the UCSF Fresno Medical Education Program. Premedical students assigned in one or more clinical settings in the community. Emphasis on in-depth association with health professionals for clinical observation and biomedical research experience. (Spring semester)

115. Environmental Earth
and Life Science (3)
Prerequisites: completion of B1 and B2 General Education requirements. Environmental problems related to population, energy and resource use, and pollution. Examines social and ethical issues along with technological and scientific factors. Independent work on case studies required. G.E. Integration IB.

116. Energy, Technology,
and Society (3)
Not open to engineering students. Prerequisite: Integrated Science 1A and 1B. Examines the role that chemistry, physics, and technology play in our society. Designed especially for students planning careers as elementary school teachers.

120. Biotechnology
and Its Impact on Society (3)
Prerequisites: completion of B1 and B2 General Education requirements; courses in biology and chemistry (high school or college) strongly recommended. Introduction to the tools of modern biotechnology including recombinant DNA, gene therapy, cloning, monoclonal antibodies, DNA fingerprinting, and the Polymerase Chain Reaction (PCR). Addresses applications of biotechnology to medicine, agriculture, the environment, and forensics, as well as their ethical implications. G.E. Integration IB.

121. Blood (3)
Prerequisites: completion of B1 and B2 General Education requirements; courses in biology and chemistry (high school or college) strongly recommended. Introduction to blood, its chemical, physical, and biological aspects, as well as its connections to human affairs, both currently and historically. In addition, the unique properties, composition, and disorders of blood and blood circulation will be studied for applications to medicine and forensics. G.E. Integration IB.

125. Revenge of the Killer Microbes (3)
Prerequisites: completion of B1 and B2 General Education requirements; courses in biology and chemistry (high school or college) strongly recommended. Introduction to the adversarial relationships between disease-causing microorganisms and human affairs, both currently and historically. Explores the unique defense and counter defense mechanisms that have developed in a variety of microbes and the human immune system. Addresses health care issues related to disease prevention and control. G.E. Integration IB.

131. Biological Bases
of Neurological Disorders (4)
Biological mechanisms which underlie various neurological disorders. Nervous system structure and function will be presented as a basis for understanding pathology. Topics include multiple sclerosis, Alzheimer's disease, Parkinson's disease, language disorders, depression, obsessive-compulsive disorder, and schizophrenia. G.E. Integration IB.

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)

180. Practicum in
Secondary Science Teaching (2)
Concurrent enrollment in EHD 155B required; for single subject life/physical science student teachers. Application of best science teaching research; practice; emphasis on reflection/discussion of current teaching, effective management of students/time, authentic assessments, laboratory/curriculum resources, sheltered techniques, student motivators.

GRADUATE COURSE
Natural Science (N SCI)

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)

IN-SERVICE COURSE
Natural Science (N SCI)

380T. Topics in Natural
Sciences (1-4; max total 6)
Studies in the natural sciences integrating topics from biology, chemistry, geology, mathematics, physics, and psychology.

The College of Social Sciences

Social Science Building, Room 108
Ellen Gruenbaum, *Dean*, (559) 278-3013
http://www.csufresno.edu/SocialSciences/

The Mission of the College

The mission of the college is to seek and impart knowledge of human social experience in all its diversity in order to educate students and benefit humanity.

Understanding the world and our place in it requires a well-rounded education. Accordingly, the college seeks to instill a concern for human values and civic responsibility and to provide substantial knowledge drawn from the social sciences. Such values and knowledge can help a student respond effectively to many challenges and opportunities. Indeed, applications of the social sciences are needed today more than ever throughout the world.

As students advance in their knowledge of societies and cultures, including their own, they learn communication skills and gain valuable understanding of people from different backgrounds. Global awareness, together with an appreciation of relationships between society and nature, is a fundamental aspect of learning in the social sciences. The college teaches students to think clearly, critically, and analytically; this allows students to engage in the solution of complex social problems. Our graduates know the worth of practical as well as professional skills. They realize that careers can be pursued successfully only with the benefit of humanistic values and social/cultural insights. The college also fosters respect for human diversity and a sense of responsibility for the enlightened stewardship of the ecosystems of which we are a part. Thus we endeavor to prepare students to adapt both wisely and resourcefully to the ever-changing world.

The College of Social Sciences offers an array of undergraduate and graduate programs from historical inquiry to projections for our future.

As a leader in liberal arts education, the College of Social Sciences provides excellent preparation for a wide range of careers in academia, government, business, and many other venues in the public and private sectors.

The College of Social Sciences includes the departments of Anthropology, Chicano and Latin American Studies, Criminology, Economics, Geography, History, Political Science, and Sociology. African American Studies, American Humanics, American Indian Studies, Asian American Studies, Ethnic Studies, International Relations, Peace and Conflict Studies, Public Administration, and Women's Studies are programs of the college.

Anthropology

College of Social Sciences

Department of Anthropology
Roger M. La Jeunesse, *Chair*
Geraldine R. Morales, *Administrative Support Coordinator*
Peters Business Building, Room 389
(559) 278-3002
FAX (559) 278-5004

B.A. in Anthropology

Minor in Anthropology

Anthropology

Anthropology is concerned with everything that is human, in all parts of the world, both present and past. It is unique among the social sciences in its scope. Most disciplines focus only on modern civilization or concentrate on single aspects of life, such as government or the economy. Anthropology is interested in *all* human societies and views life as a complexly integrated whole that is more than the sum of its parts. It is the human experience as a whole that anthropology seeks to understand.

The breadth of anthropology is reflected in its four subfields. *Physical anthropology* studies biological evolution and how heredity conditions the ways we conduct life. *Cultural anthropology*, by studying the enormous diversity of lifeways in contemporary cultures throughout the world, attempts to explain both differences and similarities in the way different peoples carry out the process of living. *Archaeology* explores the human past far beyond the range of written records, using specialized techniques to probe human prehistory. *Linguistic anthropology* investigates the nature of language and the critical role it has played in developing our unique intellectual capabilities and behavior. The central concept in anthropology is "culture," and it is this vital idea which binds the subfields into an integrated discipline.

Our program has three goals:

- to provide students with a clear conception of human variability and its implications, enabling them to understand and deal with lifestyles other than those of "mainstream America;"
- to provide students with the broad intellectual skills that are essential to the widest range of professional careers; and
- to prepare students to use anthropological concepts in both applied and research careers.

Both the anthropology major and minor offer a varied but well-structured exposure to all four subfields of the discipline. The major consists of two parts. The *core curriculum* introduces both data and theory in a logical sequence of courses from basic to advanced and includes an introduction to anthropological fieldwork. The four degree tracks are intended to prepare students for specific careers in the following areas: education, cultural resources management, social services, or post-secondary teaching. The minor is a briefer but balanced survey of the discipline, designed to complement any major whose graduates need to understand and deal with people from different cultural backgrounds.

The faculty is committed to working closely with students to encourage their intellectual growth and the development of skills that are both personally satisfying and in demand by employers in many career settings. Anthropology courses, especially at the advanced level, teach students to read critically, write fluently, organize information cogently, and interrelate ideas logically and creatively.

Career Opportunities

Career opportunities for anthropology graduates are increasingly numerous and varied because cultural pluralism and international communication are on the increase. There is a growing need for people with cross-cultural sophistication and an ability to mediate between value systems. Graduates of our department have established successful careers in such fields as personnel work, mental health, social research, education, law enforcement, business, government, and medicine.

Students who contemplate graduate study, whether in anthropology or another field, find that our program is both rigorous and thorough. In fact, anthropological training at the undergraduate level is widely recognized as excellent preparation for advanced degrees in many professional fields. Graduates of this department have completed graduate programs in medicine, law, social work, international business, and international relations, to name a few.

Enterprising anthropologists throughout the nation have been remarkably successful in securing high-level positions in both government and business, usually under titles other than "anthropologist." These successes indicate that employers at the highest levels appreciate the unique training and capabilities of professional anthropologists. Imaginative anthropologists who can communicate their special abilities should be able to establish rewarding careers in a variety of settings.

Special Resources and Facilities

Directed by professors Ludwig and Pryor, the Anthropology Department provides data collection, analysis, and student training in both archaeological and ethnographic studies. Advanced students may also pursue specialized training and research into the chemical composition of archaeological materials in our chemistry laboratory, which is under the supervision of Professor LaJeunesse. C. Kristina Roper manages our contract archaeology program, which provides students with practical experience in public archaeology.

Faculty

Roger M. La Jeunesse, *Chair*

Franklin Ng, *Coordinator for Asian American Studies*

Ellen Gruenbaum
Shien-min Jen
Mary A. Ludwig
John H. Pryor

Bachelor of Arts Degree Requirements

Anthropology Major — *Units*

Major requirements[1] 34

A. *Core curriculum* ..... (19)
(required of all majors)
ANTH 1 ..... (3)
ANTH 2 ..... (3)
ANTH 3 ..... (3)
ANTH 100 ..... (3)
ANTH 101 ..... (3)
ANTH 104 ..... (3)
ANTH 195 ..... (1)

Select one of the following tracks:
The Anthropology major consists of four possible tracks, each intended for a specific career area. The faculty intends that students, in consultation with their advisers, will select the track that best meets their career needs.

- *Graduate School Track* ..... (15)
  Three classes within the student's area of concentration (e.g., cultural, physical, or archaeology) ..... (9)
  Two classes, one in each of the remaining subdisciplines (e.g., an archaeology student would take one cultural and one physical course) ..... (6)
  Electives
- *Social Services Track* ..... (15)
  ANTH 105W ..... (3)
  ANTH 116W ..... (3)
  ANTH 120 ..... (3)
  One course on a topic or geographic area (e.g., Folk Medicine, East Asia) ..... (3)
  ANTH 193 ..... (3)
  Electives
- *Cultural Resources Management Track* ..... (15)
  ANTH 145 ..... (3)
  And any four of the following:
  ANTH 116W ..... (3)
  ANTH 120 ..... (3)
  ANTH 140 ..... (3)
  ANTH 141 ..... (3)
  ANTH 143 ..... (3)
  ANTH 159T ..... (3)
  ANTH 193 ..... (3)
- *Education Track* ..... (15)
  ANTH 105W ..... (3)
  One cultural class .... (3)
  One physical class ... (3)
  One archaeology class ..... (3)
  ANTH 193 ..... (3)
  Electives

B. *Elective curriculum*
Courses that supplement the student's area of interest are highly recommended; consult adviser.

General Education 51

Second major, electives, and remaining degree requirements[2,3]* 39-46
(See *Degree Requirements*); may be used toward a dual major or minor

Total 124

Advising Notes

1. *CR/NC* grading is not permitted in the anthropology major or minor.
2. Units in this category as well as in General Education, may also be applied toward a dual major or minor, as appropriate. (See *Dual Major* or departmental minor.)
3. Students must complete 40 upper-division units as part of the requirements to earn a B.A. degree.

*This figure takes into consideration that a maximum of 6 units of ANTH 1, 2, and 3 are anticipated to also meet General Education requirements. Consult the anthropology department chair or faculty adviser for further information.

Anthropology Minor

Units

Minimum requirements
(See *Note 1.*)

A. *Core curriculum* **12**
ANTH 1 ..... (3)
ANTH 2 ..... (3)
ANTH 3 ..... (3)
ANTH 100 ..... (3)

B. *Elective curriculum* **6**
Two upper-division courses ..... (6)

Total 18

Asian American Studies

Asian American courses familiarize students with the historical, socioeconomic, and cultural adaptations that peoples from Asia make when coming to 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 dealing with human behavior. For more information, see *Asian American Studies*.

Minor and Certificate in Southeast Asian Studies

A minor and a certificate in Southeast Asian Studies are offered at this university. The requirements for both the minor and the certificate are listed under the Asian American Studies Program.

COURSES

Anthropology (ANTH)

A. THE CORE CURRICULUM

1. Introduction to Physical Anthropology (3)
This course examines the biological basis of being human. It compares us with our primate relatives, traces the evolution of our species from 4 million-year-old australopithecines, and accounts for the great anatomical and biochemical diversity among modern human populations. (CAN ANTH 2)

2. Introduction to
Cultural Anthropology (3)
Examines the nature of culture, humanity's unique mechanism for adapting to the changing environment. Explores the varieties of human life and explains how culture has made possible the range of different and successful societies, from hunters and gatherers to industrial civilization. G.E. Breadth D3. (CAN ANTH 4)

3. Introduction to Prehistory (3)
An exploration of human prehistory as revealed by the archaeological record. Traces the evolution of culture, from its earliest expression in crude stone tools more than 2 million years old, through the emergence of agriculture and the first civilizations. G.E. Breadth D3. (CAN ANTH 6)

30. Critical Thinking in Anthropology (3)
Distinguish belief vs. knowledge and fact vs. opinion; examine relationship between language/logic; use inductive/deductive reasoning; recognize informal/formal fallacies; appreciate socio-cultural context of critical thinking. These skills are applied to topics of race/intelligence, religion/values, and social policy. Skills demonstrated/assessed through oral and written performance. G.E. Foundation A3.

100. Concepts and Applications (3)
This foundation course demonstrates the use of selected core concepts within the context of a defined research project which the students carry out during the semester. Acquaints students with the conceptual framework of the discipline and the basic processes of anthropological inquiry. (Formerly ANTH 103)

101. Fieldwork in Anthropology (3)
Prerequisite: ANTH 100 or permission of instructor. An introduction to the role, the theory, and the rudimentary techniques of fieldwork in archaeology and ethnology. The class involves some field trips, which may include weekend sessions.

B. CULTURAL CURRICULUM

102. Introduction to
Linguistic Anthropology (3)
Prerequisite: ANTH 1 or 2. A compendium of current thinking on language from a variety of interdisciplinary perspectives. Discusses brain functions and language process in human and nonhuman communication systems, and the roles of language in human evolution, behavior, and thought.

104. History and
Theory of Anthropology (3)
Prerequisite: ANTH 2. A history of the growth of anthropological thought through an analysis of the informational and explanatory powers of five major theoretical schools: Nineteenth-century Evolutionists, British Functionalists, Boasian Historical Particularists, Neo-Evolutionists/Marxists, and Cognitivists.

105W. Applied Anthropology (3)
Examination and assessment of the use of anthropological data and concepts to address contemporary issues in education, health care, law, environmental planning, and social services. Students work on applied problems and write observations, plans, reports, and research documents geared to the needs of professionals, service providers, and particularly planners in modern institutional contexts. (Formerly ANTH 144W)

115. Ethnography (3)
An examination of contemporary issues in anthropology based on evidence from both classical and modern ethnographies. Considers strategies of qualitative research and reporting, including ethics and the application of enthographic research in modern societies. (Formerly ANTH 129T)

116W. Anthropology of Religion (3)
Prerequisites: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement, to be taken no sooner than the term in which 60 units are completed; ANTH 2. Examines the patterned belief systems of the world's tribal, peasant, and sectarian societies. Stresses the role of religion in individual and group perception, cognition, ritual, and social organization. Topics include myth, magic, shamanism, mysticism, witchcraft, trance, hallucinogens, and cultism. Meets the upper-division writing skills requirement for graduation. G.E. Integration ID. (Formerly ANTH 150W)

117. Folk Medicine (3)
Prerequisite: ANTH 2. A cross-cultural examination of health practices and of the cultural assumptions and attitudes on which they are based. Reviews ethnomedicine, ethnopsychiatry, and epidemiology in the health care systems of non-Westerners and of ethnic communities in pluralistic America. (Formerly ANTH 155)

118. Women: Culture and Biology (3)
(Same as W S 170.) Prerequisite: ANTH 1 or 2. A cross-cultural and interdisciplinary analysis of the determinants of female statuses and circumstances. Examines theories, including biological and cultural determinism, which explain variations in the expression of sexuality, maturation, reproduction, and the life cycle. (Formerly ANTH 170)

119. Law and Culture (3)
A comparative, holistic perspective on the evolution of law. Examines its natures and origins, the basic assumptions behind legal systems, their cross-cultural expression and effects, and the directionality of legal evolution. (Formerly ANTH 146)

120. Ethnic Relations and Cultures (3)
Prerequisite: ANTH 2 or permission. The cultural and social origins of ethnicity, and its opportunities and problems for contemporary mass societies. Offers a critical review of major theories on ethnic politics, economics, and ideology in the light of cross-cultural evidence. G.E. Multicultural/International MI. (Formerly ANTH 172)

123. Peoples and
Cultures of Southeast Asia (3)
Prerequisite: ANTH 2. An introductory survey of the cultural and historical adaptations of societies in Burma, Thailand, Laos, Cambodia, and Vietnam; and of Insular societies in Indonesia, Malaysia, and the Philippines. Examines the major effects of culture contact between East and West.

124. Peoples and
Cultures of East Asia (3)
Prerequisite: ANTH 2. Examines cultural pluralism. Considers cultural adaptations and change among minorities such as Moslems, Tibetans, and Mongolians in China, and ethnic groups of Japan and Korea. Outlines kinship, religion, organization, and technological factors in the Asiatic culture complex.

125. Tradition and Change
in China and Japan (3)
(Same as HUM 140.) Examines the current aspirations and problems of the Chinese and Japanese in terms of their traditional cultures, and explains how their histories, values, world views, and intellectual traditions affect their lifestyles and their international relations today. (Formerly ANTH 186)

126. Cultures and Foods of East Asia (3)
(Same as ASAM 151.) Treats cuisine as a systematic product of the interaction between culture and ecology. Focuses on sociocultural rather than bio-nutritional factors in the preparation and ritual implications of food in Mainland and Insular Asia. Students learn to prepare and serve a variety of Oriental dishes. (Formerly ANTH 181)

130. Peoples and Cultures of the Southwest (3)
Prerequisite: ANTH 2. A survey of Native American cultures of the Southwestern United States and Northwestern Mexico from their prehistoric origins to the present. Emphasis is placed on cultural continuity and change during the past 400 years of contact with western culture. (Formerly ANTH 127)

138T. Topics in Cultural Anthropology (1-6; max total 12 if no topic repeated)
Prerequisite: varies with title. Special studies in the theory and practice of organized cooperation and conflict in nature and culture. (Formerly ANTH 149T)

C. ARCHAEOLOGY CURRICULUM

140. Contemporary Archaeology (3)
Prerequisite: ANTH 3 or permission of instructor. Examines archaeological theory (both historical and contemporary) as well as methods and techniques used by archaeologists to gather, analyze, and interpret data. (Formerly ANTH 106)

141. Prehistory of North America (3)
Prerequisite: ANTH 3. Traces the development of Native American cultures from the Arctic to Mesoamerica, from the peopling of the continent to early historic times. Examines the archaeological evidence for the antiquity, spread, and variation of cultural adaptations to changing ecological conditions. (Formerly ANTH 131)

142. Old World Prehistory (3)
Examination of current knowledge of the prehistory of one area of the Old World. Chronologies, current findings, and important issues in theory method are reviewed. Consideration of these matters in relation to work in archaeology throughout the world and to work in closely related disciplines such as biology and geology. Some historic archaeology may also be included. Areas include Europe, Asia, the Middle East, Africa, and Australia. (Formerly ANTH 132)

143. Archaeology and Prehistory of California (3)
Prerequisite: permission of instructor. Origins and prehistory of the California Native Americans. Examination of the archaeological record, both statewide and regionally, with emphasis on adaptations to natural and social environments from 12,000 B.P. until early historic times. (Formerly ANTH 139T)

145. Cultural Resources Management (3)
Prerequisite: permission of instructor. Provides an in-depth overview of historic and prehistoric cultural resources (districts, sites, buildings, and objects), their significance, and their management in the U.S. Topics include the legal context for CRM, identifying and evaluating cultural resources, assessing effects, treatment planning, and careers in CRM. G.E. Integration ID. (Formerly ANTH 139T)

159T. Topics in Archaeology (1-6; max total 12 if no topic repeated)
Prerequisite: varies with title. Special studies in archaeological methods, techniques, history and theory, or of prehistoric culture areas not covered in the regular curriculum. (Formerly ANTH 139T)

D. PHYSICAL ANTHROPOLOGY CURRICULUM

161. Bio/Behavioral Evolution of the Human Species (3)
Prerequisite: General Education Area B2 lower division requirement. Examines the evolution of the human species and its relationship to living and extinct primates. Explores the biological basis of human culture. Integrates evolutionary biology, geochronology, and anthropology in order to understand the bio/behavioral nature of modern man. G.E. Integration IB.

162. Primates (3)
Prerequisite: ANTH 1. An introduction to the study of primate biological and behavioral evolution. Explores sociobiological theory in order to explain the unity and diversity of social behavior in prosimians, monkeys, and apes.

163. Human Variation (3)
Prerequisite: ANTH 1. A cross-cultural examination of variations in human morphology, physiology, and biochemistry. Establishes the correlation between variations in human biology and variations in climate, culture, nutrition, and disease.

164. Human Osteology (3)
Prerequisite: ANTH 1. Introduces a range of analytic techniques for extracting information from human skeletal remains: sexing and aging, osteometry, odontometry, the examination and diagnosis of epigenetic traits and pathological lesion, and the statistical interpretation of skeletal data.

169T. Topics in Physical Anthropology (1-6; max total 12 if no topic repeated)
Prerequisite: ANTH 1. Special studies of the discovery and interpretation of information in physical anthropology, and of the application of this subdiscipline in legal, medical, and scientific research.

E. ADVANCED STUDY CURRICULUM

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Directed Readings (1-3; max total 3)
Prerequisite: normally open only to students who have completed the core curriculum. Supervised reading on a student-selected topic outside the regular curriculum, conducted through regular consultation with a faculty sponsor.

193. Internships in Anthropology (1-6; max total 6)
Prerequisite: ANTH 1 or 3. Interns will work on a variety of tasks involving the analysis and curation of archaeological collections; design and curation of museum displays; the collection and analysis of physical anthropological data, including working with primates at local zoos; and ethnographic data collection. (Formerly ANTH 109)

194. Honors Thesis (1-3; max total 3)
Prerequisites: normally open only to students who have completed the core curriculum and who maintain a GPA in anthropology of at least 3.5. Development of a student report or paper into a manuscript of professional and publishable quality. Requires approval by an Honors Committee of three faculty members. (Formerly ANTH 199)

195. Colloquium (1)
Each spring semester students and department faculty will meet three times to discuss current problems in the field of anthropology. These three hour seminars will be led by a faculty member. Students will be expected to do all assigned readings and complete a paper on one of the topics discussed.

197T. Current Topics in Anthropology (1-6; max total 12 if no topic repeated)
Subject matter of these courses combines topics from the various subfields of anthropology, providing the student with a more integrated view of the discipline.

Asian American Studies

The Program

The Asian American Studies Program offers a minor with classes that focus upon the history and contemporary experience of Asians in the United States. These courses explore themes in local and ethnic history, trans-Pacific contact, cultural change and adaptation, and interethnic relations. Those who major in business, social science, international relations, and the human service professions recognize their relevance.

Asian American Organizations

The Asian American clubs on campus welcome new members. For further information about the Asian American Studies Program, contact the coordinator at (559) 278-3002, or write to:

Asian American Studies Program
c/o Department of Anthropology
California State University, Fresno
Fresno, CA 93740

Asian American Studies Minor

The following minor requirements must include at least 9 upper-division units.

	Units
Elect from ANTH 2, ASAM 110, ETH S 1	**6**
Elect from ASAM 15, 30, 56	**6**
Elect from ASAM 150, 180T; ANTH 123, 124	**9**
Total	**21**

Minor and Certificate in Southeast Asian Studies

The Minor and the Certificate in Southeast Asian Studies focus on the cultures and peoples of Southeast Asia, and on their communities outside Southeast Asia, especially those in the United States. For further information contact Dr. Shien-min Jen or Dr. Franklin Ng, Department of Anthropology, at (559) 278-3002.

Southeast Asian Studies Minor

The Minor in Southeast Asian Studies requires at least 21 units.

	Units
Lower-division courses ASAM 15, S SCI 17[1]	**6**
Language courses (Pre-approved by coordinator) HMONG 1A-B, 4, 100, 101; LING 40T	**6**
Upper-division courses ANTH 123, 190; ASAM 110, 138, 140, 190; GEOG 177T; LING 190; S WRK 181	**9**
Total	**21**

Certificate in Southeast Asian Studies

The Certificate of Southeast Asian Studies requires a minimum of 12 units. Choice of upper-division courses:

ANTH 123, 190; ASAM 110, 138, 140, 190; GEOG 177T; HMONG 100, 101; LING 190; S WRK 181

COURSES

Asian American Studies (ASAM)

15. Introduction to Asian Americans (3)
Historical, social, and psychological factors in the changing status and identity of Americans from Asia. Examines variables such as cultural heritage, family organization, intergenerational conflict, and the experience of racism in the changing world of Asian Americans. G.E. Breadth D3.

30. Japanese Americans in the United States (3)
A survey of social adaptations and cultural changes among Japanese Americans in different communities such as California and Hawaii. Considers identity, marginality, acculturation, and cultural traditions in Japan and in American communities.

56. Chinese Americans in the United States (3)
A survey of social adaptations and cultural changes among Chinese Americans in such places as California, Hawaii, and New York. Considers identity, marginality, acculturation, and cultural traditions in China and in American communities.

110. Asian American Communities (3)
A multidisciplinary study of Asian American communities and their relations with the larger society. Analyzes values, lifestyles, processes of group identity and boundary maintenance, social organization, and cultural change. Examination of Chinese, Japanese, Filipino, and other Asian American subcultures. G.E. Multicultural/International MI.

138. Asian American Women (3)
Addresses race, ethnic, and class issues from the vantage point of Asian American women. For Asian American and Southeast Asian communities, the status of women has long been neglected. Yet women play an important role in the family and its economy even as they enter new roles in U.S. society. Helpful to students in sciences and applied fields.

140. Asian American Immigrants and Refugees (3)
Since the Immigration Act of 1965 the Asian American population has grown dramatically. This course focuses on recent issues that are facing new arrivals and supplements a history of Asian American communities (e.g., ASAM 110). Useful to students in education, social work, health sciences, the social sciences, and many other fields. (Formerly ASAM 180T)

150. Asian American Expression (3)
The study of Asian and Asian American literature, art, music, and drama. Examines the role of creative expression as a way of understanding changing views of ethnicity and community identity.

151. Cultures and Foods of East Asia (3)
(See ANTH 126.)

180T. Topics in Asian American Studies (3; max total 6)
Prerequisites: ASAM 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

195. Diversity in the United States: Race and Gender Issues (3)
(See CLS 195.)

[1] Interdisciplinary course designed to introduce students with no previous background to the understanding of multiculturalism and ethnic diversity in mainland Southeast Asia. Using a contemporary historical and socioeconomic framework, this course examines concepts of ethnic identity, gender relations, nation states, ethnic conflicts, war and global conflict, diaspora, and transnationalism.

College of Social Sciences

Department of Anthropology
Franklin Ng, *Coordinator*
Peters Business Building, Room 389
(559) 278-3002

Minor in Asian American Studies

Minor in Southeast Asian Studies

Certificate in Southeast Asian Studies

Chicano and Latin American Studies

College of Social Sciences

Department of Chicano and Latin American Studies
Luz Gonzalez, *Chair*
Social Science Building, Room 211
(559) 278-2848

B.A. in Chicano Studies

Minor in Chicano/Latino Studies

Minor in Latin American Studies

BCLAD Emphasis Program

Chicano and Latin American Studies

Chicano and Latin American Studies (CLS) is an interdisciplinary department that has been successful in presenting a highly informed, active, and challenging view of the Chicano/Latino experience in the United States and in U.S./Latin American relations. Chicano and Latin American Studies provides an opportunity for a pluralistic exchange of ideas in an interdisciplinary academic setting, where faculty, students, and visiting Chicano and Latin American scholars can share experiences and create a dynamic, intellectual environment.

The Chicano and Latin American Studies Department is designed to meet the following objectives:

1. to promote an awareness of the historical and cultural roots of Chicanos/Latinos in the United States
2. to enhance an understanding of Latin America
3. to cultivate an appreciation of ethnic and national differences among all people
4. to critically analyze the Chicano and the Latin American experience in terms of significant issues, theories, current problems, and solutions, and
5. to provide students with a set of important professional skills to be utilized as they interact creatively and constructively with Chicano/Latino communities.

The department emphasizes an interdisciplinary approach to the study of family life, history, politics, culture, and the arts of Chicano and Latin American communities. The courses reflect an integrated approach

in providing students with greater knowledge and understanding of the essence and diversity of Chicanos and Latin Americans.

Faculty and Facilities

The Chicano and Latin American Studies Department consists of faculty whose teaching and research expertise cover a broad spectrum, including anthropology, education, history, sociology, political science, and the arts. The department administers the Chicano Research Center that is engaged in research and community development and serves as a training center for students. The offices of the department also serve as a resource center for many of the Chicano/Latino student organizations and as an information center for the community.

Career Opportunities

Chicanos and other Latinos will soon be the largest ethnic group in California. Demographers estimate that in California 40 percent of the population will be of Mexican or Latino ancestry by the year 2030. This segment of our population will have a major impact on our society, as its presence translates into an increasing economic and political influence. Crucial social, economic, and political decisions will be made that affect this group and the nation at large. The growth of Latino-owned businesses, Spanish language media networks, and political organizations are all indicators of the importance of the Spanish-speaking people in the U.S. economy.

Chicano Studies majors are trained to analyze social issues, to think critically, and to conduct research. All majors receive applied as well as theoretical training, by serving an internship with a school or community agency to observe firsthand the social issues and theories which they study. These skills are useful in professional life and are valued in the public and private sectors.

Students of non-Latino origin find that Chicano and Latin American Studies courses are personally rewarding because they enable them to understand and relate to persons of different social and cultural backgrounds. Chicano and other Latino students find these courses highly conducive to strengthening their sense of identity and pride in their heritage.

Students who graduate with a B.A. in Chicano Studies or minor in Chicano/Latino Studies or Latin American Studies work in such fields as education, public administration, psychology, marketing, journalism, social services, and throughout the public and private sectors. Physicians, educators, lawyers, counselors, civil service employees, and other professionals have found that training in Chicano and Latin American studies improves their abilities to serve their clients and enhance their employment and advancement opportunities.

Students with a B.A. in Chicano Studies can enter master's or doctoral programs in the humanities and social sciences and in professional schools in such areas as Chicano studies, ethnic studies, anthropology, political science, history, public administration, social work and education. Also, students are encouraged to pursue dual majors; one in Chicano Studies and the second in a professional area of their preference. Students with questions related to their future careers or seeking advising assistance should consult with the major and minor advisers of the Chicano and Latin American Studies Department.

Faculty

Luz Gonzalez, *Chair*
Manuel Figueroa-Unda
Juan Felipe Herrera
Ernesto A. Martinez
Carlos Perez
Victor Torres

Bachelor of Arts Degree Requirements

Students are strongly encouraged to pursue a dual major and can take the Chicano Studies either as a primary or secondary major. Chicano Studies majors and dual majors are required to see a CLS adviser during their first semester on campus.

Chicano Studies Major	*Units*
Major requirements	**33**
Lower-division requirements	(6)
Basic Content:	
CLS 3 or 5 (see *note 1*)	(3)
Latin America:	
CLS 70 or 72	(3)
Upper-division requirements	(21)
U.S.-Mexico Relations:	
CLS 114 or 115	(3)
Political and Economic Issues:	
CLS 126 or 128	(3)
Arts and Humanities:	
CLS 100, 101, 106 or 108	(3)
Research Methods:	
CLS 142 or 116	(3)
Family and Gender:	
CLS 152, 160 (see *note 1*) or 162	(3)
Education:	
CLS 141 or 143	(3)
Community Service/ Senior Project:	
CLS 145	(3)
Approved electives	(6)
Consult your adviser.	
General Education	**51**
Electives and remaining degree requirements*	**40-43**
It is recommended that units in this area be utilized to complete a second major or minor. See *Degree Requirements*.	
Total	**124**

*This figure is based upon anticipated double counting of some courses for both General Education and the major.

Advising Notes

1. Contact the department chair or CLS adviser for list of approved electives. A maximum of 3 units from CLS 106, 107, 108, 145, and 180T can be used to fulfill 3 units of electives, but students must secure proper and final approval from the department chair or CLS adviser.
2. Consult your adviser or the *Schedule of Courses* to determine what CLS courses also meet General Education requirements.
3. If the Chicano studies major is taken as a second major, CLS courses taken to complete General Education Integration requirements also can be used to satisfy major requirements.
4. Chicano studies majors are not permitted to take CLS courses by *CR/NC* grading (unless the courses are only offered on that basis).
5. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or other departmental minor). Consult the appropriate department chair, program coordinator or faculty adviser for further information.
6. Students who are planning to do graduate work in Chicano or Latin American studies are advised to study Spanish and/or Portuguese.
7. Liberal Studies/BCLAD students may take CLS 145 in lieu of EHD 50 or EHD 115, but not both.

Dual Major in Chicano Studies

A dual major in Chicano studies must have prior and final approval of the Chicano and Latin American Studies Department. Students must see a CLS adviser to plan their dual major programs. The dual major consists of 24 units of CLS courses, 12 of which must be upper-division. The CLS adviser, in consultation with the student, will select and approve courses that compliment the student's primary major.

Minors

The Chicano and Latin American Studies Department offers two minors — one in Chicano/Latino Studies and one in Latin American Studies. Students intending to pursue a minor in either area must see a CLS adviser. The CLS adviser must approve the selected courses.

Chicano/Latino Studies

Students are encouraged to focus on an area of interest in Chicano/Latino studies or on a social issue affecting the Chicano/Latino population in the United States. General Education can be double-counted for the minor. However, CLS courses used to satisfy major requirements cannot be used to satisfy requirements for the minor.

	Units
Lower division: CLS 3, 5, and 7 or 9	**9**
CLS upper-division or acceptable substitutes	**12**
Total	**21**

Latin American Studies

Students are encouraged to focus on an area of interest in Latin America, such as a country, region, or social issue affecting a particular region. The Latin American Studies Minor is an interdisciplinary program consisting of courses dealing with Latin America and the Caribbean with course offerings from several departments.

	Units
Lower division: CLS 3, 70, 72	**9**
Acceptable substitutes approved by a CLS adviser include HIST 3 or 8, HUM 14	
Upper-division courses	**12**
Select from CLS 112, 114, 115, 180T*, 190*; AF AM 130T*; ART H 173, 175; ECON 114, 178, 179, 181, 188T*; ETH S 130T*; F L 125, 143, 145, 147, 148T*, 240T*; GEOG 170T, 172, 188T*; HIST 145, 160, 162, 165, 166, 169T, 183, 198*; INTD 130; PHIL 132; PL SI 121, 126, 146T; W S 135	
Total	**21**

Advising Notes

*1. Special topics or directed reading courses must have subject matter dealing with Latin America, the Caribbean, or must focus on issues affecting those areas.
2. Courses taken to complete major requirements *cannot* be double-counted for the minor.
3. Courses taken to complete General Education Integration requirements *can* be double-counted for the minor.
4. Other acceptable courses can be substituted to satisfy minor requirements with approval of your CLS adviser.

Credential Program for Liberal Studies Students

The Bilingual Cross-Cultural Language and Academic Development (BCLAD) Emphasis program has replaced the Bilingual/Cross-Cultural Credential program. BCLAD will authorize teachers to provide academic instruction to limited-English proficient student in the primary language. See a CLS adviser for specific details.

COURSES

Chicano and Latin American Studies (CLS)

3. Introduction to Chicano/Latino Studies (3)
Introduction to the historical and contemporary experiences of Chicanos and other Latinos in American society. Their contributions to the United States and their current economic, political, and social status are discussed. G.E. Breadth D3.

5. Chicano Culture (3)
A historical examination of Chicano culture from the pre-Columbian period to the present. The customs, values, belief-systems, and their symbols are analyzed; important events and changes occurring through time are emphasized.

7. Music of Mexico and the Southwest (3)
A study of Mexico's musical culture starting from its pre-Columbian origins to the present and its impact on contemporary Chicano music.

9. Chicano Artistic Expression (3)
Introduction to Chicano artistic expression, with special attention to cultural continuity and change; the interrelationships between popular music, dance, drama, literature, and the graphic arts are analyzed. G.E. Breadth C1.

20. Freshman Seminar for Minority Students (3)
Open to freshmen and transfer students. Designed to further student development in such areas as study skills, writing, oral presentations, and interaction with other students and faculty. Students are assigned a faculty mentor.

42A. Introduction to Chicano-Latino Literature and Resources (3)
University Migrant Services students have first priority; other students may receive priority status by permission of instructor. Introduces students to the professional literature on Chicano-Latino communities. Focuses on the use of library resources; identifying and analyzing problems in specific areas of research; interpretation of existing research findings; preparation of research paper. (Formerly CLS 180T section)

42B. Introduction to Chicano-Latino Research Methods (3)
Prerequisite: CLS 42A or permission of instructor. Introduces students to basic research methodologies and theories pertaining to Chicano/Latino communities. Focuses on identifying specific areas in need of further research; locating and formulating problems; basic techniques including methods of observation, gathering, and analysis of data; interpretation of data; access database programs; preparation of research paper. (Formerly CLS 180T section)

70. Introduction to Latin American Studies (3)
A basic overview of Latin America; its nations, history, problems, and realities. Theoretical paradigms utilized to analyze Latin American issues are discussed.

72. Latin American Creative Expression (3)
Provides students with an understanding of the cultural history and contributions of Latin American nations. The art and writings of individuals such as Diego Rivera, Pablo Neruda, Gabriel Garcia Marquez, and Isabel Allende are explored.

100. Chicano Literature (3)
An interpretive analysis of written Chicano literature: poetry, drama, short story, novel, and essay. The relationship between literature and a changing Chicano sociocultural environment is explored.

101. Chicano Art (3; max total 6)
Chicano Studio Arts, including various media such as oil, ceramics, weaving, sand painting, and murals that relate to the heritage of the Chicano. Special emphasis on individual development of artistic and technical expression.

103. Chicano Folklore (3)
An analysis of Chicano folklore and its relationship to earlier Indo-Hispanic antecedents. Emphasis is placed on the folk arts: verbal, material, and musical as well as folk beliefs and practices, as these have been modified by intercultural contact.

106. Folkloric Dance (3; repeatable up to 12 units)
History and performance of Mexican folk music and dance; Indian, African, Spanish, and European influences; contemporary relationships to Chicano culture.

107. Latino Dance (2; max total 4)
Examination of origins, composition, and performance of various types of Chicano/Latino music and dance: boleros, huapangos, cumbias, chachas, salsa; emphasis on contemporary and cross-cultural influences in Chicano/Latino music-and-dance. *CR/NC* grading only.

108. 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.*

112. Pre-Hispanic Civilizations (3)
Historical examination of the origins of the Maya-Aztec civilizations in Meso America until 1521. The values, social organization, religion and their daily lives, technological and scientific achievements will be examined.

114. Mexico and the Southwest 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 United States after the Treaty of Guadalupe Hidalgo.

115. Mexico-U.S. Relations Since 1910 (3)
Historical perspective of the changing relationship between Mexico and the United States during the 20th century. Analysis of the Mexican Revolution, the Great Depression, World War II, immigration, and their impact on Mexico-U.S. relations. Special emphasis on status of Mexicanos/Chicanos in the United States.

116. Cultural Change and the Chicano (3)
Prerequisite: CLS 5 for CLS majors; CLS 5 recommended for CLAD/BCLAD students. 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.

123. Business Development in Minority Communities (3)
Business and economic development in minority communities and their relationship to the wider economic and social systems.

126. Chicanos in the U.S. Economy (3)
Historical analysis of the Mexicano's relationship to American economy. The transformation of the Chicano/Mexicano from rural, agricultural laborer to urban, industrial worker; special emphasis on immigration, the development of dual labor markets, and their effects on Chicanos.

128. Contemporary Political Issues (3)
Political philosophies, goals, and strategies of Chicanos and Latinos as reflected in their attempts to gain political power.

129. Chicano/Latino Leadership (2)
Provides students with important leadership skills, organizational and decision making abilities. It includes an internship with a campus or community agency and enables students to take a more active role in the community.

141. The Chicano and the Educational System (3)
Exploration of the sociohistorical development of public education in the southwest, with special emphasis on the Chicano experience. Topics include segregation/desegregation, institutional racism, and equality of opportunity.

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.

143. Bilingual/Bicultural Education (3)
Prerequisite: CLS 116 for CLS majors; CLS 116 recommended for CLAD/BCLAD students. Investigation into what it means to be bilingual and bicultural; review of programs scaled toward a more meaningful education for the Chicano child. (Bilingual Education majors see department chair for further prerequisites.)

145. Fieldwork in Community Settings (3; max total 6)
Prerequisite: CLS 3; for CLS majors and recommended for BCLAD students. Supervised placement in community and educational settings. Provides a variety of learning experiences in community agencies, organizations, or educational institutions. (Liberal Studies Program and BCLAD students, see *Advising Notes*.)

152. The Chicano Family (3)
(Same as W S 152.) Traditional and changing relationships in the family structure of the Chicano; interaction with wider institutional social system.

154. The Chicano Child (3)
General psychological principles and theories of growth and development and their applicability to the Chicano child.

156. 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.

158. 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.

160. Sex, Race, and Class in American Society (3)
Focuses on ethnic identity and gender and their interrelationship with socioeconomic class structure in American society. Sexism, racism, and class inequities, particularly as they impact Chicanos and other minorities, are analyzed.

162. Chicana Women in a Changing Society (3)
Focuses on current issues relevant to Chicana women in the workforce, the family, the health care system, and the educational system. The intersection of race, class, and gender will be the analytical context for examining both their historical and contemporary roles.

180T. Topics of Chicano Society (1-3; max total 3 if no topic repeated)
Culture, art forms, economy, and societal organization. Certain CLS 180T classes are *CR/NC* grading only. See department for further information.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

195. Diversity in the United States: Race and Gender Issues (3)
(Same as A I S 195, AF AM 195, ASAM 195, W S 195.) This interdisciplinary course introduces students to theoretical perspectives concerning the historical development of class, race, and gender within the United States and the impact of these issues on contemporary U.S. society. Participation in a special class project is required. Fulfills Liberal Studies Program requirement.

Criminology

College of Social Sciences

Department of Criminology
Harvey Wallace, *Chair*
Robin Button, *Department Administrative Assistant*
McKee Fisk Building, Room 244
(559) 278-2305
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http://www.csufresno.edu/criminology/crim.html

B.S. in Criminology
Options:
- Corrections
- Law Enforcement
- Victimology

M.S. in Criminology

Minor in Criminology

Victim Services Certificate

Criminal Justice Counseling Specialist Certificate of Advanced Study

Certificate in Alcohol/Drug Studies

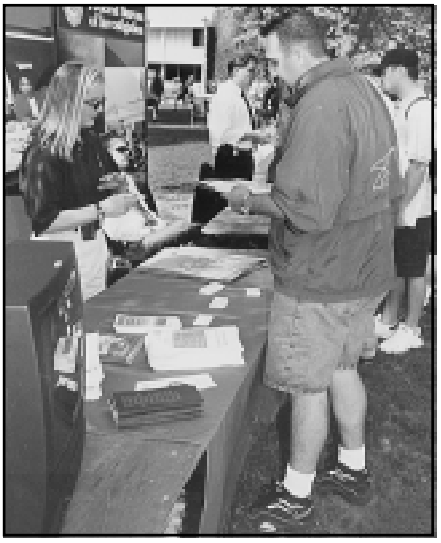
Criminology

The Department of Criminology provides undergraduate and graduate education in criminology for students planning professional careers in the criminal justice field. The program is diversified and integrated, reflecting the wide range of job opportunities in the field, including direct service and administration in law enforcement, corrections, victimology/victim services, and juvenile justice. The department offers the Bachelor of Science degree, Master of Science degree, and a minor. The department will not accept a student with a G.P.A. less than 2.0 as an undergraduate major.

Undergraduate Program

Criminology courses at the undergraduate level include integration of theoretical and applied materials of an interdisciplinary nature. The undergraduate curriculum is designed to prepare students 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, correctional institutions, and other affiliated forms of work. The law enforcement program is designed for students interested in careers with federal, state, and local law enforcement agencies, or law enforcement careers within the private sector. The purpose of the victimology option is to provide students and the victim services field with a balanced theoretical and applied understanding of the principles of victimology. An internship course is required in corrections, law enforcement, and victimology options.

Graduate Program

The Master of Science degree in Criminology is a 30-unit, flexible program which provides a solid core in the field of criminology while permitting students to pursue specialized areas of interest. The master's program is designed to prepare students for service and responsible administrative and professional positions in agencies in the criminal justice system. The master's program also prepares students for a wide variety of occupations including in-service education; administrative education and management; community college teaching; predoctoral studies; and research.

Off-Campus Degree Program

The department offers the corrections and law enforcement options of its B.S. degree via satellite to distance learning sites throughout California. The program is structured so that all required upper-division major, general education, and writing skills courses can be completed over a three-year cycle. Additionally, the department offers its undergraduate degree via compressed video at the university satellite campus located at College of the Sequoias in Visalia, California.

Justice Center

The department also administers a Justice Center that provides education, training, assistance, and consultation to criminal justice agencies throughout the Valley. The Justice Center offers intensive seminars in areas of interest to working professionals. Some of these areas may include: victim services, drug abuse, alternative sentencing, juvenile justice, exclusionary rule, crime prevention, and industrial security.

Faculty

The criminology department consists of 15 full-time faculty members whose expertise includes numerous specialties in the criminal justice system, including corrections, counseling, victimology, juvenile delinquency, theory, legal studies, supervision and management, and criminal justice administration. Various part-time faculty members from major criminal justice agencies also instruct in the department.

Career Opportunities

Many diversified local, state, federal, and private agencies employ our graduates in criminal justice. On the local level, career opportunities exist at municipal police departments, county sheriffs' offices, probation departments, halfway and prelease houses, group homes, crisis centers, juvenile halls, welfare fraud units, retail, industrial security agencies, and victim services organizations. At the state level, career opportunities include the State Police, Department of Corrections, Alcohol and Beverage Control, California Youth Authority, Department of Motor Vehicles, Departments of Justice, Fish and Game, and Forestry. Federal opportunities include the Border Patrol, FBI, Secret Service, Alcohol, Tobacco and Firearms, Internal Revenue Service, Park Service, Customs, Immigration, and federal prisons.

Faculty

Harvey Wallace, *Chair*

John H. Burge
R. Thomas Dull
Max D. Futrell
Eric W. Hickey
Jerome E. Jackson
Ruth E. Masters
Barbara Owen
Robert F. Perez
Lester P. Pincu
H. Otto Schweizer
Candice Skrapec
Marsha Tarver
Steven Walker
Arthur V. N. Wint

Bachelor of Science Degree Requirements

A grade of *C* or higher is required for all courses to be counted toward the major (excluding *CR/NC* classes).

Criminology Major *Units*

Criminology — Corrections Option Major 46
Lower-division requirements (see *note 1*): CRIM 1 (see *note 10*), 2, 20, 35 ..... (10)
Upper-division core (see *note 2*): CRIM 100, 102, 109, 112, 170 (see *note 6*), 174, 199 ..... (18)
Upper-division requirements: CRIM 118, 130, 134, 181 .... (12)
CRIM electives: CRIM 113, 117, 120, 126, 127, 131, 136T, 139, 140, 141, 160T, 175, 176, 177, 190, 192 ..... (6)

Criminology — Law Enforcement Option Major 46
Lower-division requirements (see *note 1*): CRIM 1 (see *note 10*), 2, 20, 35 ..... (10)
Upper-division core (see *note 2*): CRIM 100, 102, 109, 112, 170 (see *note 6*), 174, 199 ..... (18)
Upper-division requirements: CRIM 113, 117, 127, 108 or 180 ..... (12)
CRIM electives: CRIM 118, 120, 126, 130, 131, 134, 136T, 139, 140, 141, 160T, 175, 176, 177, 190, 192 ..... (6)

Criminology — Victimology Option Major 49
Lower-division requirements (see *note 1*): CRIM 1 (see *note 10*), 2, 20, 35 ..... (10)
Upper-division core (see *note 2*): CRIM 100, 102, 109, 112, 170 (see *note 6*), 174, 199 ..... (18)
Upper-division requirements: CRIM 118, 134, 175, 176, 177, 182 ..... (18)
Electives: AF AM 146; CLS 116; CRIM 139, 140, 141, 192; W S 126 ..... (3)

General Education 51

Electives and remaining degree requirements 28-31
(*see Degree Requirements*); may be used toward a dual major or minor

Total 128

Advising Notes

1. Lower-division courses should be taken before upper-division courses.
2. Upper-division core should be taken prior to upper-division electives.
3. Department policy requires that students should see their advisers prior to registration each semester.
4. No General Education Integration course offered by the Department of Criminology may be used to satisfy the General Education requirements for criminology majors.
5. *CR/NC* grading is not permitted in the major with the exceptions of CRIM 1, 108, 131, 180, 181, 182, and 281.
6. CRIM 170 must be taken no later than the first semester of the student's junior year.
7. Any course that meets the upper-division writing skills requirement cannot be applied to the major requirements.
8. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
9. Majors are required to take sections of CRIM 100 and 153 designated in the *Schedule of Courses* as "for majors only."
10. Freshmen and transfer students majoring in criminology must take CRIM 1 during their first semester.

Criminology Minor

Units

Lower division: CRIM 2, 20 ..... **6**
Upper division: CRIM 100 ..... **3**
Select from upper-division criminology courses **12**
Total 21

Note: CRIM 100, 120, and 153 may still be used to meet requirements for both General Education and the minor, for catalogs to prior to the 1999-2000 *General Catalog*.

Master of Science Degree Requirements

Under the direction of a graduate adviser, each student prepares and submits a coherent program individually designed within the framework that follows. Each student must see the graduate coordinator each semester prior to registering for courses.

All students must complete required core courses as a condition of advancement to candidacy.

	Plan A	Plan B
Required courses in criminology 200-series (see specific requirements)	**15**	**12**
Electives in criminology or related areas 200-series (under special circumstances a maximum of 6 upper-division units may be allowed)	**15**	**18**
At least 21 units must be Fresno State resident credit excluding credit by examination and 300-level coursework.		
**Total units ..... **	**30**	**30**

Specific Requirements

Plan A: Thesis or Project Program: CRIM 200, 201, 202, 203, and 298 or 299.
Plan B: Non-Thesis Program: CRIM 200, 201, 202, 203.
All Plan B degree candidates must pass a comprehensive examination.

(See also *Admission to Graduate Standing*, *Advancement to Candidacy*, *Program Requirements*, *Foreign Language Requirements*, and *Criteria for Thesis and Project*.)

Victim Services Certificate

The Department of Criminology and the School of Education and Human Development jointly offer the Victim Services Certificate. The purpose of this program is to provide appropriate educational experiences for matriculating students and practitioners. The certificate provides the opportunity for developing knowledge and skills necessary for individuals working with crime victims.

Program Prerequisites. (1) completion of 60 units of undergraduate coursework, and (2) completion of one general course in psychology, sociology, anthropology, health science, or child and family studies.

Program Requirements. A minimum of 12 units is required; three units must be taken in each of the four areas:

1. Theory *Units*
   Victimology (CRIM 175) **3**
2. Victim Issues
   Family Violence (CRIM 140) **3**
   Child Abuse (EHD 107) **3**
   Domestic Violence (W S 116) **1**
   Rape (W S 108) **1**
   Incest (W S 109) **1**
3. Service Delivery
   Intervention and Counseling for Helping Professions (EHD 108) **3**

Victim Services (CRIM 176) **3**
Child Welfare (S WRK 128) **3**

4. Legal/Social Policy
Education for Community Change (EHD 109) **3**
Legal Policy in Victim Services (CRIM 177) **3**
Women and Violence (CRIM/W S 126) **3**

In addition, three units field experience (CRIM 182) is available. For additional information or advising, contact the Department of Criminology.

Criminal Justice Counseling Specialist Certificate of Advanced Study

Individuals who are fully classified and advanced to candidacy in (or graduates of) the Master of Science in Criminology may elect to take courses leading to the Criminal Justice Counseling Specialist Certificate of Advanced Study. The certificate program is co-sponsored by the Department of Criminology and the Department of Counseling and Special Education. It is designed to enhance professional skills for counseling service within the criminal justice system.

In addition to coursework required for the Master of Science in Criminology, students seeking the Criminal Justice Counseling Specialist Certificate of Advanced Study are required to take a total of 16 units in Counseling (in addition to prerequisite COUN 174/PSYCH 174 or equivalent), six of which may be used as electives in the Master of Science in Criminology. The certificate courses are COUN 176, 200, 207, 208, and 239. Master of Science in Counseling students seeking the certificate are required to take an equivalent number of criminology courses.

Certificate in Alcohol/Drug Studies

The Department of Criminology is participating in a certificate of special study awarded to those students who successfully complete a minimum of 12 units of interdisciplinary academic coursework in the area of alcohol and drug abuse. (For complete details, see *Health and Human Services Interdisciplinary Courses* in this catalog.)

COURSES

Criminology (CRIM)

1. Introduction to Criminology (1)
Prerequisite or take concurrently: ENGL A or ENGL 1. Not open to non-crim majors; first semester major requirement. Program structure; faculty overview; degree requirements; support services; advising; grading; conduct and behavior; areas of academic knowledge and integration with emphasis upon critical thinking, decision-making and communication skills. *CR/NC* grading only.

2. Administration of Justice (3)
Prerequisite: CRIM 1 (may be taken concurrently). 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; purpose and function of victim services. (CAN AJ 2)

10. Crime, Criminology, and Justice (3)
An introduction to the concept of crime, emphasizing its contextual foundations as the product of evolving criminal laws and the institutions that shape them. A survey of the methodological approaches used to measure and study crime. Patterns of crime and victimization in relation to their impact on society's response in its quest for justice. G.E. Breadth D3.

20. Criminal Law (3)
Prerequisite: CRIM 1 (may be taken concurrently). Introduction to the case method of studying criminal law, theory, concept, and philosophy of substantive law and criminal offenses; analysis of court decisions and opinions through case method. (CAN AJ 4)

35. Communications and Technology in Criminology (3)
Not open to students with credit in CRIM 31. Prerequisite: CRIM 1 (may be taken concurrently). The use of technology in the criminal justice system; the evolution of telecommunications; advancements of computer science and automation; and applications of verbal, nonverbal, and written communication in criminal justice. (Formerly CRIM 31)

50. Statistical and Computer Applications in Criminal Justice (3)
Statistical and computer applications as they relate to criminological research and policy. Emphasis on descriptive and inferential statistical methods for the analysis of data and the application of appropriate computer statistical packages and other specialized computer programs for criminal justice.

100. Criminology (3)
Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Criminology majors are required to enroll in course sections that are designated "for majors only" in order to receive credit in the major. Theories of criminal behavior; sociological factors; organized crime; professional criminals; selected types of social deviants and criminal offenders.

101. Crime and Violence in America (3)
Introduces students to types of crime and violence in America within a sociological, cultural, economic, and political context. Emphasis on methodological approaches to crime measurement. Looks at how crime and violence impacts individuals and their environment. G.E. Integration ID.

102. Criminal Justice Organization and Management (3)
Prerequisites: CRIM 2, 20. Prerequisites or take concurrently: CRIM 100, 170. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Fundamentals of organization/management theory, principles, and processes relating to the operation and functioning of the criminal justice system, including victim services agencies.

108. Directed Policing (3; max total 12)
Open only to criminology majors. Prerequisite: Permission of instructor and sponsoring agency. Supervised field experience in police work for interpreting theories developed in parallel criminology courses. Purchase of uniform required. Approved for *SP* grading. *CR/NC* grading only. (Minimum of 6 field hours per unit.)

109. Comparative Systems of Criminal Justice (3)
Prerequisites: CRIM 2, 20. Prerequisites or take concurrently: CRIM 100, 170. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. 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.

112. Professionalism in Criminal Justice (2)
Prerequisites: CRIM 2, 20. Prerequisites or take concurrently: CRIM 100, 170. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Professionalism in criminal justice including formal and informal control; political activity; use of discretion; conflict of interest;

rights of clients; ethical, gender, and ethnic issues; and other current topics.

113. Forensic Science (3)
Open only to criminology majors. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Advanced study of scientific crime investigation, identification, and detection methods.

117. Criminal Legal Process (3)
Prerequisite: CRIM 20. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Specific emphasis on the laws of arrest, search and seizure, interrogation and confession, procedure prior to and during trial, postconviction procedures, limitations on criminal prosecutions and juvenile proceedings.

118. Individual Rights in the Criminal Justice System (3)
Prerequisite: CRIM 20. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. 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.

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. Violence, Delinquency, and Schools (3)
Examination of schools: violence and juvenile delinquency in a legal, social, and political context. Methodological approaches to assessing the increase in juvenile violence and its impact on the educational and juvenile justice systems.

126. Women and Violence: Public Policy and the Law (3)
(See W S 126.)

127. Advanced Criminal Legal Process (3)
Prerequisite: CRIM 117 or 118. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Advanced problems in arrest, search, seizure, interrogation, and prosecution. The law of evidence, including problems of relevancy, hearsay, opinion, privilege, and scientific evidence. Juvenile law and procedure from detention to disposition.

130. Corrections in America (3)
A survey of corrections in America. The history and philosophy of correctional thought and practice. Special attention given to adult and juvenile treatment, jails, prisons, probation, parole and community corrections, and current issues such as prisoners rights, gender, ethnicity, and overcrowding.

131. Correctional Institution Visitations (1-3; max total 3)
The opportunity to visit, examine, and investigate various correctional institutions within the state of California. Visitations will be mandatory. *CR/NC* grading only.

134. Criminal Justice Counseling (3)
Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. An overview of counseling modalities and counseling techniques in criminal justice settings.

136T. Topics in Criminology (1-3; 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.

139. Criminal Justice Counseling Skills Practicum (3)
Prerequisite: CRIM 134. An experiential course designed to teach students essential skills in structuring counseling sessions with offenders. Emphasis on listening, validation, empathy, interviewing, probing, concreteness, self-disclosure, summarizing, confrontation, goal-setting, taking action, closure, and resistance.

140. Family Violence (3)
Typology and history of family abuse, including: legal guidelines; treatment approaches; emotional abuse; sexual abuse; spousal abuse; elderly abuse; and child abuse as a criminogenic factor.

141. Alcohol, Drugs, and Criminality (3)
Drug and alcohol related criminal behavior and the response of the criminal justice system.

153. Psychology of Crime (3)
Explores the psychological bases of criminal behavior as they relate to the biology of criminality, as well as to the numerous and varied contributions from cultural economic, and geographic aspects of the social environment. G.E. Integration ID.

160T. Topics in Crimes (1-3; max total 12 if no topic repeated)
Intensive focus on particular crime categories, e.g., political, corruption, terrorism; corporate, computer, white collar, fraud, embezzlement; homicide, assassination, mass murder, sex crimes, violence, assault, rape, mayhem; property, burglary, robbery, piracy, professional pickpocketing, swindling, safe-cracking; organized; arson; and environmental.

170. Research Methods in Criminal Justice (3)
Prerequisite or take concurrently: CRIM 50 or an equivalent course. Must be taken no later than the first semester of the student's junior year. Research methodology; use of library resources; electronic resources; preparation and handling of materials in criminology; written report required.

174. Ethnic and Gender Issues in Criminal Justice (3)
Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Culturally specific responses to victimization of women and ethnic minorities by the criminal justice system. The impact of gender and race on criminal justice personnel. Special problems experienced by women and various groups in obtaining services within the criminal justice system.

175. Victimology (3)
Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Major theoretical issues and debates in victimology. Victim blaming and defending, research and victim statistics, legal and policy dilemmas, bureaucratic responses to victims, and evaluation of victim compensation and restitution.

176. Victim Services (3)
Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Survey of community services for victims. Focus on victim services as a new subsystem. Theoretical, social, and legal issues that affect delivery of victim services.

177. Legal Policy in Victim Services (3)
Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Analysis of legislation and specific legal policies regarding victim services. Victim rights, the process of changing attitudes, and current laws will be a major focus.

180. Internship in Law Enforcement (1-12; max total 12)
Open only to criminology majors. Prerequisites (may be taken concurrently): CRIM 2, 20, 102 and 112. *CR/NC* grading only. (Minimum of 3 field hours per unit.)**

181. Internship in Corrections (1-12; max total 12)
Open only to criminology majors. Prerequisites (may be taken concurrently): CRIM 2, 20, 102 112, and 130. *CR/NC* grading only. (Minimum of 3 field hours per unit.)**

182. Internship in Victimology (1-12; max total 12)
Open only to criminology majors. Prerequisites (may be taken concurrently): CRIM 2, 20, 102, 112, and 175. *CR/NC* grading only. (Minimum of 3 field hours per unit.)**

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Readings in Criminology (1-3; max total 3)
Prerequisite: upper-division standing and permission of the instructor. Supervised readings in a selected field relating to criminology.

199. Senior Seminar (1)
Prerequisite: last semester senior criminology majors only; completion of major lower-division and upper-division core requirements and UDWS requirement. Degree culminating experience involves the integration of scholarly knowledge relating to criminology with emphasis upon critical thinking, decision-making, and communication skills.

GRADUATE COURSES

(See *Course Numbering System*.)

Criminology (CRIM)

200. Research Methods in Criminology (3)
Prerequisite: CRIM 170. 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 100. An historical approach to criminological theory in Western civilization. Special treatment of the theoretical underpinnings of contemporary United States criminological thought. Detailed analysis of major 18th, 19th, and early 20th century Occidental thought.

202. Law and the Criminal Justice System (3)
Prerequisite: CRIM 117 or 118. The nature and philosophy of law; the common law tradition and our judicial system; the role of legislation and rules of statutory interpretation; Constitutional Law concepts and their applications in the Criminal Justice System; the rights and liabilities of criminal justice personnel; legal research including the use of Lexis.

203. Criminal Justice Administration (3)
Prerequisite: CRIM 102. 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)
Prerequisites: 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)
Prerequisites: CRIM 200, 201, 202, and 203. The theory and practice of family counseling in criminal justice agencies.

252. Seminar in Criminal Justice Personnel Administration (3)
Prerequisites: 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.

255. Seminar in Criminal Justice Labor Relations (3)
Prerequisites: 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.

270T. Problems in Criminology (1-6; max total 12 if no topic repeated)
Prerequisites: CRIM 200, 201, 202, and 203. Special problems in law enforcement or corrections; individual research in laboratory, library, or fieldwork; formal written reports. Weekly conference with instructor.

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. Approved for *SP* grading. *CR/NC* grading only.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

292. Readings in Criminology (1-3; max total 3)
Prerequisites: permission of instructor and chair, 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. Approved for *SP* grading.

298. Project (2-4; max total 4)
Prerequisites: CRIM 200, 201, 202, and 203. See *Criteria for Thesis and Project*. Preparation and completion of a project demonstrating a significant undertaking such as implementing a program, evaluating an ongoing program, developing pilot studies of innovative ideas or implementing organizational change in the field of criminology, and submission of a written abstract. Approved for *SP* grading.

299. Thesis (2-4; max total 4)
Prerequisites: CRIM 200, 201, 202, and 203. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System*.)

Criminology (CRIM)

302. Topics in Criminology (1-3; max total 3)
May be repeated for credit provided different fields are covered. Prerequisite: permission of instructor. Selected areas in the organization, administration, and management of agencies engaged in the administration of justice; the police function; prosecution of criminal offenses; the correctional process, deviant behavior.

** Relates the student's classroom studies with occupational and professional experiences. Permission of instructor and a sponsoring agency. Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor. Weekly conference with field supervisor. Transfer students should be aware that 12-unit total must include units previously earned; check with departmental adviser.

Economics

Economics is the social science that studies the way in which societies are organized to produce the goods and services that sustain and enhance the life processes of the community. As a fundamental scientific discipline, economics employs systematic analysis in the study of the production and distribution of income within and among nations. Since all social policy issues in modern societies have an economic dimension, the study of economics offers the student an opportunity to investigate the most important and exciting problems of political economy facing the world today.

Such topics as inflation, unemployment, business cycles, international trade and finance, and development have long been within the province of economics. More recently, the economic way of thinking has been extended to other areas. Economic theories have been used to explain crime rates, birth rates, class conflict, pollution, marriage decisions, migration, and many other topics involving human behavior.

Economics majors acquire skills in critical and analytical thinking that contribute to an individual's intellectual independence and self-confidence in the problem-solving processes. In addition, economics majors confront the necessity of developing a broad view of the options facing humankind in organizing the production and distribution of income. The literature of economics presents widely diverse systems of political economic philosophy. The department offers a well-developed and balanced curriculum.

The program in economics is designed to give the student maximum flexibility. A typical economics major might take courses in intermediate macroeconomic theory and statistics while also learning about global corporations in the third world, or the regional economy, or pursue an independent study project on the foundations of supply-side economics. The economics major is designed to permit the student to pursue a broad liberal arts undergraduate degree, integrating the study of economics with other social sciences, humanities, natural sciences, and business administration.

Faculty

The faculty is staffed by professors whose primary professional commitment is to undergraduate education. Every member participates in the full range of teaching assignments. The program offers a wide variety of courses ranging from the traditional core of intermediate micro and macroeconomic theory to problem-oriented courses, such as the economics of ecology, population, and government regulation. The background of the faculty, like its program offerings, represents a broad spectrum of intellectual tastes and professional specialties.

Career Outlook

Graduates of the department pursue a variety of challenging careers in industry, finance, education, government, and international affairs. The economics B.A. degree is an excellent foundation for graduate study in public administration and business. The undergraduate major in economics has also proved to be an ideal prelaw major. The faculty provides counseling on legal careers to students interested in this career option. A number of distinguished attorneys are graduates of the department.

Careers for professional economists fall into the following patterns:

1. Business — roughly one-third of all economists are employed by private firms both large and small, although big corporations, banks, and insurance companies tend to employ larger staffs of economists.
2. Government — approximately one out of five professional economists works for a local, state, or federal government agency. The federal government recognizes the importance of an economics degree at the undergraduate level by allowing members of the economics honor society (Omicron Delta Epsilon) to enter government service at the GS-7 level rather than at the GS-5 level for general college graduates.
3. Education — about 45 percent of all economists are involved in teaching the discipline at the university level. There is a reawakening of interest in teaching economics in the secondary and even primary grades as more states across the nation are beginning to mandate economics in the public schools curriculum.

College of Social Sciences

Department of Economics
James M. Cypher, *Chair*
Sherry McCulloch, *Department Administrative Assistant*
Peters Business Building, Room 393
(559) 278-3916

B.A. in Economics

Minor in Economics

Minor in International Political Economy

Subject Matter Preparation for Single Subject Teaching Credential in Social Science

Economics

Faculty

James M. Cypher, *Chair*

Robert J. Allison
Paul D. Bush
Sasan Fayazmanesh
Scott D. Houser
Don R. Leet
Linda J. Shaffer
John A. Shaw Jr.

Bachelor of Arts Degree Requirements

Economics Major

ECON 40 and 50 are prerequisites for most upper-division courses in economics. Any student planning graduate work is advised to take *additional mathematics* and *some foreign language.*

	Units
Major requirements	**39**
Core: ECON 40, 50, 100A, 100B, 123	(15)
Areas of concentration	(3)
Majors must complete at least 3 units from each area	
A. History/History of Thought: ECON 101, 105, 107, 109, 110, 151, or 115T	
B. International: ECON 114, 161, 178, 179, 180, 181, 182	
C. Applied Microeconomics: ECON 117, 131, 150, 152, 162, 174, or 188T	
D. Applied Macroeconomics: ECON 103, 119, 135, 140, or 188T	
Approved economics electives (at least 9 units upper division)	(9)
Senior project: ECON 185 or 190 or 191	(3)
General Education	**51**
Electives and remaining degree requirements (see *Degree Requirements*); may be used toward a dual major or minor	**34**
Total	**124**

Advising Notes

1. No General Education Integration course offered by the Department of Economics may be used to satisfy the General Education requirements for economics majors.
2. *CR/NC* grading is not permitted in the economics major or minor.
3. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4. Economics majors may not use ECON 25, 40, 50, or AG EC 1 for General Education requirements.
5. A maximum of 6 units of either ECON 185 or 190, or any combination of these courses, will be allowed as credit toward the major, or toward either minor within economics.

Economics Minor

The Minor in Economics requires 18 units as listed below.

	Units
ECON 40, 50	**6**
Select one: ECON 100A, 100B, 101	**3**
Economics electives	**9**
Total	**18**

International Political Economy Minor

International political economy is the systematic inquiry into the political and economic forces generating wealth and social change on a global scale. As an interdisciplinary program it is administered from two departments: Political Science and Economics. Students who desire a greater understanding of the complex political and economic interactions of nations are encouraged to learn more about this program by consulting with a faculty adviser in either department.

	Units
Political Science	
PL SI 120	**3**
Electives*	**6**
Select from: PL SI 121, 125, 126, 128T, 140, 141, 142T, 143T, 144T, 145T, 146T, 149T	
Economics	
Electives**	**9**
Select from: ECON 109, 114, 161, 178, 179, 180, 181, 182, 185, 190	
Total	**18**

* PL SI 1 or 2 may be listed as a prerequisite for some of these courses.

** ECON 40 and 50 are prerequisites for some of these courses.

Teaching Credential in Social Science. See the social science credential adviser, Jared Stallones, in Social Science, Room 215 for advising and refer to Secondary Teaching Credential under Social Science Programs.

Advising Note for Minors

ECON 25, 40, and 50 may also meet General Education requirements. ECON 165 cannot be used as an elective for any minor in the Economics Program.

COURSES

Economics (ECON)

25. Introduction to Economics (3)
Survey of the development of economic ideas and theories in the context of economic history. Analysis of major economic thinkers. Introduction to contemporary economic issues and policy controversies. Does not count toward the major in economics. G.E. Breadth D3.

40. Principles of Microeconomics (3)
Introduction to microeconomic theories of demand, production, and income distribution; price determination and resource allocation, under alternative forms of market organization; government regulation of economic activity; applied economic analysis and policy formation in selected topic areas. G.E. Breadth D3. (CAN ECON 4)

50. Principles of Macroeconomics (3)
Prerequisite: ECON 40. Macroeconomic theories of the determination of income, output, employment, and prices in the economy as a whole; business cycles, fiscal and monetary policies; economic growth and development; international trade; and comparative economic systems. G.E. Breadth D3. (CAN ECON 2)

100A. Economic Theory: Microeconomic Analysis (3)
Prerequisites: ECON 40, 50. 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)
Prerequisites: ECON 40, 50. 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)
Prerequisites: ECON 40, 50. Evolution of economics as a science; doctrines of different schools of thought — Mercantilists, Physiocrats, Historical School, Classical Economists; contributions of outstanding economists.

102W. Explorations in Economic Literature (3)
Prerequisites: ECON 40, 50; satisfactory completion (*C* or better) of the ENGL 1 graduation requirement; upper-division standing. An investigation into important economic ideas and issues through selected readings of either contemporary literature or classics in the history of economic thought or both. The class is conducted as a seminar with emphasis on student contributions. Meets the upper-division writing skills requirement for graduation.

103. Economics of Inflation, Unemployment, and Growth (3)
Prerequisite: ECON 50. A theoretical and empirical analysis of the various types of inflation and unemployment in the United States economy.

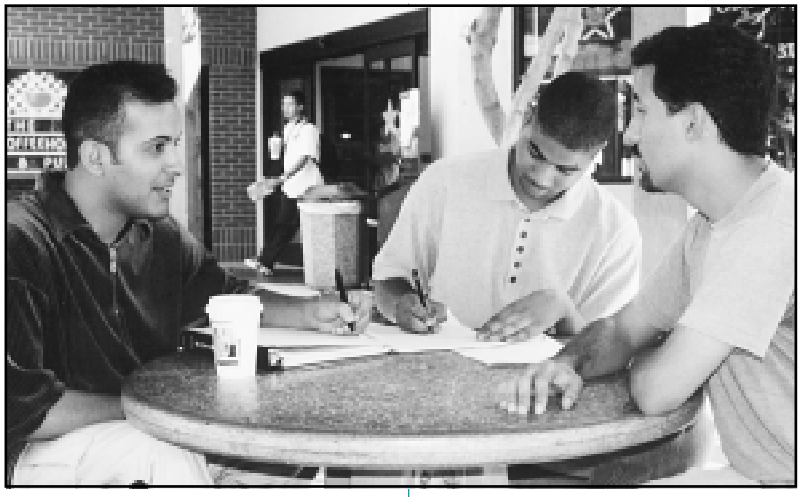
105. Marxian Economic Theory (3)
Prerequisites: ECON 40, 50. Marxian economic theory and its relevance for modern economic theory and analysis; Marx's value, production, and distribution theory; modern developments of Marxian models.

107. Institutional Economics (3)
Prerequisites: ECON 40, 50. 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.

109. Principles of Political Economy (3)
Prerequisites: ECON 40, 50 or permission of instructor. A critique of political economy; political nature of applications of economic theory.

110. Economic History of the United States (3)
Prerequisites: ECON 40, 50. Exploration and colonization to the present; economic factors in development of the United States; relationships of economic forces to historical, political, and social change.

114. Economic Development of Poor Nations (3)
Prerequisites: ECON 40, 50. Intensive study of the causes and consequences of underdevelopment which affect two-thirds of the world's people. Topics include theories of development, historical roots of underdevelopment, evaluation of aid programs, New International Economic Order, Asian export economies, managing external debt.



115T. Topics in U.S. 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)
Prerequisites: ECON 40, 50. 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 Economics (3)
Prerequisite: ECON 40, 50, or permission of instructor. Examination of the spatial distribution of economic activity. Local economic development theory and practice. Empirical analysis of regional economy. Intensive study of the San Joaquin Valley from a policy-oriented perspective. Issues may include immigration, location theory, and agglomeration. (Formerly ECON 104T)

123. Introduction to Econometrics (3)
Prerequisites: ECON 40, 50; MATH 11 or permission of instructor. Statistical data analysis in economics. Use of multiple regression analysis, time series analysis, index numbers. Basic theory; computer applications using major economic data sources; interpretation of results. (2 lecture, 2 lab hours)

125. Introduction to Mathematical Economics (3)
Prerequisites: ECON 40, 50; MATH 75. Introduction to uses of mathematics (primarily calculus and matrix algebra) in theoretical economic analysis. Knowledge of basic economics assumed; math is taught. Strongly recommended for students considering graduate work in economics or business.

131. Public Finance (3)
Prerequisites: ECON 40, 50. Governmental revenues and expenditures at federal, state, and local levels of jurisdiction. Tax limitation measures, efficiency in government, subsidies, and fiscal relationships between different levels of government.

135. Money and Banking (3)
Prerequisites: ECON 40, 50. 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 50. 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.

146. Economics of Crime (3)
Economic theory of choice and rationality applied to analysis of crime, focusing on white-collar and corporate crime. Examines costs and benefits of crime control policies. Economics of participation in crime, law enforcement, prosecution, and punishment. G.E. Integration ID.

150. Labor Economics (3)
Prerequisites: ECON 40, 50. 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)
Prerequisites: ECON 40, 50. Analytical topics from historical viewpoint; evolution of unions and labor legislation interpreted in terms of economic theory.

152. Economics of Human Resources (3)
Prerequisites: ECON 40, 50 or permission of instructor. Economic theory of investment in education, job training, and health; economic theories of discrimination; analysis of earnings differentials for women and ethnic minorities. Issues discussed include educational choices, affirmative action, comparable worth, and "manpower" planning policies.

161. Population Economics (3)
Prerequisites: ECON 40, 50. 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. Health Economics (3)
Prerequisite: ECON 40. Economic issues associated with the provision of health care in the U.S. Role of competitive market forces, non-profits, and government. Separate consideration of physicians, hospitals, insurance, and drug companies. Comparison to other countries.

165. The Modern American Economy (3)
No prerequisites. Not open to economics majors. Provides an overview of the major economic forces that shape our everyday experiences by introducing fundamental economic principles and applying them to the American economy. Audio-visual materials and computer simulations are presented.

167. Contemporary Socioeconomic Challenges (3)
In-depth analysis and discussion of major socio-economic challenges currently facing the U.S. Emphasis on understanding basic economic underpinnings of contemporary policy issues. Analysis of conflicting economic, social, political, and historical forces which condition and constrain policy implementation. G.E. Integration ID.

174. Government Regulation of Economic Activity (3)
Prerequisites: ECON 40, 50. Justification for regulation, constitutional limitations, public utility regulation, regulation of monopoly; competitive practices; government policy in other areas of economic activity.

176. Economics Themes in Film (3)
Emphasizes economic concepts, issues, and institutions through an integrated series of classic films, lectures, and discussions. Students will apply the economic way of thinking to social problems involving such topics as economic growth, unemployment, income distribution, discrimination, and the global economy. G.E. Integration ID.

178. International Economics (3)
Prerequisites: ECON 40, 50. International economic relations; problems and policies in the light of fundamental economic theory.

179. International Political Economy (3)
Problems of economic underdevelopment in the Third World within the context of the world economy, nature, and function of multinational corporations, theories of economic imperialism.

180. Comparative Economic Systems (3)
Prerequisites: ECON 40, 50. Comparative study of economic systems of the modern world; capitalism, socialism, communism, fascism, and the problems which arise within each.

181. Political Economy of Latin America (3)
Latin America's principal economic problems examined within a historical and contemporary context. Topics may include Colonialism, Neo-Colonialism, foreign corporations, debt crises, problems of industrialization, women and labor, agricultural backwardness, and free trade agreements. Intensive examination of major nations (particularly Mexico) and of dominant theoretical interpretations. Theories of development (structuralism, dependency, dualism, modernization) are integrated into case studies. G.E. Multicultural/International MI.

182. The Political Economy of China (3)
Prerequisites: upper-division standing and/or permission of instructor. A survey and analysis of economic development in China and its linkages with politics, history, society, and foreign policy.

183. Political Economy of the Middle East (3)
Prerequisites: upper-division standing. A survey of historical, social, cultural, political, and economic development, economic development in the Middle East. An examination of Western colonial policies, the creation of modern states and their political and economic policies, the role of religion, and cultural heritage. G.E. Integration ID.

185. Directed Readings (1-3; max total 6)
Prerequisites: ECON 40, 50, 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)
Prerequisites: ECON 40, 50. Consideration of in-depth, 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)
Prerequisites: ECON 40, 50. 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191. Internship in Applied Economics (3; max total 3)
Prerequisite: senior standing, economics major. Supervised experience in either the private or public sector to provide students an opportunity to professionally apply economic theory and analysis. *CR/NC* grading only.

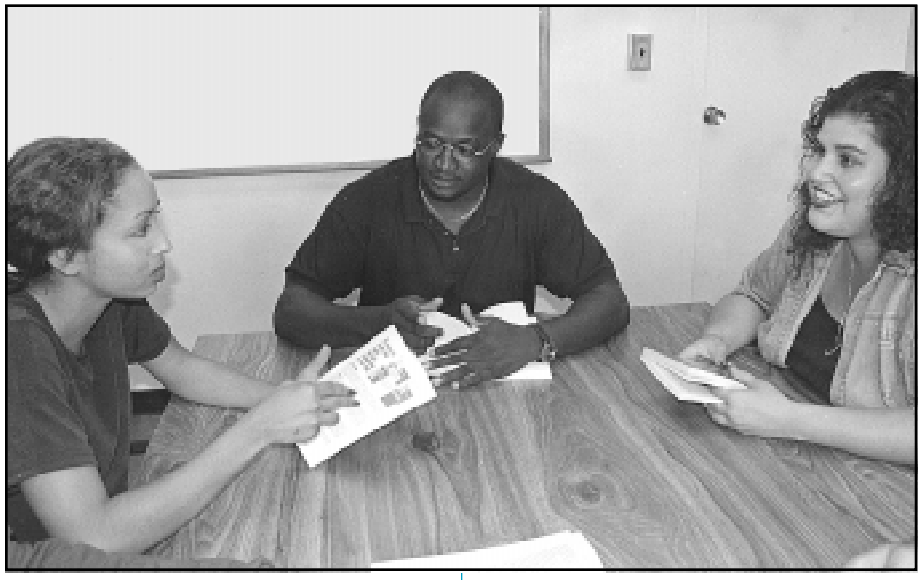
IN-SERVICE COURSE

(See *Course Numbering System.*)

Economics (ECON)

365T. Economics for Teachers (1-6; max total 12)

Ethnic Studies



College of Social Sciences

Ethnic Studies Program
(African American Studies,
American Indian Studies)
James E. Walton, *Coordinator*
Vonda J. Epperson, *Department Administrative Assistant*
McKee Fisk Building, Room 243
(559) 278-2832

B.A. in African American Studies
Minor in African American Studies
Minor in American Indian Studies
Minor in Ethnic Studies

Ethnic Studies

The Ethnic Studies Program offers an interdisciplinary curriculum that contains a broad course of study of the different ethnic groups in American society, with cross-cultural courses in African American Studies, American Indian Studies, and Ethnic Studies. Whether for academic interest, personal knowledge, or professional training, students should find courses in the Ethnic Studies Program culturally enriching.

Consult the *Schedule of Courses* and an adviser to determine which courses meet both major and General Education requirements. Students in the helping professions such as criminology, social work, education, health sciences, nursing, recreation, and communicative disorders should find these courses of benefit to their future careers.

The minor in Ethnic Studies, African American Studies, or American Indian Studies offers students an excellent opportunity to gain an academic background of the major cultural groups in America. In making career choices, students should find their academic credentials much more marketable when one of these minors is combined with their chosen major.

African American Studies

African American Studies represents a field of study and research based on vigorously innovative educational processes. The courses offered are interdisciplinary in nature and address issues that pertain to culturally diverse groups in the American society. The program is structured to provide better service to the student population at the university. This includes the historical, sociological, psychological, and economic issues that confront African Americans in the American society.

This program establishes concepts and tools for the survival of African American people and presents to all university students the understanding of the uniqueness of African American heritage, culture, and lifestyles. The philosophy and academic curriculum of the African American Studies Program were developed through mutual understanding and cohesiveness established among communities, students, and its faculty.

The African American Studies Program involves its faculty and students in research, experimentation, career counseling, cluster advising, computer technology, curriculum development, professional education orientation, and extended day, evening, and Saturday courses. The program sponsors and supports various student organizations, e.g., African American Students' Business Association, African American Student Alliance, and the student campus newspaper, *Uhuru Na Umoja*. It also works in conjunction with the university's African American Alumni and Friends Association to sponsor various student activities.

The African American Studies Research Center is an ancillary unit housed within the African American Studies Program. The major objective of the research component is to provide a forum for a wide range of research on the African/African American experience. In doing so, it creates an open dialogue in which academics can interact to sustain and support a creative atmosphere for scholarly inquiry.

American Indian Studies

American Indian Studies is a discipline within ethnic studies, focusing on the indigenous cultures of ancient, historical, and contemporary America. American Indian cultures include American Indians and Arctic-Native people, as well as natives of Northern Mexico. This program recognizes the artificiality of both the Canadian and the Mexican border but is primarily concerned with people of the United States.

The courses offer a distinctively American perspective that is crucial to an understanding of the historical and social processes that have led to the development of contemporary American society. Issues of colonization, Native rights, sovereignty, cultural integrity, civil rights, and current struggles are discussed within an interdisciplinary framework.

This program is intended to strengthen the position of American Indian individuals and communities in this region, as well as provide help to American Indian students and scholars. A second focus introduces native cultures and issues to all students. Courses include both the social sciences and the humanities, as well as specialized offerings in such fields as law and education.

Ethnic Studies

Faculty

James E. Walton, *Coordinator*

Carl E. Briscoe
Delores J. Huff
Robert S. Mikell
Lily B. Small

Bachelor of Arts Degree Requirements

The African American Studies major offers studies in the social sciences, humanities, education, community studies, the arts, and other areas as they relate to the African American experience and the African diaspora. The major will provide an epistemological basis for the theoretical, social, political, and cultural reality of African peoples.

Students are strongly encouraged to pursue a dual major and can take African American Studies either as a primary or secondary major. Students are required to see an African American Studies academic adviser for assistance in planning the major.

African American Studies Major

	Units
Major requirements	**36**
Lower-division requirements: ETH S 1, AF AM 10, SOC 25 or PL SI 90	(9)
Upper-division requirements: AF AM 137, 144, 146, 148, 178; ETH S 189	(18)
Approved African American electives. *Consult your academic adviser for approval.*	(9)
General Education	**51**
Electives and remaining degree requirements. It is recommended that units in this area be utilized to complete a second major or minor.	**37**
Total requirements	**124**

Ethnic Studies Minor

The Minor in Ethnic Studies consists of 21 units, of which 9 must be upper-division.

	Units
ETH S 1 and 189	**6**
Approved electives in one of the areas listed (Asian American Studies, African American Studies, Chicano and Latin American Studies, and American Indian Studies)	**9**
Approved Asian American Studies, African American Studies, Chicano and Latin American Studies, and American Indian Studies electives from one of the areas not used above	**6**
Total	**21**

A student intending to pursue the Minor in Ethnic Studies should see the coordinator for assignment to a faculty adviser who assists the student in planning his or her program.

African American Studies Minor

	Units
ETH S 1 and 189	**6**
Approved African American Studies career-oriented courses (upper division)	**9**
Approved African American Studies electives	**6**
Total	**21**

Note: For students interested in the general dimensions of the African American experience, the following courses are recommended:

AF AM 27, 36, 38, 135, 137, 140, 145

For students interested in the following careers, the following courses are recommended:

Education: AF AM 38, 42, 124, 130T, 135
Performing Arts: AF AM 21, 24, 27, 35, 121, 130T, 144; ETH S 189
Business: AF AM 38, 130T, 135, 136, 190; ETH S 189
Preprofessional (nursing, criminology, prelaw, etc.): AF AM 56, 130T, 135, 142, 144, 146, 190; ETH S 189
Writing: AF AM 15, 25, 127, 190
Social Sciences: AF AM 27, 38, 135, 140, 178; ETH S 189

American Indian Studies Minor

The American Indian Studies Minor is designed to foster culturally appropriate knowledge and skills for those who may work for federal and/or state agencies having American Indian Constituents, and/or tribes, tribal health centers, tribal organizations, urban Indian organizations, or national Indian organizations.

	Units
A I S 5, 50, 60T (choose one)	**3**
A I S 100, 101, 103, 160, 170 (choose four)	**12**
Electives (choose two): EHD 109; AF AM, A I S, CLS, ASAM 195; ANTH 105W, 130; ART 170	**6**
Total	**21**

Note: It is anticipated that A I S 100 may be used for the American Indian Studies Minor and to satisfy General Education requirements.

Asian American Studies Minor

(See *Asian American Studies* in *Courses and Programs* section, page 413.)

COURSES

Ethnic Studies (ETH S)

1. Ethnic Experience (3)
Examines the experiences of various ethnic minorities in the U.S., addresses the issue of race as it affects ethnic formation, analyzes public policy and ethnic experience, discusses the comparable idealogies of race and gender, and evaluates culture and ethnic experience. G.E. Breadth Area D3.

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.

104W. American Poverty (3)
Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement. Analysis of poverty in America. Students will receive guidance and criticism in preparing papers on poverty issues. Emphasis on research techniques, evaluation of evidence, documentation, bibliography, organization, style and mechanics of writing. Meets the upper-division writing skills requirement for graduation.

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.

189. Fieldwork in Community Relations (3; max total 6)
Supervised field observation, participation, and documentation in the operation of minority communities. (Formerly AF AM 189)

African American (AF AM)

10. Introduction to
African American Studies (3)
A survey course designed to introduce students to the vast array of scholarship defining the African American experience. The course will integrate the scholarship of historians, sociologists, anthropologists, political scientists, artists, educators, and other culture makers.

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.

21 and 121. Gospel Choir
(1; max total 8)
(Same as MUSIC 102GC.) Performance of a variety of inspirational songs reflecting the African American cultural experience. Participation through rehearsals, activities, programs, and field trips.

24. African American Music (3)
The origin and evolution of African American music from the perspective of social and cultural history. Emphasis on slave songs, gospel, jazz, rhythm and blues, and soul music.

25. African American Literature (3)
Major authors, their works, themes, and movements in African American literature in America from colonial times to the present.

27. Introduction to African American
Culture and Image (3)
Introduction to the historical and contemporary experiences of African Americans and the various images that experience has generated. Examines historical and social structures implicated in that experience along with the images they construct both nationally and internationally. G.E. Breadth D3.

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 African Americans to Africa.

38. African American Sociology (3)
Basic principles sociology from the perspective of the African American experience.

40. Freshman Seminar
for Minority Students (3)
Open to freshmen and transfer students. Designed to further student development in such areas as study skills, writing, oral presentations, and interaction with other students and faculty. Students are assigned a faculty mentor.

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 African Americans.

50T. Topics in African American
Studies (1-3; max total 9)
Selected topics at the introductory level in African American Studies.

56. The African American Family (3)
Deals with the origin, development, and adaptations the African American family has created to sustain itself as a viable institution. Emphasis is on problems encountered and created by the American society and how the African American family handles these adversities.

60. Introduction to
African American Theatre (3)
Study and practice in performance of African American drama and oral interpretation projects. Class will include poetry reading; dance performances; dramatic interpretations; comedic sketches. Previous experience not required.

92. African American Cuisine (1)
A cultural examination of the origin of soul food. Sociocultural emphasis upon food gathering and preparation, consumption of all-purpose hog and health considerations, and nutritional value of the soul food diet. Demonstrations and experimentation with gumbo, red beans and rice, collard greens, hot water cornbread, and sweet potato pie. (Course fee, $15)

93. Rap Music Genre (1)
Sociopolitical examination of rap music and its influence as a social movement. Emphasis on the lyrical presentation and the various styles of rap music such as hard core, social, afrocentric, regga-muffin, and commercial. Format includes lectures, videos, and live performances.

100A. African Dance (3)
Focuses on the history of African dance in the United States, uses of dance among Africans/African Americans. Activities include dance techniques; imagery/visualization, dance exercises; simple constructive rest techniques; African dance step techniques preparatory for advance class. (2 lecture, 2 activity hours)

100B. African Dance (3)
Prerequisite: AF AM 100A or permission of instructor. Teaches advance space orientation, advance imagery/visualization techniques; advance constructive rest; central/alignment; dance philosophy of Laban; choreography; specific African dances and dance performances. (6 lab hours)

124. The African American
Experience in Children's Literature (3)
A survey of selected material: Children's books, tapes, cassettes; dealing with the African American experience in children's literature.

127. African American
Creative Writers' Workshop (3)
An intensive reading and writing workshop in the African American experience. Selections and discussions from major literary artists, including: Hughes, Baldwin, Giovanni, Brooks, Ellison, Angelou, Gaines, and others. Students are required to write expository essays analyzing literature, poems, and short stories.

129. African American
Literary Classics (3)
An intensive analysis of selected classical narratives in African American literature and culture.

130T. Topics in African American
Studies (1-3; max total 9)
Major social problems confronting African Americans in America today; emphasis on welfare, education, legal systems, religious institutions, and economic institutions; effect on the African American segment of the population.

135. The African American
Community (3)
Analysis of the various lifestyles and cultural patterns of the African American community and spatial ghetto areas. Emphasis on unique cultural features of the family, religion, foods, music, art, and folkways.

136. African American
Business Economic Development
in the United States (3)
Introduction to African American entrepreneurship and employment with special emphasis on the analysis and development of business ventures. Relationship of economic forces to historical, political, and social change. Step by step on how to start your own business.

137. African American Women (3)
(Same as W S 137.) An overview of the accomplishments of African American women in the United States; their contributions to American culture; African influence; African American women as defined by a dominant society vs. legitimate definition designed to encourage a positive self-concept.

140. The African American Church (3)
History of the formation and development of African American religious institutions (Christianity, Islam, Judaism) in the African American community; their effect on the African American personality.

141. African American Health Care (3)
Investigation and analysis of major health problems and delivery services in the African American Community.

142. African American Child Rearing (3)
Specific and unique issues facing African American parents as their children journey through the development process.

144. Race Relations (3)
Critical examination of contemporary race relations issues such as affirmative action, hate crimes, interracial relationships, religion, criminal justice system, media images/stereotyping, and more. Analysis of theoretical frameworks and their application to racial ethnic groups.

145. Life and Times of
Martin Luther King Jr. (3)
Explores Dr. King's leadership in the nonviolent movement for racial equality and human dignity, from the Montgomery Bus Boycott to King's assassination (1955-68). Emphasis on philosophy, ideology. Format: lectures, films, slides, recorded speeches, and discussion.

146. Law and the
Minority Community (3)
Critical analysis of the foundation and changing structure of law and legal institutions as perceived by minority communities, with emphasis on equal employment and education, criminal justice, and political power.

148. Issues in the African American
Community (3)
Prerequisite: AF AM 10 or permission of instructor. In-depth, comprehensive, critical analysis of the current social and economic structure of the African American community. Examination of the effects of institutional racism on current social policy.

150. South Africa (3)
An introductory analysis of the social, racial, political, and economic problems of people of South Africa, both past and present.

165. Advanced African
American Theatre (3)
For students previously enrolled in AF AM 60. Advanced production and performance in the African American Theatre.

178. History of African Americans (3)
(Same as HIST 178.) Evolution of African American 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 African American way of life.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191. History of Allensworth (1)
An examination of the historical development of the African American town of Allensworth from its status as a town to its existence as a state historic park. Students will be exposed to various academic disciplines through lectures and a field trip to the park.

195. Diversity in the United States:
Race and Gender Issues (3)
(See CLS 195.)

American Indian Studies (A I S)

5. American Indian History (3)
An interpretive survey of American Indian history from the native point of view including accounts of American Indian origin and the arrival of immigrants from Asia, Africa, and Europe.

9T. Topics in American Indian Studies
(1-3; max total 9 if no area repeated)
Selected topics at an introductory level in American Indian Studies.

50. Contemporary Life
of the American Indian (3)
Current problems of American Indians and Arctic Natives resulting from culture conflict, acculturation, minority status, and governmental policy.

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)
American Indian religious systems, including basic concepts of religion and the sacred, ceremonial life, medicine, functions of religious institutions and practices, and contrast/conflict with non-Native religious systems.

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)
Survey course on the ancient cultures of California, historical development of California Indian cultures according to regional resources, conflict between the California Indian people and various colonial forces, arts and culture of California Indian people, and contemporary issues of California Indians.

160. The Politics of Indian Education (3)
This seminar examines the interaction of politics, culture, and education, using case studies of federal financing of Indian education in the mission, Bureau of Indian Affairs, tribal, and public school systems.

170. Experience in American Indian
Community (3; max total 6)
Offers students supervised field experience working for a tribe, tribal/Indian organization, tribal school or Indian education program, public agency, or the university's Indian organizations.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

195. Diversity in the United States:
Race and Gender Issues (3)
(See CLS 195.)

Geography

Geography is an integrative discipline that bridges the natural and social sciences. Its distinctiveness is as much a product of its unique approach to the study of the earth and its human inhabitants as it is the subject matter itself. Thus, geography employs a spatial framework for organizational purposes analogous to the chronological framework employed in history.

Central to geographic inquiry is a concern with the human occupance of the earth, the character of the human environment, and the interrelationships that link humans and the physical world. In sum, geography seeks to provide a broad understanding of the world, its people, and its problems and to provide applied specializations and technical skills that can address economic, social, and environmental problems at scales that range from local to global.

Not surprisingly, the subject matter of geography is diverse. Geographers examine and analyze patterns of rural and urban settlement, resource exploitation, land use, social and cultural phenomena. They are concerned with the natural features and processes of the earth's surface, the ways in which nature has conditioned the human occupance of the earth, and the ways in which people have modified natural landscapes.

The department's instructional programs are designed to address several objectives. First, for the larger number of our students, we provide a greater understanding of the world as an element of a liberal education. Second, we conduct programs for majors and minors in geography that assure a depth of knowledge in subject matter and technique. Third, we serve those students in related disciplines who wish to strengthen programs of study through a selection of courses in geography.

Faculty and Facilities

Instruction at introductory, advanced, and graduate levels is conducted by a faculty whose teaching and research interests are diverse. All major facets of the discipline are represented as are a number of specializations.

A variety of facilities is available for student use. Well-equipped laboratories are maintained for the conduct of research and instruction in physical geography and the technique fields — Geographic Information Systems (GIS), cartography, air photo interpretation and remote sensing, meteorological instrumentation, and quantitative analysis. The department also operates a weather station.

The department has a computer laboratory for mapping, Geographic Information Systems (GIS), and a variety of other applications. The department is also well-equipped for fieldwork.

Career Opportunities

Geographers are employed in government and the private sector. Their knowledge and skills have applications in a variety of fields including teaching, planning, cartography, GIS, locational analysis, intelligence and security, land and resource management, policy research, transportation, and industrial development.

Agencies of federal, state, and local governments are major employers of geographers. At the federal level many agencies employ geographers. At state and local levels most geographers are involved in planning, land and resource management, and community development. Because many businesses and industries have important geographical dimensions to their operations, there is demand for geographers in the private sector. Geographers are employed in banking, transportation, international trade, utilities, wholesaling and retailing, and a number of other fields. Finally, teaching is a major occupation for individuals with training in geography. The department welcomes inquiries about career opportunities.

College of Social Sciences

Department of Geography

Stanley F. Norsworthy, *Chair*
Betsy Swift, *Department Administrative Assistant*
Science Building, Room 182
(559) 278-2797

B.A. in Geography

M.A. in Geography*

Minor in Geography

Minor in Urban Studies

Subject Matter Preparation for Single Subject Teaching Credential in Social Sciences

Faculty

Stanley F. Norsworthy, *Chair*
Jerry C. Towle, *Graduate Adviser*
Robert E. Lee, *Undergraduate Adviser*
James S. Kus
Chi Kin Leung
Wayne V. Merchen
Joyce A. Quinn
S. Jeffery Underwood
Paul Vander Meer

*As of fall 1998, admission to the M.A. in Geography has been suspended. Suspension is not expected to exceed three years.

Bachelor of Arts Degree Requirements

Geography Major

The Bachelor of Arts degree with a major in geography requires the completion of 124 units, at least 42 of which shall be in geography. 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
Major requirements	**42**
Lower-division courses: GEOG 2, 4, 7, and 5 or 10	(12)
Upper-division breadth requirements (see *Advising Notes*)	(30)
General Education	**51**
Electives and remaining degree requirements* (See *Degree Requirements*); may be used toward a dual major or minor	**31-37**
Total	**124**

* This figure takes into consideration the fact that the Department of Geography will allow a maximum of 6 units of lower-division General Education courses to be applied to the geography major requirements. The applicable courses are GEOG 2, 4, and 10, which are anticipated to also meet General Education requirements. Consult the department chair or faculty adviser for additional details.

Advising Notes

1. Geography majors can select either a *Technical* or a *General* emphasis for their major.

   For the *Technical emphasis*, select:
   a. 12 units from Geographic Techniques
   b. Either 9 units from Physical-Environmental Studies and 3 units from Human-Systematic or 9 units from Human-Systematic and 3 units from Physical-Environmental Studies
   c. 3 units from Regional Geography courses
   d. 3 units of electives from upper-division Geography courses.

   For the *General emphasis*, select:
   a. 4 units from Geographic Techniques
   b. 12 units from one of the categories: Physical-Environmental, Human-Systematic, or Regional Geography
   c. 6 units from each of the two remaining categories: Physical-Environmental, Human-Systematic, and Regional Geography
   d. 2 units of electives from the upper-division Geography courses.
2. No more than 3 units of GEOG 195 may be applied to the geography major.
3. No General Education Integration course offered by the Department of Geography may be used to satisfy the General Education requirements for geography majors.
4. *CR/NC* grading is not permitted in the geography major with the exception of GEOG 192 and 195.
5. General Education and elective units may be applied to a second major or a minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
6. It is strongly recommended that students interested in professional careers complete coursework in Geographic Techniques and City and Regional Planning (if applicable) and complete a minor in a related field.
7. Students must 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.
8. The selection of an emphasis will be strongly influenced by career goals, interests in graduate study, and related matters. Whether one's interest focuses on environmental protection, planning, cartography, GIS, 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, 4, 5, or 7	**9**
Elect from upper-division geography*	**12**
Total	**21**

* No more than 3 units earned in GEOG 195 may be applied to the minor. Students completing a minor in geography are encouraged to seek faculty advice relative to course selection and program planning.

Credential Program

See the Social Sciences credential adviser, Jared Stallones, in Social Science, Room 215, for advising, and refer to *Secondary Teaching Credential* under Social Sciences Programs.

Urban Studies Minor (Interdisciplinary)

The Urban Studies Minor provides exposure to the analysis of urban and regional problems and serves as an excellent supplement to other academic degree programs offered throughout the university. A special major in urban studies may be designed to meet the needs of students with an interest in this area.

Coordinator: Wayne V. Merchen, Professor of City and Regional Planning, Geography Department.

Faculty Advisers: Mary A. Ludwig, Anthropology Department; Edward E. Nelson, Sociology Department.

Required Courses	*Units*
Concepts and Issues*	**9**
GEOG 160, or SOC 163	(3)
PL SI 181	(3)
C R P 100	(3)
Methods and Techniques*	**6-9**
Select from the following list of courses: C R P 135; GEOG 101, 110; PL SI 90; SOC 175	
Electives	**3-6**
With the approval of a program adviser, elect 3-6 units with no more than 3 lower-division units from the following list of courses: AF AM 135; ANTH 172; B A 120, 154; C R P 110T, 135, 190, 192; CLS 3; CRIM 2; ECON 40, 50; ETH S 1, 104W; FIN 180; GEOG 101, 107, 108, 109, 128, 146, 160; HIST 137; PL SI 90, 103, 160, 163; SOC 2, 25, 111, 131, 163. Senior students may elect internship by registering for S SCI 185 (1-3 units).	
Total	**21**

* Students with a course equivalent to one in this category, taken in their major, may, with the approval of the coordinator, substitute additional units from the electives list for the units required here.

Graduate Program

The Department of Geography offers the Master of Arts degree in Geography. Students may select thesis or nonthesis options, both of which require the completion of 30 units of graduate work. Electives may be chosen that emphasize skills necessary to compete successfully for private or public

employment opportunities or that will prepare graduates to teach geography at the community college level. All graduates will be well prepared for entry into doctoral programs in geography or related fields.

Structure and content of the Master of Arts program in Geography reflect the philosophy that all graduates shall be geographically literate. The program provides an education that incorporates a balance between theory and practice, cultural and physical, and technical and regional geography. In order to implement this philosophy, program content ensures that graduates have an opportunity to develop a sound knowledge of geographical theory, concepts, and practice; an awareness of the importance of excellence of communication skills; and an ability to make effective use of verbal, written, computer-based, and graphic media.

The department recognizes the growing demand for new and rapidly expanding technical dimensions in geography and its allied disciplines and thus offers graduate courses in Geographic Information Systems (GIS) and city and regional planning. Special program needs of individual students may be met through cooperative agreements with other departments in the College of Social Sciences.

Master of Arts***
Degree Requirements

Applicants to the Master of Arts in Geography who have an undergraduate degree in Geography may be admitted with classified standing if they meet the following requirements:

1. have earned a minimum GPA of no less than 3.0 in the undergraduate geography major and
2. have demonstrated competence in computer applications, statistics, and cartography or computerized mapping.

Applicants who hold an undergraduate degree in geography, but who do not meet these requirements may be admitted at the discretion of the Graduate Committee. At the time of admission, the Graduate Committee will specify the conditions that must be met to achieve classified standing.

Applicants to the degree program for the Master of Arts in Geography who do not have an undergraduate degree in Geography may be admitted with conditional classified standing and must meet the following requirements as a condition for receiving classified standing.

1. Have completed lower-division geography courses, with a grade of *B* or better, in each of the following areas:
   a. Cultural geography, equivalent to GEOG 2
   b. World regional geography, equivalent to GEOG 4
   c. Physical geography, equivalent to GEOG 5 and GEOG 7
2. Have completed a minimum of 12 upper-division units of geography with a GPA of no less than 3.0.
3. Have demonstrated competence in the following three areas: (1) computer applications, (2) statistics, and (3) cartography, computerized cartography, or other acceptable graphics-oriented area.

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

For specific requirements, consult the department graduate adviser or the department chair; for general requirements, see the *Division of Graduate Studies* section in this catalog.

Under the supervision of the department's graduate adviser, each student develops and submits a proposed program of study for approval by the department's Graduate Committee and chair. This 30-unit degree program must include a minimum of 21 units taken from 200-series courses. In addition, programs must include the following elements:

	Units
Graduate Core Seminars GEOG 200*, 230, and GEOG 206T or 260T	**9**
Electives Select from 100- and 200-level geography and other related courses**	**15-18**
Thesis or Project	**3-6**
Total	**30**

* GEOG 200 meets the graduate writing skills requirement and must be completed prior to advancement to candidacy.

** Courses must be selected in consultation with the departmental graduate adviser. A maximum of 9 units may be selected from related disciplines.

*** As of fall 1998, admission to the M.A. in Geography has been suspended. Suspension is not expected to exceed three years.

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. G.E. Breadth D3. (CAN GEOG 4)

4. World Geography (3)
Survey of world-wide social, cultural, economic and political forces; earth's physical features; economic development; cultural and natural resources; man-land relationships. Applicable concepts and methodologies. Approach is by continents and/or cultural realms. G.E. Breadth D3.

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.

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.

10. Introduction to Meteorology (3)
Not open to students with credit in GEOG 5. Prerequisite: General Education Quantitative Reasoning requirement. Study of earth's atmosphere and atmospheric phenomena. Basic elements of meteorology. Relationships between humans and the atmosphere — e.g., global warming, hurricanes and tornadoes, air pollution, El Niño. (2 lecture, 2 lab hours)

Geographic Techniques (GEOG)

100. Cartography (4)
Introduction to the field. History of mapmaking, map projections, theory of map communication. Practical experience in compilation, generalization, symbolization, and design to produce original pen-and-ink drafted maps. Teaches the skill of presenting tabular data in map form. (2 lecture, 4 lab hours) (Course fee, $10)

101. Computers in Geography (4)
Introduction to computer applications in geography. Fundamental concepts of computers, Internet, word processing, programming, database, computer mapping, remote sensing, and GIS applications. No

computer and statistical experience required. (2 lecture, 4 lab hours)

102. Computer Cartography (4)
Prerequisite: GEOG 101 or permission of instructor. Map design and production in a computer environment: business graphics, desktop publishing, computer-aided design, thematic mapping, three-dimensional surfaces, and graphic programming. (2 lecture, 4 lab hours)

104. Map Interpretation (4)
Prerequisite: GEOL 1, GEOG 7, or permission of instructor. Reading and interpretation of USGS-type topographic maps. Emphasis on interpretative inference concerning both physical and cultural landscapes. (2 lecture, 4 lab hours)

105. Aerial Photograph Interpretation (4)
Prerequisites: GEOL 1 or GEOG 7; GEOG 101 or permission of instructor. Aerial photography, videography, and multispectral scanner technology; image interpretation; computer-based digital processing; monitoring and mapping of terrain features; georeferencing (GPS); GIS applications. (2 lecture, 4 lab hours)

106. Advanced Aerial Photo Interpretation and Remote Sensing of Environment (4)
Prerequisite: GEOG 105. Advanced techniques of remote sensing, e.g., hyperspectral and radar imaging; advanced computer-based digital processing; advanced monitoring and mapping of terrain features; advanced GIS applications. (2 lecture, 4 lab hours)

107. Introduction to Geographic Information Systems (4)
Prerequisite: GEOG 101 or permission of instructor. Fundamental concepts of acquisition, structure, manipulation, and analysis of data in a GIS environment. Practice in the design, management, and implementation of GIS. (2 lecture, 4 lab hours)

108. Spatial Analysis in Geographic Information Systems (4)
Prerequisite: GEOG 107. Spatial analysis and modeling in a GIS environment. Spatial geometry, pattern analysis, terrain analysis, path analysis, network analysis, surface modeling, spatial autocorrelation, spatial regression, spatial classification, and spatial interpolation. (2 lecture, 4 lab hours)

109. Technical Field Geography (3)
Prerequisite: geography major or permission of instructor. Gathering and analysis of data pertaining to topics in physical or human geography. Includes an on-campus seminar to discuss issues and concepts. (1 lecture, 4-8 field hours)

110. Basic Quantitative Techniques (4)
Introduction of elementary statistical principles and techniques: probability theory, sampling, descriptive statistics, spatial statistics, hypothesis testing, correlation analysis, bivariate regression, and forecasting. (3 lecture, 2 lab hours)

Physical-Environmental Geography (GEOG)

111. Meteorology (3)
Prerequisite: GEOG 5 or equivalent. Study of the earth's atmosphere; energy exchanges and temperature; pressure and air circulation; fog, clouds, precipitation and the hydrologic cycle; cyclonic storms and orographic processes; stability and thunderstorms; weather modification and predictions with application to agriculture, aviation, and other activities.

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 their occurrence.

114. Microclimatology (3)
(Same as PLANT 134.) Prerequisite: GEOG 5 or equivalent. Micrometeorological influences on local climates including natural ecosystems and varying agricultural canopies. Local climate influences on wildlife, domestic animals, and humans. Manipulation of local climate including frost protection, irrigation and wind sheltering. Microclimates of non-uniform terrain and urban environment.

117. Plant Geography (3)
Study of earth's plant cover; world floras; dispersal and migration; environmental effects on distributions; plant communities; major vegetation regions.

120. World Landform Regions (3)
Prerequisite: GEOG 7 or equivalent. A systematic analysis of types of world landform regions with emphasis on glaciated regions, arid lands, and volcanic lands.

121. United States Landform Regions (3)
Prerequisite: GEOG 7 or equivalent. 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.

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.

Human-Systematic Geography (GEOG)

127. Human Impact on Nature (3)
Ways in which man's activities have altered climate, landforms, soil and water conditions, and natural vegetation.

130. Geography of World Economy (3)
An examination of the organization of world economy and human economic activities from a geographical perspective. Discussion of contemporary economic issues may include industrial restructuring, technological innovation, foreign trade and investment, Pacific Asia dynamism, Third World crisis, new international economic order, regional inequality, and local area development.

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.

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.

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.

147. Population Geography (3)
Geographical analysis of the causes and consequences of global population growth, migrations, distributions, and relationships to natural resources.

150. Agricultural Geography (3)
Analysis of areal distribution of agricultural (crops and livestock) patterns of the world. Interactions with the environment, role in economies.

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.

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.

162. Political Geography (3)
Systematic treatment of the nature and structure of states, boundary problems, political policy for the oceans, international power, air space.

163. World Crises (3)
Current major political, economic, and environmental crises occurring on either a global or a regional level.

164. American Ethnic Geography (3)
Geographical analysis of selected American ethnic groups to include their cultural hearths, cultural landscapes, cultural evolutions, migrations, and current spatial distributions. Economic, social, and political correlates will be explored.

167. People and Places — A Global Perspective (3)
Contrasting characteristics of a diverse world; influence of major social, cultural, economic, and political forces on societal behavior and institutions; impacts of geographical factors including location, climate, natural resources, urbanization, diffusion/adoption of innovations, and rural/urban life styles on development. G.E. Multicultural/International MI.

Regional Geography (GEOG)

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.

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 United States, the American West, the South, the Middle West, and the North East.

168. Geography of California (3)
Natural and cultural patterns of California; historical and regional geography of the state.

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.

172. Ancient Peru (3)
The geography of Ancient Peru. The physical landscape and human modification of that landscape over time. Emphasis on the origin of agriculture and the rise of urbanism in the Andean Region.

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.

176. Geography of the Commonwealth of Independent States — Formerly USSR (3)
Comprehensive study of the economic, cultural, physical, and political geographic foundations of the Commonwealth of Independent States, followed by intensive study of selected nations within the realm.

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, China, and the Far East.

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.

180. Biblical Lands (3)
The focus of this course is the area that spawned three of the world's great religions — Christianity, Judaism, and Islam. A geographical approach is employed in describing and analyzing this cultural hearth.

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 Developing Black Africa, North Africa, West Africa, East Africa, Central Africa, and Southern Africa.

182. Subsaharan Africa (3)
Comprehensive study of the economic, cultural, physical, and political geographic foundations of Subsaharan Africa.

183T. Australia, New Zealand, and Pacific Islands
(3; max total 6 if no area repeated.)
Geographic relationships of natural and cultural features to social and economic development.

Geographic Topics, Research and Field Trips (GEOG)

188T. Topics in Geography
(1-3; max total 9)
Selected topics in cultural, physical, environmental, or economic geography or in geographic techniques.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

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. *CR/NC* grading only.

195. Field Geography (1-6; max total 6)
Prerequisite: permission of instructor. Weekend, semester break, or summer field trips. *CR/NC* grading only.

City and Regional Planning (C 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.

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.

135. Environmental Law (3)
Contemporary environmental problems and their interrelationships. The conceptual, constitutional, and administrative framework for environmental protection and management. Legislation and case law for the protection and enhancement of the environment with emphasis on natural resources.

190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Directed Readings (1-3; max total 6)
Prerequisite: permission of instructor. Supervised readings in a selected field related to city and regional planning.

GRADUATE COURSES

(See *Course Numbering System*.)

Geography (GEOG)

200. Methods in Geographic Research and Writing (3)
Prerequisite: permission of instructor. Intensive library work, manuscript preparation, and small group interaction to impart strategies, methods, and skills for proper geographic research and writing.

203T. Seminar in Economic Geography (3; max total 6)
Prerequisite: GEOG 130 or 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 6)
Prerequisites: GEOG 5 or 7 and an upper-division Physical Geography course or 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.

210T. Seminar in Geographic Techniques (3; max total 12)
Prerequisites: GEOG 107 and 108 or permission of instructor. Detailed examination of principles, concepts, and theories of such geographic techniques as geographic information systems (GIS), remote sensing, quantitative analysis, and field methods.

230. Seminar in Contemporary Geographic Thought (3)
Current theories of geography and their evolution.

260T. Seminar in Human Geography (3; max total 6)
Prerequisites: GEOG 2 and an upper-division Human Geography course or 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)
Prerequisite: permission of instructor. 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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

292. Directed Readings in Geography (1-3; max total 6)
Prerequisite: graduate standing. Supervised reading in a selected geographic topic. *CR/NC* grading only.

298. Project (3)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable project for the master's degree. Approved for *SP* grading.

299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for *SP* grading.

City and Regional Planning (C R P)

212T. Seminar: Topics in Planning (1-3; max total 9)
Prerequisite: permission of instructor. Selected urban planning topics to serve student needs not met by other university courses.

280T. Internship in Planning (2-4; max total 4)
Prerequisite: permission of instructor. 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. Approved for *SP* grading. Final grade subject to *CR/NC* grading only.

290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

292. Directed Readings in City and Regional Planning (1-3; max total 6)
Prerequisite: graduate standing. Supervised reading in a selected city and regional planning topic. Approved for *SP* grading.

History

History is the study of humanity's recorded past. It encompasses all aspects of human behavior, social organization, and cultural development. The arts and the sciences, the development of technology, and changing economic forces are as much a part of history as is politics or social conflict.

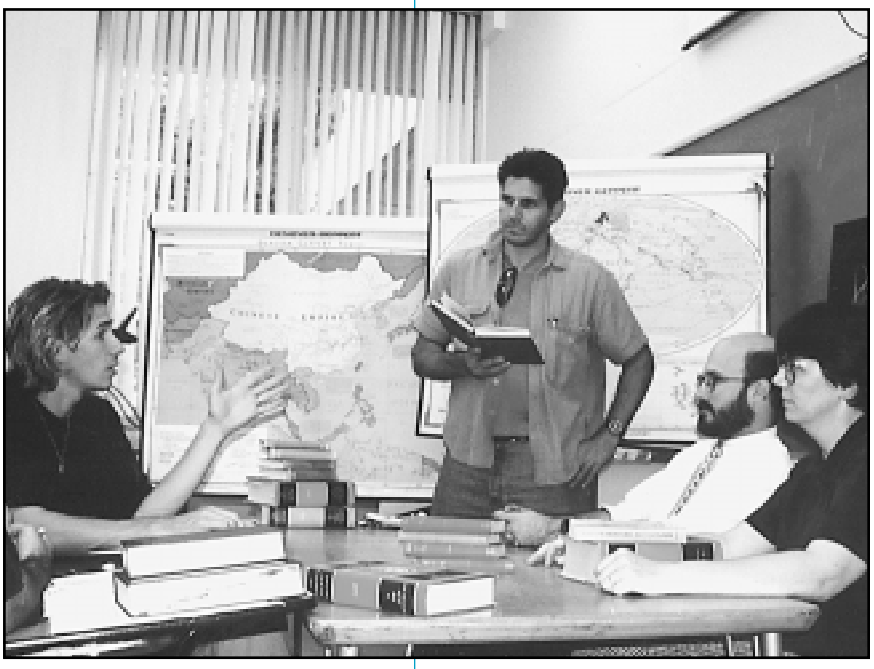
Students of history are engaged in a journey through time in which they can witness and compare the development of a variety of cultures and the interrelations between people in many different circumstances. Through the study of past events, history provides a great storehouse of experience by which the theories of the other social sciences can be tested. And through its analysis of the development of institutions and cultures, it provides one of our best tools for understanding social phenomena.

History is also one of the broadest and most universal of the humanities. Just as the personalities of individuals are shaped through the totality of their past experiences, so cultures and institutions also develop in time. The study of history can help students understand themselves and their culture better and develop a more tolerant and humane spirit toward others. In this way, as in so many others, a knowledge of the past can help all of us meet the problems of today with greater understanding and compassion.

Faculty and Program

The Department of History has 18 faculty members offering a wide variety of courses in the history of Europe, the United States, Latin America, the British Empire, Africa, the Middle East, and the Far East, as well as courses in intellectual and cultural history, social history, military history, and the history of women.

The History Department offers a major and minor in history for the Bachelor of Arts degree, a graduate program leading to the Master of Arts, and courses for use in the teaching credential program. It participates in the interdisciplinary programs and minors in Armenian studies, Asian studies, classical studies, Latin American studies, Russian area studies, and women's studies. History courses may also be used as electives toward graduation in most other majors, and the History Department encourages students to take minors and second majors in other fields as well.



College of Social Sciences

Department of History
Warren E. Gade, *Chair*
Alice Ricardo, *Department Administrative Assistant*
Social Science Building, Room 101
(559) 278-2153

B.A. in History

M.A. in History

Minor in History

Subject Matter Preparation for Single Subject Teaching Credential in Social Science

Career Opportunities

History majors are trained to read with comprehension and to compare and analyze both written and oral material. In addition they must know how to evaluate evidence and sources, how to critique the writing of others, and how to do research and writing on their own. These are highly valued skills in many occupations and professions today, and the History Department offers preparation for careers in teaching, law, government service, librarianship, journalism, publishing, and business. Career opportunities may also be found in such diverse fields as marketing, advertising, insurance, public relations, social services, urban planning, and the foreign service.

Students with questions related to their future careers are encouraged to consult with the faculty advisers of the History Department, as well as with the Office of Advising Services and the Office of Career Planning and Placement Services, which can provide much useful information with regard to career planning and current job market trends.

Faculty

Warren E. Gade, *Chair*

Warren E. Gade, *Undergraduate Adviser*
Pamela D. Lackie, *Graduate Adviser*
Jared R. Stallones, *Social Science Credential Adviser*

D. Loy Bilderback
John W. Bohnstedt
James M. Brouwer
Jacqueline B. Carr Frobose
Sidney H. H. Chang
Robert Dinkin
Jeronima Echeverria
Jill S. Fields
H. Marshall Goodwin Jr.
David C. Hudson
Isabel Kaprielian
John C. Kendall
W. Hudson Kensel
Peter J. Klassen
Pamela D. Lackie
Jesus Luna
Malik Simba
William E. Skuban
Ephraim K. Smith Jr.
Jared R. Stallones

Bachelor of Arts Degree Requirements

History Major	*Units*
Major requirements	**42**
Lower-division requirements (select four): HIST 1, 2, 3, 5, 6, 7, 8	(12)
Upper-division requirements HIST 100 and 27 additional history upper-division units	(30)
General Education	**51**
Electives and remaining degree requirements* (See *Degree Requirements*); may be used toward a dual major or minor.	**31-37**
Total	**124**

*This figure reflects the expectation that two courses required of the History major will also satisfy General Education Requirements. Consult the history department chair or faculty adviser for additional details.

Advising Notes

1. No more than two General Education Breadth courses may be counted toward the history major.
2. No General Education Integration course offered by the Department of History may be used to satisfy the General Education requirements for history majors.
3. History majors are not permitted to take history courses by *CR/NC* grading.
4. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
5. Students who are planning to do graduate work in history are advised to take a foreign language as an undergraduate in consultation with the History Department.
6. The 27 units of upper-division history electives must be selected from the three fields listed below. At least one course must be selected in each field, but no more than 18 units in one field. At least one course must deal primarily with history prior to 1700.

Fields

Western Hemisphere: HIST 101, 102T, 137, 153, 160, 162, 165, 166, 169T, 171, 172, 173, 174, 175, 177, 178, 179T, 180, 181, 182, 183, 184, 185, 186, 188, 189, 190, 198.

European: HIST 103, 111, 112, 116, 119T, 120, 121, 122, 124T, 125, 126, 129T, 130, 131, 132, 133, 134, 135, 136, 138, 140, 141, 142, 143, 145, 147, 149T, 150, 151, 190, 198.

Asian, African, and Middle Eastern: HIST 107, 108A, 108B, 109T, 110, 114, 115, 157, 190, 191, 192, 198, 199T.

History Minor

The History Minor consists of 18 units of upper-division history courses, which should be chosen in conjunction with an adviser in the History Department. History minors are not permitted to take history courses by *CR/NC* grading.

Credential Program

See the social science credential adviser, Jared R. Stallones, in the Social Science Building, Room 215.

American History Requirement

The American history requirement for graduation may be fulfilled by passing (a) the Advanced Placement Examination (see *Advanced Placement*) or (b) HIST 11 or 12.

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 this university's major in history. Majors from other disciplines may 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 before receiving classified standing.

Master of Arts Degree Requirements

(See *Division of Graduate Studies*.)

The History Department offers a 30-unit Master of Arts program. The basic requirements are as follows:

A. Core: 15 units, consisting of HIST 200 (3 units); HIST 210 or 220 (3 units); HIST 230, 235, 242, or 245 (3 units); HIST 250, 260, or 270 (3 units); HIST 280T (3 units).
B. Six units from among HIST 210, 220, 230, 235, 242, 245, 250, 260, and 270. With the approval of the departmental graduate adviser, the student may substitute up to 6 units of related courses in other departments or 6 units of 100-level history courses (except HIST 100, 190, 198) which appear especially appropriate to the student's area of research. Selected Topics courses and Senior Seminars may also be used upon consultation with and the approval of the graduate adviser.
C. Three units from among HIST 290 and 292.

Thesis: 6 units of HIST 299A-B.

Foreign Language Requirement. All graduate students of the Department of History must pass a reading competency examination in at least one foreign language approved by the graduate adviser before being advanced to candidacy. For further information, consult the department graduate adviser.

COURSES

History (HIST)

1. Western Civilization 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. (CAN HIST 2)

2. Western Civilization 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 contemporary European life. (CAN HIST 4)

3. Colonial America (3)
Western Hemisphere history from discovery to independence.

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.

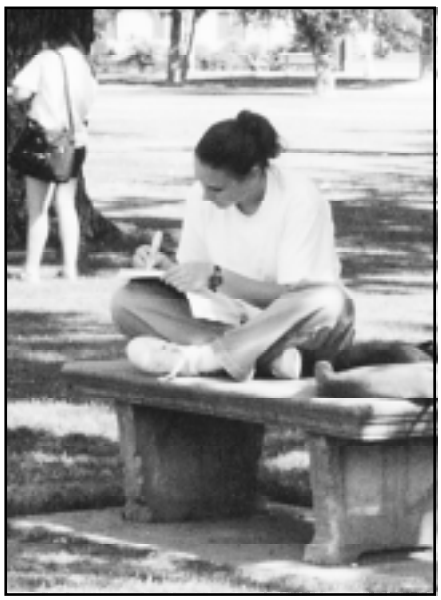
7. African Civilization (3)
Not open to students with credit in HIST 157 prior to fall 1983. Survey of African history from ancient times to the present. Emphasis is on political, economic, and religious movements which have contributed to the rich diversity and the distinctive unity of African civilization.

8. Republics of Latin America (3)
Rise of the modern Hispanic American states since 1800: political, social, economic development.

11. American History to 1865 (3)
Examines the history of the United States through 1865, looking at the significant events from the founding of the colonies to the Civil War, including the role of major ethnic and social groups in the formation of the American nation. G.E. Breadth D1. (CAN HIST 8)

12. American History from 1865 (3)
Examines the history of the United States from 1865, looking at the significant events from the Civil War, including the role of major ethnic and social groups in the formation of the American nation. G.E. Breadth D1. (CAN HIST 10)

100. Introduction
to Historical Method (3)
Not open to students with credit in HIST 100W. Prerequisites: ENGL 1, upper-division standing. 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.



101. Women in History (3)
(Same as W S 101.) Historical survey of women's roles in history, with an emphasis on the emergence of the feminist movement.

102T. Topics in Women's History
(3; max total 6 if no topic repeated)
(See W S 102T.)

103. History of Early Christianity (3)
Early Christianity from the first century to eve of Reformation.

105. Armenian Genocide
in Comparative Context (3)
(Same as ARM S 105.) Review of theory and characteristics of genocide. Study of the Armenian Genocide as an example and show comparison with other genocides in the 20th century. Discusses role of international constituencies and prevention and lessons of genocide. (Formerly HIST 109T section)

106. Armenians in North America (3)
(Same as ARM S 106.) Study of six waves of Armenian migration to North America from 1870-1995. Topics discussed include entry, settlement, work, family, community organizations, church, politics, culture, and integration in U.S. Society. (Formerly HIST 109T section)

107. Modern Middle East (3)
Analysis 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.

108A. Armenian History I:
Ancient and Medieval (3)
(Same as ARM S 108A.) History of Armenia and Armenians from prehistoric times to the beginning of the modern era. The historical process will be considered from Armenia's point of view as well as from that of its neighbors: Assyria, Iran, Rome, Byzantium, the Arabs, the Seljuk Turks, the Crusades, the Mongols, and various Turkic dynasties.

108B. Armenian History II:
Modern and Contemporary (3)
(Same as ARM S 108B.) Overview of modern and contemporary Armenian history, including Armenia's relations with Persian, Turkish, and Russian empires, the Armenian Renaissance, the "Armenian Question," the Genocide, the Armenian Republic, Soviet Armenia, the Second Armenian Republic, and diasporan communities in America, Europe, and the Middle East.

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. Ancient Egypt (3)
The history and culture of Egypt from prehistoric times to the death of Cleopatra. In addition, Phoenicia and Carthage are briefly discussed.

115. Ancient Israel (3)
Ancient Israel from Abraham to the destruction of Jerusalem in 70 A.D. Jewish religious thought is discussed by placing the books of the Old Testament in their historical context.

116. Greek and Roman Religion (3)
Analysis of the religious ideas, customs, and practices of ancient Greeks and Romans from the time of Homer to the establishment of Christianity.

119T. Studies in Ancient History
(1-3; max total 6 if no topic repeated)
Intensive study of special topics.

120. Byzantine History (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)
Prerequisite: HIST 1 or permission of instructor. Medieval Europe from the fall of the Roman Empire in the West to the Renaissance. (Formerly HIST 121A)

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)
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)
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)
European culture, society, and politics from 1600 to the death of Louis XIV.

131. Europe in the 18th Century (3)
Intellectual, social, and political development of Europe from 1715 to the French Revolution and Napoleon Bonaparte.

132. Europe in the 19th Century (3)
Prerequisite: HIST 2 or permission of instructor. 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. (Formerly HIST 132A)

133. Europe in the 20th Century (3)
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)
Analysis 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 worldwide influence. (Formerly HIST 135A)

136. European Military History
from Napoleon to Hitler (3)
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 to 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.

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 are analyzed.

140. Modern France (3)
The culture, politics, and society of France from the Old Regime to the Fifth Republic.

141. Modern Germany (3)
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. Tsarist Russia (3)
The political, economic, and social history of Tsarist Russia from 862 to 1917.

143. The Soviet Union (3)
The political, economic, and social history of the Soviet Union since 1917. (Formerly HIST 143A)

145. Spain and Portugal (3)
Development of the Iberian Peninsula from prehistoric to modern times.

147. Eastern Europe (3)
An analysis of the history of East Central Europe and the Balkans.

149T. Studies in
Modern European History
(1-3; max total 6 if no topic repeated)
Intensive study of special topics.

150. England to 1485 (3)
Structure of the British government, society, and economic life from Roman times to The War of the Roses.

151. England and the Empire (3)
Rise of England and the British nation; spread of the English-speaking peoples and the transfer of British institutions; from 1485 to the modern era.

152. British History in Film
(3-4; max total 4)
Discussion and written historical analysis of selected cinematic masterpieces in British history, from Henry II to the modern era.

153. Canada (3)
Analysis of the Canadian historical experience; from discovery, through French regime and British Empire, to modern transcontinental nation.

157. Modern Africa (3)
The history of Africa since 1800. Topics given special attention include the slave trade and its abolition, European exploration, the imposition of European colonial

Dr. Isabel Kaprielian, shown here with one of her students, specializes in modern Armenian history and immigration. Courses she teaches include American Ethnic History (HIST 186), Armenians in America (ARM S 120T), Armenian History II: Modern and Contemporary (HIST 108B), and The Armenian Genocide in Comparative Context (HIST 105).

rule, African nationalism, the struggle for independence and Africa's rise to prominence in world affairs.

160. The Great American Civilizations: Maya, Aztec, Inca (3)
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.

162. South America (3)
The history of South American republics, with an emphasis on such themes as instability, economic development, political parties, and revolution.

165. Modern Mexico (3)
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)
History of the relations between the United States and Latin America, ranging from the Monroe Doctrine through the Good Neighbor Policy, Alliance for Progress, and the Caribbean Basin Initiative.

169T. Studies in Latin American History
(1-3; max total 6 if no topic repeated)
Intensive study of special topics.

171. Early American History, 1607-1789 (3)
Prerequisite: HIST 11 or permission of instructor. First of a sequence of five 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. (Formerly HIST 171A)

172. United States History, 1789-1865 (3)
Prerequisite: HIST 11 or permission of instructor. Political, economic, social, and cultural developments from the beginning of the Republic through the Civil War. (Formerly HIST 172A)

173. United States History, 1865-1914 (3)
The development of an increasingly urban and industrialized society from Reconstruction to the eve of World War I.

174. United States History, 1914-1945 (3)
The United States in world affairs; political, economic, social, and cultural developments and problems from 1914 to 1945.

175. United States History, 1945-Present (3)
Prerequisite: HIST 12 or permission of instructor. The United States in world affairs; political, economic, social, and cultural developments, and problems from 1945 to present. (Formerly HIST 175A)

177. American History in Film (3)
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 African Americans (3)
(See AF AM 178.)

179T. Studies in United States History
(1-3; max total 6 if no topic repeated)
Intensive study of special topics.

180. United States Military History (3)
An overview of American military history, with emphasis on the 20th century. Tactical and strategical analysis of American participation in armed conflicts. Study of the impact of technology and the evolution of tactics.

181. Westward Movement to 1848 (3)
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.

182. Westward Movement Since 1848 (3)
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.

184. American Diplomatic History to 1898 (3)
Not open to students with credit in HIST 184A. Principles, ideals, and policies of the United States in diplomatic relations from 1775 to 1898.

185. American Diplomatic History, 1898-Present (3)
Not open to students with credit in HIST 184B. Principles, ideals, and policies of the United States in diplomatic relations as a great world power in the 20th century.

186. American Immigration and Ethnic History (3)
Covers America, land of immigrants. American immigration policy, regulations, and implementation. Ethnic formation and heritage retention or loss. Pluralism, assimilation, and national unity: *e pluribus unum*. G.E. Multicultural/International MI.

188. Early California (3)
Not open to students with credit in HIST 189A prior to fall 1986. 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.

189. Modern California (3)
Not open to students with credit in HIST 189B prior to fall 1986. Social, cultural, economic, and political development of California from the 1860s to the present.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

191. Modern Far East, 1843-1949 (3)
Not open to students with credit in HIST 191A. History of the Far East from the conclusion of the Opium War to the eve of Chinese Communist Revolution. Particular emphasis on China, Japan, and Korea.

192. Modern Far East, 1949-Present (3)
Not open to students with credit in HIST 191B. History of the Far East from the success of the Chinese Communist Revolution in 1949 to the present. Particular emphasis on China, Japan, Korea, and Vietnam.

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*.)

History (HIST)

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.

210. Seminar: Interpretations in United States History to 1865 (3)
Intensive reading and discussion/analysis of significant historical literature and problems in United States history to 1865.

220. Seminar: Interpretations in United States History since 1865 (3)
Intensive reading and discussion/analysis of significant historical literature and problems in United States history since 1865.

230. Seminar: Interpretations in Ancient History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in the history of the ancient Mediterranean, classical Greece, and Rome.

235. Seminar: Interpretations in Medieval History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Medieval history.

242. Seminar: Interpretations in Early Modern European History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Early Modern European history, 1450 to 1815.

245. Seminar: Interpretations in Modern European History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in European history since 1789.

250. Seminar: Interpretations in Latin American History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Latin American history.

260. Seminar: Interpretations in African History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in African history.

270. Seminar: Interpretations in Asian History (3)
Intensive reading and discussion/analysis of significant historical literature and problems in Asian history.

280T. Research Seminar (3)
Prerequisite: 6 units from among HIST 200, 210, 220, 230, 235, 242, 245, 250, 260, and 270 or approval of graduate adviser. The writing of a major research paper in a seminar setting, based on intensive research. Topics studied will vary with the instructor. May be repeated for graduate credit if topics do not overlap.

290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

292. Directed Readings
(1-3; max total 3)
Prerequisite: permission of instructor. Readings on selected themes and topics in consultation with a faculty adviser.

299A-B. Thesis (3-3)
Prerequisite: See *Criteria for Thesis and Project*. 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. Approved for *SP* grading.

IN-SERVICE COURSE

(See *Course Numbering System*.)

History (HIST)

300. Topics in History
(2; max total 8 if no topic repeated)
Selected topics in various fields of history, e.g., European, The Americas, United States, non-Western.

Peace and Conflict Studies

Peace and Conflict Studies

The overall purpose of the program in Peace and Conflict Studies (21-unit minor) is to prepare students, including potential leaders, with peacemaking and conflict management skills they can apply to daily life situations, regardless of their academic disciplines or chosen professions. The program has been developed to provide an interdisciplinary perspective to the study of conflict, violence, war, and peace. Such an approach is essential in view of the highly complex, interconnected, interdependent world in which we live. This requires an understanding that allows people to respond creatively, rather than thoughtlessly, to conflict and violence at various levels. This interdisciplinary program is open to all students.

Faculty

Denis Bacon, *College of Agricultural Sciences and Technology*
Barbara Birch, *Linguistics*
Melanie Bloom, *Communication*
Sharon Brown-Welty, *Educational Research, Administration and Foundations*
Jeronima Echeverria, *History*
Bob Fischer, *Sociology*
Luz Gonzalez, *Chicano and Latin American Studies*
Sudarshan Kapoor, *Social Work Education*
Isabel Kaprielian, *History*
Pamela Lane-Garon, *Educational Research, Administration, and Foundations*
Russell J. Mardon, *Political Science*
Robert Mikell, *Ethnic Studies*
Marilyn Shelton, *Literacy and Early Education*
Albert Valencia, *Counseling and Special Education*

Requirements for the Minor

A total of 21 units, which will include:

1. 15 units from the Areas of Study. It is strongly recommended that 3 units be taken from each of the five Areas of Study. However, four out of the five areas must be covered.
2. PAX 185 - Internship (3 units) or PAX 190 - Independent Study (3 units).
3. PAX 100. Peace and Conflict (3)
   Provides an overview of causes and types of conflict, critical examination of issues related to war, peace, and justice.

Areas of Study

AREA I — Personal and Interpersonal Issues
SOC 162, 165, 168; COMM 108, 162; PAX 110; PHIL 10, 157; PSYCH 61, 178

AREA II — Community and Social Issues
ANTH 120; AF AM 144; INTD 156; CRIM 140; CLS 128; ECON 140; I S C 93; SOC 111; PHIL 120, 125; PL SI 116; PSYCH 156; W S 108, 116

AREA III — International and Global Issues
AG EC 140; AF AM 150; B A 174; ECON 114, 179; GEOG 163; HIST 105, 180; PL SI 112, 120, 121, 122, 125; SOC 157

AREA IV — Conflict Management
AG EC 117; B A 156; HIST 166, 185; HRM 152; PL SI 126; COMM 164, 169

AREA V — Education for Peace and Nonviolence
AF AM 145; EHD 101; KINES 111; PHIL 131; SOC 122

Special Certificate in Peacebuilding and Mediation

12 units: Peacebuilding, Mediation, Internship, and Elective

Open to all majors. Contact the coordinator for details.

College of Social Sciences
Ellen Gruenbaum, *Dean*
Bob Fischer, *Coordinator*
Social Science Building, Room 227
(559) 278-7548

Peace and Conflict Studies Minor

Special Certificate in Peacebuilding and Mediation

COURSES

Peace and Conflict Studies (PAX)

100. Peace and Conflict (3)
Provides an overview of causes and types of conflict. Critical examination of issues related to war, peace, and justice. (Formerly INTD 180)

110. Peacebuilding (3)
Theories, methods, and skills in personal transformation, anger management, communication, engaging cooperation, building community, reducing prejudice, maintaining relationships, and consensus decision-making. Emphasizes multi-cultural perspectives. (Formerly S SCI 150T)

120. Mediation (3)
This course includes such topics as interest-based bargaining, anger management, values, communication, and conflict management, all in the context of mediation. Participants acquire and practice mediation skills and observe the process as practiced by skilled professional mediators. (Formerly S SCI 150T)

185. Internship (1-3; max total 6)
Prerequisite: permission of instructor and sponsoring agency. Internships in peacebuilding, reconciliation, conflict resolution and mediation with local social service agencies, the Better Business Bureau, school districts, and corporations. Hours to be arranged. *CR/NC* grading only. (Formerly S SCI 185)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Political Science

College of Social Sciences

Department of Political Science
Russell Mardon, *Chair*
Genie Montanye, *Department Administrative Assistant*
Social Science Building, Room 129
(559) 278-2988

B.A. in Political Science

B.A. in Public Administration

M.A. in International Relations

Master of Public Administration (M.P.A.)

Minor in Political Science

Minor in Public Administration

Subject Matter Preparation for Single Subject Teaching Credential in Social Science

Political Science

Courses and programs offered by the Department of Political Science are intended to help all students become more effective participants in a democratic society, as makers of public policy, and as individuals affected by those policies. Our programs prepare political science and public administration majors for a wide variety of careers.

Students may elect to concentrate within political science on American government and politics, international politics, comparative government, or political theory. The Public Administration Program is designed to prepare students for administrative positions in public service agencies and includes instruction in such subjects as personnel administration, budget preparation, public relations, and techniques of management appropriate to the administration of public policy. For those who achieve a high measure of proficiency in their undergraduate programs, the department offers advanced work leading to the master's degree in international relations and public administration. A Minor in Political Science is chosen by students as a means of obtaining skills and knowledge important to their primary area of interest.

Internships

The department offers several programs through which students may gain practical experience while gaining academic credit. A political science internship involves working in the office of an elected official or, when possible, in an election campaign.

The comparable program in public administration places students in positions, often paid, with local government offices and agencies where they may be involved with city planning and zoning issues, public relations efforts, special research topics or budget preparation, to mention several possibilities.

In addition, the department regularly sends selected students to the state capitol to participate in the Sacramento Semester Program under which they work with members of the Legislature, officers of the Executive, or with lobbyists. Finally, arrangements also may be made for better students to serve as staff to members of congress in Washington, D.C. for a semester.

Career Opportunities

What do you do with a degree in political science or public administration? The skills gained through study on these subjects are highly valued in many areas, including business. Graduates have found positions with governmental agencies and officers, with companies or organizations that deal extensively with government or as members of the print and electronic media as reporters. Careers with the state department and foreign service have proven rewarding to many with a special interest in international politics or comparative government. Those interested in a career in law have found a solid grounding in political science valuable. The department has more prelaw students as majors than any other program at the university.

Faculty

Russell Mardon, *Chair*

Russell Mardon, *Political Science Adviser*
Marn J. Cha, *Undergraduate Public Administration Adviser*
Don R. Broyles, *Prelaw Adviser*

Graduate Advisers:
Alfred B. Evans, Jr., *International Relations;* Sharron Y. Herron, *Public Administration*

Harold H. Haak
Lyman H. Heine Jr.
Melissa Michelson
David H. Provost
Mark S. Somma
Freeman J. Wright

In most instances, the faculty in the department have had experience practicing what they teach. All bring to their classes extensive backgrounds that permit them to combine the theories of political science and public administration with the practical applications of those theories.

Most upper-division classes are small enough to allow extensive student-faculty interaction. The usual course involves a mixture of lecture and class discussion and encourages the expression of a variety of viewpoints about political issues. With smaller classes come greater opportunities for individualized instruction and assistance.

Bachelor of Arts Degree Requirements

Political Science Major — *Units*

Major requirements 36
(see *Notes 1* and *2*)
Lower-division core: PL SI 1, 90 ... (6)
(to be completed prior to or concurrently with enrollment in the first 6 units of upper-division major courses)
Upper-division core: PL SI 110 or 111, 120, 140, 150 .... (12)
Upper-division Political Science electives: (exclude PL SI 101, 102, 187) ..... (18)
General Education 51
Electives and remaining degree requirements 37
(See *Degree Requirements*); may be used toward a dual major or minor.
Total 124

Advising Notes

1. *CR/NC* grading is not permitted in the political science major.
2. No course used to satisfy a General Education requirement may be used to satisfy political science major requirements.
3. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4. The department highly recommends that the student select upper-division electives in at least three of the following disciplines: anthropology, African American studies, economics, English, geography, history, Chicano and Latin American studies, philosophy, sociology, or city and regional planning. Consult adviser for specifically recommended courses.

Bachelor of Arts Degree Requirements

Public Administration Major — *Units*

Major requirements 36
(see *Notes 1* and *2*)
Lower-division core: PL SI 1, 90 ... (6)
(to be completed prior to or concurrently with enrollment in the first 6 units of upper-division major courses)
Upper-division core: PL SI 150, 181, 182, 184, 185 ..... (15)
Upper-division electives ..... (15)
Elect from:
PL SI 110, 111, 114, 170 ... (6)
PL SI 160, 163, 169T ..... (3)
PL SI 183, 187, 188T, 189T, 190, 191 ..... (6)
General Education 51
Electives and remaining degree requirements 37
(See *Degree Requirements*); may be used toward a dual major or minor.
Total 124

Advising Notes

1. *CR/NC* grading is not permitted in the public administration major with the exception of PL SI 187.
2. No course used to satisfy a General Education requirement may be used to satisfy public administration major requirements.
3. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4. The department highly recommends that the student select upper-division electives in at least three of the following disciplines: anthropology, African American studies, economics, English, geography, history, Chicano and Latin American studies, philosophy, psychology, sociology, or city and regional planning. 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 (upper division), excluding PL SI 101, 102, 158, 187 ..... **9**
Electives (upper division) in anthropology, economics, English, geography, history, philosophy, psychology, or sociology **6**
Total 21

Public Administration

PL SI 1, 181, 182 ..... **9**
Elect from PL SI 110, 111, 114, 150, 151, 170 ..... **3**
Elect from PL SI 183, 184, 185, 189T . **6**
Electives (upper division) in anthropology, economics, English, geography, history, philosophy, psychology, or sociology **3**
Total 21

International Political Economy

For details about the Minor in International Political Economy, see listing in the Department of Economics.

United States Constitution Requirement

The United States Constitution (including California State Constitution and local government) requirement for graduation will be fulfilled by PL SI 2 or 101. No other political science class fulfills the United States Constitution requirement.

Advanced Placement Exam Policy

Advanced Placement Examinations for American Government cannot be counted to fulfill the American government General Education requirement; 3 units of elective may be granted.

Credential Program

See the social sciences credential adviser, Jared Stallones, in Social Sciences, Room 215 for advising and refer to *Secondary Teaching Credential* under Social Science Programs.

Master of Arts Degree in International Relations

The program leading to a Master of Arts degree in International Relations 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 9-unit component of the program which students select from the approved list of extra-departmental courses related to their 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 adviser a written statement of career objectives so that remaining requirements may be tailored to the needs and desires of the individual.

Requirements for the Master of Arts in International Relations

Admission to the program is open to all graduates of a duly accredited college or university who meet the requirements for admission (see *Admissions*). Students with background deficiencies in political science usually may remedy these through a few upper-division political science courses selected by the program adviser. Any prerequisites required by extra-departmental courses must also be fulfilled unless waived by the department or program concerned.

Admission. Applicants may qualify for admission to the 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); a written statement indicating why the applicant wishes to pursue the M.A. degree; and three letters of recommendation
4. Recommendation for admission by the Admissions Committee of the Graduate Program in International Relations. Candidates will be recommended on the basis of the promise they show for successfully completing the program. Candidates will be evaluated using a combination of:
   a. grade point average (those with averages of less than 2.8 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 500 on either the verbal or quantitative part of the GRE must have compensating strength in other areas); applicants whose native language is not English must also achieve a minimum score of 570 on the Test of English as a Foreign Language
   c. evaluation of the applicants written statement and letters of recommendation

All candidates for the Master of Arts degree in International Relations must complete the 15 units of graduate seminars specified as the core program, which consists of PL SI 200, 210, 220, 240, and 250. Nine units of approved electives from outside the department are also required along with an additional 6 units within the discipline of political science.

The additional 6 units of political science may be earned in one of the following four ways, depending on the interests and career objectives of the candidate:

1. For students declaring their intentions to pursue Ph.D. degrees, a master's thesis amounting to 6 units of credit is required.
2. Students declaring their intentions to teach political science at other than the university level may meet the 6-unit requirement by:
   • thesis or
   • project equivalent to 6 units of thesis.
3. Students declaring their intentions to pursue careers in fields other than political science may meet this 6-unit requirement by:
   • thesis or
   • approved project equivalent to 6 units of thesis or
   • 6 units of additional coursework in political science and written comprehensive examination.
4. Students declaring their intentions to pursue careers in the U.S. Foreign Service or other governmental agencies and international organizations may meet this 6-unit requirement by:
   • thesis or
   • approved project equivalent to 6 units of thesis or
   • 6 units of additional coursework in political science (courses must be in international relations and/or comparative politics) and written comprehensive examination.

A thesis or project must be primarily in the field of international relations and under the direction of the Political Science Department. One reader or assistant project adviser 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 International Relations. This language examination will be required before enrollment in the thesis or taking the written comprehensive examinations. Foreign students may offer English in fulfillment of this requirement.

Specific Requirements for M.A. in International Relations. One of the following plans is available to the student in consultation with the graduate adviser:

Plan A. Students declaring their intention to pursue a Ph.D.

	Units
Core Program	**15**
Thesis	**6**
Electives from approved list of extra-departmental courses	**9**
Total	**30**

Plan B. Students declaring their intention to teach political science at other than university level.

	Units
Core Program	**15**
Thesis or Project	**6**
Electives from approved list of extra-departmental courses	**9**
Total	**30**

Plan C. Students declaring their intention to pursue careers outside political science.

	Units
Core Program	15
Thesis, project, or 6 additional units of coursework in political science	6
Electives from approved list of extra-departmental courses	9
Comprehensive written 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.

	Units
Core Program	15
Thesis, project, or 6 units of electives in political science drawn from the International Relations and/or Comparative Government series	6
Electives from approved list of extra-departmental courses	9
Comprehensive written examination if 6 additional units in political science are chosen	
Total	**30**

Note: At least 21 of the 30 required units must be taken at the graduate, 200-series level.

Graduate Program in Public Administration

The Graduate Public Administration Program offers a multidiscipline Master of Public Administration (M.P.A.) degree. The M.P.A. 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 18 units within the 36 units required for the M.P.A. In consultation with their advisers, students will select the remaining 18 units from graduate public administration courses and courses offered by other departments and programs. These 18 units can be used to further develop a general competence in public administration or to provide students with a specialization suitable to public administration.

To finish the program students may elect to write a thesis or to take a comprehensive examination. The entire program can be completed by taking courses at night and on weekends.

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.

Master of Public Administration Degree Requirements

	Units
Core GPA 120G, 200, 210, 240, 241, 260	18
Subcore GPA 225 or MBA 221, GPA 230, 250, 280T, MBA 240	3-12
Approved electives or additional subcore	3 or more
Practitioner's Seminars GPA 289T	0-6
Thesis or comprehensive examination	0-3
Minimum Total	**36**

All students must take 18 core units, and either six subcore units or three subcore units and three units of GPA 289T. The remaining 12 units may be used to take additional subcore courses, additional GPA 289T, approved electives, or a combination of subcore, GPA 289T, and electives. Elective courses may be used to fulfill a specialization appropriate to public administration. The courses to be used for the specialization are to be chosen in consultation with the student's adviser and must be approved by the M.P.A. program director.

In considering specialization or elective courses the following regularly offered courses can be considered by appropriately prepared M.P.A. candidates: CRIM 203, 252, 255; H S 210, 213; NURS 226, 240; PL SI 210, 240, 250; S WRK 200, 203, 244, 246, 247; and COMM 268. Consult adviser for numerous other specialization and elective courses potentially suitable for M.P.A. candidates.

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 M.P.A. degree; and, if any, evidence of work performance in a public or nonprofit agency (see 4d); and
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
   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]). 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 187 (5 units) internship experience must be completed before enrollment in second semester courses.

COURSES

Political Science (PL SI)

1. Modern Politics (3)
Introduction to the study of democratic and authoritarian political systems; evaluation of the historical, cultural, and economic contexts of modern politics around the world; institutional structures and functions; political ideologies; individual and group participation in the political process; current issues. G.E. Breadth D3.

2. American Government and Institutions (3)
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. Not available for *CR/NC* grading. G.E. Breadth D2. (CAN GOVT 2)

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.

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. (2 lecture, 2 lab hours)

101. American Constitution, Institutions, and Ideals (3)
Meets the United States Constitution requirement and the federal, California state, and local government 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. Not available for *CR/NC* grading.

102. California Government and Institutions (1)
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. Not available for *CR/NC* grading.

103. California Politics (3)
Satisfies California state and local government requirement, if not used for political science major. 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.

112. Politics and Christianity (3)
(Same as A ETH 104.) Inquiry into major facets of Christianity as an integral part of the Western humanistic tradition of politics. Emphasis on Christian theories of man, the state, freedom, and democracy. Politics to be interpreted in the broadest sense of all human association in pursuit of power, order, art, science, and culture.

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.

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 Politics (3)
Dynamics of political interactions of 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. G.E. Multicultural/International MI.

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.

125. Russian Foreign Policy (3)
Historical and ideological sources of foreign policy of Russia and other former Soviet republics; 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.

141. Russian Politics (3)
A study of the political systems of Russia and other former Soviet republics. Changes in relations between state and society; change and continuity in political culture; trends in policy making; issues of relations between nationality groups.

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 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.

145T. Area Studies in Asia
(1-4; max total 8 if no topic repeated)
Government and politics of selected countries in East and Southeast Asia.

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.

147. East Asian Politics (3)
Examines the governments, institutions, politics, and policy of China, Japan, North and South Korea, and selected Southeast Asian Nations. (Formerly PL SI 145T)

148. Latin American Politics (3)
Discusses the role of the military and violence in Latin American politics, the role of civilian groups with emphasis on democratization, and the influence of other nations — especially the United States — on Latin American politics. (Formerly PL SI 146T)

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)
Examines the institutional and political processes by which public policy is formulated, adopted, and implemented. Individual instruction on student papers (students with fundamental writing deficiencies will be required to enroll in ENGL 1L, 1 unit, concurrently).

151. Political Participation and Political Parties (3)
Political parties; nature and extent of citizen political activity; election of public officials; political organization of government.

152. Public Opinion and Political Behavior (3)
Examines the origins and expression of political attitudes and beliefs, including voting and other political participation, and how public opinion influences public policy. Special attention is given to partisanship, elections, and voting. (Formerly PL SI 156T)

153. Presidential Politics (3)
Examines the history, development, and operation of the U.S. Presidency. Special attention is given to the rise of the modern presidency, presidential power (constitutional and extra-constitutional), presidential speech, presidential elections, and the importance of public opinion for presidential power. (Formerly PL SI 159T)

154. Congressional Politics (3)
Examines the history, development, and operation of the U.S. Congress. Special attention is given to congressional elections, congressional-presidential relations, and the policy-making process. (Formerly PL SI 159T)

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. Environmental Politics (3)
Examines theory, concepts, and practices in U.S. environmental politics and policy. Topics include ecological principles, the history and philosophy of environmentalism, the contemporary political conflict over environmental policy, and environmental policy analysis. (Formerly PL SI 189T)

158. Internship in Political Science (2-6; max total 6)
Prerequisite: permission of instructor. Maximum credit toward the political science major, 3 units. Supervised work experience in legislative offices and/or political campaigns to provide student with an opportunity to fuse theory and practice. *CR/NC* grading only.

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. Constitutional Law, the Federal Structure (3)
Judicial Review, powers of the president, powers of Congress, federalism, and the contract clause and due process — economic rights through case studies of leading Supreme Court decisions.

171. Constitutional Law, Civil Liberties, and Civil Rights (3)
Free speech and association, freedom of press, commercial free speech, obscenity, religion guarantees, fourth, fifth, sixth, and eighth amendment issues, and social and political equality through case studies of leading Supreme Court decisions.

174. Politics and the Court (3)
An introduction to the judicial process: jurisprudence, courts and social policy, instruments and limitations of judicial power, fact finding, precedents and legal reasoning, statutory and constitutional interpretation, and the search for standards.

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.

184. Public Budgeting and Economy Policy (3)
Examines the administrative and political considerations of revenue generation and expenditure; budget types; the budgetary process and analysis; capital budgeting and debt administration; intergovernmental fiscal relations; monetary and fiscal policy.

185. Public Personnel Management (3)
Examines the evolution of public personnel administration including the development of merit principles, equal employment opportunity, and affirmative action; recruitment, selection, and career development; classification techniques; theories of motivation; public sector labor relations.

187. Internship in Public Administration (2-6; max total 6)
Prerequisite: permission of instructor. 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. *CR/NC* grading only.

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 total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

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 International Relations (PL SI)

200. Seminar in Methods and Political Systems (3)
Prerequisite: permission of instructor. Systematic analysis of major political cultures and economic systems. Emphasis upon the leading theoretical models of the contemporary international system, issues of political economy, and methods of cross-cultural research.

210. International Relations and Political Theory (3)
(Same as A ETH 201.) Prerequisite: permission of instructor. Inquiry into philosophies of international relations with particular emphasis on moral foundations of international law in light of Western political theory. Some contemporary problems selected for in-depth analysis and student research.

220. Seminar in Politics and Conflict (3)
Prerequisite: permission of instructor. Analysis of sources of political conflict and methods of conflict resolution with application to selected topics, such as the foreign policy of major powers, the dynamics of political transformation, interaction in regional subsystems, or national defense and arms control.

240. Seminar in Politics of Resources and Modernization (3)
Prerequisite: permission of instructor. Analysis of global interdependence and national examples in selected resource areas. Emphasis on approaches to modernization in developing nations and relations between rich nations and poor nations.

250. Seminar in Politics and Policy (3)
Prerequisite: permission of instructor. Policy formulation, implementation, and evaluation from a comparative perspective. Examines substantive policy issues common to modern industrial and developing nations from the perspectives of policy analysis and decision-making; considers the role of bureaucracy, the welfare state, political economy, and competing ideologies.

290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

298. Project Equivalent to Thesis (6)
See *Criteria for Thesis and Project*. Significant undertaking of a pursuit appropriate to international politics. Must demonstrate originality and independent thinking and be accompanied by written scholarly apparatus. Project examples: documentary film; extensive curricular design; computer design of military strategies. Approved for *SP* grading.

299. Thesis (6)
See *Criteria for Thesis and Project*. Approved for *SP* grading.

Graduate Public Administration (GPA)

120G. Quantitative Applications for Public Administration (3)
The gathering, evaluation, and use of quantified information in the design and evaluation of programs and administrative activities. Data collection; measurement; sampling; data analysis, including regression, structural equation models, and linear programming; computer applications. (2 lecture, 2 lab hours)

200. Administration and Society (3)
How administration acts and is acted upon by institutional forces and values; role of history, cultural, ethical, political, social, and economic values and institutions; an emphasis on: bureaucracy, economy and democracy, centralization vs. decentralization, professionalism and society; alternatives to bureaucracy.

210. Public Organization Behavior and Dynamics (3)
A study of how human behavior, motivations, personality, interpersonal and group dynamics operate in complex organizations; an emphasis on management styles, planned change, organization development, conflict management, leadership and communication skills.

225. Accounting for Public Management (3)
Students contemplating additional courses in accounting should enroll in MBA 201. Concepts, principles, and practices of accounting applicable to the administration of public programs and agencies. Current practices in recording and valuation. Analysis and interpretation of financial statements. Budgeting, internal reporting, and management controls.

230. Public Revenue and Expenditure Analysis (3)
Prerequisites: ECON 40 and 50 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 Methods and Processes (3)
A survey of public management concepts, tools, and processes; policy planning and management; strategic thinking; interpersonal and problem solving skills; work design; performance monitoring; management control; information systems; program evaluation; and integrative as well as critical perspectives on management.

241. Resource Management (3).
Prerequisite: GPA 240. Administration of fiscal and human resources. Emphasis on resource acquisition, allocation, and development strategies; budgeting skills, debt, and financial management. Human asset management, labor relations, position classification and analysis, quality of work life and employment equity issues.

250. Ethics and Public Administration (3)
(Same as A ETH 202.) Prerequisite: GPA 210. 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.

260. Public Policy Administration (3)
Prerequisites: GPA 120G, 200, 210, 240. A study of policy initiation, formulation, and implementation and a public manager's role in them; management processes and functions in the policy process; policy justification and advocacy, policy analysis, and implementation evaluation.

280T. Topics in Public Administration
(3; max total 6 if no topic repeated)
Selected topics meeting student needs and interests that are not met in other university courses.

287. Internship in Public Administration (3)
Concurrent enrollment in either GPA 200 or 210. Supervised work experience for a realistic exposure to an organizational-bureaucratic environment for students in the M.P.A. Program who lack significant work experience in a public or not-for-profit organization. *CR/NC* grading only; not applicable for unit credit toward M.P.A. degree.

289T. Practitioner's Seminar
(1; max total 6 if no topic repeated)
Prerequisite: Some seminars may have course prerequisites. Selected topics in the administration of public programs and agencies examined from the prospective and experience of practitioners.

290. Independent Study
(1-4; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

299. Thesis (3)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the Master's degree. Approved for *SP* grading.

Social Sciences Programs

College of Social Sciences
Ellen R. Gruenbaum, *Dean*
Jeronima Echeverria, *Associate Dean*
Social Science Building, Room 108
(559) 278-3013
http://www.csufresno.edu/SocialSciences

Social Sciences Prelaw Program

Secondary Teaching Credential in Social Sciences

Social Sciences

Requirements for majors in the various departments are listed in the respective program descriptions. In addition, the College of Social Sciences offers the following programs and courses.

Social Sciences Prelaw Program

Within the framework stated above and with the approval of the social science adviser, courses may be selected that provide an appropriate foundation for the study of law.

A detailed description of the prelaw program is available from the social science prelaw adviser in the Department of Criminology. Students should be aware that without advisement, successful completion of this program is impossible.

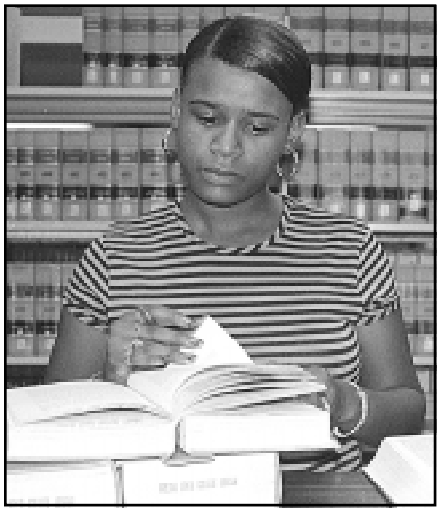
Secondary Teaching Credential in Social Sciences

The 57-unit Subject Matter Program (SMP) in Social Sciences may be completed while earning a bachelor's degree in any area of study. Undergraduate students beginning their SMP should be advised, however, that bachelor's degree in economics, geography, history, or political science are recommended for those intending to teach secondary social studies because those areas most closely parallel the social sciences requirements.

Core

Lower-division survey courses **24**
All of the following or their equivalents:
HIST 1, 2, 11, and 12
History of California
American Government
World Geography
ECON 165 or ECON 40 and 50

Behavioral Sciences **6**



Six units from two different disciplines: ANTH 1, 2, or 3; PSYCH 10; and SOC 1, 2, 3, or 111.

Ethnic/Gender Studies **6**
Six units from two different disciplines: AF AM 135; A I S 5 or 9T, CLS 3, 160, or 162; ETH S 1 or 2; W S 10; ASAM 15 or 110; or ANTH 120.

Areas of Concentration

First Area **15**
Select five upper-division courses from the approved SMP list in one of the following categories: United States History, World History, Economics, Geography, or Political Science. A listing of acceptable courses is available in Social Sciences, Room 101. Consult the social science credential adviser before enrolling in courses that are not on the SMP list.

Second Area 6
Select two upper-division courses from the approved SMP list in a category different from your first area: United States History, World History, Economics, Geography, or Political Science. If your first area (above) is World or U.S. History, be certain to select Economics, Political Science, or Geography as your second area.

Credential candidates should consult the social science credential adviser, Professor Jared Stallones, as early in their programs as possible. A detailed list of the teaching credential program is available from Social Sciences, Room 215 and from Social Sciences, Room 101.

COURSES

Social Science (S SCI)

15. Humans in the Natural Environment (5)
Extended field trips, integrating cultural anthropology and archaeology to explain how past and present peoples have adapted to and altered biological and geological processes and features. Offered fall semester as part of "Humans and the Natural Environment." (HNE program field trip fee, $300)

17. Ethnic Identity and Diversity in Southeast Asia (3)
Interdisciplinary course designed to introduce students with no previous background to the understanding of multiculturalism and ethnic diversity in mainland Southeast Asia. Using a contemporary historical and socioeconomic framework, this course examines concepts of ethnic identity, gender relations, nation states, ethnic conflicts, war and global conflict, diaspora, and transnationalism. Requisite for the Minor in Southeast Asian Studies.

110. California Studies (3)
Origins and development of California as a unique cultural area; relationships over time among geography and natural resources, human populations and cultures, political institutions, economic pursuits, and land use practices; distinctive architecture, arts, and literature; and socioeconomic patterns, processes, and trends. G. E. Integration ID.

150T. Topics in the Social Sciences (1-3; max total 3)
Discussion and analysis of current topics in the social sciences with an interdisciplinary focus and structure. Topics will be rotated.

180. Diversity in the U.S. (3)
Interdisciplinary course designed for the four-year liberal studies major. Integrates historical, sociological, political, cultural, and ethnic aspects of American culture. Historical developments and immigration patterns, race, class, gender issues, and demographic and statistical analysis of local and regional education trends. G. E. Multicultural/International MI.

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. *CR/NC* grading only.

Sociology

The mission of the Department of Sociology is to provide students with an understanding of the major theoretical perspectives in sociology, knowledge about and the ability to use sociological concepts in the analysis of social phenomena, opportunities to develop critical thinking as well as written and oral communication skills utilizing a sociological perspective, an understanding of sociocultural diversity within and among societies, and qualitative and quantitative research skills including the appropriate use of computer technology.

Sociology is the study of social life and the social causes and consequences of human behavior. Sociology's subject matter ranges from the intimate family to the hostile mob, from crime to religion, from the divisions of race and social class to the shared beliefs of a common culture, from the sociology of work to the sociology of sport. Few fields have such broad scope and relevance.

Training in sociology provides students with a perspective on human development and social life that is an especially important part of a college education. Social theory and research methods provide the foundation for study in sociology. On this foundation, programs with electives can be built to meet the needs of students with different goals and interests. The research emphasis trains in data gathering, analysis, and report writing — these are valuable in many careers. In addition, an understanding of the relationships between individuals and groups can prove useful in everyday life as well as at work.

Faculty and Facilities

All full-time faculty members hold Ph.D. degrees in sociology and share a commitment to excellence in teaching. Their areas of interest are diverse including social change, deviance, gender, social stratification, social psychology, social theory, and research methods. Most are actively involved in research. Recent faculty research has included studies of opinions on various issues, stereotypes and ethnic prejudice, the social organization of sport.

The department encourages students to obtain research experience as undergraduates. Some students conduct their own research projects; other assist faculty or work with the Social Research Laboratory. The laboratory conducts applied research on topics of regional interest. It regularly conducts the Fresno Area Society and examines the quality of life in the San Joaquin Valley. Other projects have studied suspected cancer clusters, residents' perceptions of community problems and solutions, taxes for local projects, and local issues. The opportunity to gain practical experience while working closely with faculty adds a special dimension to education in sociology at California State University, Fresno. Students often apply their sociological training through service learning experiences in local social service agencies.

Career Opportunities

Students trained in sociology at California State University, Fresno have entered a wide variety of occupations. A few have become professional sociologists. While most professional sociologists teach at colleges and universities, an increasing number hold research, administration, or policy positions in a variety of settings. Many students have used sociology as a preparation for law or other professions such as social work, counseling, public health, library science, criminology, and public administration. Students who begin work immediately after completing a bachelor's degree in sociology usually enter careers in human services, administration/management in public or private agencies, or research in a variety of organizations.

College of Social Sciences

Department of Sociology
Elizabeth N. Nelson, *Chair*
Eileen Coleman, *Department Administrative Assistant*
Social Science Building, Room 227
(559) 278-2234
http://www.csufresno.edu/socialsciences/sociology/socio.htm

B.A. in Sociology

Minor in Sociology

Sociology

Faculty

Elizabeth N. Nelson, *Chair*

Alfred J. Claassen
Robert D. Fischer
Beth Hartung Freimuth
Albert I. McLeod
Edward E. Nelson
Robert S. Palacio
John N. Tinker
Chandler Washburne

Bachelor of Arts Degree Requirements

Sociology Major	*Units*
Major requirements	**39**
Core: SOC 1, 25, 153, 175	(12)
Select two: SOC 151, 152, 162	(6)
Sociology upper-division electives	(21)
General Education	**51**
Electives and remaining degree requirements* (See *Degree Requirements*); may be used toward a dual major or minor.	**34-37**
Total	**124**

*This figure takes into consideration that an estimated 3 lower-division units may be available for G.E. credit as well. Courses in the major which are in Foundation and Breadth of General Education and Integration and Multicultural/International courses *taught outside the department of the major* may be counted toward both requirements. Consult the sociology department chair or faculty adviser for additional details.

Major Advising Notes

1. *CR/NC* grading is not permitted in the sociology major, except for courses offered only under *CR/NC* grading.
2. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or department minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.

Sociology Minor

	Units
Minor requirements	**6**
SOC 1, 25	
Sociology upper-division electives	**15**
Students may substitute SOC 3 and/or S SCI 185.	
Total	**21**

Minor Advising Note

CR/NC grading is not permitted in the sociology minor, except for courses offered only under *CR/NC* grading.

Certificate

The Department of Sociology anticipates offering a certificate in applied social research and a certificate in the leadership and management of nonprofit organizations.

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. G.E. Breadth D3. (CAN SOC 2)

2. Social Problems (3)
Introduction to basic principles underlying human social behavior via a sociological analysis of social problems. Analysis of the development of major problems and possible solutions in American society and the world, such as inequality, family disorganization, discrimination, deviance, war, tyranny, ethnic conflict, and pollution. G.E. Breadth D3. (CAN SOC 4)

3. Analysis of Social Life (3)
Theory and practice in basic skills of critical thinking and sociological analysis. Skills demonstrated by oral and written performance including analysis of computerized data sets. Topics covered and assignments vary with instructor. G.E. Foundation A3. (2 lecture, 2 lab hours)

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. (2 lecture, 2 lab hours)

111. Sociology of Race and Ethnicity (3)
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. G.E. Multicultural/International MI.

122. Social Movements (3)
Theory of nonviolent direct action in the pursuit of social justice and social change. Discussion of goals, ideology, norms, organizational structure, leadership, strategy, tactics, and social roots of social movements.

130W. Contemporary Social Issues (3)
Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement. 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.

132. Women and Work (3)
(Same as W S 132.) An examination of women and work in contemporary society, including housework, labor force participation, employment in various occupations, and career planning.

142. Sociology of Popular Culture (3)
Impact of popular culture 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)
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.

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)
A sociological examination of education as an institution, including its social determinants, functions, and consequences.

149. Sociology of Business (3)
The social origins and development of business as an institution. Comparative studies of diverse impacts of business on society. Analysis of resulting ideological, political, and regulatory reactions to business.

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)
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)
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)
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)
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)
(Same as GERON 166.) Aging and the aged with special emphasis on urban American society; demographic dynamics; problems of the aged; gerontological research methodology.

168. Interpersonal Relationships (3)
Exploration of the basic elements of interpersonal relationships including listening, disclosure, feedback, empathy.

169. Sociology of Religion (3)
Major sects, denominations, and churches; integrative and disintegrative processes in the United States; contemporary religious phenomena.

170T. Research Topics (1-3; max 6)
Content of course will vary from semester to semester. Topics include an introduction to computer data analysis, a more in-depth discussion of computer data analysis, survey research, observational techniques, measurement, sampling.

172. Computer Applications (3)
No prior knowledge of computers is necessary. Introduction to computer applications in the social sciences, spreadsheets, database management, statistical applications, e-mail, data archives, Internet, Lexis-Nexis. (2 lecture, 2 lab hours) (Formerly SOC 170T section)

174. Computer Data Analysis (1)
An introduction to the use of one of the most widely utilized computer packages in the social sciences — SPSS (Statistical Package for the Social Sciences). No prior knowledge of computers is necessary. *CR/NC* grading only.

175. Sociological Research Methods (3)
Prerequisite: SOC 25. The research process with special emphasis on measurement, sampling, data collection, data analysis, and report preparation. Basic assumptions and dilemmas of social science research.

185. Service Learning
(1-6; max total 6)
Prerequisite: permission of instructor and sponsoring agency. Individually-planned service learning experience relating classroom studies in sociology with practical experience in community service. Hours to be arranged. *CR/NC* grading only. (Minimum of 3 field hours per week per credit unit.)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

Women's Studies

College of Social Sciences

Women's Studies Program
Susan Arpad, *Coordinator*
Social Science Building, Room 226
(559) 278-2858

Karen Lowe, *Department Administrative Assistant*
Social Science Building, Room 226A
(559) 278-2858

B.A. in Women's Studies
Minor in Women's Studies
Certificate in Alcohol/Drug Studies
Victim Services Certificate

Women's Studies

Classes in the Women's Studies Program encourage students to develop critical and analytical thinking skills and the ability to communicate new ideas to a general public. Women's studies students frequently say that women's studies classes enhanced their self-esteem and enabled them to more clearly define their special skills and talents. Therefore, all fields open to most social sciences and humanities graduates are open to Women's Studies Program graduates.

Career Opportunities

A recent survey of graduates from Women's Studies Program indicates the following fields of employment: health and human services, education, research, law and government, and criminology. Double majors say one major defines the field in which they work; women's studies defines the focus within that field. Postgraduate education in the arts and sciences and in business, law, medicine, social welfare, psychology, and education has provided many women's studies students with satisfying and challenging career opportunities.

Program Faculty

The Women's Studies Program has its own full-time and part-time faculty who come from a variety of disciplines: history, economics, sociology, political science, English, and philosophy. In addition to this core faculty, cooperating faculty members teach women's studies courses in their home departments: anthropology, art, Chicano and Latin American studies, criminology, drama, education, English, ethnic studies, health sciences, history, philosophy, psychology, recreation, and sociology. Saturday School faculty are most often chosen from the community-at-large on the basis of their particular area of expertise.

Faculty

Susan Arpad, *Coordinator*
Kathryn Forbes
Linda Garber
Loretta Kensinger
Janet Slagter

Bachelor of Arts Degree Requirements

Women's Studies Major

	Units
Major requirements	**36**
Core: W S 103, 143, 153, 175	(12)
Approved electives	(24)
General Education	**51**
Electives and remaining degree requirements*	**37-46**
Total requirements	**124**

*This figure anticipates that W S 12 and a maximum of two other General Education courses may be applied to satisfy the women's studies major requirements (see *General Education*). Consult the women's studies program coordinator or faculty adviser for additional details.

Advising Notes

1. The 24 units of electives must be selected from a list of approved courses. At least one course must be selected from each of the three clusters. Consult the Women's Studies Program coordinator or faculty adviser for a list of approved courses in the three clusters.
2. No more than 3 units may be elected from the 1-unit Saturday courses: W S 108, 109, 112, 116, and 150T.
3. *CR/NC* grading is not permitted in the women's studies major, except for courses offered only under *CR/NC* grading.
4. General Education and elective units may be used toward a dual major or minor (see *Dual Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.

Minor Requirements

An interdisciplinary minor in women's studies is available to any Fresno State student. Each student's minor program is individually planned by the student in consultation with the women's studies program coordinator.

The minor in women's studies requires a minimum of 20 units, including W S 103, 143, 153, and 175. The other 8 units must be selected from a list of approved courses. Courses from this list also may satisfy General Education requirements as appropriate.

Certificate in Alcohol/Drug Studies

The Women's Studies Program is participating in a certificate of special study awarded to those students who successfully complete a minimum of 12 units of interdisciplinary academic coursework in the area of alcohol and drug abuse. (For complete details, see *Health and Human Services Interdisciplinary Courses* in this catalog.)

Victim Services Certificate

The Women's Studies Program is participating in a certificate of special study awarded to those students who successfully complete a minimum of 12 units of interdisciplinary academic coursework in the area of victim services. (For complete details, see *Criminology Department* or *School of Education and Human Development*.)

COURSES

Women's Studies (W S)

10. Introduction to Women's Studies (3)
Interdisciplinary course designed to introduce students to the major social, cultural, economic, and political forces which define gender in society. G.E. Breadth D3.

12. Critical Thinking: Gender Issues (3)
Theory and practice in basic skills of critical thinking using examples about the intersections of gender with race, and class. Skills will be demonstrated and assessed through oral and written performance. G.E. Foundation A3.

18. Women and Aging (3)
(Same as GERON 18.) Interdisciplinary course designed to facilitate the understanding of older women and the physiological, psychological, and social aspects of the aging process. G.E. Breadth E1. (Formerly W S 118)

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 interest in the Women's Movement, covering a wide variety of issues. (See *Schedule of Courses* for specific topics.)

101. Women in History (3)
(See HIST 101.)

102T. Topics in Women's History (3; max total 6; repeatable with different topics)
(Same as HIST 102T.) Prerequisite: W S 101 or permission of instructor. (See *Schedule of Courses* for specific topics.)

103. History of Feminism (3)
Survey of history of feminist thought and action from Middle Ages to present, with emphasis on nineteenth and twentieth circumstances and major actors and debates.

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. *CR/NC* grading only.

109. Incest (1)
An exploration of the victim, the victimizer, and the family dynamics of incest, as well as the psychological and sociological implications of the family secret. An all-day workshop held on two consecutive Saturdays. *CR/NC* grading only.

110. Representations of Women (3)
Interdisciplinary course focusing on representations of women; how representations vary by class, race, ethnicity, and sexual orientation; and how these representations affect social, political, and economic behaviors and institutions. G.E. Multicultural/International MI.

112. Assertiveness 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. *CR/NC* grading only.

114. Women in Family Contexts (3)
Prerequisite: W S 10 or W S 131 or permission of instructor. Women in diverse family settings; the gendered division of labor; domestic violence; female-headed households; power relations in families; diversity of race, class, and sexual orientation; and conflicting family ideologies in society.

116. Domestic Violence (1)
An historical and cultural overview of the battered and battering spouse syndromes; the marriage contract as a license to abuse; the status of remedial legislation; and, the effect of parental battering on children. An all-day workshop held on two consecutive Saturdays. *CR/NC* grading only.

120. Women of Color in the United States (3)
Prerequisites: W S 10 or lower division Area D. Examines the role and status of U.S. women of color within the larger social structure. Women in varying family structures and cultural settings will be examined, with an emphasis on how social systems shape the roles of women and affect larger U.S. institutions. G.E. Multicultural/International MI.

125. Introduction to Lesbian/Gay Studies (3)
Introduction to theory, questions, and topics in interdisciplinary lesbian and gay studies.

126. Women and Violence: Public Policy and the Law (3)
(Same as CRIM 126.) Historical and contemporary issues in public policy responses to violence against women. Gender bias in the legal system and policing violence against women. Theory and research on problems in government policy and enforcement of the law.

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

130. Women's Health (3)
(See H S 130.)

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

132. Women and Work (3)
(See SOC 132.)

134. Health Issues, Women of Color (3)
Examines major health issues as they affect U.S. minority women: AIDS/HIV, substance abuse, cancer incidence and prevention, reproductive health, and mental health. Comparisons of white, Asian, Native American, African American, and Mexican American women are made. Addresses the role of race, class and gender as they affect health outcomes for women of color. (Formerly W S 150T section)

135. Women in Other Cultures (3)
Examines economic, social, political, and cultural roles as well as current status of women in one or more of the following: China, Southeast Asia, South Asia, Africa, Middle East, and Latin America. Prepares students to function in an international, multicultural world. G.E. Multicultural/International MI.

137. African American Women (3)
(See AF AM 137.)

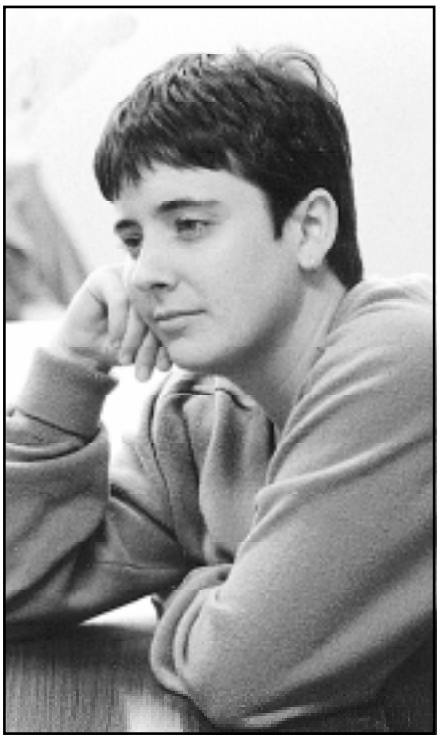
143. Feminist Theory (3)
Review of major feminist theories of the twentieth century, analysis of assumptions underlying each, evaluation of strengths and weaknesses of each, and examination of relationship of various theories to various women's life experiences.

148. Women and Religion (3)
Seminar to explore many facets of women's religious experience, including history of women in institutional churches, theologies of liberation and oppression, women's religious experience, and feminist spirituality.

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

151T. Topics in Lesbian/Gay Studies
(1-3; max total 6)
Topics in lesbian and gay studies, drawing upon areas such as history, sociology, literature, psychology, or interdisciplinary fields.

152. The Chicano Family (3)
(See CLS 152.)



153. Feminist Research Methods (3)
Introduction to quantitative and qualitative research methods. Hands-on practice of designing and conducting a research project and grant writing.

160. Feminist Issues in Counseling (3)
Prerequisite: W S 10 or permission of instructor. Evaluates counseling theories; individual and group counseling techniques; examines ethical issues and power structure in therapeutic settings; surveys community resources; and explores innovative and feminist perspectives concerning the effective treatment of women.

161T. Peer Education (1; max total 4; repeatable with different topics)
Prerequisite: permission of instructor. May be taken up to four times if no topic repeated. Topics: sexual assault, sexual harassment, alcohol and drug abuse, or eating disorders. Students learn curriculum content, develop teaching and group facilitation skills, and make presentations to campus peer groups. *CR/NC* grading only.

162. Community Service
(1-3; max total 6; repeatable with different topics)
Prerequisite: 9 hours of W S courses and permission of instructor and sponsoring agency. Individually planned experience that relates student's classroom studies to practical experience in a women's community service agency. *CR/NC* grading only. (Minimum of 3 field hours per unit.)

163. Consciousness Raising: Group Leader (1; max total 2)
Prerequisite: W S 10 and permission of instructor. Students learn skills in facilitating group discussion and review content of W S 10 course; students lead a consciousness raising discussion group of students currently taking W S 10. *CR/NC* grading only. (2 lab hours)

165. Women and Media (3)
Historical perspectives, contemporary issues, and future alternatives for women as producers and consumers of media, with particular emphasis on visual media.

168T. Women and Literature (4)
(See ENGL 168T.)

170. Women: Culture and Biology (3)
(See ANTH 118.)

172. Psychology of Women (3)
Prerequisite: permission of instructor. Examination of sex differences and sex roles; biological, cognitive, social, and motivation.

175. Seminar in Women's Studies (3)
Primarily for women's studies majors and minors. Prerequisite: 15 units in women's studies or permission of instructor. A synthesis of objective and subjective experience in women's studies. Culminating experience required.

176T. Genre Film: Form and Function (1-4; max total 8)
(See ENGL 176T.)

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

194T. Seminar in Women and Literature (4; max total 8; repeatable with different topics)
(See ENGL 194T.)

195. Diversity in the United States: Race and Gender Issues (3)
(See A I S 195, AF AM 195, ASAM 195, CLS 195.) This interdisciplinary course introduces students to theoretical perspectives concerning the historical development of class, race, and gender within the United States and the impact of these issues on contemporary U.S. society. Participation in a special class project is required.

Travel
into
Tomorrow

Special Programs

American English Institute

The American English Institute (AEI), which has been a university program for more than 25 years, is designed to prepare international students for American university studies by offering instruction in English as a second language. Students receive 20 hours of instruction each week but do not earn academic credit. Qualified students earn a certificate of completion at the end of each session. During each session, up to 140 international students enroll at the institute. Students have come from more than 50 different countries.

Admission Requirements and Application Procedure. Applicants must be high school graduates who are at least 17 years old. Applicants should be motivated to improve their English speaking, listening, reading, and writing skills. They should be prepared to attend classes every day and to do homework regularly. Interested students should call or write to the institute to obtain application forms. After completed application forms have been submitted along with an application fee, students will receive an I-20. Since processing and mailing of the I-20 take time, students should apply at least six weeks before the session begins. For further information, call (559) 278-2097, send a FAX to (559) 278-5586, check our Internet site at *http://www.csufresno.edu/AEI*, or write:

Director, American English Institute
California State University, Fresno
2450 E. San Ramon Ave., Room 138
Fresno, CA 93740-8032

Calendar and Fees. AEI has spring, summer, and fall programs. The institute charges students application, tuition, health, and student service fees. Interested students should contact the institute to get specific information on fees and session dates.

Instruction Offered. AEI has an effective theme-based curriculum which focuses on students' needs and interests. Topics such as current events and American culture become the basis for authentic listening, speaking, reading and writing tasks. The basic intensive program includes the following courses: reading and writing, listening and speaking, grammar, TOEFL preparation, and computer laboratory.

Special Programs. When there is sufficient interest, AEI also offers special classes and programs, such as Business English and GRE/GMAT preparation.

American Humanics

The American Humanics (AH) Program is linked with American Humanics Inc., a national organization that collaborates with affiliated college and university programs, professional organizations, and nonprofit agencies in recruiting, preparing, and placing students in meaningful professional careers with youth and human service agencies. Participation in this Special Certificate Program in Nonprofit Management and Leadership builds on and enhances students' chosen major course of study and provides the tools to achieve success in the field of youth and human service agency management. This interdisciplinary certificate is open to students of all majors and to individuals in the community. Courses may be taken part-time or through open university. American Humanics students are eligible to apply for special scholarships and awards.

Career Opportunities

Today more than 1.1 million nonprofit organizations are serving communities throughout the United States, including 700 agencies here in the Central San Joaquin Valley. Since the nonprofit sector grows at twice the rate of the government and private sectors, the need for capable nonprofit professionals increases accordingly and is now higher than ever. As a result of this explosive growth, the demand for candidates to fill professional positions far exceeds the supply of qualified applicants.

Requirements for the Certificate

The interdisciplinary certificate in Nonprofit Management and Leadership is under development. The curriculum will include a field experience with a nonprofit organization as well as courses in nonprofit management, social service, youth and adult development, accounting and financial management, program planning and evaluation, marketing, fund-raising, grant writing, and leadership and communication. For further information and for aid in planning such a course of study, consult the director, Matthew Jendian, Social Science, Room 223, at (559) 278-2891, ext. 2, or e-mail *matthewj@csufresno.edu*.

Applied Ethics

The Applied Ethics Program incorporates a wide range of courses addressing ethical issues and the application of moral values to problems students are likely to face in their professions, private lives, and responsibilities as citizens. Applied ethics courses are intended to enhance the students' appreciation of their own values throughout life.

While the program has neither a major nor minor, inclusion of several applied ethics courses in the students' curricula should be beneficial in a number of careers and in life itself. Several applied ethics courses count toward General Education requirements, as well as graduate seminars in certain departments. Prerequisites for advanced courses may be established by participating departments. For further information, consult the coordinator, Dr. Warren Kessler (Philosophy) and the *Schedule of Courses*.

COURSES

Applied Ethics (A ETH)

100. Contemporary Conflicts of Morals (3)
(See PHIL 120.)

101. Introduction to Professional Ethics (3)
(See PHIL 122.)

102A. Economics, Ethics, and Civilization (3)

102B. Economics, Ethics, and Civilization (3)
Theories of ethics and their relevance to civilization; a study of the economic and social philosophy of Karl Marx, humanist, scientist, and revolutionary, as well as a comparison of the Marxism of the USSR with the philosophy of Mao Tsetung and the People's Republic of China.

104. Politics and Christianity (3)
(See PL SI 112.)

106T. Topics in Applied Ethics (1-3)
Selected topics involving applied ethics covering a range of career and life issues. Usually requires a previous course in applied ethics or special background.

190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *SP* grading.

192. Directed Reading
(1-3; max total 6)
Prerequisite: permission of instructor. Supervised readings in a selected applied ethics field.

194. Seminar in Applied Ethics (3)
Prerequisite: one course in applied ethics or special background. Intensive investigation of issues in applied ethics, normally requiring substantial student participation and discussion.

200. Ethics in Psychology (3)
(See PSYCH 231.)

201. International Relations and Political Theory (3)
(See PL SI 210.)

202. Ethics and Public Administration (3)
(See GPA 250.)

Asian Studies

California State University, Fresno 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, Dr. Sudarshan Kapoor, (559) 278-2013, (559) 278-3992, or any member of the Asian Studies Committee.

Asian Studies Minor

A Minor in Asian Studies consists of 21 units, including a minimum of 9 upper-division units. Specific requirements:

1. Six to 9 units in one of the areas listed under Section I or II.
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 3 units of electives from Section 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

LING 110 Indic Culture and Tradition (3)

Language

CHIN 1A-1B Elementary Chinese (3-3)
CHIN 2A-2B Intermediate Chinese (3-3)
JAPN 1A-1B Elementary Japanese (3-3)
JAPN 2A-2B Intermediate Japanese (3-3)
SKT 10A-B Sanskrit (3-3)

Philosophy and Religion

PHIL 136 Buddhism (3)
PHIL 137 Hinduism (3)
PHIL 138 Chinese Thought (3)
PHIL 172T Seminar in Religious Issues (1-4)

Section II. Social Sciences

ANTH 123 Peoples and Cultures of Southeast Asia (3)
ANTH 124 Peoples and Cultures of East Asia (3)
ANTH 155 Folk Medicine (3)
ANTH 181 Cultures and Foods of East Asia (3)
ANTH 186 Tradition and Change in China and Japan (3)
ECON 114 Economic Development of Poor Nations (3)
ECON 182 Political Economy of China (3)
ECON 188T Special Topics (1-3; max total 6)
GEOG 177T Asian Regions (3; max total 9 if no area repeated)
HIST 6 East Asian Civilization
HIST 191 Modern Far East, 1843-1949 (3)
HIST 192 Modern Far East, 1949-Present (3)
HIST 199T Studies in Far Eastern History (1-3; max total 6 if no topic repeated)
PL SI 145T Area Studies in Asia (3)
PL SI 183 Comparative Administration (3)
S WRK 122T Gandhi and Nonviolence (3)

Section III. Courses Partially Related to Asia

AG EC 140 Agriculture and International Development (3)

Additional courses may be selected with prior approval from the coordinator.

CalState TEACH

Multiple Subject, CalState TEACH (CST) Emergency Permit/Pre-Intern Program. CalState TEACH is an alternative path to a multiple subject preliminary teaching credential with a CLAD emphasis. Available to individuals residing and teaching in any geographical location in the Fresno/Monterey Bay region, CalState TEACH is designed specifically to serve teachers who hold an Emergency Permit and teach in an elementary school (grades K-8). It is also for those who want to become teachers but are unable to access campus programs due to personal circumstances or because they live beyond commuting distance to a university. The program has been constructed to integrate the theory and practice of teaching with the daily experiences of teachers in the classroom.

CalState TEACH is a personalized, distributed learning program where beginning teachers work in small groups, guided and supported by faculty of Fresno State as well as by on-site school personnel. This flexible form of instruction allows part-time, home-based study and uses a rich mix of print, Internet, World Wide Web, video, and audio materials. There are no regular university classes to attend, although there are five Saturday seminars over the course of the 18-month program. After successfully completing the 18-month program, intern teachers will have earned a preliminary credential with a CLAD emphasis and 39 units of credit.

The CalState TEACH program is offered in four stages over the 18 months. Fees include the cost of instruction and all books, course guides, videotapes, audio cassettes, and computer software. Federal and state financial aid in the form of grants and loans are available for qualified students.

Program Requirements

1. Subject Matter Competency. California provides two ways for potential teachers to demonstrate knowledge of subject matter: completion of the liberal

studies waiver program or passage of the Multiple Subject Assessment for Teachers (MSAT). At initial enrollment, students who have not already met this requirement will be advised regarding which route might be most appropriate. This requirement must be met prior to the beginning of Stage 2.

2. Computer and Internet Requirements. Since there is a Web-based communication system for the program, each participant must have access to a computer connected to the Internet.

3. Admission to the Program. Admission requirements are based on the standards of CSU campuses and the California Commission on Teacher Credentialing. Basic requirements include a bachelor's degree from a regionally accredited college or university, passage of CBEST, a qualifying college grade point average, evidence of writing proficiency, successful completion of an interview with Fresno State faculty (learning support faculty), and three letters of recommendation. Assuming that these requirements are met, teachers working full-time with an emergency permit or waiver in a public elementary school will qualify for CalState TEACH. Assuming they are otherwise qualified, some elementary private school teachers, middle school teachers, teacher aides in public schools, long-term elementary substitute teachers, and other persons may be qualified to participate if they can obtain a substantial teaching experience to meet the in-class requirements of the program. This determination will be made on an individual basis, according to program specifications.

4. Professional Preparation *Units*

Stage 1: CST 401	9
Stage 2: CST 402	9
Stage 3: CST 403	9
Stage 4: CST 404	12
Total	**39***

* Nineteen units are intern teaching, observation, and application in the classroom. The remaining 20 units are devoted to the regular multiple subject credential coursework, plus the infusion of Crosscultural, Language, and Academic Development (CLAD), mainstreaming, and technology curriculum.

For CLAD certification, candidates must have taken the equivalent of 6 semester units of a language other than English with a grade of *C* or better. See page 255 for courses.

Cooperative Education

California State University, Fresno's Cooperative Education program (Co-op) incorporates productive, major-related work experience into a student's academic studies. Cooperative education students are given the opportunity to combine classroom theory with "on-the-job training" to work with professionals in their particular field of study and to test their career choice.

In addition to augmenting their marketable knowledge, students receive competitive wages, develop maturity, and may earn academic credits from cooperating departments. The program is available to all academic majors upon completion of the freshman year. There are two options for participation:

1. Under the *Alternating Plan*, students work one semester on a full-time basis and then study one semester on a full-time basis.
2. Under the *Parallel Plan*, part-time work is found that closely relates to a student's current classes and career interests.

Work, related to the student's academic and career choices, is identified through the combined efforts of the Cooperative Education Section of Career Services and the various academic departments. Placement arrangements are negotiated with local cooperating employers in the San Joaquin Valley, as well as throughout California and the United States. Co-op students have been placed in city, state, and federal governmental agencies; agriculture; business; and all facets of private industry.

To be eligible for co-op, you must be currently registered at California State University, Fresno, have at least a 2.0 grade point average, and be a sophomore, junior, senior, or graduate student. Eligibility for accredited co-ops and internships may vary between departments and colleges/schools. For further information, telephone Career Services at (559) 278-2703, or visit the center in the Joyal Administration Building, Room 256. Please note: all business related co-ops or internships accredited through the Sid Craig School of Business are handled by the internship coordinator in the Peters Building, Room 185, (559) 278-4985.

The following courses are examples of field experiences that may qualify as cooperative education. Check with the academic department for enrollment requirements:

AG EC 194	Agribusiness Internship
A SCI 194	Agricultural Internship
C E 193	Internship in Civil Engineering
COUN 239	Field Practice in Professional Services Counseling
COUN 249A	Field Practice in Elementary School Counseling
COUN 249B	Field Practice in Middle or High School Counseling
C SCI 194	Cooperative Education
CTET 122	Fieldwork in Outdoor Education
ECE 193	Electrical and Computer Engineering Cooperative Internship
ENGL 185	English Internship Seminar
ENGL 186	Internship in English
ENOL 194	Enology Internship
FCS 193	Cooperative Education
H S 185F	Fieldwork in Health
I E 193	Industrial Engineering Cooperative Internship
I T 194	Cooperative Education in Industrial Technology
M E 193	Mechanical Engineering Cooperative Internship
NUTR 193	Supervised Work Experience
PH TH 180T	Topics in Physical Therapy
PLANT 194	Agricultural Internship
PL SI 187	Internship in Public Administration
S E 193	Internship in Surveying Engineering
SPED 160F	Fieldwork in Special Education

International Programs

There are several programs offered by the university under this heading.

- The campus program 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 tests. As a result of such testing, any student may be required to register for certain courses.
- The overseas program features study abroad through the CSU system-wide program; the campus semester programs to China, London, and the South Pacific; and the University Studies Abroad Consortium (USAC).
- The National Student Exchange also has opportunities for students to study abroad through a university in another state.

Campus

The International (Campus) Program provides courses to help international students gain adequate skill in the use of the English language and sufficient familiarity with American customs and tradition to obtain maximum benefit from their experience at an American university. The following program, taught through the Linguistics Department, is required of all entering international students, unless excused from part or all of it by the International Studies Courses (I S C) Petitions Committee on the advice of the persons concerned with the instruction and administration of the program. This decision is based on a consideration of test scores and other data supplied by the student with his or her application. (See *International Student Services and Programs.*) After arrival on campus, examinations and an interview may lead to the student's being excused from certain courses.

All resident non-native speakers of English who cannot demonstrate basic competence on the EPT exam are required to enroll in either ENGL A or E S L 20-30 series based on their EPT scores.

First Semester Program. Most students are required to enroll in E S L 30 and I S C 93 in the first semester of residence. In addition, students with less skill in English may be required to take E S L 20. With permission of their international counselor, students may enroll in other regular courses.

Other Undergraduate Courses. E S L 110W is often required of transfer students who have completed ENGL 1 or its equivalent and 56 units of coursework.

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 following undergraduate courses when considered necessary by the student's advisers.

COURSES

English as a Second Language (E S L)

20. Intermediate English as a Second Language (3)
Emphasizes the development of reading skills and multi-paragraph essays, beginning with personal writing then moving toward the more objective nature of academic prose. Relevant areas of grammar are selected based on student errors and the nature of the written essay.

21. Advanced Oral Practice in American English (3)
Advanced work on stress, rhythm, and intonation. Practice in listening comprehension. Speech styles: formal vs. informal. Speech organization and delivery.

30. Advanced English as a Second Language (3)
An introduction to reading based on academic writing and the advanced E S L writing skills required for academic exposition, argumentation, and research papers. Areas of English grammar important to non-native speakers are taught based on problems in student compositions.

110W. Advanced Composition for Foreign Students (3)
Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement, to be taken no sooner than the term in which 60 units of coursework are completed. 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 the upper-division writing skills requirement for graduation.

International Studies Course (I S C)

93. Contemporary American Society (1)
Introduction to contemporary American society to familiarize the student with political and social issues and ideological conflicts. (2 seminar hours)

Overseas

CSU International Programs

Developing intercultural communication skills and international understanding among its students is a vital mission of the California State University (CSU). Since its inception in 1963, the CSU International Programs has contributed to this effort by providing qualified students an affordable opportunity to continue their studies abroad for a full academic year. More than 12,000 CSU students have taken advantage of this unique study option.

International Programs participants earn resident academic credit at their CSU campuses while they pursue full-time study at a host university or special study center abroad. The International Programs serves the needs of students in over 100 designated academic majors. Affiliated with more than 70 recognized universities and institutions of higher education in 16 countries, the International Programs also offers a wide selection of study locales and learning environments.

The affiliated institutions are the University of Western Sydney (Australia); the universities of the Province of Quebec (Canada); the University of Copenhagen (Denmark) through Denmark's International Study Program; the University of Marseille, the University of Paris, and the Institute of Oriental Languages and Civilizations (France); the University of Tübingen and a number of institutions of higher education in the federal state of Baden-Württemberg (Germany); the Hebrew University of Jerusalem and Tel Aviv University (Israel); the University of Florence (Italy); Waseda University (Tokyo, Japan); Yonsei University (Seoul, Korea); Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Querétaro (Mexico City, Mexico); Massey University and Lincoln University (New Zealand); the universities of Granada and Madrid (Spain); Uppsala Universitet (Sweden); National Chengchi University (Taipei, Taiwan); Bradford, Bristol, Hull, Kingston, and Sheffield universities and the University of Wales, Swansea (the United Kingdom); and the University of Zimbabwe (Harare).

International Programs pays all tuition and administrative costs for participating California resident students to the same extent that such funds would be expended to support similar costs in California. Participants are responsible for all personal costs, such as transportation, room and board, living expenses, and home campus fees. Participants remain eligible to receive any form of financial aid (except work-study) for which they can individually qualify.

To qualify for admission to the International Programs, students must have upper-division or graduate standing at a CSU campus by the time of departure. Students at the sophomore level may, however, participate in the intensive language acquisition programs in France, Germany, and Mexico. California Community Colleges transfer students are eligible to apply directly from their community colleges. Students must also possess a current cumulative

grade point average of 2.75 or 3.0, depending on the program for which they apply. Some programs also have language study and/or other coursework prerequisites.

Obtain information and application materials from the International Programs Office, Family and Food Sciences Building, Room 111 or call (559) 278-6452. Or write to the California State University International Programs, 401 Golden Shore, Sixth Floor, Long Beach, CA 90802-4210. Visit us on the World Wide Web at *www.gateway.calstate.edu/csuienet/*. Applications must be submitted by February 1 for the next academic year overseas.

COURSES

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

International Studies Abroad (I S A)

92. Projects in Study Abroad:
(Subject) (Units variable; max total 18)
Open only to students in The California State University International Programs. Study undertaken in a university abroad under the auspices of The California State University.

192. Projects in Study Abroad:
(Subject) (Units variable; max total 18)
Open only to students in The California State University International Programs. Study undertaken in a university abroad under the auspices of The California State University.

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 instructor, department chair, and dean of the Division of Graduate Studies. May require one or more papers and oral or written examination on the student's return before the recording of the final grade.

University Semesters

China Semester (fall) is offered through the International Programs Office, (559) 278-6452.

London Semester (spring) includes numerous opportunities to travel in England, Scotland, Wales, and on the European Continent. Program information is available from the College of Arts and Humanities at (559) 278-3056. (See page 179.)

South Pacific Semester (every other spring) is offered through the College of Science and Mathematics. (See page 406.)

University Studies Abroad Consortium

The University Studies Abroad Consortium (USAC), a consortium of ten American universities, organizes fully accredited summer, semester, and year-long programs in Australia, Chile, China, Costa Rica, Denmark, England, France, Germany, Israel, Italy, Malta, New Zealand, Scotland, Spain, and Thailand. The programs are diversified, allowing students to fulfill up to two years of university foreign language requirements in one semester. Courses are also offered in a variety of other subjects. Field trips and full integrated living opportunities are key parts of the program. Any student currently enrolled at California State University, Fresno who has an overall GPA of 2.5 or better on a 4.0 system is eligible to apply to a USAC program.

For more information, contact the International Programs Office, Family and Food Sciences Building, Room 111, (559) 278-6452.

National Student Exchange Program

The National Student Exchange, a consortium of over 150 state-supported colleges and universities, allows students to attend, for up to one academic year, an institution of higher learning in another area of the United States. In bringing together students from different parts of the country, the program encourages participants to broaden their academic, social, and cultural awareness. Through a simplified admissions process, students are able to enroll at their host institutions with the same financial benefits enjoyed by in-state residents. Coursework completed will be treated as transfer coursework, but students will be allowed to retain catalog rights for California State University, Fresno degrees.

To qualify, a participant must: (1) be currently enrolled as a full-time undergraduate student at Fresno State and in the term prior to exchange; (2) be a sophomore, junior, and in some cases have senior status during the exchange; (3) have a minimum 2.5 GPA at the end of the fall semester and at the completion of the term prior to exchange; (4) be in good standing at California State University, Fresno. The program is closed to postbaccalaureate students. Applications are available in December. Deadline for submission is the end of February.

For more information about this opportunity for educational travel and study in a new environment, contact Joanne Atwell, NSE coordinator, International Programs Office, Family and Food Sciences Building, Room 111. Phone: (559) 278-6452.

Interprofessional Collaboration

The practice of interprofessional collaboration has been identified as a critical skill for educators, health professionals, and social service providers, especially with the increasing complexity of our educational, health, and social service networks.

The Certificate of Advanced Study in Interprofessional Collaboration (CASIC) is a 15-unit, two-semester program that provides graduate students and practicing professionals with essential knowledge and skills in interprofessional collaboration while earning university credit and an academic certificate at the completion of the program.

The general purposes of this program are

- to introduce practice strategies and theoretical foundations for team-building and interprofessional collaboration and
- to improve outcomes for recipients of health, education, and social services through integrated service delivery systems, education, and training.

Application Requirements

Applicants must meet the following requirements:

1. Apply to post-baccalaureate graduate studies and at minimum be admissable

to unclassified post-baccalaureate standing. (See *Division of Graduate Studies*.)

2. Follow application guidelines for CASIC program.
3. Participate in a formal interview with the CASIC Admissions Committee after initial screening of application materials.

International students must meet the TOEFL score requirement in addition to the IPC program admission requirements. (See *Division of Graduate Studies*.)

Application deadlines are December 1 for spring semester admission and July 1 for fall semester admission.

Applications may be obtained from the Interprofessional Collaboration Program, 5005 Maple Avenue M/S ED1, Fresno, CA 93740-8025 or by calling (559) 278-0246. Visit the Web site at *http://www.csufresno.edu/interprof*.

Required courses (9 units)
IPC 201, 202, 203

Students must choose 3 semester units of coursework from Group A and 3 semester units from Group B to fulfill the 6 unit elective requirement. Students may take any course with the permission of the instructor, with the understanding that in some cases upper-division and graduate courses often have their own prerequisite requirements, which must be met. In some disciplines enrollment is restricted to cohorts of students who have been admitted to a specific graduate program.

The following is a partial list of acceptable electives. Three units must be taken from each group.

Electives (6 units)
Group A: AF AM 144; EHD 108; SOC 162, 168; COMM 108, 164, 266; COUN 201; PH TH 142; PSYCH 175, 178, 278; S WRK 135, 140, 216

Group B: EHD 109; COMM 167, 168, 268; COUN 202; EAD 265, NURS 225; PSYCH 277, S WRK 141

COURSES

Interprofessional Collaboration (IPC)

201. Interprofessional Collaboration Foundations (3)
Prerequisite: graduate standing or permission of the instructor. Examination of beliefs and biases affecting professionalization and discipline specific culture. Group process and team building skills, including active listening, conflict mediation, and cultural competence. Principles of integrated service delivery models of team practice in a multi-cultural and interdisciplinary context.

202. Integrated Service Delivery Models (3)
Prerequisite: admission into the CASIC program. Analysis of local community health, education, and economic challenges. Looks at issues in working with families and communities, including access and equality. Covers organizational development and systems that build interagency partnerships for collaborative practice. Measures outcomes of integrated service delivery programs.

203. Practicum in Interprofessional Collaboration (3)
Prerequisite: admission into the CASIC program. Thirty hours of supervised practice in an agency using an integrated service delivery model. This will be supplemented by a weekly two-hour seminar on campus that provides a forum for reflection, analysis, and synthesis of experiences and observations.

Revising and Editing Skills

The following minicourses 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 1-unit courses. These courses may be taken prior to, concurrently with, or after ENGL 1 or ENGL A. Classes are taught by members of the English and Linguistics departments.

COURSES

Revising and Editing Skills (R E S)

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 is emphasized.

4B. Vocabulary Development (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.

4C. Sentence Structure (1)
Developing skill in writing clear, mature sentences. Focus 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.

Solutions Center

The Solutions Center (formerly School of Agricultural Sciences and Technology Clinic Program) is a campus-based, team centered, open-ended, problem-solving experience appropriate for upper-class students. Solutions Center projects involve teams of three to five students under the direction of a faculty member, working on a problem identified and funded by a client/sponsor from industry, government, and the community. Students are expected to put into practice the theories they have learned in the classroom and deal with the dynamics of teamwork, budget, and schedule restraints. The program is intended to be a culminating experience for students. In some departments, the Solutions Center project has fulfilled the senior project requirement.

The Solutions Center establishes linkages with private sector sponsors, giving them an opportunity to participate directly with students and in university programs. Sponsors experience the successful application of university resources to specific areas of interest.

To be eligible for a Solutions Center course, a student must be currently registered at California State University, Fresno, have a 2.0 or greater grade point average, and be a senior or graduate student. Specific projects vary from semester to semester and enrollment is dependent on approval of the project adviser/instructor. For further information, call (559) 278-5687 or check our Internet site at *http://www.csufresno.edu/solutions_center*.

COURSES

Solutions Center (S C)

197. Solutions through Collaboration (3; max total 6)
Prerequisites: senior or graduate standing and permission from project adviser/instructor. Projects require collaborative teamwork and emphasize application of theory. Students immerse themselves in all of the professional activities of real time, real world management practice as they research questions for business, industry, and government. (Formerly AST 197)

Special Major
Master's Degree

The special major for the Master of Arts degree is available to qualified graduate students when there is a need for advanced study in subject matter that is interdisciplinary and that is not available through existing graduate programs. In such instances, proposals for a special major that may combine cohesive, interrelated coursework from two or more departments must be submitted for the approval of the dean, Division of Graduate Studies. Proposals that could be accommodated by an existing master's degree or option at California State University, Fresno, as in the use of elective courses, are not approved.

General Eligibility

The student must demonstrate a superior undergraduate preparation for advanced studies and research appropriate to the departments involved in the proposed special major. The student must meet the minimum criteria for admission to conditionally classified standing in the departments concerned.

Degree Requirements

The basic requirements for the special major are the same as for all other master's degrees. A minimum of 30 units is required, and at least 70 percent of the program must consist of courses designated for graduate study, that is, in graduate-level 200-series courses. The proposed program must truly reflect the requirements of scholarly creativity and research appropriate to the graduate level and must exhibit overall coherence in a particular, recognized field of study. The proposed program must lead to the mastery of specific knowledge or skills in an area of advanced studies for which adequate faculty, library, and laboratory resources are present.

Although the special major provides an opportunity for exceptional students to engage in a program outside the framework of existing majors, all normal graduation requirements and standards will be applied. Students pursuing a special major master's degree are required to write a thesis to fulfill the requirement for a culminating experience. For more detailed information concerning the application process and the procedures for constituting a committee and program for the special major, consult the Division of Graduate Studies.

Summer Arts

CSU Summer Arts is a multidisciplinary festival of performing and visual arts, recognized as the largest and most dynamic summer arts program in the western United States. The goal of the program is to create a center for learning where students, faculty, professionals, and audiences from all over the world come together to explore connections, experiment with new modes of communication, and engage in the process of making art.

The program offers masterclasses in theatre, music, dance, visual arts, creative writing, arts education, and new technologies including film, video and computer arts. The festival's offerings are enhanced through the participation of many internationally known guest artists and feature a large number of public events and performances. These summer workshops provide a transforming experience in the arts through intense artistic immersion and the chance to study with world-renowned guest artists and master teachers. (For a list of available courses please see this page.)

Art Education:

- ART 431T - Topics in Education in the Fine Arts
- ART 432T - Topics in Art Education
- ART 631T - Topics in Education in the Fine Arts
- ART 632T - Topics in Art Education

Creative Writing:

- ENGL 422T - Topics in Creative Writing. Intensive workshop in the writing of poetry and fiction.
- ENGL 622T - Topics in Creative Writing. Intensive workshop in the writing of poetry and fiction.

Dance:

- DANCE 427T - Topics in Dance
- DANCE 428T - Topics in Dance Production
- DANCE 627T - Topics in Dance
- DANCE 628T - Topics in Dance Production

Media Art:

- MCJ 429T - Topics in Media Art. Advanced projects in media art, multimedia production, and video programs.
- GD 430T - Topics in Animation and Graphic Design. Advanced projects in graphic design from concept to computer-generated files.
- MCJ 629T - Topics in Media Art. Advanced projects in media art, multimedia production, and video programs.
- GD 630T - Topics in Animation and Graphic Design. Advanced projects in graphic design from concept to computer-generated files.

Music:

- MUSIC 423T - Topics in Music Performance
- MUSIC 424T - Topics in Instrumental Music
- MUSIC 623T - Topics in Music Performance
- MUSIC 624T - Topics in Instrumental Music

Theatre:

- DRAMA 425T - Topics in Theatre Arts
- DRAMA 426T - Topics in Theatre Production
- DRAMA 625T - Topics in Theatre Arts
- DRAMA 626T - Topics in Theatre Production

Visual Arts:

- ART 420T - Topics in the Visual Arts. Investigation of advanced topics in the visual arts. Coursework may include studio productions, critiques, and evaluations.
- ART 421T - Topics in Studio Art. Advanced projects in studio art.
- ART 620T - Topics in the Visual Arts. Investigation of advanced topics in the visual arts. Coursework may include studio productions, critiques, and evaluations.
- ART 621T - Topics in Studio Art. Advanced projects in studio art.

Travel
into
Tomorrow

Graduate Studies

Division of Graduate Studies

Thomas Administration

Building, Room 132

(559) 278-2448

FAX: (559) 278-4658

E-mail: shirlee_fulton@csufresno.edu

http://www.csufresno.edu/gradstudies

Vivian A. Vidoli, *Dean*

Dianne K. Dickerson, *Associate Dean*

Graduate Studies

Students studying for advanced degrees at California State University, Fresno are a distinctive and valued part of the university. One in five students enrolled at this campus has already earned a bachelor's degree and is engaged in additional study at a more advanced level as a postbaccalaureate or graduate student. More than 3,000 such students are enrolled in studies leading to a graduate degree at either the master's or doctoral level, or to the attainment of an advanced credential, or the awarding of a certificate of advanced study.

There are many reasons, both academic and personal, that have drawn these individuals to California State University, Fresno. Some have come in recognition of the excellence of the university's graduate programs, many of which are nationally recognized by external accrediting agencies. Others have been attracted by a sterling group of graduate faculty members who take seriously the requirement to be teacher-scholars and have garnered many awards in teaching and research. Other students have come because of the availability of outstanding facilities that encourage student research and professional development. The natural laboratories of the adjacent Sierra Nevada mountain range and the geography of the large central valley of California provide exciting dimensions for those interested in environmental and ecological research. Collaborative sites jointly operated with governmental agencies and other universities exist in areas such as biomedical research, marine sciences, engineering, agriculture, business, and education. With a campus focus on both applied and theoretical research, students can be more readily assured of an opportunity to match their interests with those of the faculty members.

Successful graduate students consider the Henry Madden Library to be a powerful resource. Madden Library holdings include 930,000 volumes and nearly 3,000 periodicals and major collections in areas such as music, maps, governmental documents, rare books, and curriculum materials. Library services, such as the interlibrary loan program and electronic database searches, ensure library support for students. University librarians are instrumental in assisting graduate students in acquiring information resources and archival records and searching various databases.

The university also has a history of attracting scholars from many areas of the world. These scholars may join the faculty or present special lectures, and often engage in joint research and publication efforts with Fresno State faculty. Through these scholars, graduate students are exposed to a significant network of nationally recognized colleagues.

Administrative Organization

The Division of Graduate Studies includes all departments and academic units within the university that offer graduate courses and programs leading to advanced degrees. The chief administrative officer of the Division of Graduate Studies is the graduate dean, who has general responsibility for the development, planning, assessment, improvement, and administration of postbaccalaureate and graduate programs offered by the university. Within this charge, the division administers all graduate student record functions, including admissions, student academic progress, and evaluations; develops opportunities for providing student fellowships, scholarships, and assistantships; and provides support for research and professional scholarship activities for faculty and graduate students.

The university adheres to the Council of Graduate Schools statement issued in *Organization and Administration of Graduate Education,* 1990, that it is the responsibility of the Division of Graduate Studies and the graduate dean to bring an institution-wide perspective to all postbaccalaureate endeavors, to serve as an advocate for issues and constituencies critical to the success of graduate programs, to develop ways for graduate education to contribute to and enhance undergraduate education, to champion support of graduate students, and to ensure that graduate education enlivens the intellectual community of scholars at the university.

Housed within the division are the admission, program, and degree evaluators, and the thesis consultant. They advise both domestic and foreign students about the status of their applications for admission, requirements and regulations for completion of a graduate degree, or other special problems that may arise. Staff members in the division provide general information to graduate students.

The responsibilities of the Division of Graduate Studies are complex and decentralized to include the eight academic colleges and schools of the university and the departments within them housing the graduate programs offered by the campus. Each program has a graduate program coordinator who is a member of the graduate faculty group for the program. The Corps of Graduate Advisers includes all of the designated graduate program coordinators who often serve as the initial point of contact for entering graduate students. Responsibility for the quality and scheduling of courses, including special topics, the preparation of course syllabi, examinations, and thesis, rests initially with faculty members in the department who constitute the graduate faculty group.

As a member of the graduate group, the major professor for a student is responsible for guiding the student in selecting appropriate courses, research problems, and professional experiences. Moreover, the major professor is important as both a colleague and mentor in facilitating the intellectual development and maturation of the student within the discipline.

The chief consultative body responsible for formulating and recommending policies, standards, and procedures is the university's Graduate Committee. This committee is composed of eight faculty members elected by the faculty, one graduate student member, and the graduate dean.

The Graduate Student Body

The Division of Graduate Studies is proud of the diversity of its graduate student body. Graduate students come from a variety of ethnic, racial, and age groups, and represent many nationalities and countries throughout the world. They present a mosaic of personal values, beliefs, and experiences that enrich the dialogue of campus conversations. Whether these students are recent graduates of bachelor's degree programs or are returning students, they constitute a dynamic group on campus. The diversity of the student body thus presents

a very special opportunity for all part-time and full-time graduate students to establish a vast, collegial network.

For those students who make up the graduate student body, success in the pursuit of a graduate degree depends upon active cooperation with their faculty advisers and instructors. Graduate students are expected to develop the ability to critically seek out and analyze facts, sift evidence, master theories and advanced techniques of professional inquiry, and demonstrate these abilities orally and in writing. Moreover, they must risk giving their informed opinions and be ready to accept criticism and advice rendered by faculty mentors and student colleagues. The pursuit of an advanced degree also requires that participants demonstrate an essential degree of independence and self-motivation in acquiring knowledge in their field of study. The rewards for those who succeed are many, as evidenced by the rapidly growing number of individuals nationwide who earn a graduate degree. Currently, more than 406,000 master's degrees and 45,000 doctoral degrees are awarded annually in the United States.

Graduate Degrees and Programs

There is great variety in the nature and scope of the graduate programs, options, concentrations, and emphases available at California State University, Fresno. Those that are officially recognized and for which the university is authorized to confer a degree are listed in the section that follows. Additional areas of specialization, although not officially recognized on transcripts or diplomas, may be obtained through selection of appropriate elective courses.

Master's Degrees and Authorized Options

Art, M.A.

Biology, M.A.

Business Administration, M.B.A.

Chemistry, M.S.

Civil Engineering, M.S.

Communication, M.A.

Communicative Disorders, M.A.
- Education of the Deaf
- Speech-Language Pathology

Computer Science, M.S.

Counseling, M.S.
- Marriage and Family Therapy

Creative Writing, M.F.A.

Criminology, M.S.

Education, M.A.
- Administration and Supervision
- Counseling and Student Services
- Curriculum and Instruction
- Early Childhood Education
- Reading/Language Arts

Engineering, M.S.
- Electrical Engineering
- Mechanical Engineering

English, M.A.
- Composition Theory
- Literature
- Nonfiction Prose

Family and Consumer Sciences, M.S.

Food and Nutritional Sciences, M.S.

Geography, M.A.**

Geology, M.S.

History, M.A.

Industrial Technology, M.S.

International Relations, M.A.

Kinesiology, M.A.*
- Exercise Science

Linguistics, M.A.*
- English as a Second Language

Marine Science, M.S.

Mass Communication, M.A.

Mathematics, M.A.

Music, M.A.
- Music Education
- Performance

Nursing, M.S.
- Clinical Specialization
- Primary Care/Nurse Practitioner

Physical Therapy, M.P.T.

Physics, M.S.

Plant Science, M.S.

Psychology, M.A., M.S.

Public Administration, M.P.A.

Public Health, M.P.H.
- Environmental and Occupational Health
- Health Administration
- Health Promotion

Rehabilitation Counseling, M.S.

Social Work, M.S.W.

Spanish, M.A.

Special Education, M.A.

Special Major, M.A.

Doctoral Degree

Educational Leadership, Ed.D.

Certificates of Advanced Study

- Biotechnology
- Composition
- Criminal Justice Counseling Specialist
- Dietetics
- Educational Technology
- Interprofessional Collaboration
- Teaching English to Speakers of Other Languages (TESOL)

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* In these programs, a student may earn a degree without also declaring an option.

** Admission suspended.

Financial Aid, Fellowships and Scholarships

In addition to the information found in the Financial Aid section of this catalog, the Division of Graduate Studies publishes a sourcebook, "Financial Assistance for the Graduate Student," on opportunities for funding graduate students. This is available to students at no cost upon request to the Division of Graduate Studies.

Teaching Associateships and Graduate Assistantships

A number of teaching associateships and graduate assistantships are available to graduate students who are enrolled in master's degree programs and whose previous records show outstanding achievement in academic work, outstanding subject matter competence in their major fields, and the special qualities necessary to the duties assigned.

Eligibility for an initial associateship or assistantship appointment requires possession of a baccalaureate degree and admission to the master's degree program that gives the nomination, with at least conditional classified graduate status. Subsequent appointments require that students maintain a 3.0 GPA, be enrolled in coursework toward their graduate degree, and demonstrate satisfactory progress toward completion of their graduate degree.

Assistants work under the direction of an assigned faculty member and assist in such functions as the supervision of laboratories or other small groups, the evaluation of student work, the preparation of course materials, or the conduct of authorized

research. Assistants receive a stipend ranging from $2,000 to $5,500 per semester for the academic year 2000-2001. For specific information, write to the chair of the major department.

Graduate Student Research Awards

Limited awards of $500 are available each fall semester on a competitive basis to students in any academic area in the form of grants for special merit and quality scholarship of graduate student research proposals associated with a thesis or project. For further information, contact the Division of Graduate Studies, (559) 278-2448.

Graduate Student Travel Grants

Travel grants are available to graduate students who have had papers and/or posters accepted for presentation at major, professional conferences or society meetings. For further information, contact the Division of Graduate Studies, (559) 278-2448.

California Graduate Equity Fellowship Program

Fellowships ranging in amounts of up to $4,500 are available for underrepresented graduate students who qualify. The California Graduate Equity Fellowship Program seeks to increase the diversity of students completing graduate degree programs at California State University, Fresno and encourages continuation to doctoral programs and consideration of university faculty careers. It provides fellowships for economically disadvantaged graduate students (especially those from groups that are underrepresented among graduate degree recipients in their areas of study) and promotes faculty mentoring and research opportunities. Filing deadlines are in the spring for funding in the following academic year. Additional information may be obtained from the Division of Graduate Studies, (559) 278-2448.

State Graduate Fellowships

The Student Aid Commission administers the State Graduate Fellowship Program for tuition assistance for master's and doctoral students. To apply, students must complete the Free Application for Federal Student Aid (FAFSA), and return it by March 1. In addition, students must complete and mail the Student Aid Commission GPA Verification Form to the Commission by March 1. These forms are available at the Financial Aid Office.

California Pre-Doctoral Program for Undergraduate and Graduate Students

The California Pre-Doctoral Program is designed to increase the pool of potential faculty by supporting the doctoral aspirations of California State University students who have experienced economic and educational disadvantages. The program provides travel funds for qualified students to visit institutions that grant the doctorate and/or attend professional meetings with a faculty sponsor. Students in the program may also be considered to participate in a summer research program at a UC or CSU campus. Additional information is available through the Division of Graduate Studies.

University Scholarships for Graduate Students

Postbaccalaureate/graduate students may apply for scholarships through the Scholarship Office, Joyal 274, between September 1 and November 19 each academic year. Such an application is necessary to compete for award monies available from the university and from individual departmental resources.

In addition, Fresno State also awards yearly to graduate students two President's Graduate Scholars Fellowships of $3,500 each and one Leon Peters Scholarship of $1,000. President's Graduate Scholars may obtain a second year of funding if satisfactory progress is maintained. Nominations for the Peters awards originate from the graduate degree program directors.

Definition of Full-Time Student

Depending on the use of the term, there are several definitions of full time. *For the purpose of reporting enrollments,* graduate students taking 9 or more units are considered full time and students taking less than 9 units are considered part time.

For the purpose of financial aid (loans, veteran's 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 $11^1/_2$ and 6 to $8^1/_2$ "equivalent units," respectively.

Under certain circumstances, a student enrolled in Graduate Studies Continuation (zero units) to complete requirements for the master's degree (including Thesis 299, Project 298, and the Comprehensive Examination) may qualify for full-time status or a fraction thereof. The Graduate Office will verify the student's appropriate status in such cases through his or her major adviser upon request from the student.

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. Requests for exceptions to this policy must be addressed to the Graduate Division on a graduate student petition for academic overload during the first two weeks of the semester. Students employed full time may take a maximum of 6 units. For maximum units during the summer session, see the *Summer Session Catalog*.

Application for Graduate/ Postbaccalaureate Admission

Students are encouraged to plan and apply for graduate admission as early as possible. Completed applications are considered as they are received and thus there are many benefits to applying early. For example, it is often the case that available financial awards such as teaching assistantships and other financial aid resources, which are limited in number, may be granted only to the early applicants. Be aware, too, that a decision on an incomplete application is likely to be delayed. In many instances this occurs when supporting documents such as official transcripts, scores from standardized tests (GRE, GMAT, MAT), portfolios of writing samples, letters of recommendation, etc. are not received. Applicants are advised to ensure that these materials are requested and forwarded prior to or at the same time as the submission of their application. The Graduate Admissions Office (located in Joyal Administration, Room 121) keeps a record of all applications during the time they are being considered and may be consulted for information on the status of an application. Prospective master's, credential, and advanced certificate students apply to the university using

the Graduate and Postbaccalaureate Admission Booklet which may be obtained from the Division of Graduate Studies. Students are also referred to the admission requirements described for each graduate degree, credential, or advanced certificate program elsewhere in this catalog. Those interested in a second undergraduate degree should use the undergraduate application available in Joyal Administration.

Limitation of Graduate Enrollment

Admission to postbaccalaureate/graduate studies must be restricted to the number of students for whom an effective education can be provided by staff, facilities, and funding available at California State University, Fresno. The university may limit postbaccalaureate/graduate enrollment on the basis of the academic field and the relative aptitude of the applicant, based on approved admissions criteria.

University Admission

The minimum university requirements for admission to graduate and postbaccalaureate studies at a California State University campus are in accordance with university regulations as well as Title V, chapter 1, subchapter 3 of the California Code of Regulations. Specifically, a student shall (1) have completed a four-year college course of study and hold an acceptable baccalaureate degree from an institution accredited by a regional accrediting association, or have completed equivalent academic preparation as determined by appropriate campus authorities; (2) be in good academic standing at the last college or university attended; (3) have attained a grade point average of at least 2.5 (*A*=4.0) in the last 60 semester (90 quarter) units attempted; and (4) satisfactorily meet the professional, personal, scholastic, and other standards for graduate study, including qualifying examinations, as appropriate campus authorities may prescribe. In unusual circumstances, a campus may make exceptions to these criteria.

Postbaccalaureate Standing

Postbaccalaureate applicants not interested in a graduate program may choose to take courses for professional or personal growth, apply to work toward a credential or certificate objective, or work toward a second baccalaureate degree. These students may be admitted to the university in postbaccalaureate standing in either an unclassified status or a classified status.

Admission to Postbaccalaureate Standing: Unclassified. By meeting the minimum requirements to the university, students are eligible for admission as postbaccalaureate unclassified, nondegree-seeking students. Students who fall under this category may enroll in graduate courses for professional or personal growth if prerequisite preparation has been accomplished and the appropriate standardized test scores are on file. Some departments may restrict enrollment of unclassified students due to heavy enrollment pressure. Admission in this status does not constitute admission to or assurance of consideration for admission to a graduate degree program or to a credential program.

Admission to Postbaccalaureate Standing: Classified. Students admitted to the university as postbaccalaureate classified students have satisfied additional professional, personal, scholastic, and other standards — including qualifying examinations — prescribed by the campus, and may enroll in a particular postbaccalaureate credential or certificate program. Admission to postbaccalaureate classified standing does not constitute admission to or consideration for admission to a graduate degree program, to a credential, or to a certificate program.

Graduate Standing

Admission to the university for postbaccalaureate students who wish to pursue a specific graduate program occurs in two phases: admission to the university and admission by the Division of Graduate Studies to a graduate program. Acceptance by the university does not guarantee admission by the Division of Graduate Studies to a specific graduate program. Only those students who are admitted to both the university and the Division of Graduate Studies will be granted graduate standing in a master's or joint doctoral degree program. See the admissions diagram on next page.

Admission to Graduate Degree Programs with Graduate Standing

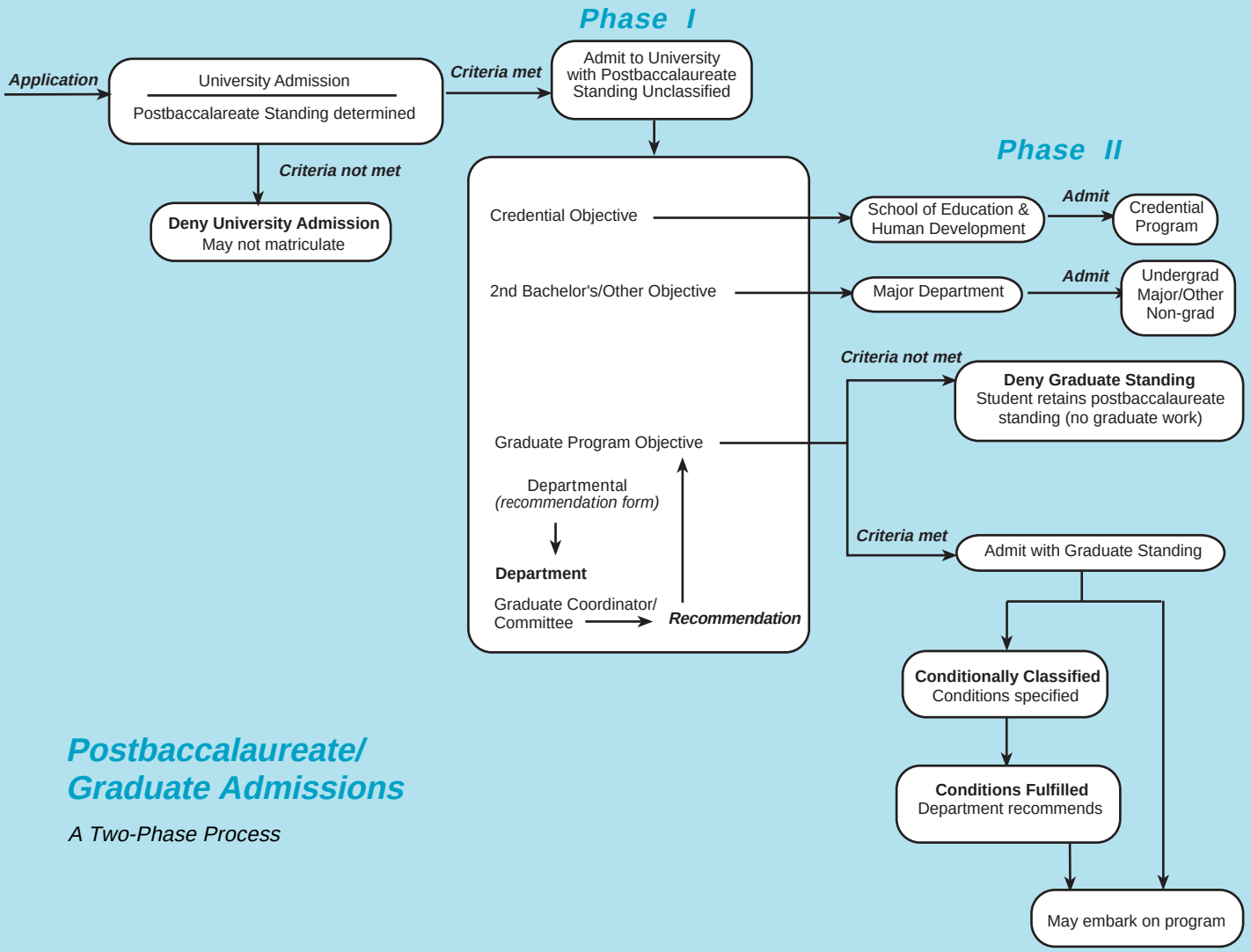
Admission to graduate standing is the responsibility of the Division of Graduate Studies. Students admitted to graduate standing have met the general requirements for university admission. Students have also met the additional requirements and standards of the Division of Graduate Studies for admission to a graduate degree program, including academic preparation, evidence of scholarly and professional ability (standardized test scores and letters of recommendation), personal statement, and other requirements as described for each program in the appropriate section of this catalog. Some graduate programs require a separate application in addition to the university application to graduate and postbaccalaureate admission.

All applicants to a master's degree and advanced certificate programs are required to submit appropriate admission test scores with the university Application to Graduate/Postbaccalaureate Studies. Admission will require submission of scores on the Graduate Record Examination (GRE) General Test, or for business students, the Graduate Management Admission Test (GMAT).

Applicants for admission to the MPA program may submit either GRE or GMAT scores. Applicants to master's degree programs in the School of Education and Human Development may submit either GRE or Miller Analogies Test (MAT) scores. For application information concerning the GRE, contact the Graduate Division in Thomas Administration, Room 132. GMAT information is available in the Craig School of Business Graduate Office in the Peters Building, Room 183. Information concerning the MAT as well as the GRE and GMAT is available through the Testing Office in the Family and Food Sciences Building, Room 110.

The University Graduate Committee has established a standardized test score requirement for all applicants to provide a significant basis of comparison to national educational standards and to ensure the admission of highly qualified students to graduate degree programs. It should be noted that an applicant's standardized test scores will not constitute the sole criterion according to which an admissions decision will be rendered, as noted in a previous paragraph. However, some departments, particularly in the sciences, may give more importance to standardized test scores than departments in other fields.

Applicants to the joint doctoral program in Educational Leadership (Ed.D.) are required to submit official scores of the Graduate Record Examination (GRE) General Test or the Miller Analogies Test (MAT). For other requirements, contact the California State University, Fresno/ University of California Davis Joint Doctoral Program.



Postbaccalaureate/ Graduate Admissions

A Two-Phase Process

All applicants granted graduate standing by the Division of Graduate Studies are admitted to a graduate program through conditional or classified standing as follows.

Graduate Conditionally Classified Standing. Students may be admitted to a graduate degree program in this category if, in the opinion of the appropriate campus authority, the student can remedy deficiencies by additional preparation, including the completion of prerequisite requirements.

Note: Students who have been granted conditionally classified admission to a graduate program are required to complete all conditions for achieving classified status (full admission) to the program by the semester in which a maximum of 10 units to be used toward the master's degree is completed. In programs of 60 units, except counseling, classification must occur prior to the completion of 20 units. Failure to attain classified standing in a timely manner as outlined in this catalog may result in the loss of units to be applied toward the degree since excess units may not be listed on the Petition of Advancement to Candidacy.

A student is expected to attain classified standing either at admission or during the first semester of studies. Candidates for classification are expected to possess a 3.0 or better grade point average in coursework undertaken for use toward the master's degree.

Graduate Classified Standing. This category is granted to those students who fully meet all admission requirements of the Division of Graduate Studies. It enables the student to pursue a graduate degree and fulfill all of the professional, personal, scholastic, and other standards — including qualifying examinations — prescribed by the campus.

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*.)

Change of Graduate Degree Objective

Postbaccalaureate/graduate students who intend to change their major or degree objective must complete and file a Change

of Graduate Degree Objective, which includes a fee payable at the cashier's window in the Joyal Administration Building. These students must meet the admissions requirements of the new program. The application for Change of Graduate Degree or Credential Objective is available in the Division of Graduate Studies, Thomas Administration Building, Room 132.

Second Master's Degree

Students planning to engage in study toward a second master's degree must obtain prior approval from the graduate dean. Students may not earn a second master's degree in the same field. Coursework used to satisfy the requirements of one degree may not be used to satisfy the requirements of the second degree. Students may not be awarded two degrees in the same degree-granting period or term.

Dual Major Objectives

Those graduate/postbaccalaureate students pursuing more than one objective (i.e., two graduate degrees or a graduate degree and a credential) must notify the Division of Graduate Studies so that appropriate student standing may be noted with departments concerned.

Certificate of Advanced Study

A Certificate of Advanced Study may be earned in a limited number of approved, nondegree programs. Such programs provide useful coursework and professional experiences that emphasize the acquisition of advanced technical skills of a practical, applied nature. For a current list of such programs, consult the Division of Graduate Studies, (559) 278-2448. Applicants to a Certificate of Advanced Study program must meet the specific admission requirements of the individual program and the university. These include admission to postbaccalaureate standing and the submission of relevant test scores. With prior approval, those pursuing study toward a master's degree may also pursue study toward a Certificate of Advanced Study. Double-counting of units on the certificate and on the graduate program, though limited, is possible. Those whose sole objective is the earning of the Certificate of Advanced Study are ineligible to receive graduate assistantships, fellowships, and other awards designed for those pursuing a graduate degree. An application for the awarding of the certificate of advanced study must be on file in the Division of Graduate Studies within the first two weeks of the term in which all courses and requirements are expected to be completed. The applications for the awarding of the certificate are available in the Division of Graduate Studies, Thomas Administration Building, Room 132.

Second Bachelor's Degree

Postbaccalaureate students interested in pursuing a second bachelor's degree or a second undergraduate major should read the relevant portion of the university catalog (*Second Baccalaureate* and/or *Second Major*) and contact the appropriate academic department.

Prohibition Against Double Counting of Coursework

No units used to fulfill the requirements of one degree may be used to fulfill the requirements of another degree. For example, 100-series courses used toward a bachelor's degree may not be subsequently used toward a master's degree.

Repetition of Courses

A postbaccalaureate student pursuing a graduate degree may repeat a course for academic credit (subject to limitations in some degree curricula) regardless of what grade was originally earned in the course. However, such a student is not eligible to petition for grade substitution. All coursework taken, beginning with the first term of the student's master's degree program, is used in determining the student's grade point average and graduation eligibility.

Unvalidated Standing

A graduate of a nonaccredited college may be granted admission with *unvalidated unclassified postbaccalaureate 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 postbaccalaureate or graduate standing when he or she has cleared all undergraduate deficiencies and has maintained, in residence at California State University, 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 students with unvalidated postbaccalaureate standing have met the listed requirements, it is their responsibility to request a new statement of standing from their department and to file a Change of Graduate Degree Objective with the Division of Graduate Studies Office.

International Student Admissions

The Division of Graduate Studies seeks to bring students from all parts of the world to the campus. Since English is the language of instruction at the university, students should be prepared to write their theses, examinations, and seminar papers in English. Applicants whose native language is not English must have acquired competence in the English language prior to enrolling in a graduate program or prerequisite courses in order to avoid any delay or difficulty in pursuing their studies.

TOEFL Requirement

All graduate and postbaccalaureate applicants, regardless of citizenship, and whose native language is not English, must demonstrate competence in English. Those applicants must receive a minimum score of 550 (for the paper-based test) and 213 (for the computer-based test) on the Test of English as a Foreign Language (TOEFL). Some graduate programs may require a higher score. Applicants to the English program must attain a score of 600 (on the paper-based test) or 250 (on the computer-based test).

It is highly recommended that TOEFL scores, Graduate Record Examination Aptitude Test scores, application, and official academic documents reach the university Admissions Office at least six months before the semester for which admission is desired. Applicants to the MBA program must submit Graduate Management Admissions Test scores; applicants to the MPA program may submit either GMAT or GRE scores.

The TOEFL is administered at various centers throughout the world. For further information about the TOEFL, write or phone the educational attaché at the nearest U.S. embassy or consulate office or write to:

Testing Services Office
California State University, Fresno
5300 Campus Drive M/S FF63
Family Food Sciences Building, Room 110
Fresno, CA 93740-8019
U.S.A.

Requests for applications for international postbaccalaureate/graduate admission should be directed to:

International Student Services
and Programs
California State University, Fresno
5150 North Maple Avenue M/S JA56
Fresno, CA 93740-8026
U.S.A.

During the first semester at California State University, Fresno, foreign graduate students whose native language is not English may be required to enroll in special courses in English to help improve writing skills and to provide the greatest possibility of success in graduate studies.

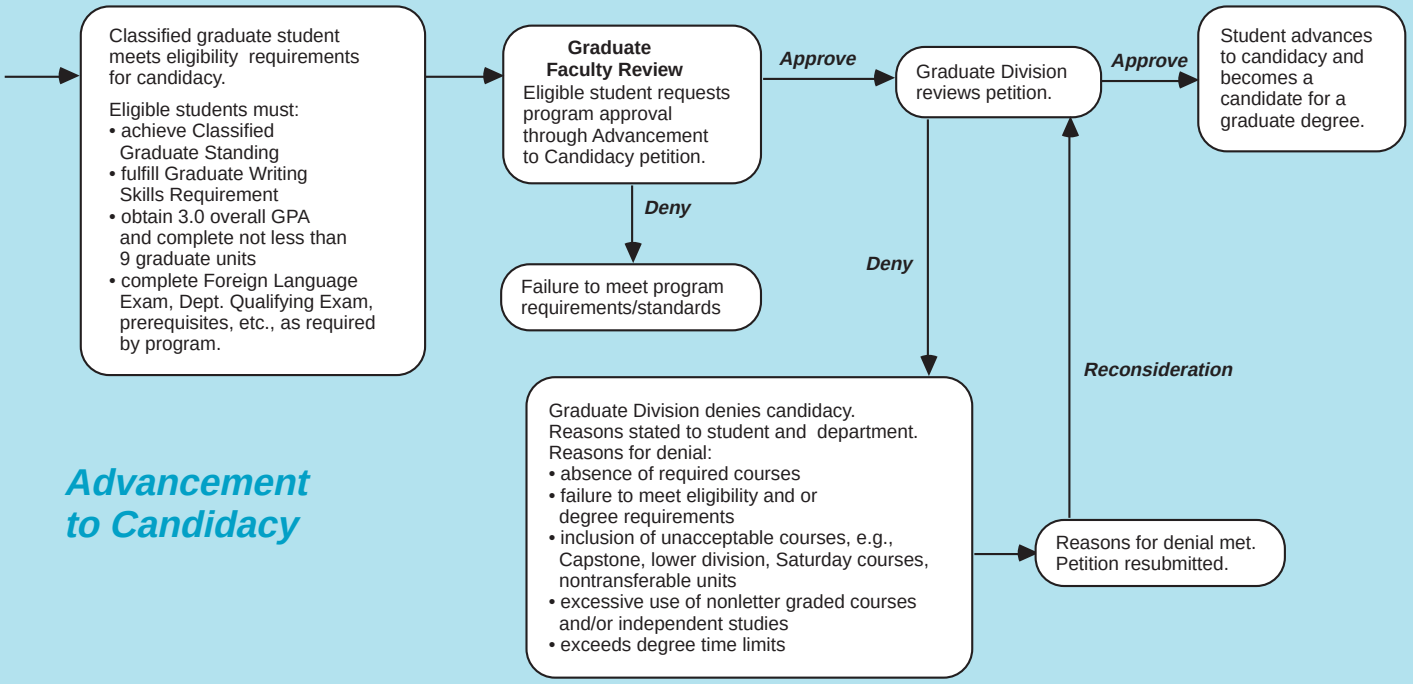
Advancement to Candidacy Criteria

Classified graduate standing gives a student permission to work toward qualifying for candidacy. See *Advancement to Candidacy* diagram on the next page. Advancement to candidacy gives a student permission to proceed toward qualifying for the degree and provides the student with a program of study that has been officially reviewed and approved by both the student's faculty and by the Graduate Dean. This important step confers on the student the status of candidate for the degree and represents a commitment both on the part of the student and the degree program to complete the degree within a specified time limit according to requirements published in a specific university catalog year. Advancement to candidacy is essential to the student in planning for registration in courses. The student should therefore meet with his/her graduate program coordinator soon after attaining classified standing to discuss advancement to candidacy. (See also *Petition of Advancement to Candidacy*.) Campus policy requires a student to petition for advancement to candidacy as soon as he/she becomes eligible to do so. Normally, this should occur within one semester of having attained classified standing. Compliance with this policy is necessary for a student to remain in good standing. All students in graduate standing must also demonstrate a satisfactory level of scholastic, professional, and ethical competence as determined by program faculty to be eligible to continue in the graduate program. Eligibility requirements for advancement to candidacy include the following:

1. Classified Graduate Standing. A student should be classified by the semester in which a maximum of 10 units to be used toward the master's degree are completed. Not more than 10 units (including transfer and postbaccalaureate credit) completed before achieving full classified standing at California State University, Fresno may be listed on the Petition of Advancement to Candidacy. Courses taken during the semester in which the student is classified may also be listed on the Petition of Advancement to Candidacy.
2. Completion of any additional prerequisites which the adviser specifies in writing.
3. If required, satisfactory completion of the Graduate Record Examination Subject Test or departmental qualifying examination. The Graduate Record Examination Subject Test (GRE) in the major field is required of students working toward the Master of Arts degree in international relations (government), psychology, and the Master of Science degrees in marine science and physics. A departmental qualifying examination is required in art, civil engineering, communication, computer science, kinesiology, linguistics, mathematics, and plant science.
4. A minimum grade point average of 3.0 (for both the overall program and courses taken at California State University, Fresno) on all upper-division and graduate coursework from the date of embarking on the first course of the proposed master's degree program. (See also *Grade Requirements*.) Those enrolling in coursework not related to the graduate degree are encouraged to request *CR/NC* grading.
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 from the Division of Graduate Studies. 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 or her adviser, lists the coherent set of courses which, when approved, will constitute his or her degree program.
7. Completion in graduate standing at California State University, Fresno of at least 9 units of the proposed program with a 3.0 grade point average on all completed work appearing on the Petition of Advancement to Candidacy.
8. Submission to the Division of Graduate Studies of the properly signed petition for advancement to candidacy. As noted earlier, the student is required to advance to candidacy as soon as he/she becomes eligible to do so. Students are advised to check with their departments regarding meeting special eligibility requirements. Advancement to candidacy must be attained no later than the semester (or summer) preceding the semester (or summer) in which the student applies for the master's degree. The student is responsible for adhering to deadlines established by the Graduate Division for the submission of advancement forms. Approximate deadlines are October 1 (for spring graduation) and March 1 (for summer or fall graduation). Forms received after the deadlines are considered late and will be processed as time allows. Students cannot be advanced to candidacy and graduate in the same semester.
9. All graduate students must demonstrate their competence in written English prior to advancement to candidacy. Early completion of this requirement is recommended. It is anticipated that graduate students will possess or develop writing skills commensurate with society's expectations of persons who hold advanced degrees and have the ability to write in formats and styles appropriate to their disciplines. The department will note on the Petition of Advancement to Candidacy form the means by which the student has met the writing skills requirement. See approved program requirements.

Foreign Language Requirement

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 chair of the Foreign Languages and Literatures Department for information about placement tests.



Advancement to Candidacy

Competence in the use of a foreign language is required for advancement to candidacy for the Master of Arts degree in English, music (vocal performance and music history only), and the M.F.A. in Creative Writing. The foreign language requirement for the M.A. in International Relations is a prerequisite for graduation rather than advancement to candidacy. 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.

Petition of Advancement to Candidacy

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 which must be completed 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 colleges, schools, or departments and approved by the University Graduate Committee 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. Courses that were used to satisfy the requirements of a previous degree may not be used on the program. The approved program must be consistent with the following policies:

At least 21 units of a 30-unit program must be residence credit (courses taken through regular enrollment at California State University, Fresno). No more than 9 units of transfer and/or California State University, Fresno Extension credit may be included in the 30-unit program.

1. Transfer credit may be used toward a California State University, Fresno master's degree only if the institution offering the work is accredited (A-rated) and would accept it for a comparable master's degree program. The off-campus institution must also have listed the units as postbaccalaureate graduate units on the student's transcript. Credit at California State University, Fresno will be granted if it is judged by appropriate university authorities to be particularly relevant to the individual student's program. The student must present appropriate documentation, including official transcripts of work completed and xerographic copies from the catalog of the institution where the transfer work was taken, as follows: the relevant course description(s), evidence that the course(s) may be used toward a degree at that institution, the course numbering and grading systems.
2. Courses taken through the Division of Extended Education (Extension and/or Open University) are not normally used to fulfill the requirements toward a master's degree. Students intending to take a course through the Extension Division must request special permission from their Graduate Program coordinator to use the course toward their program. If approved, a maximum of 9 transfer (including California State University, Fresno Extension and/or Open University) units may be used on a 30-unit program. Students may not enroll through Open University in order to bypass the university fee structure.
3. 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 Committee.
4. Credit by Examination (CBE) may be used to fulfill prerequisites, but may not apply toward the master's degree program.

5. Saturday School courses may not be used on a student's program for the master's degree.
6. Capstone, undergraduate writing "W" courses, lower-division courses, and 300-level courses may not be used in fulfillment of the program requirements of the master's degree.
7. Graduate students may not elect to take a course for a *CR* grade to fulfill either prerequisite or major program requirements unless the course is only available for *CR/NC* grading as indicated by footnote 14 in the Schedule of Courses. A maximum of 6 units of *CR*-graded coursework may be applied to a 30-unit master's degree program and a maximum of 12 units of *CR*-graded coursework may be applied to a 60-unit program. Some departments allow no *CR*-graded courses to be counted toward fulfillment of their degree requirements.
8. With approval of the departmental graduate adviser, postbaccalaureate/graduate 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. However, the amount of postbaccalaureate credit used toward the master's degree may not exceed one-third of the student's entire approved program. (See *Postbaccalaureate Credit*.)
9. Courses may not be included on the advancement to candidacy form if they do not fall within the 5-year limit for the completion of all master's degree requirements.
10. Refer to catalog section concerning Independent Study.
11. A minimum of 70 percent 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.
12. Substitutions for regular departmental requirements must be accompanied by written justification appended to the advancement form.

Culminating Experience

A culminating experience is required for each master's degree. Acceptable culminating experiences include thesis (299), project (298), or comprehensive examination. Individual departments permit one or more culminating experiences described in this section. Students who have enrolled in thesis or project units will not be permitted to change to another culminating experience after the initial semester of such enrollment.

1. A thesis is the written product of the systematic study of a significant problem. It clearly identifies the problem, states the major assumptions, explains the significance of the undertaking, sets forth the sources for and methods of gathering information, analyzes the data, and offers a conclusion or recommendation. The finished product must evidence originality, critical and independent thinking, appropriate organization and format, clarity of purpose, and accurate and thorough documentation. Normally, an oral defense of the thesis will be required.
2. A project is a significant undertaking of a pursuit appropriate to the fine and applied arts or to professional fields. It must evidence originality and independent thinking, appropriate form and organization, and a rationale. It must be described and summarized in a written abstract that includes the project's significance, objectives, methodology, and a conclusion or recommendation. An oral defense of the project may be required.
3. A comprehensive examination is an assessment of the student's ability to integrate the knowledge of the area, show critical and independent thinking, and demonstrate mastery of the subject matter. The results of the examination must evidence independent thinking, appropriate organization, critical analysis, and accuracy of documentation. A record of the examination questions and responses shall be maintained.

Program Adjustments

It is the student's responsibility to complete the specific courses listed on his or her Petition of Advancement to Candidacy. Once a program has been approved by the University Graduate Committee, it may be changed only on the written request of the student and his or her department or college/school adviser and with the approval of the dean, Division of Graduate Studies. Program Adjustment Request forms are available in the Division of Graduate Studies Office.

Criteria for Thesis and Project

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 courses 298 or 299. The instructor of record for thesis or project must issue a letter grade on the Master's Degree Clearance form through the Division of Graduate Studies.

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 be consistent with the dictates of an authorized stylebook.

1. To be eligible to enroll in thesis or project units, students must have:
   a. been advanced to candidacy for the master's degree
   b. maintained a *B* (3.0) average on their approved program
   c. completed at least 9 units of their approved program on the Fresno campus
   d. completed any course in research techniques required by their major department
   e. secured a committee for thesis — a chair and at least two other members; for project, met individual departmental requirements.
   f. for thesis, secured approval of their thesis plan from the division or department graduate committee and filed an official thesis committee assignment form with the Division of Graduate Studies.
2. Enrollment in thesis units may be processed any semester after the requirements listed in [a] through [f] 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 or her official acceptance by a thesis committee, the committee chair has the option of dissolving the committee, in which case a new committee must be appointed and new forms filed 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. Parallel rules apply to project enrollment.

3. A student whose thesis work is planned to extend over more than the semester in which he or she first enrolls may select one of the following options (with the approval of his or her graduate adviser): (a) register in 299 each term the student 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) register for the total number of units of 299 in one semester and complete work in subsequent semesters under Graduate Studies Continuation, a zero-unit course required for enrollment purposes; (c) option "a" supplemented by G S Continuation when the maximum number of units is attained with the thesis still incomplete. (See *Continuous Enrollment*.) Note that students enrolled in regular session coursework for a letter grade are not required to enroll in Graduate Studies Continuation. Parallel rules apply to project students.
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. If the *SP* grade is not replaced within two years by a letter grade, the department may require the student to re-register for the course.
5. The student and the thesis chair should set a deadline for the completion of the final draft. It should be no later than seven weeks before the last day of scheduled final examinations. This date should be early enough so that the chair and the other members of the committee can clear the draft before the student must meet the thesis submission deadline established by the dean of the Division of Graduate Studies. The latter deadlines are approximately November 1 (fall), April 1 (spring), and July 1 (summer).
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 final draft, signed by the thesis committee members as acceptable and ready for typing, should be submitted to the office of the Division of Graduate Studies by the established deadline (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 and may be requested to reapply for the degree to be granted in a subsequent semester (or summer). Students are urged to follow meticulously the *Guidelines for Thesis Preparation*; copies are available in the Kennel Bookstore.
7. The final publication copy of the thesis (an original for microfilming and two photocopies), signed by the thesis committee and ready for binding, together with a receipt for the binding and microfilming fee (payable to the California State University, Fresno Kennel Bookstore Print and Copy Center), must be submitted to the office of the Division of Graduate Studies, before the last day assigned by the thesis consultant. If printed on acid-free, 20# paper and with payment of the required fee, the original copy will be bound with the other copies desired for the student's personal use.
8. Doctoral students should obtain dissertation guidelines from the degree program office.

Thesis or Project Research Involving Human Subjects and Animal Subjects

Students conducting thesis research involving human subjects should not begin use of human subjects until written approval has been received from the departmental Human Subjects Committee and, where review demands, the University Committee on Protection of Human Subjects (CPHS). Guidelines and forms for protocols can be obtained from the departmental office. Students should allow at least two weeks for a required CPHS review.

Students planning to conduct research involving live animals housed on campus must receive approval of the research from the Animal Care and Use Committee. Forms may be obtained from the departmental office.

Continuous Enrollment

University policy requires graduate students to be continuously enrolled at the university (1) while completing a grade of *SP* in either thesis or project, or a grade of *SP* or *I* in any other course; (2) while preparing to take a comprehensive examination; or (3) during the semester in which an application for the degree to be granted is filed. This policy does not apply to students who are either enrolled in a course for a letter grade or who have been officially granted a planned educational leave of absence. All students must maintain continuous enrollment during all fall and spring semesters, and during any summer term in which they apply to graduate. To maintain the required enrollment, students must enroll in Graduate Studies Continuation through Extended Education (Extension) or in G S 299 (Regular University Enrollment).

Students who choose to enroll through the Extension option and who later wish to return to regular enrollment at California State University, Fresno will be required to refile an application for admission to the university. Those who have been out of regular enrollment for more than one semester and wish to return will be required to pay an application fee, in addition to refiling an application for admission. For additional information and deadlines, consult the Division of Graduate Studies. Students unable to register in person may provide a letter of permission to a "proxy," allowing the proxy to register on their behalf.

G S Continuation (Extension). Students who choose to enroll in G S Continuation should go to the Division of Graduate Studies office by the second week of the semester or summer term to have their enrollment eligibility verified. If determined eligible by the Graduate Division, students will be given the appropriate paperwork and will be directed to the Division of Extended Education, Education Building, Room 130, to pay registration fees. Checks for GS Continuation are made payable to California State University, Fresno in the amount of $227 (amount subject to change.)

G S 299 (Regular University Enrollment). Students enrolling in G S 299 through regular university enrollment should follow the instructions for S.T.A.R. Registration in the Schedule of Courses. G S 299 enrollees must go to the office of the Division of Graduate Studies to obtain the schedule number and have their eligibility verified prior to their assigned registration date and time as indicated on the S.T.A.R. Registration letter.

The International Students Services and Programs Office has indicated that international students may fulfill the continuous enrollment requirement only through G S 299 registration (regular university enrollment) in the fall or spring semesters.

Time Limitations and Validation

Exclusive of prerequisite coursework, a period of five years is allowed for the completion of all requirements for the master's degree. This time limit is indicated for each student on the approved advancement to candidacy form. A student whose program has been interrupted by military service should consult the dean of the Division of Graduate Studies about provisions for military extensions. Outdated coursework will not be approved for inclusion on the Petition of Advancement to Candidacy at the time formal approval of the petition is granted. Those courses completed more than five years before the date for completion of all requirements for the master's degree cannot be used to meet total unit requirements except through validation as follows:

Out-of-date coursework may only be validated if such work has been previously approved on this Petition of Advancement to Candidacy. A maximum of one-third of required degree units may thus be validated by such means as are recommended by the department and approved by the graduate dean. Coursework from other institutions may not be validated.

Grade Requirements

All graduate students will be held to the scholarship standards listed under *Academic Regulations*. The following provisions also apply to master's degree programs.

A student admitted to a master's degree program in conditionally classified or classified standing is required to maintain a minimum grade point average of *B* (3.0) on all work taken subsequent to admission to the program.

No course with a grade below *C* may apply on an approved program for the master's degree.

To be eligible for advancement to candidacy, a student must have earned at least a *B* average (overall, program, and California State University, Fresno) on all coursework 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, a student must have been advanced to candidacy and must have maintained a minimum grade point average of *B* on his or her approved program.

To be eligible for the granting of the master's degree, a student must have maintained a *B* average on his or her complete approved program as well as on all courses taken, beginning with the first term listed on the Petition of Advancement to Candidacy.

To be eligible to receive the master's degree *with distinction*, a student must have earned at least a 3.9 grade point average on all coursework taken from the first semester of the approved master's degree program. A minimum GPA of 3.9 must also be attained on the approved program to qualify.

Appeals and Petitions

Graduate (master's degree) students wishing to request substitutions or modifications in a department's degree requirements should initiate their request through the department's graduate committee. Requests for exceptions to established university policies governing graduate study may be addressed to the dean, Division of Graduate Studies and also to the university Graduate Committee. Grade protests must be submitted to the Student Academic Petitions Committee through the director of advising services according to university policy. Information concerning grade protest procedures and dispute resolution is available in the Office of the Dean of Student Affairs.

Enrollment in Graduate-level (200-297) Courses. Enrollment in graduate-level (200-297) courses is limited to those who have been officially admitted to a graduate degree, advanced certificate, or credential program. However, there is a special program for last-semester undergraduate seniors who want to enroll in 200-level courses. All criteria listed on the *Undergraduate Petition to Enroll in Graduate (200-level) Courses* must be met. This petition, available from the Division of Graduate Studies, should be filed prior to the semester in which the student desires enrollment in 200-level course(s).

Application for the Master's Degree to be Granted

An application for the master's degree to be granted (which includes the graduation fee payable at the Cashier's Window in Joyal Administration Building) must be filed within the first two weeks of the semester in which the work is to be completed. In addition, applicants must be enrolled (see *Continuous Enrollment*). During the summer, the application should be filed before the end of the third week of the first summer session. (See *Academic Calendar* and *Fees and Expenses* in this catalog and the *Schedule of Courses.*) Graduation application forms are available in the Division of Graduate Studies office. Prior to filing a request for the master's degree to be granted, the student should check with the graduate adviser of the master's program concerned in order to ensure that all program requirements have been, or will soon be, completed.

Once all requirements for the degree to be granted have been met, it is the student's responsibility to ensure that all necessary paperwork, including the Master's Degree Clearance form, is submitted to the Division of Graduate Studies by the published deadlines. Diplomas for those completing degree requirements will be awarded approximately two to four months after the end of the semester or final summer session.

Failure to complete requirements for the degree during the semester (or summer) of the application necessitates the filing of a new application, including a reapplication fee, for the term of actual completion. Such reapplication is subject to the same time schedule as the original application.

COURSE

Graduate Studies (G S)

300T. Topics in Graduate Studies
(1-3; max total 12)
Topics related to the nature of graduate education, to the purpose and background of research and scholarly activity in the graduate enterprise, including participation in aspects of ongoing research conducted by faculty.

Travel
into
Tomorrow

University Administration

University Advisory Board

The University Advisory Board consists of community leaders who are interested in the welfare of the university. The board advises the president in matters that relate to the advancement of the university in its relation to the community.

Jeanne Falk Adams

John Boogaert, Chair

Julia Brown

Donald H. Bruegman

Kay Campbell

Hugo Morales

Sister Ruth Marie Nickerson

Angie Rios

Richard Spencer, Vice Chair

Ernest E. Velasquez

Joe Williams

Don Wilson

President

JOHN D. WELTY

Executive Assistant to the President
SANDRA A. MacNEVIN

Internal Auditor
J. CHRIS ROBINSON

Provost and Vice President for Academic Affairs

J. MICHAEL ORTIZ

Interim Associate Provost
BRANDT KEHOE

Director of Institutional Research, Planning, and Assessment
To be appointed

Interim Associate Provost for Academic Resources
KENNETH SHIPLEY

Associate Vice President for Academic Affairs — Academic Personnel
THOMAS EBERT

Associate Vice President Grants and Research
TOM McCLANAHAN

Associate Vice President for Information Systems and Technology
JAMES R. MORRIS

Assistant to the Provost for Special Projects
PATRICIA HART

Dean of the College of Agricultural Sciences and Technology
DANIEL P. BARTELL

Associate Dean
DENNIS NEF

Dean of the College of Arts and Humanities
LUIS F. COSTA

Associate Dean
VIDA SAMIIAN

Dean of the Sid Craig School of Business
FRED J. EVANS

Associate Dean
KAREN DILL BOWERMAN

Dean of the School of Education and Human Development and Director of Teacher Education
PAUL SHAKER

Associate Dean
ROBERT H. MONKE

Associate Dean
BERTA GONZALEZ

Dean of the College of Engineering and Computer Science
KARL LONGLEY

Assistant to the Dean
BRENT AUERNHEIMER

Dean of the College of Health and Human Services
BENJAMIN CUELLAR

Associate Dean
ANDREW E. HOFF

Dean of the College of Science and Mathematics
KIN-PING WONG

Associate Dean
STANLEY M. ZIEGLER

Dean of the College of Social Sciences
ELLEN GRUENBAUM

Associate Dean
JERONIMA ECHEVERRIA

Dean of Library Services
MICHAEL GORMAN

Associate University Librarian
SANDRA L. GOTHE

Dean of the Division of Graduate Studies
VIVIAN A. VIDOLI

Associate Dean
DIANNE K. DICKERSON

Dean of the Division of Extended Education
AUDREY S. ANDERSON

Dean of Learning and Technology
Director of Academic Innovation Center
ROBERT M. THRELKELD

Director of International Programs
PETER J. KLASSEN

Vice President for Administration

BENJAMIN F. QUILLIAN

Assistant to the Vice President for Administration/ Event Center Coordinator
DEBORAH ADISHIAN-ASTONE

Project Administrator
JO ANN COLLINS

Director of Facilities Management
ROBERT BOYD

Director of Business Information Technology Services
JOHN BRIAR

University Budget Officer
EDWARD A. BULINSKI JR.

Chief of Police
LYNN BUTTON

University Controller/ Financial Management
STEVEN KATZ

Director of Environmental Health and Safety
DAVID MOLL

Director of Human Resources
JEANNINE M.S. RAYMOND

Vice President for University Advancement

PETER N. SMITS

Associate Vice President for University Advancement
SCOTT C. WARRINGTON

Coordinator of Advancement Services
ALEXANDER PEREZ

Assistant Vice President for University Relations
To be appointed

Director of Publications
To be appointed

Executive Director of Alumni Relations
JACQUELYN GLASENER

Executive Director of Auxiliary Corporations
LYNN D. HEMINK

- California State University, Fresno Foundation
- The Agricultural Foundation of California State University, Fresno
- California State University, Fresno Housing Corporation
- California State University, Fresno Association, Inc.

Chief Financial Officer
PETER PRESTEGARD

Director of University Student Union
JOEL ZARR

Acting Director of Food Services
Bookstore Manager
LAWRENCE F. TAYLOR

Acting Director of Housing
KAREN JOHNSON

Vice President for Student Affairs and Dean of Students

JUDY K. SAKAKI

Associate Vice President and Associate Dean and Director of University Health and Psychological Services
ROBERT M. PAULL

Assistant Vice President for Enrollment Services
BERNARD J. VINOVRSKI

Executive Director of Academic Enhancement Services and Director of Educational Opportunity Program
MAXINE McDONALD

Executive Director of Federal Programs and Judicial Affairs Officer
ROBERT P. HERNANDEZ

Interim Executive Director of Student Life and Interim Coordinator of Services for Students with Disabilities
CAROLE A. SNEE

Student Affairs
Directors and Coordinators

Interim Director of Admissions/Records/Evaluations
VIVIAN H. FRANCO

Director of Advising
J. RICHARD ARNDT

Interim Director of Career Services
CAROLINE WILLIAMS

Director of Enrollment Services Information Systems
NANCY L. BJORDAHL

Director of Financial Aid
JOSEPH W. HEUSTON JR.

Director of International Student Services and Programs
CAROL B. MUNSHOWER

Interim Coordinator of Learning Resource Center/ Intensive Learning Experience
SONYA L. HILDRETH

Coordinator of Reentry Programs
ANGELA R. CISNEROS

Coordinator of Southeast Asian Student Services
KATSUYO K. HOWARD

Coordinator of Testing Services
PHYLLIS J. REDFIELD

Coordinator of University Migrant Services
RAUL Z. MORENO

Director of University Outreach Services
FRANCES A. PENA-OLGIN

Coordinator of Women's Resource Center
FRANCINE L. OPUTA

Director of Athletics

ALLEN R. BOHL

Associate Athletic Director/ Senior Woman Administrator
DIANE MILUTINOVICH

Associate Athletic Director
SCOTT L. JOHNSON

Assistant Athletic Director/Academics
ROBERT G. KNUDSEN

Assistant Athletic Director/ Business Affairs
LES SNYDER JR.

Assistant Athletic Director/Compliance
JON FAGG

Department Chairs and Program Coordinators

College of Agricultural Sciences and Technology

Interim Chair of Agricultural Economics
JOHN R. SHIELDS

Chair of Animal Sciences and Agricultural Education
ARTHUR A. PARHAM

Chair of Child, Family, and Consumer Sciences
NINA J. DILBECK

Chair of Food Science and Nutrition
SANDRA WITTE

Chair of Industrial Technology
TONY M. AU

Chair of Plant Science and Mechanized Agriculture
MAHLON M. S. HILE

Chair of Viticulture and Enology
ROBERT L. WAMPLE

College of Arts and Humanities

Coordinator of Armenian Studies Program
DICKRAN KOUYMJIAN

Chair of Art and Design
NANCY K. BRIAN

Chair of Communication
VINCENT L. BLOOM

Chair of English
ANDREW SIMMONS

Chair of Foreign Languages and Literatures
DAVID A. ROSS

Chair of Linguistics
GEORGE W. RANEY

Chair of Mass Communication and Journalism
D. GREGORY LEWIS

Chair of Music
JOSÉ A. DÍAZ

Chair of Philosophy
ROBERT D. MALDONADO

Chair of Theatre Arts
KATHLEEN S. McKINLEY

The Sid Craig School of Business

Chair of Accountancy
ROBERT M. HARPER

Chair of Aerospace Studies
JAMES T. HARPER

Chair of Finance and Business Law
K.C. CHEN

Director of Graduate Business Program
MARK J. KEPPLER

Chair of Information Systems and Decision Sciences
CHARLOTTE HIATT

Chair of Management
PAULA L. RECHNER

Chair of Marketing and Logistics
RICHARD L. PINKERTON

Chair of Military Science
BRUCE HUPE

Director of University Business Center and Director of Family Business Institute
DIANE L. THRELKELD

Director of Real Estate and Land Use Institute
PAUL M. LANGE

Director of Small Business Development Center
DENNIS A. WINANS

Director of Small Business Institute
DEWEY E. JOHNSON

School of Education and Human Development

Chair of Counseling
and Special Education
H. DAN SMITH

- Coordinator of
Counselor Education Program
RON KIYUNA
- Coordinator of Rehabilitation
Counseling
CHARLES AROKIASAMY
- Coordinator of
School Counseling
ALBERT VALENCIA
- Coordinator of Special Education
Program
H. DAN SMITH

Chair of Curriculum, Teaching,
and Educational Technology
JOAN C. HENDERSON-SPARKS

Chair of Educational Research,
Administration, and Foundations
ATILANO A. VALENCIA

- Coordinator of
Educational Administration
CURTIS GUAGLIANONE

Chair of Literacy and Early Education
JACQUES S. BENNINGA

- Coordinator of
CLAD/BCLAD Program
ARMANDO BALTRA
- Coordinator of Early Childhood
Education Program
PAMELA LANE-GARON
- Coordinator of Reading Language
Arts Program
ROBERT H. PRITCHARD

Director of Early Education Center
SHAREEN S. ABRAMSON

Director of
Reading Recovery Project
JUDITH C. NEAL

Interdepartmental Programs:
Director of Center for Educational
Research and Services Program
GARY SELLS

Coordinator of Curriculum
and Instruction M.A. Program
JOAN C. HENDERSON-SPARKS

Coordinator of Graduate Programs
BONNIE DUTTON

Coordinator of International
Education Programs
BERTA GONZALEZ

Coordinator of
Liberal Studies Program
PAUL SHAKER

Coordinator of
Multiple Subject Program
MICHAEL JORDAN

Coordinator of
Single Subject Program
JOLYNE S. DAUGHTRY

Co-Coordinator of Victim Services
Certificate Program
JOAN C. HENDERSON-SPARKS

College of Engineering and Computer Science

Chair of Civil and Geomatics
Engineering and Construction
MOHAMAD A. YOUSEF

Chair of Computer Science
BRENT J. AUERNHEIMER

Chair of Electrical
and Computer Engineering
NAGY N. BENGIAMIN

Chair of Mechanical
and Industrial Engineering
SATYA D. MAHANTY

College of Health and Human Services

Chair of
Communicative Sciences and Disorders
STEVEN D. WADSWORTH

Interim Chair of Health Science
VICKIE D. KRENZ

Chair of Kinesiology
CATHERINE JACKSON

Chair of Nursing
MARIAMMA K. MATHAI

Interim Chair of Physical Therapy
KATHLEEN CURTIS

Interim Coordinator of Recreation
Administration and Leisure Studies/
Interim Director of
Gerontology Program
L. JAY FINE

Chair of Social Work Education
G. "VISHU" VISWESWARAN

College of Science and Mathematics

Interim Chair of Biology
FRED SCHREIBER

Chair of Chemistry
JOSEPH R. GANDLER

Interim Chair of Geology
C. JOHN SUEN

Chair of Mathematics
RONOLD J. WAGONER

Chair of Physics
MICHAEL J. ZENDER

Chair of Psychology
AROLDO RODRIGUES

College of Social Sciences

Chair of Anthropology
ROGER M. LaJEUNESSE

Chair of Chicano
and Latin American Studies
LUZ GONZALEZ

Chair of Criminology
HARVEY WALLACE

- Co-Coordinator of Victim Services
Certificate Program
ARTHUR WINT

Chair of Economics
JAMES M. CYPHER

Coordinator of Ethnic Studies Program
JAMES E. WALTON

Chair of Geography
STANLEY F. NORSWORTHY

- Coordinator of City and Regional
Planning Program
WAYNE V. MERCHEN

Chair of History
WARREN E. GADE

Chair of Political Science
RUSSELL MARDON

Chair of Sociology
ELIZABETH N. NELSON

Coordinator of
Women's Studies Program
SUSAN ARPAD

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 (34 C.F.R. 99) set out requirements designed to protect the privacy of students concerning their education records maintained by the campus.

Specifically, the statute and regulations govern access to student records maintained by the campus and the release of such records. In brief, the law provides that the campus must provide students access to 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 the following: (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 that 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 that is 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 Family Policy Office, U.S. Department of Education, Washington, D.C. 20202-4605.

The campus is authorized under the Act to release public "directory information" concerning students. "Directory information" may include 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, and the most recent previous educational agency or institution attended by the student.

The above designated information is subject to release by the campus at any time unless the campus has received prior written objection from the student specifying information that the student requests not to be released. Written objections should be sent to the Office of Admissions.

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 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. Disclosure may also be made to other persons or organizations under certain conditions (e.g., as part of accreditation or program evaluation; in response to a court order or subpoena; in connection with financial aid; to other institutions to which the student is transferring).

Use of Social Security Number. Applicants are required to include their correct Social Security numbers (individual taxpayer identification numbers) in designated places on applications for admission pursuant to the authority contained in Section 41201, Title 5, *California Code of Regulations*, Section 6109 of the Internal Revenue Code. The university uses the Social Security number to identify records pertaining to the student, to identify the student for purposes of financial aid eligibility and disbursement, and to identify the student's repayment of financial aid and other debts payable to the institution. Also, the Internal Revenue Service requires the university to file information returns that include the student's Social Security number and other information such as the amount paid for qualified tuition, related expenses, and interest on educational loans. This information is used by the IRS to help determine whether a student, or a person claiming a student as a dependent, may take a credit or deduction to reduce federal income taxes.

Taxpayers who claim Hope Scholarship or Lifetime Learning tax credit will be required to provide their name, address, and Taxpayer Identification Number to the campus.

Research on Human Subjects

California State University, Fresno has adopted provisions for the conduct of research that 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 college/school.

Measles and Rubella Immunizations Health Screening Provisions

The campus shall notify students born after January 1, 1957 of the CSU requirement to present proof of measles and rubella immunizations by the beginning of the next term of enrollment. This is not an admissions requirement but shall be required of students at the beginning of their second term of enrollment. Proof of measles and rubella immunizations shall also be required for certain groups of enrolled students who have increased exposure to these

diseases. Proof of Hepatitis B immunization is also required of certain students prior to enrollment; these students will be notified of the requirement. Those so notified who have not presented acceptable proof of the immunizations shall be notified further of the need to comply before receiving registration materials to enroll for the succeeding term.

Persons subject to these health screening provisions include: new students enrolling fall 1987 and later; readmitted students reenrolling fall 1987 and later; students who reside in campus residence halls; students who obtained their primary and secondary schooling outside the United States; students enrolled in dietetics, medical technology, nursing, physical therapy, and any practicum, student teaching, or fieldwork involving preschool-age children, school-age children, or taking place in a hospital or health care setting. The Student Health Center provides immunizations without cost to those students unable to obtain acceptable proof of immunizations.

Nondiscrimination Policy

California State University, Fresno is committed to a program of equal opportunity for all, regardless of race, color, national origin, gender, age, marital status, religion, disability, or sexual preference. California State University, Fresno's Policy Statement and the Affirmative Action Program address equal opportunity in employment, admissions, recruitment, financial aid, placement counseling, curricula, and housing for students. These are recognized by the university as basic to our equal opportunity goals.

The California State University does not discriminate on the basis of race, color, national origin, gender, physical disability, or sexual orientation in the educational programs or activities it conducts.

Persons who are aggrieved may pursue a complaint informally or formally under the Policy and Procedures Addressing Sexual Harassment. Inquiries should be directed to Edward G. Varela, affirmative action officer in the Office of Employment and Recruitment, (559) 278-2032 and the Office of Classification and Compensation, (559) 278-2034, Joyal Administration Building, Room 162. Inquiries may also be directed to Thomas Ebert, the associate vice president for Academic Personnel and reviewer for faculty concerns, (559) 278-3027, or Judy Sakaki, vice president for Student Affairs/dean of students and reviewer for student concerns, (559) 278-2541.

Gender. The California State University does not discriminate on the basis of gender 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 gender 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 Jeannine Raymond, the director of Human Resources, Joyal Administration Building, Room 148, (559) 278-2364; Judy K. Sakaki, vice president for Student Affairs and dean of students, Joyal Administration Building, Room 262, (559) 278-2541; Terry Noble, the personnel director, Auxiliary Services, 2771 E. Shaw, (559) 278-2574; or the regional director of the Office for Civil Rights, Region 9, 220 Mail Street, 10th Floor, San Francisco, CA 94105.

The California State University is committed to providing equal opportunities to male and female CSU students in all campus programs, including intercollegiate athletics.

Sexual Harassment. Discrimination on the basis of sex is prohibited by Title VII of the Civil Rights Act as well as Title IX of the Education Act. Sexual harassment is a violation of Section 703 of Title VII. Sexual harassment refers to the unwanted imposition of sexual attention usually in the context of a relationship of unequal power, rank, or status, as well as the use of one's position of authority in the university to bestow benefits or impose deprivations on another. This applies equally to all students, staff, faculty, and administrators at California State University, Fresno. Harassment includes verbal, nonverbal, and/or physical conduct that has the intent or effect of unreasonable interference with individuals' or groups' education or work performance. This may also include actions that create an intimidating, hostile, or offensive working or learning environment. Both men and women can be the victims of sexual harassment.

Students who believe they are victims of sexual harassment should contact the dean of Student Affairs, (559) 278-2541. The staff can explain the informal and/or formal complaint procedures available to students on our campus. For more information about the formal complaint process, please contact Edward Varela, affirmative action officer, (559) 278-2032 or Jeannine Raymond, the director of Human Resources, (559) 278-2364.

Disability. The California State University does not discriminate on the basis of disability in admission or access to, or treatment or employment in, its programs and activities. Section 504 of the Rehabilitation Act of 1973, as amended, and the regulations adopted thereunder as well as the Americans with Disabilities Act of (1990) prohibit such discrimination. The director of human resources has been designated to coordinate the efforts of California State University, Fresno to comply with the acts in their implementing regulations. Inquiries concerning compliance may be addressed to Jeannine Raymond, the director of Human Resources, Joyal Administration Building, Room 148, phone (559) 278-2364.

If you have special needs as addressed by the Americans with Disabilities Act (ADA) and need course materials in alternate formats, immediately notify your course instructor or Carole Snee, interim director of Student Life and Services for Students with Disabilities, (559) 278-2741. Reasonable efforts will be made to accommodate your special needs.

Race, Color, National Origin, or Disability. The California State University complies with the requirements of Title VI of the Civil Rights Act of 1964 as amended by the Americans with Disabilities Act and the regulations adopted thereunder. No person shall, on the grounds of race, color, national origin, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program of The California State University.

Age, Marital Status, Religion, or Sexual Orientation. The California State University does not discriminate on the basis of age, marital status, religion, or sexual orientation.

Immigration Requirements for Licensure

On August 27, 1996, Governor Pete Wilson issued Executive Order W-135-96, which requested that the CSU and other state agencies implement "as expeditiously as reasonably practicable" the provision of The Personal Responsibility and Work Opportunity Reconciliation Act (PRAWORA) of 1996 (P.L. 104-193). The Act, also known as the Welfare Reform Act, included provisions to eliminate eligibility for federal and state public benefits for certain categories of lawful immigrants as well as benefits for all illegal immigrants.

Students who will require a professional or commercial license provided by a local, state, or federal government agency in order to engage in an occupation for which the CSU may be training them must meet the immigration requirements of the new Personal Responsibility and Work Opportunity Reconciliation Act to achieve licensure. Information concerning the regulation is available from the Financial Aid Office (559) 278-2182.

Student Body Fee

Procedure for the establishment or abolishment of a student body fee. The law governing the California State University provides that fees defined as mandatory, such as a *student body association fee* and a *student body center fee*, may be established. A *student body association fee* must be established upon a favorable vote of two-thirds of the students voting in an election held for this purpose (Education Code, Section 89300). A *student body center fee* may be established only after a fee referendum is held which approves by a two-thirds favorable vote the establishment of the fee (Education Code, Section 89304). The *student body fee* was established at Fresno State by student referendum. The campus president may adjust the *student body association fee* only after the fee adjustment has been approved by a majority of students voting in a referendum established for that purpose (Education Code, Section 89300). The required fee shall be subject to referendum at any time upon the presentation of a petition to the campus president containing the signatures of 10% of the regularly enrolled students at the university. Once bonds are issued, authority to set and adjust *student body center fees* is governed by provisions of the State University Revenue Bond Act of 1947: Education Code, Sections 90012, 90027, and 90068. *Student body fees* support a variety of cultural and recreational programs, childcare centers, and special student support programs.

The process to establish and adjust other mandatory fees requires consideration by the campus fee advisory committee. A student referendum also is required. The campus president may use alternate consultation mechanisms if he/she determines that a referendum is not the best mechanism to achieve appropriate and meaningful consultation. Results of the referendum and the fee committee review are advisory to the campus president. The president may request that the chancellor establish the mandatory fee. Authority to adjust fees after consideration by the campus fee advisory committee and the completion of a student referendum is delegated to the president.

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 Code of Regulations*. These sections are as follows:

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 or 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 nonaccidental 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 trustees, academic, nonacademic, 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

   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, slingshot, 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. Disposition of Fees: Interim Suspension; Campus Emergency. 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.

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 ensure 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 other than to attend the hearing. Violation of any condition of interim suspension shall be grounds for expulsion.

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.

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 or she 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. The chancellor shall prescribe, and may from time to time revise, a code of student disciplinary procedures for the California State University. 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 actions taken under this section.

Cheating and Plagiarism

Cheating. Cheating is the actual or attempted practice of fraudulent or 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 actions by a student that are intended to gain an unearned academic advantage by fraudulent or deceptive means.

Plagiarism. Plagiarism is a specific form of cheating that consists of the misuse of the published and/or unpublished works of others by misrepresenting the material so used as one's own work.

Career Placement Policy

The Career Services Office may furnish, upon request, information about the employment of students who graduate from programs or courses of study preparing students for a particular career field. This information may include data concerning the average starting salary collected from graduates of the campus.

Safety Checklist

In case of an emergency, students can dial "911" from campus pay phones for assistance. Blue light/yellow light emergency phones provide a direct line to the police dispatcher. Practice safety measures: be aware of who is nearby, never open the door without checking who is there, have car keys in hand and check inside the car before entering, use well-traveled routes well-lighted areas, and keep outside doors locked. During hours of darkness, the University Police Department will provide an escort on campus or to a nearby residence upon request. For more information, see the *Schedule of Courses*.

Service Learning Policy

Education at California State University, Fresno includes the opportunity to serve the people of California. This is partially accomplished by the link of academic study to community service. Service-learning is a method by which students learn and develop through active participation in organized service, which is conducted in and meets the needs of the community. This service is integrated into and enhances the academic curriculum and provides students with structured opportunities for critical reflection on their service experience. It also enhances students' appreciation of themselves and societal and civic issues, as well as encourages students' commitment to be active citizens throughout their lives.

Travel
into
Tomorrow

Faculty, Admin, Adjunct, Emeriti 1999-2000

WELTY, JOHN D., President (1991)
Professor, Department of
Counseling and Special Education
B.S., Western Illinois State University;

M.A., Michigan State University;

Ed.D., Indiana University.

Faculty and Administration

***Note**: Full-time faculty are listed. Numbers in parentheses indicate year of appointment at California State University, Fresno.*

ABHOLD, RAYMOND H. (1989)
Professor, Department of Biology
B.S., University of Washington; M.S., Ph.D., Rutgers University, New Brunswick.

ABRAMSON, SHAREEN (1981)
Professor, Department of Literacy and Early Education
B.A., University of California, Los Angeles; M.A., Antioch University; Ph.D., Vanderbilt University.

ADAMS, KATHERINE L. (1983)
Professor, Department of Communication
B.S., M.A., University of Wyoming; Ph.D., University of Utah.

ADAMS, PAUL D. (1987)
Professor, Department of Mass Communication and Journalism
B.A., University of Oklahoma, Norman; M.A., Ph.D., University of Texas at Austin.

ADAMS, R.C. (1965)
Professor, Department of Mass Communication and Journalism
B.A., Idaho State College;
M.A., Ph.D., University of Oregon.

ADAMSON, JACKIE (1999)
Lecturer, Department of Child, Family, and Consumer Science
B.A., M.A., California State University, San Bernardino; Ph.D., University of Nebraska, Lincoln.

ADRIAN, MERLE S. (1973)
Professor, Department of Industrial Technology
B.S., M.A., California State University, Fresno; Ed.D., University of Southern California.

AGUILAR-GAXIOLA, SERGIO (1990)
Professor, Department of Psychology
M.D., Autonomous University of Guadalajara (Mexico);
M.S., Ph.D., Vanderbilt University.

ALAMELDIN, TAREK K. (1990)
Professor, Department of Computer Science
B.S., Ain Shams University, Cairo (Egypt);
M.S., Columbia University;
Ph.D., University of Pennsylvania.

ALCOCER, ANTHONY (1995)
Professor, Department of Health Science
B.A., Loyola University;
M.S., California State University, Los Angeles; Ph.D., University of California, Los Angeles.

ALDREDGE, JAMES E. (1990)
Professor, Department of Social Work Education
B.S., M.P.A., California State University, Fresno; Ph.D., University of Southern California.

ALDRICH, KENNETH R. (1988)
Associate Professor, Department of Kinesiology
B.A., California State University, San Bernardino; M.A., University of Oregon; Ed.D., California State University, Fresno/ University of California.

ALEXANDER, LINNEA M. (1983)
Professor, Department of English
B.A., M.A., California State University, Fresno; Ph.D., University of Iowa.

ALLENDER, JUDITH A. (1987)
Professor, Department of Nursing
B.S., State University of New York at Plattsburgh; M.Ed., Xavier University; M.S.N., Wright State University;Ed.D., University of Southern California.

ALLISON, ROBERT J. (1967)
Professor, Department of Economics
B.A., M.S., Ph.D., University of Colorado.

ALVARADO, ANDREW J. (1978)
Professor, Department of Social Work Education
B.S., M.S.W., California State University, Fresno; Ed.D., University of California, Los Angeles.

AMARAL, JACINTA (1988)
Professor, Department of Foreign Languages and Literatures
B.A., Wells College; M.A., New York University; Ph.D., Yale University.

AMARAL, PEDRO (1987)
Professor, Department of Philosophy
B.A., Ph.D., University of Pittsburgh.

ANDERSON, AUDREY SPRINGS (1987)
Dean, Division of Extended Education; Professor, Department of Child, Family, and Consumer Sciences
B.S., M.S., Ed.D., Northern Illinois University.

ANDERSON, LAWRENCE L. (1971)
Professor, Department of Art and Design
B.A., M.A., San Jose State College.

ANDERSON, RANDY J. (1982)
Professor, Department of Information Systems and Decision Sciences
B.S., M.A., Arizona State University;
Ph.D., North Texas State University.

ANDERSON, RODNEY (1996)
Lecturer, Department of Political Science
B.A., University of Nebraska;
Ph.D., Ohio State University.

ANDERSON, TIMOTHY R. (1983)
Professor, Department of Kinesiology
B.A., M.S., Ed.D., University of Kentucky.

ANDREWS, DAVID M. (1993)
Professor, Department of Biology and Department of Curriculum, Teaching and Educational Technology
B.A., Southern Connecticut State University; M.Ed., Ed.D., University of Maine.

ARENAS, ROSIE (1996)
Lecturer, Department of Literacy and Early Education
A.A., Reedley Jr. College;
B.A., California State University, Fresno;
M.A., Fresno Pacific College.

ARNDT, J. RICHARD (1973)
Director, Advising and Testing Services
B.S., Wheaton College;
M.S., Ed.M., Oregon State University; Ph.D., Michigan State University.

ARNOLD, ROBERT F. (1968)
Professor, Department of Mathematics
B.S., M.A., California State University, Fresno; Ph.D., University of California, Berkeley.

AROKIASAMY, CHARLES V. (1996)
Associate Professor, Department of Counseling and Special Education
B.S., M.S., Ph.D., Southern Illinois University.

ARPAD, SUSAN S. (1986)
Professor, Coordinator, Women's Studies Program
B.A., Tulane University;
M.A., Ph.D., University of Delaware.

ASAHINA, ROBERTA REESE (1984)
Professor, Department of Mass Communication and Journalism
B.A., M.A., University of Utah;
Ph.D., Tufts University.

ATTAR, SAEED (1998)
Lecturer, Department of Chemistry
B.S., M.S., Ph.D., University of Nevada.

ATWOOD, RITA ANN (1987)
Professor, Department of Mass Communication and Journalism
B.A., M.A., California State University, Fresno; Ph.D., University of Washington, Seattle.

AU, TONY M. (1985)
Professor, Chair, Department of Industrial Technology
B.S., National Taiwan Normal University;
M.S., University of Wisconsin, Stout; Ph.D., University of Minnesota.

AUERNHEIMER, BRENT J. (1986)
Professor, Chair, Department of Computer Science
B.A., M.S., Ph.D., University of California, Santa Barbara.

AYER, SALLY L. (1971)
Professor, Department of Kinesiology
B.A., Colorado State College;
M.A., Northern Arizona University;
Ed.D., University of Utah.

BACA, MARIO L. M. (1983)
Professor, Department of Curriculum, Teaching, and Educational Technology
B.S.Ed., University of New Mexico;
M.A., University of Washington;
Ph.D., University of New Mexico.

BADR, SAYED A. (1970)
Professor, Viticulture Coordinator, Department of Viticulture and Enology
B.S., Ain-Shams University (Egypt); M.S., Ph.D., University of California, Davis.

BAKER, DENNIS M. (1984)
Professor, Department of Accountancy
B.S., California State University, Fresno;
Ph.D., University of California,
Los Angeles; C.P.A.

BALLARD, O. DUANE JR. (1968)
Professor, Department of Kinesiology
B.S., M.S., Brigham Young University; R.P.T.,
Stanford University.

BALTRA, ARMANDO (1987)
Professor, Department of Literacy and Early Education
B.A., University of Chile; M.S., Edinburgh University; Ph.D., Catholic University of Sao Paulo (Brazil).

BARABAS, ARTHUR H. (1983)
Professor, Department of Geology
A.B., Princeton University;
M.Phil., Ph.D., Yale University.

BARKER, NAN (1999)
Lecturer, Department of Communicative Sciences and Disorders
B.A., M.A., California State University, Fresno.

BARTELL, DANIEL P. (1992)
Dean, College of Agricultural Sciences and Technology; Professor, Department of Plant Science
B.S., Eastern Illinois University;
M.S., Purdue University;
Ph.D., University of Kentucky.

BASDEN, BARBARA H. (1973)
Professor, Department of Psychology
B.A., College of Idaho; Ph.D., University of California, Santa Barbara.

BASDEN, DAVID R. (1969)
Professor, Department of Psychology
B.A., College of Idaho; Ph.D., University of California, Santa Barbara.

BASURTO, IMELDA (1999)
Assistant Professor, Department of Literacy and Early Education
B.A., Prescott College; M.A., Ph.D.,
University of New Mexico.

BAUER, ANDREAS (1999)
Lecturer, Department of Chemistry
Dipl., Ph.D., University of Regensburg,
Germany.

BAUER, CLEO (1994)
Assistant Director, Athletic Academic Services, Department of Athletics
B.A., Colorado State University; M.A.,
California State University, Chico.

BAUTISTA, CHERYL (1997)
Lecturer, Department of Physical Therapy
A.S. College of Sequoias; B.A., M.A.,
California State University, Fresno.

BAXTER, JOHN (1996)
Special Teams Coach/Academic Adviser, Men's Football, Department of Athletics
B.S., Loras College; M.S., Iowa State.

BEAMAN, M. TERESA (1986)
Professor, Department of Music
B.A., Yale College; M.M., Yale University School of Music; D.M.A., State University of New York at Stony Brook.

BEAURGARD, DONALD (1997)
Lecturer, Department of Curriculum, Teaching, and Educational Technology
B.A., M.A., California State University,
Fresno.

BEHREND, JEAN (1997)
Assistant Professor, Department of Curriculum, Teaching, and Educational Technology
B.S., Ph.D., University of Wisconsin,
Madison; M.S., California State University,
Hayward.

BELL, KAREN R. (1987)
Professor, Department of Philosophy
A.B., Boston University; M.A., M.Phil., Ph.D.,
University of Kansas.

BENAVIDES, OTTO (1990)
Associate Professor, Department of Curriculum, Teaching, and Educational Technology
B.A., Universidad La Gran Columbia; M.Ed.,
Ed.S., Northeast Louisiana University.

BENEFIEL, DIANE M. (1996)
Lecturer, Department of Nursing
B.S., Point Lomacoeges/College;
M.S., California State University, Dominguez Hills.

BENES, SHARON (1998)
Assistant Professor, Department of Plant Science
B.S., University of New Hampshire, Durham;
M.S., North Carolina State University,
Raleigh; Ph.D., University of California, Davis.

BENGIAMIN, NAGY N. (1999)
Professor, Chair, Department of Electrical and Computer Engineering
B.S., Alexandria University, Egypt; M.E.,
Carleton University, Ottawa, Canada; Ph.D.,
University of Calgary, Alberta, Canada.

BENITEZ, JORGE (1999)
Assistant Professor, Department of Biology
B.S., University of Havana, Cuba; Ph.D.,
Centro Nacional de Investigaciones
Cientificas, Havana, Cuba.

BENNETT, BOB G. (1969)
Head Baseball Coach, Department of Athletics
A.B., M.A., California State University,
Fresno.

BENNETT, MARK (1998)
Lecturer, Department of Music
B.A., M.A., California State University,
Stanislaus; D.M.A., University of Illinois,
Champaign-Urbana.

BENNINGA, JACQUES S. (1983)
Professor, Chair, Department of Literacy and Early Education
B.A., University of North Carolina;
M.A., Ph.D., George Peabody College for
Teachers.

BENTZ, MARGRETHA M. (1990)
Lecturer, Department of Mathematics
B.A., Wartburg College;
M.A., Cornell University.

BERINGSON, DONALD L. (1983)
Professor, Department of Information Systems and Decision Sciences
B.S., M.S., Ph.D., University of
North Dakota.

BERLINER, ANN E. (1984)
Professor, Department of Philosophy
B.A., Goddard College;
M.A., California State University, Sonoma;
Ph.D., Graduate Theological Union.

BERNTHAL, CRAIG A. (1988)
Professor, Department of English
B.A., B.S., M.A., Michigan State University;
J.D., University of Washington;
Ph.D., Michigan State University.

BERRETT, BRYAN (1998)
Lecturer, Department of Communicative Sciences and Disorders
B.A., California State University, Northridge;
M.A., California State University, Chico.

BERRETT, RICHARD D. (1969)
Professor, Department of Child, Family, and Consumer Sciences
B.S., M.S., Brigham Young University; Ph.D.,
Florida State University.

BERSAMIN, MANUEL (1996)
Lecturer, Department of Chicano and Latin American Studies
B.A., University of California, Irvine;
M.A., Stanford University; Ph.D. University of Arizona.

BEST, MICHAEL R. MAJOR (1998)
Assistant Professor, Department of Aerospace Studies
B.S., University of Colorado; M.S., West
Coast University

BIACINDO, KATHRYN J. (1989)
Associate Professor, Department of Educational Research, Administration, and Foundations
B.A., M.Ed., Ed.D., Rutgers University.

BIDDLECOME, HOWARD C. (1993)
Associate Professor, Department of Civil and Geomatics Engineering and Construction
B.S., M.S., California State University, Fresno

BILDERBACK, D. LOY (1962)
Professor, Department of History
B.A., M.A., University of Kansas;
Ph.D., University of Washington.

BIRCH, BARBARA (1990)
Associate Professor, Department of Linguistics
B.A., M.A., Ph.D., University of
Wisconsin-Madison.

BLACK, KELLY J. (1978)
Professor, Department of Information Systems and Decision Sciences
B.A., Brigham Young University; M.A., Ph.D.,
University of Southern
California.

BLACKERBY, BRUCE A. (1963)
Professor, Department of Geology
B.A., University of California, Riverside;
Ph.D., University of California,
Los Angeles.

BLAKELEY, DONALD N. (1989)
Professor, Department of Philosophy
B.A., California State University, Fresno;
M.A., Ph.D., University of Hawaii.

BLOOM, GORDON (1996)
Assistant Professor, Department of Kinesiology
B.A., University of Western Ontario, Canada;
B.A., M.A., York University, Canada; Ph.D.,
University of Ottawa, Canada.

BLOOM, MELANIE M. (1985)
Professor, Department of Communication
B.A., Wayne State University;
M.A., Ph.D., Ohio University.

BLOOM, VINCENT L. (1970)
Professor, Chair, Department of Communication
B.A., Bethel College; M.A., Colorado State College; Ph.D., Ohio University.

BLUESTONE, SYDNEY (1963)
Professor, Chair, Department of Chemistry
B.S., Brooklyn College; Ph.D., Rutgers University.

BOCHIN, HAL W. (1969)
Professor, Department of Communication
B.S., John Carroll University; M.A., University of Wisconsin; Ph.D., Indiana University.

BOCHIN, JANET S. (1973)
Librarian, Music Library
B.M., M.L.S., University of Texas at Austin; M.A., California State University, Fresno.

BOHL, ALLEN R. (1996)
Director of Athletics
B.S., Bowling Green State University, Ohio; M.S. University of Southern Mississippi; Ph.D., The Ohio State University.

BOHLIN, CAROL FRY (1990)
Professor, Department of Curriculum, Teaching, and Educational Technology
B.A., University of North Carolina, Chapel Hill; M.H.D.L., University of North Carolina, Charlotte; Ph.D., Ohio State University.

BOHLIN, ROY M. (1990)
Professor, Department of Curriculum, Teaching, and Educational Technology
B.S., Bowling Green State University; M.Ed., Ph.D., Kent State University.

BOHNSTEDT, JOHN W. (1956)
Professor, Department of History
B.A. Michigan State University; M.A., Ph.D., University of Minnesota.

BOTWIN, MICHAEL D. (1990)
Associate Professor, Department of Psychology
B.A., Oakland University (Michigan); Ph.D., University of Michigan, Ann Arbor.

BOWERMAN, EARL H. (1979)
Professor, Department of Plant Science
B.S.A., M.S., University of Arkansas; Ph.D., Rutgers University, New Brunswick.

BOWERMAN, KAREN D. (1979)
Associate Dean, Sid Craig School of Business;
Professor, Department of Management
B.A., Wichita State University; M.A., Kansas University; Ph.D., Texas A & M University.

BRACY, JENNIFER (1999)
Assistant Professor, Department of Art and Design
B.A., Virginia Polytechnic Institute and State University; M.A., Virginia Commonwealth University.

BRADY, ROLAND H. (1986)
Professor, Department of Geology
B.S., Sonoma State University; Ph.D., University of California, Davis.

BRAHMA, CHANDRA S. (1980)
Professor, Department of Civil and Geomatics Engineering and Construction
B.S., Calcutta University; M.S., Michigan State University; Ph.D., Ohio State University; Registered Professional Engineer.

BREEN, THOMAS E. (1966)
Professor, Department of Psychology
B.S., University of Illinois; M.A., Ph.D., Louisiana State University.

BRIAN, NANCY K. (1987)
Professor, Chair, Department of Art and Design
B.F.A., M.F.A., University of Georgia.

BRISCOE, CARL (1997)
Assistant Professor, Department of Ethnic Studies
B.A., Lincoln University; M.Ed., City University; Ph.D., Purdue University.

BROOKS, DOUGLAS C. (1996)
Assistant Professor, Department of Psychology
B.A., Gettysburg College, Pennsylvania; M.A., Ph.D., University of Vermont.

BROUWER, JAMES M. (1964)
Professor, Department of History
B.A., M.A., Yale University.

BROWN, DAN (1996)
Recruiting Coordinator/Linebacker Coach, Men's Football, Department of Athletics
B.S., Boise State.

BROWN, SANFORD M. (1976)
Professor, Department of Health Science
B.S., Ursinus College;
M.P.H., University of Michigan;
Ph.D., University of Kansas;
Registered Sanitarian.

BROWN-WELTY, SHARON (1993)
Co-Director of Joint Doctoral Program at California State University, Fresno; Associate Professor, Department of Educational Research, Administration, and Foundations
B.S., M.A., Ed.D., Indiana University of Pennsylvania.

BROYLES, DON R. (1968)
Professor, Department of Political Science
B.A., Sacramento State College; M.A., Ph.D., Claremont Graduate School.

BRYAN, GERALD O. (1973)
Professor, Department of Marketing and Logistics
A.B., M.A., University of Northern Colorado; D.B.A., Arizona State University.

BRYANT, BARRETT (1999)
Lecturer, Department of Information Systems and Decision Sciences
B.S., California State University, Fresno; M.B.A., California State University, Long Beach.

BUCHER, MANFRED (1982)
Professor, Department of Physics
Diplom-Physiker, Dr. Phil. Nat., Goethe University (West Germany).

BUKOFZER, DANIEL C. (1989)
Professor, Department of Electrical and Computer Engineering
B.S., California State University, Los Angeles; M.S., University of California, Los Angeles; Ph.D., University of California, Davis.

BUMPASS, L. KATHRYN (1985)
Professor, Department of Music
B.A., Austin College; M.A., Columbia University; Ph.D., University of Illinois, Urbana-Champaign.

BURGE, JOHN H. (1984)
Professor, Department of Criminology
B.S., M.S., California State University, Fresno; Ed.D., University of the Pacific

BURNS, THOMAS (1998)
Lecturer, Department of Management
B.A., Central Washington State University; M.B.A., Pepperdine University.

BUSH, PAUL D. (1961)
Professor, Department of Economics
B.A., M.A., University of Denver; Ph.D., Claremont Graduate School.

BYAS, CLARICE (1999)
Lecturer, Department of Curriculum, Teaching, and Educational Technology
B.A., M.A., California State University, Fresno.

CAGLE, JOHN A. (1970)
Professor, Department of Communication
B.A., M.A., San Fernando Valley State College; Ph.D., University of Iowa.

CAID, N. JOANNE (1967)
Professor, Department of Food Science and Nutrition
B.S., Rochester Institute of Technology; M.S., Michigan State University; Registered Dietitian.

CAILLIET, GREG M. (1974)
Professor, Department of Biology at Moss Landing
B.A., Ph.D., University of California, Santa Barbara.

CALDERON-URREA, ALEJANDRO (1997)
Assistant Professor, Department of Biology
B.A., Universidad del Valle, Colombia; M.S., Vrije Universiteit Brussel, Belgium; Ph.D., Yale University.

CALINGO, LUIS Ma. R. (1983)
Professor, Department of Management
B.S.I.E., M.U.R.P., University of the Philippines; M.B.A., Ph.D., University of Pittsburgh.

CAREY, KAREN T. (1989)
Professor, Department of Psychology
B.S., San Diego State University; M.S., University of Nevada, Las Vegas; Ph.D., University of Cincinnati.

CARLIN, ANDREA B. (1992)
Lecturer, Department of Social Work Education
B.A., Colby College; M.S.W., Smith College.

CARMICHAEL, CARL W. (1988)
Professor, Department of Communication
B.A., Westminster College;
M.A., Louisiana State University;
Ph.D., University of Iowa.

CARPENTER, ANGELICA (1999)
Associate Librarian, Henry Madden Library
B.A., M.S., M.Ed., University of Illinois at Urbana, Champaign.

CARR-FROBOSE, JAQUELINE (1998)
Lecturer, Department of History
B.A., Ph.D., University of California Berkeley; M.A., California State University, Sacramento.

CARRION, DANIEL E. (1985)
Professor, Department of Theatre Arts
B.A., M.A., California State University, Fresno.

CASEAU, DANA L. (1993)
Associate Professor, Department of Counseling and Special Education
B.A., M.A., Ph.D., University of New Mexico, Albuquerque.

CASEY, JAMES (1999)
Lecturer, Department of Agricultural Economics
B.A., M.A., Ph.D., Texas A & M University.

CASTILLO, ELSA (1998)
Lecturer, Department of Foreign Languages
B.A., M.A., California State University Fresno.

CHA, MARN J. (1969)
Professor, Department of Political Science
B.A., M.P.A., Ph.D., University of Southern California.

CHADWICK, VIRGINIA F. (1984)
Professor, Department of Kinesiology
B.S., Northern Arizona University; M.S., Arizona State University; Ph.D., Oregon State University.

CHAFFE-STENGEL, PRISCILLA M. (1984)
Professor, Department of Information Systems and Decision Sciences
B.A., University of California, San Diego; M.A., California State University, Fresno; Ph.D., Stanford University.

CHANG, SIDNEY H. (1966)
Professor, Department of History
B.A., National Taiwan University; M.A., University of Missouri; M.S., Florida State University; Ph.D., University of Wisconsin.

CHEN, KUANG C. (1988)
Professor, Chair, Department of Finance and Business Law
B.A., National Taiwan University; M.B.A., Ph.D., Ohio State University.

CHEN, ROSITA (1980)
Professor, Department of Accountancy
B.A., National Taiwan University; M.A.S., State University of New York; Ph.D., University of Illinois.

CHESEMORE, DAVID L. (1972)
Professor, Department of Biology
B.S., Wisconsin State University; M.S., University of Alaska; Ph.D., Oklahoma State University.

CHESLER, DAVID (1997)
Head Coach, Men's Soccer, Department of Athletics
B.S., University of Washington.

CHEUK, S. FAI (1970)
Professor, Department of Biology
B.Sc., M.Sc., University of Manitoba; Ph.D., McGill University.

CHIERO, ROBIN (1997)
Assistant Professor, Department of Curriculum, Teaching, and Educational Technology
B.A., University of Redlands; B.S., Coleman College; M.A., San Diego State University; Joint Ph.D., Claremont Graduate University and San Diego State University.

CHILDERS, FREDERICK (1981)
Professor, Department of Social Work Education
B.A., California State University, Long Beach; M.S.W., D.S.W., University of Southern California.

CHOATE, GRETCHEN (1999)
Lecturer, Department of Curriculum, Teaching, and Educational Technology
B.A., University of Massachusetts, Amherst.

CHUA, CHENG LOK (1986)
Professor, Department of English
B.A., DePauw University; M.A., Ph.D., University of Connecticut.

CIULA, RICHARD P. (1961)
Professor, Department of Chemistry
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General Education Appendix

Applies only to General Catalog years 1988-89 through 1998-99

The following is the General Education program for students enrolled under 1998-1999 or earlier catalogs. (See the appropriate catalog for greater detail.)

The 1998-1999 General Education Program requires students to complete a minimum of 51 semester units. This includes 18 units minimum in CORE, 27 units minimum in BREADTH, and 9 upper-division units minimum, of which 6 units are in CAPSTONE. The 9 upper-division units can be taken no sooner than the term in which 60 units of coursework are completed. Also, 9 units must be taken in residence at California State University, Fresno.

Because the goal of General Education is to provide a solid foundation with a broad scope and the goal of the major is to provide depth in a specific discipline or program, the following stipulations apply:

1. A CORE course also may be applied to a student's major requirement unless the department specifically prohibits it.
2. A maximum of two General Education courses from one department or program may be applied to satisfy BREADTH requirements. (However, a department or program may prohibit any General Education BREADTH course from simultaneously satisfying its own departmental or programmatic requirements.)
3. Courses used to satisfy CAPSTONE may not be used to satisfy requirements for the major.

CORE

Required: one course from each of the following six categories for a minimum of 18 units.

1. English 1
2. Speech 3, 7, or 8
3. Quantitative Reasoning
   - Decision Sciences 71
   - Mathematics 45, 70, 72, 75
   - Computer Science 20, 40
   - Electrical and Computer Engineering 70, 71
   - Agricultural Economics 71
   - Health Science 92
   - Mathematics 11
   - Plant Science 99
   - Psychology 42
4. Critical Thinking
   - Anthropology 30
   - Computer Science 1
   - English 21, 30, 44
   - Greek 10
   - Natural Science 4
   - Philosophy 25, 26, 27, 45
   - Sociology 3
   - Speech 5
   - Geomatics Engineering 5
   - Women's Studies 12

Note: Students must complete the Critical Thinking requirement prior to the completion of 60 units.

5. History 11 or 12
6. Political Science 2 or 101

BREADTH

Required: one course from each of the following nine Divisions for a minimum of 27 units.

Division 1 — Physical Processes
- Chemistry 1, 1A, 1B, 3A, 3B
- Geology 1, 2, 15 (HNE only)*
- Physical Science 21
- Physics 2A, 2B, 4A and 4AL, 4B and 4BL, 10

Note: MATH 4R or second-year high school algebra is a prerequisite for all courses in Division 1.

Division 2 — Biological Processes
- Biology 10, 15 (HNE only)*
- Biological Science Core 1A
- Botany 10
- Zoology 10

Division 3 — Behavioral/ Environmental Systems
- Anthropology 1, 3
- Geography 5, 7
- Plant Science 105
- Psychology 10, 36

Division 4 — Personal Life and Growth
- Art 13, 20, 30, 40, 50, 60, 70
- Child and Family Studies 38
- Dance 16
- Drama 22, 32, 34
- English 41, 43
- Gerontology 10, 111
- Health Science 90, 124
- Industrial Engineering 125
- Music 102, 103, 18, 21 and 121
- Nutrition 53
- Kinesiology 31
- Psychology 61, 132, 171
- Recreation and Leisure Studies 80, 101
- Speech 4

Division 5 — Fine Arts
- African American Studies 24
- Art 1
- Art History 10, 11
- Chicano and Latin American Studies 7, 9
- Dance 171
- Drama 62, 163
- Music 9, 74

Division 6 — Humanities and Literature
- Applied Ethics 100
- Armenian 148
- English 20, 101, 102, 103
- French 48, 109
- German 48
- Greek 48
- History 1, 2
- Humanities 10, 11, 12, 14
- Italian 48
- Philosophy 1, 10, 120, 131
- Spanish 48, 140, 142

Division 7 — Languages
- Armenian 1A, 1B, 2A, 2B
- Chinese 1A, 1B, 2A, 2B
- Communicative Sciences and Disorders 91
- French 1A, 1B, 2A, 2B
- German 1A, 1B, 2A, 2B
- Greek 1A, 1B
- Hebrew 1A, 1B
- Hmong 1A, 1B
- Italian 1A, 1B, 2A, 2B
- Japanese 1A, 1B, 2A, 2B
- Latin 1A, 1B
- Linguistics 10
- Portuguese 1A, 1B
- Sanskrit 10A, 10B
- Spanish 1A, 1B, 2A, 2B, 4A, 4B

* Humans and the Natural Environment (HNE) is an 18-unit interdisciplinary thematic cluster offered through the College of Science and Mathematics. For more information about this program, see *Natural Science, Interdisciplinary Courses.*

Division 8 — Social, Economic, and Political Systems
- Agricultural Economics 1
- Anthropology 2
- Economics 25, 40, 50
- Geography 2, 4
- Political Science 1, 8, 120
- Social Science 15 (HNE only)*
- Sociology 1, 2

Division 9 — Other Cultures and Women's Studies
- African American Studies 25, 27, 38, 144, 178
- American Indian Studies 50, 103
- Armenian Studies 10
- Asian American Studies 15, 30, 56
- Chicano and Latin American Studies 3, 5, 160
- Ethnic Studies 1
- History 101, 178
- Sociology 131
- Women's Studies 10, 101, 131, 135

CAPSTONE

The CAPSTONE requirement may be fulfilled in one of two ways: either by completing a minimum of two INTD courses or by completing a minimum of two courses in a single Cluster from two different departments or programs. Please see the 1998-99 General Catalog for INTD course descriptions.

Interdisciplinary Courses (INTD)

102NEX. Understanding of Men and Women

104. Humanities in the Middle Ages and Renaissance

108. Humanities in Classical Athens

110. Humanities in Republican and Imperial Rome

116. Humanities in the Modern World

118. Folklore in Modern Life

123. The American Experience: Beginnings to World War I

124. The American Experience: World War I to the Present

130. Latin American Cultures and Traditions

152. Ethnic Minorities in American Schools

156. Welfare and Military Expenditures: The Quest for Balance

160. Gerontology: A Multidisciplinary Approach

168. Cinema and the Humanities

172A-B. Health Promotion and Wellness (3-3)

180. Peace and Conflict (see PAX 100, page 443)

184. Family Communication

188. Principles of Self-Esteem in Education, Social Work, and Mental Health

193A-B. Evaluating Complex Organizations (3-3)

Clusters with Member Courses

Acquisition of Knowledge
- PHIL 150: Foundations of Knowledge
- P SCI 106: History of Physical Science
- PSYCH 136: Human Learning and Behavior

Agriculture and Government Policy
(Courses taken must include AG EC 150)
- AG EC 150: Agricultural and Food Policy
- PHIL 125: Issues in Political Philosophy
- PL SI 150: Public Policy Making

An Emerging Third World Region: sub-Saharan Africa
- FREN 149: Voices of Africa
- GEOG 182: Subsaharan Africa
- HIST 157: Modern Africa

Ancient Peru
- ART H 175: Pre-Columbian Andes
- GEOG 172: Ancient Peru

Asian Cultures and Traditions
(Courses taken must include LING 110)
- ANTH 123: Peoples and Cultures of Southeast Asia
- ANTH 125: Tradition and Change in China and Japan (Same as HUM 140)
- LING 110: Indic Cultures and Traditions (Same as HUM 150)

Britain

The London Semester CAPSTONE courses change each spring depending upon the instructors teaching in the program. For current information on the schedule of courses, contact the London Semester program office in the Office of the Dean, College of Arts and Humanities, MUSIC 186A; (559) 278-3056.

Only students participating in the London Semester Program will be eligible for CAPSTONE credit by enrolling in its Cluster courses.

Business and Society
- B A 120: Business and Society
- SOC 149: Sociology of Business

California: Land of Contrast
(Courses taken must include GEOG 168)
- GEOG 168: Geography of California
- GEOL 168: Geology of California
- PL SI 103: California Politics

Christianity, History, and Politics
- HIST 103: History of Early Christianity
- PL SI 112: Politics and Christianity (Same as A ETH 104)

Cities and Urban Society
- C R P 100: Introduction to Community Planning
- GEOG 160: Urban Geography
- SOC 163: Urban Sociology

Crime and Society
(Courses taken must include SOC 143)
- CRIM 100: Criminology
- CRIM 153: Psychology of Crime
- SOC 143: Deviance and Control

Energy and Society
- ECON 117: Economics of Ecology
- GEOG 134: Geography of Energy
- I T 106: Energy Conversion and Utilization
- P SCI 168: Environmental Impact of Energy Demands by Society

Environment: Problems and Solutions
- C R P 135: Environmental Law
- GEOG 128: Environmental Pollution

Ethnicity and Culture: Theories and Applications
- ANTH 120: Ethnic Relations and Cultures
- CLS 103: Chicano Folklore

* Humans and the Natural Environment (HNE) is an 18-unit interdisciplinary thematic cluster offered through the College of Science and Mathematics. For more information about this program, see *Natural Science, Interdisciplinary Courses.*

European Culture Since the Renaissance
(Courses taken must include HIST 135 which must be completed before any other course is taken in the cluster)
- ENGL 114: World Literature: Modern
- HIST 135: European Cultural History
- MUSIC 161B: Survey of Music History II
- PHIL 103: Bacon to Kant

Juveniles and Adolescence
(Courses taken must include CRIM 120)
- CFS 136: Middle Childhood and Adolescence
- PSYCH 102: Adolescent Psychology
- CRIM 120: Juvenile Delinquency

Law, Culture, and Society
- ANTH 119: Law and Culture
- PHIL 127: Philosophy of Law

Mexico-U.S. Relations: Conflict and Change
(Courses taken must include one CLS and one HIST course)
- CLS 114: Mexico and the Southwest 1810-1910
- CLS 115: Mexico-U.S. Relations Since 1910
- HIST 165: Modern Mexico
- HIST 183: The Hispanic Southwest

Our Classical Heritage
- DRAMA 185: History of the Theatre and Drama I
- HIST 116: Greek and Roman Religion
- LATIN 132: Classical Mythology
- KINES 111: The Olympic Games

Pollution, Health, and Society
- C E 170: Pollution and Society
- H S 170: Health Effects of Indoor Pollution

Popular Culture and Society
(Courses taken must include ENGL 174 or MUSIC 187 and either SOC 142 or MCJ 163)
- ENGL 174: Popular Fiction
- MUSIC 187: Pop Music: Jazz and Rock
- SOC 142: Sociology of Popular Culture
- MCJ 163: Radio/TV as Popular Culture

The CAPSTONE requirement may be fulfilled in one of two ways: either by completing a minimum of two INTD courses or by completing a minimum of two courses in a single Cluster from two different departments or programs.

Race and Ethnicity in the United States
(Courses taken must include HIST 186 or SOC 111 and at least one of the other courses listed)
- AF AM 135: African American Community
- A I S 100: American Indian Religion
- ASAM 110: Asian American Communities
- CLS 116: Cultural Change and the Chicano
- HIST 186: American Ethnic History
- SOC 111: Sociology of Minority Relations

The Church and the Court
- ART H 122: Northern Renaissance
- ENGL 113: World Literature: Medieval and Renaissance

The Greek World
(Courses taken must include ENGL 112)
- ENGL 112: World Literature: Ancient
- HIST 111: Ancient Greece
- PHIL 101: Ancient Philosophy

The Renaissance
- ART H 120: Italian Renaissance
- ENGL 147: Renaissance
- HIST 125: Renaissance
- MUSIC 161A: Survey of Music History I

The Roman World
- HIST 112: Ancient Rome
- PHIL 108: Roman Philosophy

The Soviet Union
- GEOG 176: Geography of the Commonwealth of Independent States — Formerly USSR
- HIST 143: The Soviet Union
- PL SI 141: Russian Politics

The Spiritual Quest
- ANTH 116W: Anthropology of Religion
- PHIL 130: Philosophy of Religion
- PHIL 135: Asian Religious Traditions

The World of the Old Testament
- GEOG 180: Biblical Lands
- HIST 115: Ancient Israel
- PHIL 134: Literature of the Old Testament
  (Same as ENGL 116)

Women: Themes and Variations; Potential and Problems; Cohesion and Conflict
(Courses taken must include ANTH 118 before either of the other two are taken)
- AF AM 137: African American Women (Same as W S 137)
- ANTH 118: Women: Culture and Biology (Same as W S 170)
- CLS 152: The Chicano Family (Same as W S 152)

Travel
into
Tomorrow

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Journey into Tomorrow

Billowing clouds touch sky and reach
the early morning fog,
the river of stars is ready to set,
a thousand sails dance.

— Li Ch'ing-Chao (c. 1152 A.D.)