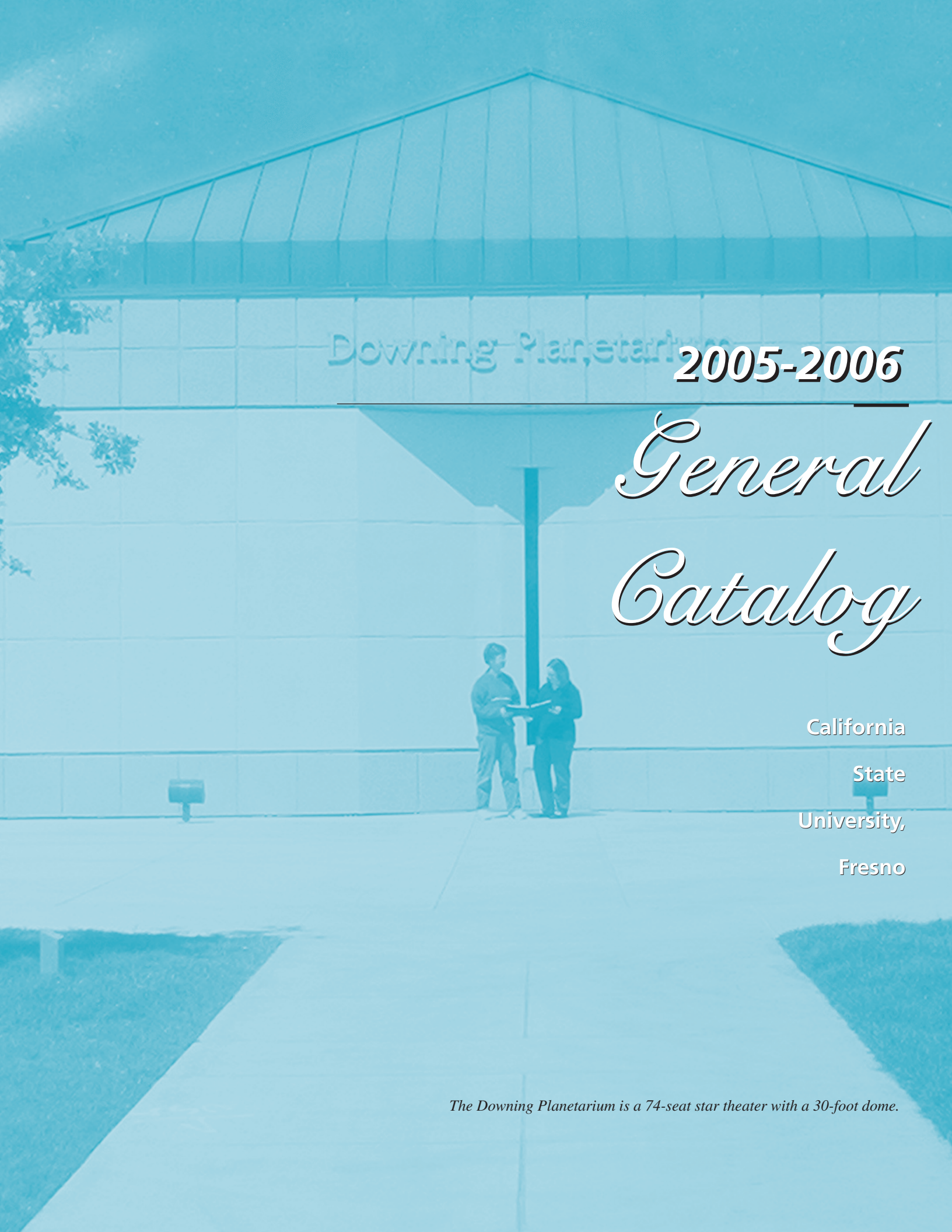


2005-2006

General Catalog

California State University, Fresno

The Downing Planetarium is a 74-seat star theater with a 30-foot dome.

Contents

Courses and programs are listed by college/school.

Features

Academic Calendar 4
The California State University 6
Trustees and Officers 8
President's Message 9
Fresno 10
Campus 12
California State University, Fresno 14
University Lecture Series 16
University 1 17
Diversity 18

Sources/Resources

Academic Enhancement Services 21
Advising Services 22
Alumni Association 24
Associated Students 25
Athletics 26
Auxiliaries 27
California State University, Fresno/COS Center 28
Career Services 29
Continuing and Global Education - Extension Programs 30
Continuing and Global Education - International Programs 31
Digital Campus 32
Educational Opportunity Program 33
Health and Psychological Services 34
Housing 35
Information Technology Services 36
International Student Services and Programs 37
Learning Resource Center 38
Library Services 39
Outreach Services 40
Services for Students with Disabilities 41
Student Activities 42
Student Affairs 43
Student Affairs Federal Programs 44
Students for Community Service 45
Testing Services 46
University Student Union 47
Women's Resource Center 48

Admissions, Fees, and Financial Assistance

Admission Requirements 50
Registration Process 57
Preprofessional Preparation 60
Fees and Expenses 62
Financial Aid 65
Scholarships 68
Institutional Information 69
Recommended Reading List 70

Academic Regulations

Academic Regulations 72
Academic Placement 79
Degree Requirements 82

University Degree Programs and Courses

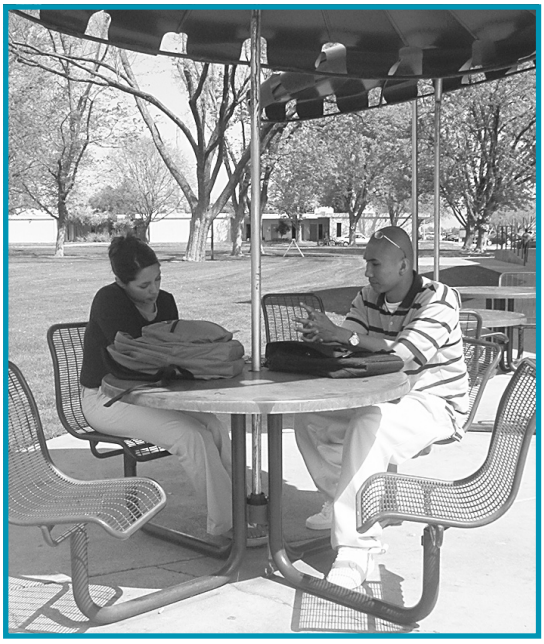
Degree Programs, Majors, and Minors 88
General Education 89
Course Subjects, Symbols, and Terms 93
Honors 95
Athletics 99

College of Agricultural Sciences and Technology 100
Agricultural Economics 101
Animal Sciences and Agricultural Education 107
Child, Family, and Consumer Sciences 115
Food Science and Nutrition 122
Industrial Technology 128
Plant Science 134
Viticulture and Enology 142

College of Arts and Humanities ... 147
Armenian Studies 148
Art and Design 150
Classical Studies – Interdisciplinary Minor 159
Communication 160
English 166
Foreign Languages and Literatures 174
Humanities – Interdisciplinary Minor 183
Linguistics 184
Mass Communication and Journalism 190
Music 196
Philosophy 204
Theatre Arts – Drama and Dance 208

http://www.csufresno.edu/catalog

California State University, Fresno



The Craig School of Business 214
Accountancy 217
Aerospace Studies 219
Finance and Business Law 221
Information Systems and Decision Sciences 226
Management 230
Marketing and E-Business 234
Military Science 237
Special Option for Business Administration 239
Business — Graduate Program 240

Kremen School of Education and Human Development 246
Education Departments and Programs 247
Liberal Studies 251
Teaching 253
Graduate Education 260
Credentials 262
Certificates 265
Master's Degree Programs 267
Doctorate Program 273
Education Courses 276

College of Engineering 292
Departments 293
Civil Engineering 295
Construction Management 300
Electrical and Computer Engineering 302
Geomatics Engineering 307
Industrial Engineering 310
Mechanical Engineering 312
Engineering — Graduate Programs 316

College of Health and Human Services 318
Communicative Disorders and Deaf Studies 319
Gerontology 326
Health Science 328
Kinesiology 334
Nursing 342
Physical Therapy 351
Recreation Administration and Leisure Studies 358
Social Work Education 362
Health — Interdisciplinary Courses 367

College of Science and Mathematics 368
Biology 369
Chemistry 382
Computer Science 389
Earth and Environmental Sciences 394
Mathematics 401
Physics 406
Psychology 413
Science and Mathematics — Interdisciplinary Courses and Programs 420

College of Social Sciences 423
Africana and American Indian Studies 424
American Humanics 428
Anthropology 429
Asian American Studies 434
Chicano and Latin American Studies 435
Criminology 439
Economics 445
Geography 449
History 454
Peace and Conflict Studies – Interdisciplinary Minor 460
Political Science 461
International Relations – Graduate Program 463
Public Administration – Graduate Program 464
Social Sciences Programs 469
Sociology 470
Women's Studies 473

Special Programs 478
Division of Graduate Studies 486
University Administration 498
Policies and Regulations 501
Faculty, Administration, Emeriti 506
Campus Directory 536

Vol. XCIV May 2005

The *General Catalog* is prepared under the supervision of the Office of the Provost and Vice President for Academic Affairs and the Office of the Associate Provost with assistance from Dr. Jeri Echeverria and Dr. Dennis Nef.

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Academic Calendar 2005-2006

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

Fall Semester

AUGUST 2005

1 ADMISSION APPLICATION cycle for spring 2006 begins

12 Last day to submit to the Division of Graduate Studies departmental clearance paperwork on behalf of August 2005 master's degree candidates (include a copy of the completed final report on incomplete or in-progress work, if needed for graduation)

17 SEMESTER begins
ACADEMIC ASSEMBLY for faculty

19 New Student CONVOCATION

22 INSTRUCTION begins
Auditors and "60+ Years" students may register
APPLICATION period for degrees to be granted in December 2005 begins

22-26 WELCOME WEEK '05 — activities and programs for new and continuing students, faculty, and staff

SEPTEMBER 2005

1 SCHOLARSHIP APPLICATIONS for the 2006-2007 academic year will be available online

2 Last day to
- ADD CLASSES without special permission
- DROP CLASSES without a serious and compelling reason
- register for Credit by Examination
- File an application for BACHELOR'S and MASTER'S DEGREES to be granted in December 2005

5 Labor Day — no classes; all offices closed

16 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 2005

19 Last day to
- ADD CLASSES with permission
- DROP CLASSES for serious and compelling reason without a grade of *W* (withdrawal) listed on university transcript
- 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

30 Last day for graduate students to apply for ADVANCEMENT TO CANDIDACY this semester in order to be eligible for graduation in May 2006

OCTOBER 2005

1 ADMISSION APPLICATION cycle for fall 2006 begins
Last day for INTERNATIONAL STUDENTS to submit a university application for admission to graduate or postbaccalaureate studies for the spring semester

3 Last day for faculty to submit Credit by Examination grades

4 Rosh Hashanah

5 Ramadan begins

13 Yom Kippur

24 Last day to file edited, committee-approved MASTER'S THESIS for December 2005 graduation

TBA ADMISSIONS DAY 2005

NOVEMBER 2005

7 Telephone/Web registration for spring 2006 semester begins

15 Last day to WITHDRAW FROM A COURSE for SERIOUS and COMPELLING REASONS, except by complete withdrawal from the university for circumstances beyond the student's control

23 THANKSGIVING RECESS BEGINS
No classes; offices will post hours

24-25 THANKSGIVING RECESS
Campus closed; the library will post holiday hours

30 Priority application deadline for SCHOLARSHIPS for the 2006-2007 academic year

TBA DOG DAYS — new student orientation, spring 2006

DECEMBER 2005

7 Last day of INSTRUCTION
Last day to withdraw from a complete program for circumstances beyond the student's control

8 & 9 Final exam preparation and faculty consultation days

12-15 FINAL SEMESTER EXAMINATIONS

19 FALL SEMESTER ends
Last day to
- submit incomplete make-up work or request extension of time for incomplete grades from fall 2004
- submit to the Division of Graduate Studies departmental clearance paperwork on behalf of December 2005 master's degree candidates (include a copy of the completed final report on incomplete or in-progress work, if needed for graduation)

23 Fall 2005 online grades due from faculty

26-31 Campus closed (Dec. 26-Jan. 2)
WINTER RECESS (Dec. 20–Jan. 11)

AUGUST 2005

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 2005

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 2005

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 2005

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 2005

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*

Academic Calendar 2005-2006

JANUARY 2006

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 2006

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 2006

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 2006

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 2006

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 2006

1 FINANCIAL AID application filing period for priority consideration for the 2006–2007 academic year begins (Jan. 1–March 2)

2 Campus closed (Dec. 26-Jan. 2)
WINTER RECESS (Dec. 20–Jan. 11)

12 SEMESTER begins

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

18 INSTRUCTION begins
Auditors and "60+ Years" students may register
APPLICATION period for degrees to be granted in May 2006 begins

29 Chinese New Year

31 Last day to
- ADD CLASSES without special permission
- DROP CLASSES without a serious and compelling reason
- Register for Credit by Examination

FEBRUARY 2006

3 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 2005 semester
Last day file an application for BACHELOR'S and MASTER'S DEGREES to be granted in May 2006

14 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

20 Presidents' Day — no classes; all offices closed

MARCH 2006

TBA PREVIEW DAY 2006

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

2 Filing deadline for FINANCIAL AID priority consideration for the 2006–2007 academic year

3 Last day for graduate students to apply for ADVANCEMENT TO CANDIDACY this semester in order to be eligible for graduation in August 2006 or December 2006
Last day for faculty to submit Credit by Examination grades

20 Last day to file edited, committee-approved MASTER'S THESIS for May 2006 graduation

31 Cesar Chavez Day — no classes; campus closed

APRIL 2006

10-14 SPRING RECESS

13 Pesach (Passover) begins

16 Easter

17 Telephone/Web Registration for fall 2006 begins

18 Last day to WITHDRAW FROM A COURSE for SERIOUS and COMPELLING REASONS, except by complete withdrawal from the university for circumstances beyond the student's control

20-23 VINTAGE DAYS

MAY 2006

10 Last day of INSTRUCTION
Last day to withdraw from a complete program for circumstances beyond the student's control

11&12 Final exam preparation and faculty consultation days

15-18 FINAL SEMESTER EXAMINATIONS

18 Last day to
- submit incomplete make-up work or request extension of time for incomplete grades from spring 2005
- submit to the Division of Graduate Studies departmental clearance paperwork on behalf of May 2006 master's degree candidates (include a copy of the completed final report on incomplete or in-progress work, if needed for graduation)

20 SPRING SEMESTER ends
95th annual COMMENCEMENT

22 SUMMER SESSION begins (May 22–Aug. 11); see *Summer Session Catalog*

26 Spring 2006 online grades due from faculty

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

JUNE 2006

23 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 2006 semester
Last day to file an application for bachelor's degree to be granted August 2006

JULY 2006

4 Fourth of July holiday observed — campus closed

TBA DOG DAYS — new student orientation, fall 2006

Please note: This calendar is subject to change after the print catalog goes to press. For the most current calendar, please see *http://www.csufresno.edu/catoffice/current/calndr.html*.

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. The newest — California State University, Channel Islands — opened in fall 2002, with freshmen arriving in fall 2003.

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 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 1,800 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 number of doctoral degrees are offered jointly with the University of California and with private institutions in California.

In fall 2003, the system enrolled 409,000 students, taught by some 22,000 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. Nearly two million persons have been graduated from the CSU campuses since 1960.

CSU Campuses

California State University, **Bakersfield**
9001 Stockdale Highway
Bakersfield, CA 93311-1099
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Phone: 661.664.3036
http://www.csubak.edu/

California State University, **Channel Islands**
One University Drive
Camarillo, CA 93012
Dr. Richard Rush, *President*
Phone: 805.437.8400
http://www.csuci.edu/

California State University, **Chico**
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P.O. Box 2862
Chico, CA 95929-0150
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Phone: 530.898.4636
http://www.csuchico.edu/

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Carson, CA 90747-0005
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http://www.csudh.edu/

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5241 North Maple Avenue
Fresno, CA 93740
Dr. John D. Welty, *President*
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http://www.csufresno.edu

California State University, **Fullerton**
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Fullerton, CA 92834-9480
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http://www.fullerton.edu/

California State University, **Hayward**
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Hayward, CA 94542
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Phone: 510.885.2624
http://www.csuhayward.edu/

Humboldt State University
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Arcata, CA 95521-8299
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California State University, **Long Beach**
1250 Bellflower Boulevard
Long Beach, CA 90840-0115
Dr. Robert C. Maxson, *President*
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http://www.csulb.edu/

California State University, **Los Angeles**
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Los Angeles, CA 90032
Dr. James M. Rosser, *President*
Phone: 323.343.3901
http://www.calstatela.edu/

California Maritime Academy
200 Maritime Academy Drive
Vallejo, CA 94590
Dr. William B. Eisenhardt, *President*
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California State University, **Monterey Bay**
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One Washington Square
San Jose, CA 95192-0001
Dr. Paul Yu, *President*
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Long Beach, CA 90802-4210
Phone: 562.951.4000
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Trustees and Officers

Ex Officio Trustees

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State Capitol, Sacramento 95814

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State Capitol, Sacramento 95814

The Honorable Fabian Núñez
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State Capitol, Sacramento 95814

The Honorable Jack O'Connell
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Treasurer

Christine Helwick
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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.

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Jeffrey Bleich (2010)
Herbert L. Carter (2011)
Carol R. Chandler (2012)
Moctesuma Esparza (2008)
Debra S. Farar (2006)
Robert G. Foster (2006)
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William Hauck (2009)
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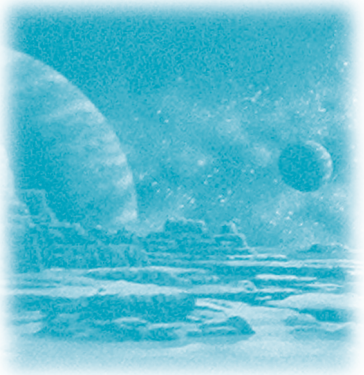
Corey Alexander Jackson (2006)
Kathleen Kaiser (2005)
Shailesh J. Mehta (2005)
Melinda Guzman Moore (2012)
Frederick W. Pierce IV (2004)
Kyriakos Tsakopoulos (2009)
Anthony M. Vitti (2005)



Office of the Chancellor

The California State University
400 Golden Shore
Long Beach, CA 90802-4275
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Chancellor

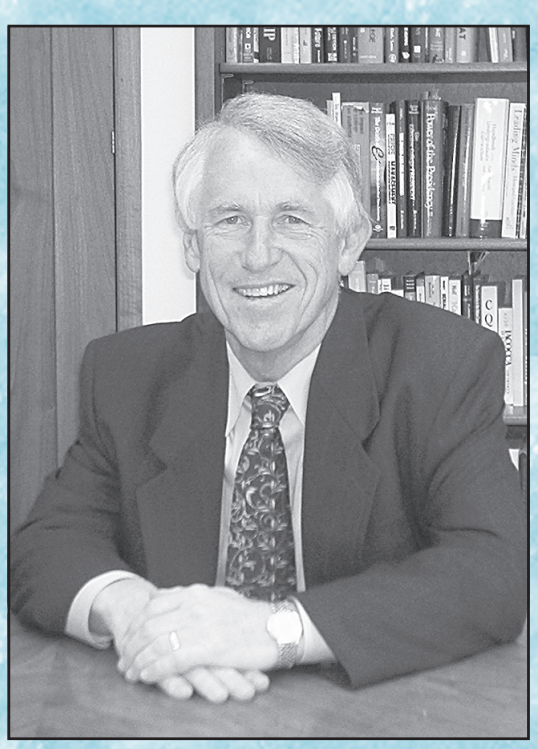
David S. Spence
Executive Vice Chancellor
and Chief Academic Officer

Richard P. West
Executive Vice Chancellor
and Chief Financial Officer

Jackie R. McClain
Vice Chancellor,
Human Resources

Christine Helwick
General Counsel

President's Message



The 2005-2006 *General Catalog*

This is an exciting time to be a student at California State University, Fresno. We are a learning community that values scholarship and creative thinking, and we are uniquely poised to provide a quality education to all our students. The Smittcamp Family Honors College combines the best of a small liberal arts college experience with the advantages of a large public university. We have also implemented a new General Education program that provides our students with an outstanding academic foundation. At Fresno State our number one priority is to enhance continuously the quality of the learning environment we provide our students.

Engagement with our community and region is also one of our top priorities. We have more than 50 academic centers and institutes that provide applied research and service; students contribute more than 200,000 hours a year to the needs of others in our region. Through service learning courses and our Students for Community Service program, Fresno State students are making a significant difference in the lives of the residents of Central California. Students are also engaged in internships, cooperative learning programs, and other initiatives that allow them to contribute their skills and experiences to our community.

This year we will continue to establish innovative programs and services to meet the goals in our *"Plan for Excellence II: 2001-2006."* The *Plan for Excellence II* serves as our guide as we move forward to meet ever new challenges. Our current plan includes new instructional delivery systems using the latest technology, partnerships with all levels of education, greater reliance on non-state sources of support, more efficient use of our facilities, and a commitment to both undergraduate and graduate students in new and existing high quality academic programs. 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 build our new honors program. The university will continue to offer a breadth of study that includes degrees at the bachelor's and master's level 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 community as they strive to meet their academic goals.

Fresno State is a rich and diverse learning community. Our faculty, staff, and administrators are all committed to your success.

Fresno

The Community

Today, Fresno city has a population of more than 456,000, 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 talented musicians 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 107 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

In 1911, California State University, Fresno began with 150 students as a two-year state normal school that largely prepared 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 Nevadas. 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 388-acre main campus features more than 46 traditional and modern buildings. An

additional 34 structures are on the 1,022-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 Downing Planetarium features a computer-controlled Spitz A3P star projector and a main theater which seats 74 under a thirty-foot dome. The facility includes a teacher resource center and presents multimedia shows on a daily basis.

The 73,000-square-foot, three-story Science II building is the latest addition to campus. Located immediately east of the Downing Planetarium, Science II includes lecture halls and instructional labs for earth and environmental sciences and psychology classes, as well as space for more than 100 faculty offices. The facility includes graduate research and special instructional areas for the physics department to support the research needs of the Downing Planetarium.

Smittcamp Alumni House is a 10,000-square-foot, two-story structure that houses the Alumni Association's offices and serves as the university's visitor information center. The building includes conference rooms, a kitchen, reception and social areas, a chapter/volunteer resource center, garden courtyards, and an alumni library.

The Save Mart Center at Shaw and Chestnut avenues is a 13-story facility with 16,000 seats. It serves as the new home for Fresno State basketball, volleyball and wrestling, as well as a venue for events. The facility has state-of-the-art classrooms, computer labs, and conference rooms.

The Telecommunications Infrastructure Initiative (TII) is a two-year project that began fall 2004 to upgrade computer and networking infrastructures on all 23 CSU campuses. The new network significantly speeds up data transmission rates and makes things like video conferencing commonplace and distant learning more real-time, interactive, and accessible. It also prepares the campus for future technologies.

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 Western Association of Schools and Colleges may be contacted at 985 Atlantic Avenue, Suite 100, Alameda, CA, 94501 or by telephone at 510.748.9001. 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 the following:

- Accreditation Board for Engineering and Technology
- American Chemical Society
- American Council for Construction Education
- American Dietetic Association
- American Physical Therapy Association
- American Speech-Language-Hearing Association
- Association to Advance Collegiate Schools of Business
- California Commission on Teacher Credentialing
- California Board of Registered Nursing
- California State Department of Health Services
- Certified Financial Planner Board of Standards
- Commission on Accreditation for Dietetics Education
- Commission on Accreditation of Allied Health Education Programs
- Commission on Accreditation in Physical Therapy Education
- Commission on Collegiate Nursing Education
- Commission on Teacher Credentialing
- Council on Academic Accreditation in Audiology and Speech Language Pathology
- 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
- Joint Review Committee Education Program - Athletic Training
- National Association of School Psychologists
- National Association of Schools of Music
- National Association of Schools of Public Affairs and Administration
- National Association of Schools of Theatre
- National Council for Accreditation of Teacher Education
- National Environmental Health Science and Protection Accreditation Council
- National Recreation and Park Association
- Organization of American Kodaly Educators
- 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 strong 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.

The University's Seal

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.

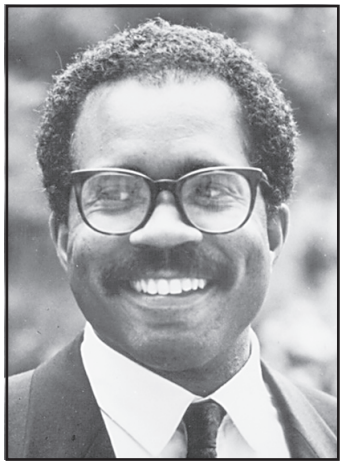
Between 1965 and 1968 an approximation of university organization was accomplished on the Fresno campus, and the transition to official university status in the state system became effective on June 1, 1972. The university is now comprised of The College of Agricultural Sciences and Technology, the College of Arts and Humanities, the Craig School of Business, the Kremen School of Education and Human Development, the College of Engineering, 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 2004, more than 19,700 students registered at California State University, Fresno.

The presidents, in order of tenure:

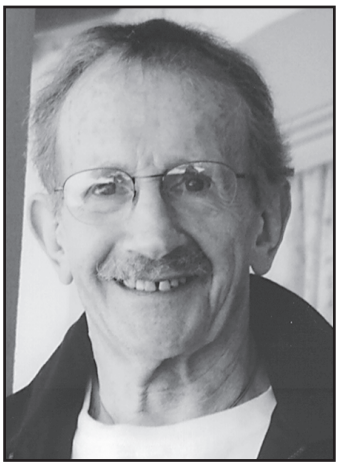
Charles L. McLane (1911-27)
Frank W. Thomas (1927-48)
Arnold E. Joyal (1948-64)
Frederic W. Ness (1964-69)
Karl L. Falk (Acting) (1969-70)
Norman A. Baxter (1970-80)
Harold H. Haak (1980-91)
John D. Welty (1991-)

University Lecture Series



Randall Kennedy

A Harvard law professor, Kennedy is the author of the book he describes as a "reminder of the ironies and dilemmas, the tragedies and glories, of the American experience."



Philip Levine

Winner of the Pulitzer Prize in 1995 for *The Simple Truth,* Levine taught literature and creative writing at California State University, Fresno from 1958-92.

The University Lecture Series

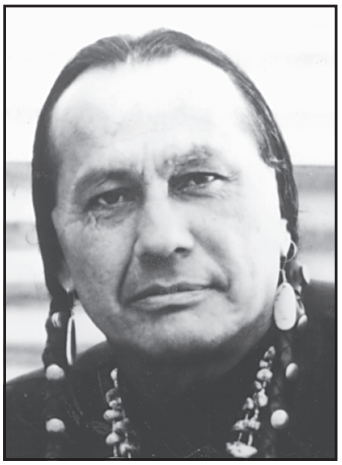
The University Lecture Series (ULS) brings distinguished scholars, performers, and public figures to California State University, Fresno. ULS programs stimulate and enhance the intellectual climate of the university and surrounding communities.

Featured speakers have included political activist and leader of the American Indian Movement Russell Means, legendary White House reporter Helen Thomas, Harvard Law Professor Randall Kennedy, poet Philip Levine, and professor of astronomy and anthropology Anthony Aveni.

A program of the Office of the Provost and Vice President for Academic Affairs, the Lecture Series receives additional support from Coke and James Hallowell, the University Student Union, Associated Students, Inc., Borders, and the Piccadilly Inn Hotels. For more information, call the University Lecture Series Office at 559.278.2431. ❖

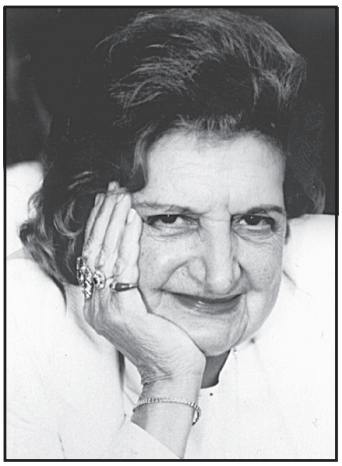
Anthony Aveni

A lecturer, speaker, author, and editor of more than two dozen books on ancient astronomy, Anthony Aveni is considered one of the founders of Mesoamerican archaeoastronomy. He is well known for his research in Mayan Indian astronomical history.



Russell Means

A political activist and leader of the American Indian Movement, Russell Means led the Indian insurrection at Wounded Knee in 1973. He has portrayed the pride of his people with his roles in *The Last of the Mohicans, Natural Born Killers,* and *Wind Runner*.



Helen Thomas

Legendary reporter Helen Thomas is known for her coverage of news from the White House. She was the only print journalist who travelled with President Richard Nixon when he visited China in 1972. She has also accompanied five presidents in their travels around the world and covered every economic summit. *World Almanac* named Thomas one of the most influential women in America in the 1970s.

University 1

University 1: Introduction to the University
Peters Building, Room 385
559.278.7766 • FAX: 559.278.6826
http://www.csufresno.edu/univ1_fmp
Albert Valencia, Ed.D., *Director*

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 and an enhanced ability to set goals and explore career options. It is designed to expand intellectual horizons and to help students acquire the necessary tools for future success by providing structures and activities that illustrate the relationship between psychological, sociological, and physiological processes.

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.

University 1 helps students master the demands of attending a university by answering important questions and by providing a framework for lifelong learning. More importantly, University 1 provides a greater understanding of what it means to be in an academic community and 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 elective credit while acquiring the survival techniques for a meaningful and successful college experience.

Topics Covered

Adaptation to Change, Study Skills/ Techniques, Goal Setting, Diversity, Time/Financial Management, Career Planning, Library Competence, Communication Skills, Human Sexuality, Wellness, Campus Resources ❖

University 1 students participate in a team-building exercise.

UNIV 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.

The Faculty Mentoring Program

The Fresno State Faculty Mentoring Program was established in 1987 as part of California State University's efforts to promote educational equity in higher education. The program is a unique experience that affords students the opportunity to interact with faculty in a setting other than the traditional classroom format.

Research demonstrates that one of the most important factors that contributes to the likelihood of college success is providing entering students with a faculty mentor. Fresno State is committed to educational equity and to providing students with a meaningful and rewarding educational experience. The university believes participation in the Faculty Mentoring Program will do much toward reaching these goals.

Each year, members of the Fresno State faculty are invited to serve as mentors to students. These faculty mentors provide guidance, friendship, and support. They also serve as role models for students. The faculty mentors come from a wide range of academic disciplines, including 49 departments and four university programs. All eight colleges/schools at Fresno State provide faculty mentor support.

To participate in the Faculty Mentoring Program, students should be freshmen, transfer, or reentry students. Students are also required to enroll in the course University 1: An Introduction to the University.

Diversity

California State University Fresno named Adam Van Dusen of Rocklin, an economics graduate, as 2004 President Medalist. Van Dusen, who represents the College of Social Science as the Dean's Medalist, is a four-year scholarship recipient from Fresno State's ROTC and a 4.0 student who was ranked No. 1 out of 4,681 senior students nationwide in the Army ROTC National Order of Merit last fall. The President's Medal winner, one of two that designate the university's top students, is selected from the nine undergraduate Dean's Medalists who represent the academic colleges and schools and the Division of Student Affairs.

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.

In closing, let me direct your attention to the statement in the next column 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.

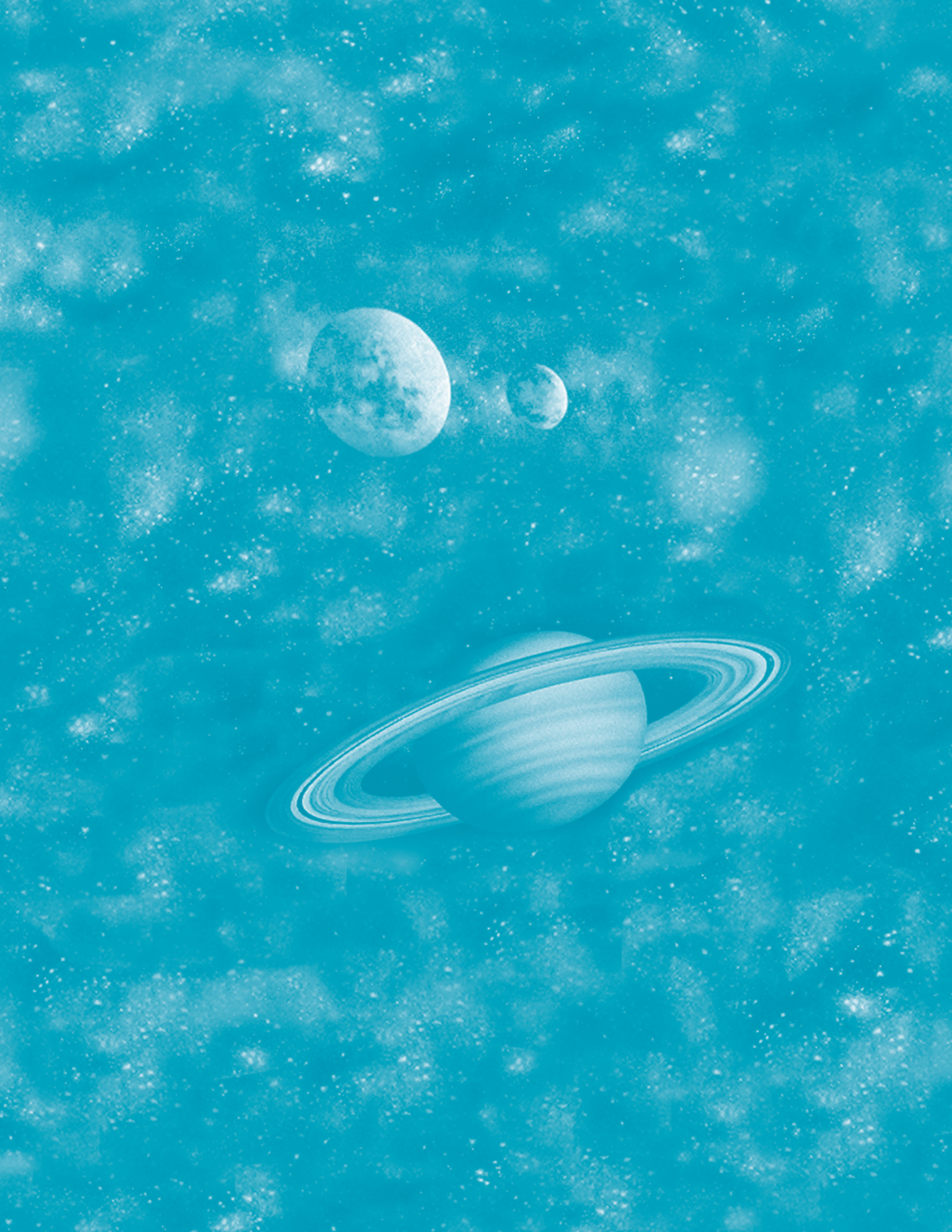
As an educational institution, the university will use its intellectual and persuasive powers to discourage offensive and harassing speech from occurring and to encourage civil exchange. The university will attempt to teach its students and employees to listen as well as to speak, and to do both with 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.

Fresno State

Discover
Yourself



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

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, Reentry Services, the Learning Resource Center, and the Intensive Learning Experience.

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.

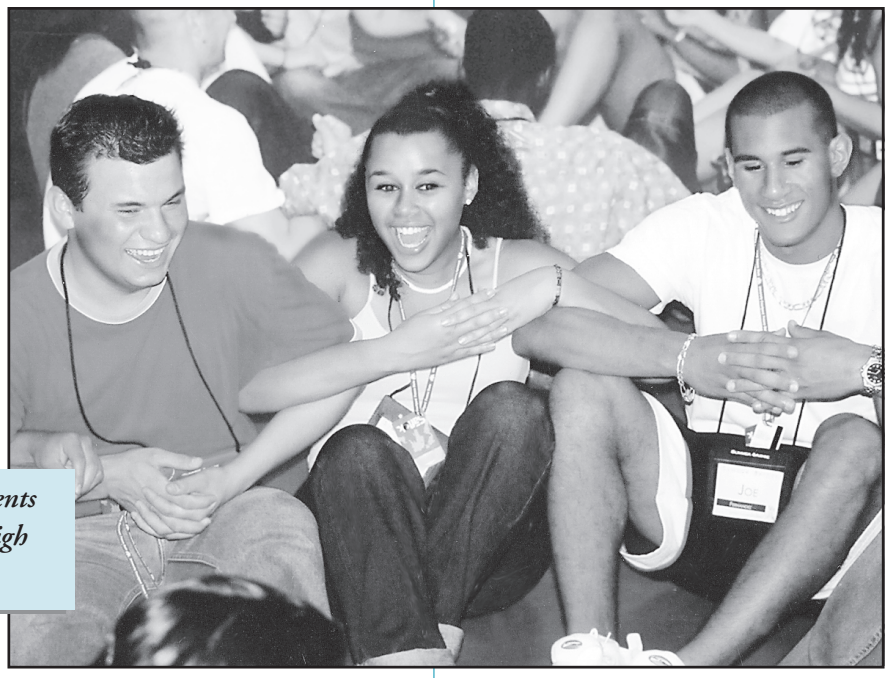
For more information, contact Summer Bridge, Joyal Administration, Rm. 224, at 559.278.6025.

University Migrant Services

University Migrant Services (UMS) serves students from migrant seasonal farm worker 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.

Advising Services

http://studentaffairs.csufresno.edu/advising

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 offer a one-hour workshop, COMPASS (Combining Opportunities to Meet Personal, Academic, and Student Success), designed for the student who has not declared a major or who is considering a major change. Further information is available in Joyal Administration, Room 224.

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.

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,* pages 75-76.) Petition forms to request a retroactive withdrawal are obtained in Joyal Administration, Room 106

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.

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 Academic Advising 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 Four-Year Graduation Plan

To facilitate graduation goals, a qualified first-time freshman may enter the Degree Guarantee Program to attain a baccalaureate degree in four years. The Degree Guarantee Program is a formal partnership initiated by a student before the end of the fourth week of his or her first semester. Certain provisions and regulations must be met.

(See *A Four-Year Graduation Plan*, pages 85-86.)

Advising Services
Student Affairs
Joyal Administration, Room 224
559.278.1787 • FAX: 559.278.2323
Maxine McDonald, *Acting Director*

Reentry/Transfer Students

We specialize in the changing needs of adult learners and transfer students. Older students tend to have strong motivation, coupled with an eagerness to learn. At the same time, students returning to school — especially transfer students — often face complicated circumstances. Once you have been admitted to the university and have attended DOG DAYS, we can help you address these complex academic/life/career issues and provide the appropriate referrals if needed.

DOG DAYS: New Student Orientation

DOG DAYS is highly recommended for all new undergraduate students — first-time freshmen and transfer students — to help them make a smooth transition to the university. The excitement that comes with starting university life can be tempered by fears that come with starting a new experience.

DOG DAYS: New Student Orientation offers students ways to overcome fears, attain their educational goals, and feel more at home at Fresno State. DOG DAYS will help students feel a connection to the campus. It provides an opportunity to meet with an academic dean, with faculty, and with an academic advisor. It also helps students select courses compatible with university requirements, their goals, interests, and abilities. DOG DAYS familiarizes new students with campus services and highlights opportunities to get involved; it also provides assistance with on-line class registration and affords attendees an earlier registration date.

Parents are invited to attend special orientation sessions that will provide answers to questions about academic, financial, and co-curricular opportunities. Specific topics for parents include parent transition/letting go, academic requirements, University 1; student rights and responsibilities; housing, health, and public safety; parent association; financing education; and classroom activities. Also available are campus, library, and housing tours; the resource information fair; and an opportunity to meet academic deans.

DOG DAYS: New Student Orientation introduces and connects students to the essential elements that have proven to be critical to student success and launches students on a successful journey toward their personal and academic goals.

For more information, contact the DOG DAYS Office at 559.278.4885. ❖

EmBARKing on Student Success

Fresno State Alumni Association

Fresno State Alumni Association
559.278.ALUM
Smittcamp Alumni House
559.278.2761
www.fresnostatealumni.com
Jacquelyn K. Glasener, *Executive Director*

Fresno State Alumni Association

The origin of the Fresno State Alumni Association dates back to the first Fresno Normal School graduating class of 1912. An informal group of alumni met frequently to discuss how they could serve their school. Their association was founded upon mutual respect, motivation toward community service, pride in one's alma mater, and genuine concern for the school's future.

The Fresno State Alumni Association was incorporated in 1940 to promote higher education; encourage communication among alumni, friends, and former students; and support bilateral exchange and participation between community and university.

More than 180,000 Fresno State graduates have migrated to every state in the nation; many have located abroad. The university maintains database records of more than 236,000 alumni and friends of the university. Annual dues-paying members number approximately 4,750 and Life members number approximately 2,000.

The Fresno State Alumni Association is governed by a 30-member board of volunteers who represent all schools and colleges of the university, as well as students, staff, and faculty. The university president, the vice president for University Advancement, and AS President each have a position on the Board of Directors, also.

Membership

Membership is open to students, graduates and friends of the university. Dues-paying members receive a monthly informative newsletter via e-mail, "The Bulldog Byte."

Academic and Regional Chapters

The Fresno State Alumni Association has several chapters. These alumni chapters sponsor programs, workshops, reunions, and activities for their constituents.

Smittcamp Alumni House

Standing near the main entrance of Fresno State, the Smittcamp Alumni House welcomes past, present, and future Bulldogs and their friends to campus.

Scholarships

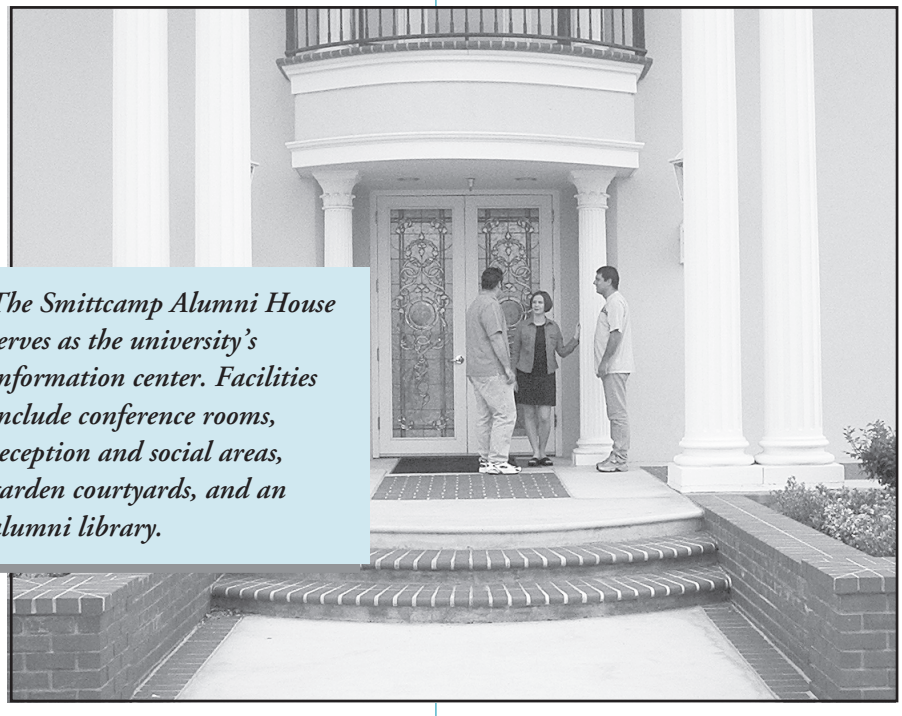
Fresno State students may apply for the many Fresno State Alumni Scholarships ($85,000 in total) through the Scholarship Office. Awards are made to undergraduate and graduate students based on need, scholarship, leadership, involvement, and financial need.

Events and Programs

The Fresno State Alumni Association co-hosts various events and programs throughout the year including the Top Dog Alumni Awards Gala, Homecoming, Vintage Days Suds and Grub Garden, Grad Fair, Commencement Sales, and the Golden Grad Society Reunion. The Alumni Association also sponsors the photographs taken at each commencement. ❖

Alma Mater

Let us in song, our voices raise
In cloistered courts, to sound thy praise.
Each voice and heart that sings is true
To thee, oh, cardinal and blue.
For thee, our hopes and memories;
For thee, our hearts and loyalties.
Thy sons and daughters hail thee great,
Our alma mater, Fresno State!



The Smittcamp Alumni House serves as the university's information center. Facilities include conference rooms, reception and social areas, garden courtyards, and an alumni library.

Associated Students

Associated Students, California State University, Fresno
Student Affairs
University Student Union, Room 316
559.278.2656
FAX: 559.278.2720
http://www.csufresno.edu/studentgovt

Associated Students

As the recognized student body government organization, 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 students' 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, and vice president of finance. Fifteen senators are elected either as representatives of their academic college/school or as at-large senators. There are eight academic representatives: agricultural sciences and technology, arts and humanities, business, education and human development, engineering and computer sciences, health and human services, science and mathematics, and social sciences.

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

How Do I Become a Member of Associated Students?

Enrolled students at Fresno State are automatically members of the Associated Students. Students can get involved in Associated Students programs, services, and governance by contacting the Associated Students office or by visiting the Web site listed above.

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.

How do I get involved?

There are many exciting opportunities for involvement in Associated Students. Please visit the Associated Students' Web site or call the office for more information.

Programs and Services

Within the annual operating budget, funds are allocated to student organizations, campus newspapers, intramural and club 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. Annually, $95,000 is budgeted for recognized student clubs and organizations.
- **Educational Research and Project Grants.** Educational Research and Project Grants (ERPG) offer financial support to both graduate and undergraduate research projects (under faculty supervision) in all academic disciplines. See the Associated Students' office for details.
- **Instructionally Related Activities.** This program, which is administered by Associated Students, provides funding for activities and laboratory experiences that are partially sponsored by an academic program, discipline, or department and that are integrally related to Associated Students' instructional offerings. More than $500,000 was allocated in the 2003-2004 school year. Applications are available at the Web site. For more information, contact Associated Students.
- **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 the 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
Scott Johnson, *Athletics Director*

Athletics

Academic excellence and athletics 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 to enrich their collegiate experience 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, tutoring, and daily study halls.

Facilities

Bulldog Stadium, home of the football and women's soccer teams, has 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 5,767 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/racquet 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 resplendent Spalding G. Wathen Tennis Center.

In 2003, Fresno State opened the Save Mart Center, the largest on-campus arena on the West Coast with a capacity of 16,116.

Men's Intercollegiate Athletics

Baseball. The Bulldogs have advanced to the NCAA tournament 12 of the last 16 years and 28 times overall, including three College World Series appearances.

Basketball. Fresno State has advanced to postseason play or a conference title in nine of the last 10 years. In 2002-03, the Bulldogs won 20 games and the WAC title.

Track and Field. The track and field team won 10 straight league crowns from 1983-1992.

Football. The Bulldogs tied for the WAC championship in 1992, 1993, and 1999 and appeared in straight bowl games. Fresno State's 17-9 victory over UCLA in the 2003 Silicon Valley Football Classic was its second consecutive bowl win and the program's first ever win over the Bruins.

Golf. Fresno State finished in the top 25 nationally 13 times in the past 23 years. The team was ranked as high as number four in the nation in 1999-00. In 2003, the Bulldogs captured their third WAC championship title since Fresno State's inception into the WAC in 1992. Nick Watney joined the PGA in the spring of 2003.

Tennis. The Bulldogs have received an NCAA birth 10 of the last 11 years. Fresno State reached the national quarterfinals in 1996 and the Sweet 16 in 1995, 1997, and 1999. The team garnered five All-Americans in that span.

Wrestling. Fresno State finished in the top 25 nationally in 10 of the last 12 seasons. Stephen Abas, one of Fresno State's most garnished wrestlers, won the 125 pound division NCAA title in 1999, 2001, and 2002.

Women's Intercollegiate Athletics

Basketball. In 2002-03, the Bulldogs advanced to the WNIT quarterfinals and finished 21-13 overall under the direction of head coach Stacy Johnson-Klein.

Cross Country/Track and Field. The Bulldogs have built powerful track and field and cross country programs. In 1991 and 1992, the track team won consecutive crowns. It also won the 2002 outdoor WAC championship.

Equestrian. The Bulldog equestrian team had its first individual champion in 1998, with five individuals placing in the top nationally in their respective events. Fresno State had varsity national champions in 2002 and 2003 and had champions for Zone 8, Region 1 in 2004.

Golf. Fall 2004 marked the implementation of the first women's golf program. Fresno State anticipates that it will be a successful competitive program.

Soccer. In 2003, Fresno State ranked No. 3 nationally in average match attendance. In 1999, the Bulldogs won the WAC regular season and received a NCAA tournament berth.

Softball. The Bulldogs won the 1998 National Championship. The team has received 23 consecutive NCAA berths, and is the only softball program in the nation to accomplish that feat.

Tennis. The Bulldogs have received an NCAA berth in nine years in a row. They have won the WAC title three consecutive seasons and four times overall since 1999 (1999, 2002-04). In 2004, Fresno State was ranked in the top 10 nationally and reached the round of 16 for just the third time ever. In addition, Jelena Pandzic reached the national championship match of the NCAA Singles Tournament.

Volleyball. With eight 20-win seasons in the last 13 years, Fresno State has six post season appearances overall, including three trips to the NCAA tournament.

Auxiliaries

Auxiliary Corporations
2771 East Shaw
Fresno, CA 93710
559.278.0800
http://www.auxiliary.com/

Auxiliaries

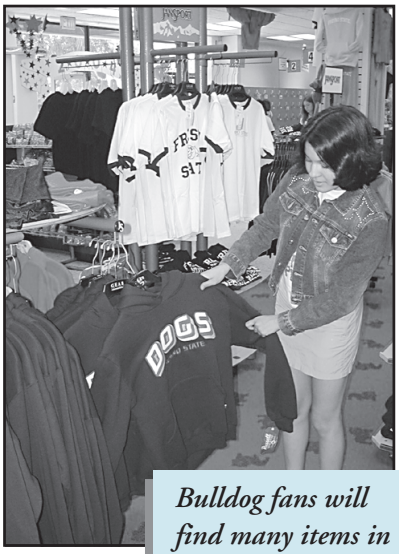
The auxiliary corporations are nonprofit public benefit entities organized and operating for the purpose of assisting California State University, Fresno in the attainment of its educational mission. Auxiliary organizations must be self-supporting and do not receive funding from general fund sources. Fresno State has six auxiliary organizations — Associated Students, Inc.; Athletic Corporation; California State University, Fresno Association, Inc.; California State University, Fresno Foundation; the Agricultural Foundation of California State University, Fresno; and Fresno State Programs for Children, Inc. Auxiliary corporations provide direct and indirect services for Fresno State students.

The California State University, Fresno Association, Inc.

This corporation operates the Kennel Bookstore, University Food Services, University Courtyard, and University Student Union. It provides management, accounting, and professional services to other campus auxiliary organization. Through the support of various university projects, the Association is a major contributor to the university.

The Association is governed by a board of directors. 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, think of the California State University, Fresno Association, Inc.:

- The University Student Union, Satellite Student Union, and the Pavilion



Bulldog fans will find many items in the Kennel Bookstore, such as this Fresno State sweatshirt.

- The Kennel Bookstore (*www.kennelbookstore.com*)
- University Courtyard (*www.universitycourtyard.org*)
- The Save Mart Center (*www.savemartcenter.com*)

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.

Governed by a board of governors, the Foundation provides the campus community with high-quality financial services while generating funds to support university programs and activities.

The Agricultural Foundation

This auxiliary provides financial support for the management of the University Farm Laboratory and student project program for the College of Agricultural Sciences and Technology. The Agricultural Foundation is governed by a board of directors.

The Agricultural Foundation provides the funding, land, animals, orchards, and vineyards for students to receive practical experience in agriculture. Students raise livestock and grow all types of crops on the University Farm. Many of the products are sold through the campus Farm Market. ❖

Copy services are available downstairs in the Kennel Bookstore next to the Pavilion.

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
Jim Forden, *Acting 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 an option in

- Administration and Supervision

Credential

- Multiple Subject/CLAD
- Administration and Supervision

Student Services

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

- Admissions
- Registration (Online, 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
559.278.2381
http://www.fresnostatecareers.com
Robert Hernandez, *Interim Director*

Students learn about careers at the Job Fair.

Career Services

Fresno State's Career Services (CS) office will connect your education with the careers of the future. Our services are designed to promote your career development, job/internship search, graduate school and/or professional endeavors. This service is free to currently enrolled students and is available to alumni for a nominal fee.

Services

CS provides services that help you develop and implement your career plan. These include the following:

- Career Counseling
- Career Direction for Undeclared Majors
- Career Testing
- Part-time, Summer and Full-time Job Listings
- Paid Internships
- MonsterTRAK - the largest and most popular online job listing service, *www.monstertrak.com*
- *BulldogJobs.com* - Part-time jobs in the greater Fresno area
- Eureka and Sigi Plus - computerized career guidance programs
- Computers for Job Search
- On-Campus Interviews via InterviewTRAK
- Resume Critique
- Resume and Interviewing Workshops
- Career/Job Fairs
- Job Strategies and Employment Information for People with Disabilities
- Community Service Scholarships
- Scholars Service Grants
- Career Resource Library
- Salary Trends
- Professional Etiquette and Ethics

Education Career Services

Located in the Education Building, the Education Career Services Office welcomes students and alumni to visit or make an appointment with a counselor. Services are designed to prepare you for a job search in the field of education whether you are just entering the Teacher Credential Program or whether you have completed all required credential work.

- Counseling and Advising
- Workshops: Resume Writing, Interviewing Skills and Placement Files
- Online Services
- Teacher Recruitment Fairs
- Resource Library
- Job Listings: Register on MonsterTRAK

Visit Education Building, Atrium, Room 18 to take advantage of these services, or call 559.278.6524 for more information.

Alumni Career Services

You may be a Fresno State alumni faced with a wide range of professional choices … or perhaps you are ready to change your career path altogether … and you are looking for exciting new options. Alumni Career Services provides high quality, accessible career services (see services above) focused on educating and empowering our alumni with the information to manage their job searches and careers. Seeking employment in this new and incredibly different job market can be challenging. Let us help you with your job search and your career management.

A Career Services 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 available on the World Wide Web.

Continuing and Global Education - Extension Programs

Extension Programs Office
Education Building, Room 130
559.278.0333
http://www.csufresno.edu/ExtendedEd
Berta González, Ed.D.
Associate Vice President

The Extension Programs Office is conveniently located in the Education Building, easily accessible to the public.

Extension Programs Office

The Extension Programs Office 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.

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 non-credit.

Extension Courses

Various academic departments offer conferences, institutes, workshops, seminars, and courses at several sites throughout the university's service area through the Extension Programs Office.

Open University

Open University provides an opportunity for those individuals who are not matriculated at the university to enroll in regular courses. 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.

Summer day camps for children are among the many Extension Programs open to students of all ages.

Non-credit 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 weekend classes designed for working professionals and held at selected locations throughout the Central Valley.

For a catalog of Extension Program offerings, call the Division of Continuing and Global Education at 559.278.0333. ❖

Continuing and Global Education - International Programs

International Programs Office
Family and Food Sciences, Room 111
559.278.6452 • FAX: 559.278.4203
http://www.csufresno.edu/International_Programs
Berta González, Ed.D.
Associate Vice President

International Programs

The university encourages global understanding through academic exchange and cooperation. Toward this end, the university is constantly broadening its base of partnerships with universities around the globe. Many institutions in more than 20 countries offer Fresno faculty, staff, or students opportunities for teaching, research, or study abroad, or they send their faculty, staff, or students to this campus.

A faculty advisory council works with International Programs to assist in these tasks.

For further details, refer to the Website at *http://www.csufresno.edu/International_Programs*.

Study Abroad for Students

Several programs allow students to complete part of their studies in other countries.

The university offers two "semester abroad" programs:

- The London Semester
- The Armenian Semester

Fresno faculty lead short-term travel study programs to other countries each summer.

Through CSU International Programs and through the University Studies Abroad Consortium, students have a wide range of study abroad opportunities.

(See *International Programs* under the Special Programs section on pages 481-482.)

Faculty/Staff Opportunities

Partnerships with universities in other countries provide ways for campus faculty and staff to teach or pursue research abroad, attend international conferences, or offer special training overseas. Positions with study abroad offer enriching international experiences in programs such as Visiting Professors or Resident Directors, as well as in a variety of fellowship programs (Fulbright, Rotary, CSU International Programs, University Studies Abroad Consortium).

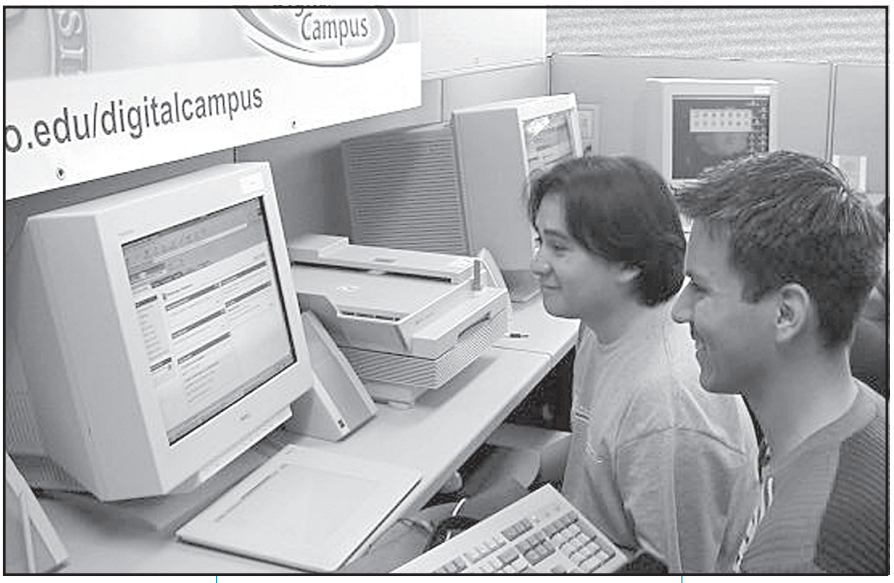
Visiting Scholars

Each year departments and colleges host visiting scholars from other countries who engage in research, offer lectures, and enrich the campus with their expertise. ❖

For the experience of a lifetime, contact the International Programs Office at 559.278.6452.

Digital Campus

Digital Campus Resource Center
Industrial Technology Building, Third Floor
559.278.6892
http://www.csufresno.edu/digitalcampus/
digitalcampus@listserv.csufresno.edu



The Digital Campus

The Digital Campus serves Fresno State students, faculty, and staff by providing access and support for Blackboard — an online course management system used for delivering dynamic, interactive online courses and for fostering online communication for campus organizations.

Whether here on campus or located remotely in the region or overseas, enrolled students can participate in the Digital Campus experience by taking either Web-enhanced courses that supplement the traditional classroom experience or Web-based courses.

Blackboard

Digital Campus online courses are delivered through Blackboard, a powerful Web-based e-Learning portal system. Students have access to the Digital Campus with a single login at *http://blackboard.csufresno.edu/*.

Students have 24x7-access to Blackboard in order to do the following:

- View or print syllabi and lecture notes
- View video and audio provided by faculty
- Engage in discussions with fellow students
- Meet faculty and students in a virtual classroom
- Submit assignments via the Digital Drop Box
- Take quizzes and exams online
- Check grades

Course Catalog

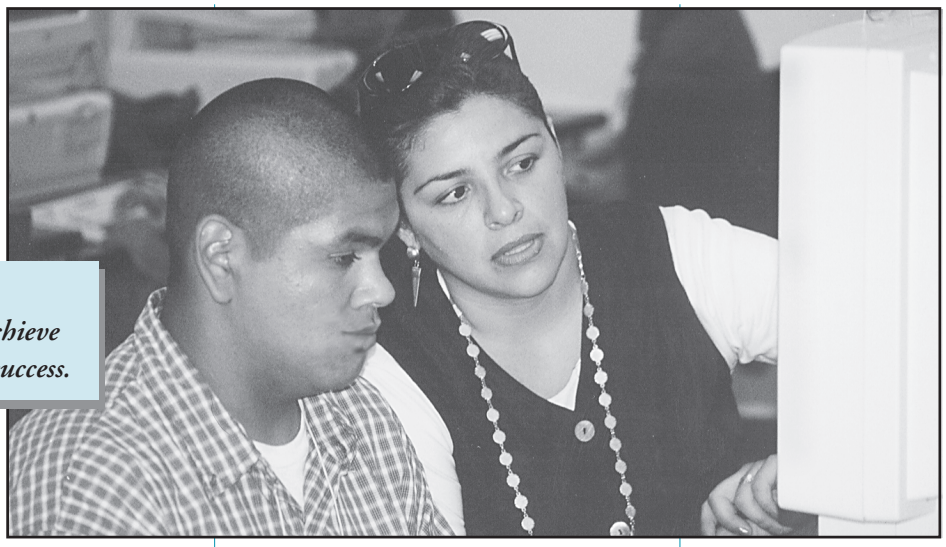
A listing of courses hosted by Digital Campus is available by going to *http://blackboard.csufresno.edu/* and clicking on the Course Catalog button. The courses listed use Blackboard to enhance or replace traditional face-to-face instruction. Some courses allow guest access by providing a Preview button.

Here to Help

In the fall semester of 2004 more than 18,000 students and 600 faculty participated in Digital Campus online courses. The Digital Campus provides training for students, faculty, and staff through workshops, one-on-one consultation, and drop-in assistance. Digital Campus is located on the third floor of the Industrial Technology building. The staff of instructional designers, trainers, technologists, and production assistants are available to help.

Educational Opportunity Program

Educational Opportunity Program
Student Affairs
Joyal Administration, Room 224
559.278.1787
http://studentaffairs.csufresno.edu/eop/
Maxine McDonald, *Director*



EOP helps students achieve academic success.

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 first-time undergraduate applicant to the CSU system, a California resident, and come from a family with a history of low income. 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. EOP students transferring from another CSU campus are also eligible to apply.

Services for EOP Students

Services designed to support and assist EOP students in developing their academic potential include the following:

- preadmission counseling
- orientation programs
- special summer program — a four-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

EOP 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 EOP application from the EOP office 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 scores ❖

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.

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 little 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, health educators, clinical laboratory and X-ray technologists, and a medically knowledgeable and sensitive clerical staff. Part-time physician consultants in psychiatry, radiology, and dermatology may also be 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 may have 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 is a modest charge 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 some services. 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. Full-time health educators develop and coordinate 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
http://www.universitycourtyard.org/
Karen L. Johnson, *Director*

On-Campus Living

Your future begins here — choose to live at University Courtyard, Fresno State's on-campus living area. 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.

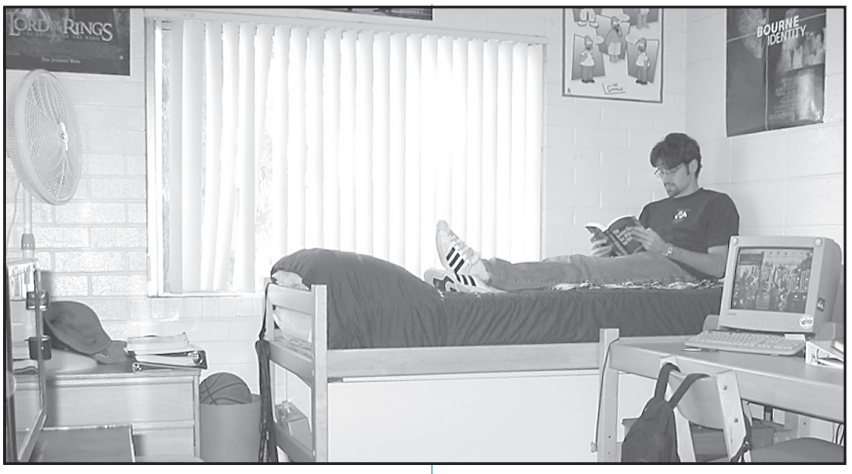
Residence Hall Living

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 include 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 alcohol-free living areas are available. All halls house men on one wing or suite and women on another. Bathrooms are gender designated. Up



to 1,100 students can live on campus. The majority of the rooms are shared by two students. A limited number of single rooms are available first to returning residents, then to new students. Triple beds 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 residence life coordinators, resident directors, assistant resident directors, resident advisers, and public safety assistants. Serving as student leaders on each floor, residence life staff receive training in paraprofessional helping skills 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 January (subject to change) for the academic year and spring semester. You are encouraged to call the Housing Office at 800.555.0482 or 559.278.2345 to request an On-Campus Living Application packet as soon as you apply to the university. You are urged to return your completed application by April 1 as University Courtyard was full for 2004-2005. Housing is subject to availability at the time your completed on-campus living application is received or placed on a waiting list. Your license agreement is for an entire academic year. (Exception: spring semester.)

All first-time undergraduate university applicants automatically receive housing information after they are accepted to the university. 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).

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.

Off-Campus Housing

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/
Darrell Martin, *Interim Director*

Resources and Services

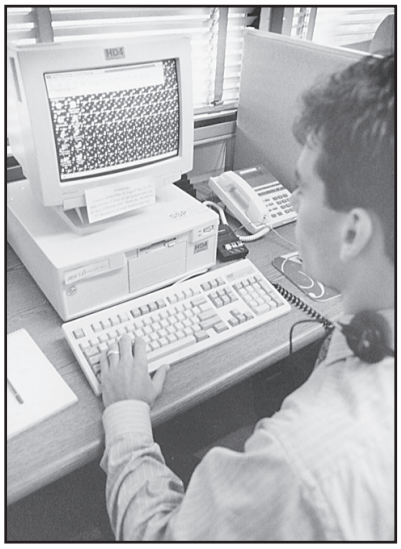
Information Technology Services (ITS) offers a broad range of resources and services to the students, faculty, and staff of California State University, Fresno.

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 Internet access. To request an account, currently enrolled students should apply on the web at *email.csufresno.edu*. Faculty and staff may request an account by completing a form on the Web at *help.csufresno.edu*.



World Wide Web Services

ITS maintains several 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.

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 Windows 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 (via phone or Web) Monday through Friday from 7 a.m. to 10 p.m. and weekends from 1 p.m. to 10 p.m. Faculty and staff should call 559.278.5000. The Help Desk can also be reached electronically by pointing your browser to *help.csufresno.edu*.

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 ITS Web site (*help.csufresno.edu*) for a list of campus labs.

Internet Services

Central Valley Internet Project (CVIP) was established in 1996 to promote the use of technology in the Central Valley. It provides a low-cost Internet access alternative for students, educators, Fresno State alumni, and local government employees.

CVIP is a not-for-profit organization owned and operated by California State University, Fresno. All funds received by CVIP are reinvested in instructional programs and technology upgrades to increase the university's ability to provide a cost-effective, reliable, and quality Internet service. CVIP offers unlimited toll-free, dial-up and broadband Internet access throughout the Central Valley.

To obtain Internet access through CVIP, please go to *www.CVIP.net*, or call 559.278.1111, Monday through Friday, 8 a.m. to 5 p.m. Or visit the CVIP office located in the Bulldog Plaza Shopping Center at the corner of Cedar and Barstow avenues in Fresno, Monday through Friday, 8 a.m. to 5 p.m. On campus, visit the CVIP store in the University Pavilion; hours are Monday through Friday 8 a.m. to 5 p.m. ❖

International Student Services and Programs

International Student Services and Programs
Student Affairs, Joyal Administration, Room 211
559.278.2782 • 559.278.2409 (Admissions)
http://studentaffairs.csufresno.edu/international_students
Carol B. Munshower, *Director*
Caroline Williams, *Assistant 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

Our international admissions staff members process your application for admission and evaluate your courses for transfer credit. 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, Campus Program* under the Special Programs section.) Visit our Web site for the latest information. (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 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 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 international student counselors 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 student-centered programs of the highest quality for international students, staff, and faculty 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 culturally sensitive support services to international students to maximize their success and meet challenges together;
- to working with international students to build a home away from home where they have the opportunity and encouragement to pursue their dreams, develop leadership potential, become involved in the university community, and have their efforts recognized;
- to encouraging international students to ask questions and offer suggestions while we address their concerns with respect, reassurance, and understanding;
- to providing programming and resources to faculty and staff to facilitate intercultural understanding and cross-cultural communication;
- to enabling the campus community to understand the unique needs of international students;
- to assisting international students in complying with immigration regulations while educating the campus community regarding the importance of those requirements; and
- to offering our friendship today and tomorrow as we work together to build a better world.

Learning Resource Center

Learning Resource Center
Student Affairs, Lab School, Room 137
559.278.3052
Sonya L. Hildreth, *Coordinator*
Ray M. Sanchez, *Tutorial Coordinator*
http://end.at/lrc

Learning Resource Center

Participating in your future is the motto of the LRC. Our mission is to assist you to become a more autonomous, self-directed learner who assumes greater responsibility for directing your own learning. We assist you in moving from rote memorization and a "pass the test" model of studying to a problem-posing, critical-thinking model.

In addition, the LRC offers workshops, handouts, and individual appointments on how to improve learning skills in areas such as

- time management
- textbook reading
- note taking
- test preparation
- memorization
- learning styles
- relaxation and meditation techniques.

University Tutorial Services

Tutoring is available to all currently enrolled Fresno State students.

Drop-in tutoring is available in many subject areas. Frequently requested subjects include mathematics, statistics, physics, accounting, foreign languages, computer science, chemistry, biology, plus many more.

Writing tutors are available to work with you on writing assignments from any academic discipline.

Our **English as a second language writing tutors** are particularly helpful with writing assignments if your primary language is not English.

General Education tutors will assist you with a variety of academic questions and problems in most lower-division courses. They can also assist you in understanding class assignments and developing independent learning techniques.

Center staff can assist you in forming weekly **study groups** of three or more students in challenging classes.

Tutors are recommended by faculty and are required to complete a certified tutor training program. Continuing professional development is provided and expected. The LRC offers national tutor certification at three levels through the College Reading and Learning Association.

Evening tutoring is available on a per semester basis as needed. Call or visit our Web page for tutoring times, workshop schedules, applications, and updated information on events in the Center.

The Intensive Learning Experience (ILE) Program

The mission of the ILE Program is to increase retention and graduation rates of under-prepared college students.

The ILE Program provides academic assistance to freshmen scoring at or below the lower quartile on the EPT (total 141) and or the ELM (30 or below).

Assistance includes individual learning assessment, academic counseling, and tutoring. The ILE Program partially supports basic skills courses offered through the departments of English, Linguistics, and Mathematics.

University 20 Course

University 20 (Academic Learning Strategies) is available to students interested in focused study in a seminar setting on how to improve academic performance. UNIV 20 counts as a 3-unit elective toward graduation.

Services to Faculty and Departments

LRC staff and tutors are available to conduct classroom presentations on Center tutoring services or learning skills, provide assistance in forming study groups for students in your class, offer specialized tutoring in high risk classes, consult with you on how to incorporate learning skills into the curriculum, and collaborate on research regarding student success.

Departments are invited to send departmental tutors to our excellent tutor certification program.

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*

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.)

Online System. ALIS includes an online catalog 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 a million volumes on all subjects and in many languages, as well as a large number of periodicals in microform.

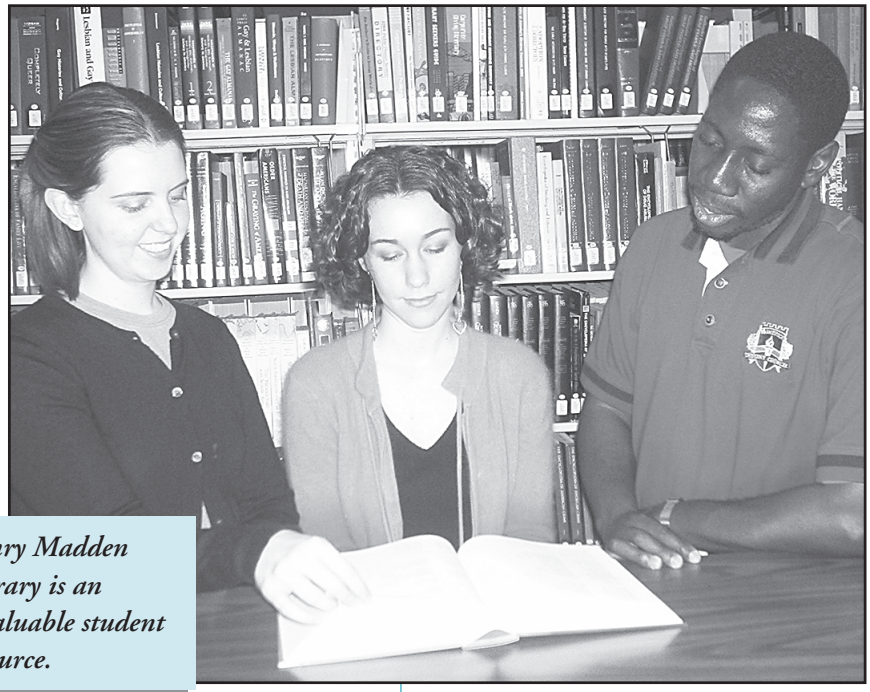
Periodical Subscriptions. The library subscribes to more than 2,500 periodicals from all over the world. A complete and current list may be found in ALIS.

Government Publications. The Government Documents Department is a selective depository for United States and California documents, containing more than 275,000 documents on all topics.

Specialized Collections. The library contains a Curriculum/Juvenile Library, and a Music Library and Map Library that are among the largest in the CSU system. A Special Collections Library houses rare books, materials on local and state history, and other specialized collections. The Central Valley Political Archive documents the contributions of San Joaquin Valley federal and state political figures.

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.



Henry Madden Library is an invaluable student resource.

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.

The Information Competence Center provides assistance in the use of 20 PCs connected to ALIS, databases, and the Web. The PCs have several Microsoft applications.

Access to Databases. The library provides access to dozens of periodical databases on a wide range of subjects. Some provide citations and abstracts, while others provide the complete text of articles. Databases are available at library workstations, on hand-held PCs available for in-library use, 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. Fresno State KeyCards may be used on copiers and to make paper copies of microfilm and microfiche. Library Copy Cards may also be purchased from dispensers 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 121
559.278.2048
http://www.gotofresnostate.com/ • http://studentaffairs.csufresno.edu/
Frances Peña-Olgin, *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 college 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.

Open House

University Open House is designed for prospective students and their parents to learn more about attending Fresno State. The event features academic programs, information workshops, and tours of the campus facilities. The highlight of the event is an on-the-spot admission program for eligible students.

Preview Day

Preview Day offers a unique opportunity for entering first-time freshmen and transfer students to visit the campus and participate in a classroom setting that is similar to what they will experience as students at Fresno State. Preview Day is designed to give students a closer look at our campus and a chance to interact with faculty.

Step to College

The Step to College Program helps high school juniors and seniors get a head start on their college education. Students can explore subjects not offered at their high school and earn university credit.

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. ❖

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

Services for Students with Disabilities

Services for Students with Disabilities
Student Affairs
559.278.2811
TTY: 559.278.3084 • FAX: 559.278.4214
http://studentaffairs.csufresno.edu/ssd
Carole Snee, *Director*

Services for Students with Disabilities

Services for Students with Disabilities (SSD) provides specialized resources that help students with physical, psychological, 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.

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 disabilities include the following:

- readers
- scribes
- sign language interpreters
- real time captionists
- notetakers
- audio-taped and electronic textbooks
- assistive equipment and software
- print enlargement
- speech input and voice output programs
- Braille embosser
- testing accommodations
- disability management

Other services provided include career exploration, campus-to-career preparation, adaptive technology training, and small group experience. Service delivery emphasizes personal growth and development as well as independence and self-advocacy.

Requesting Services

Students with disabilities may visit the SSD office to document the disability and to initiate a request for services. Upon receipt of verification from a former campus or an appropriate professional, SSD will schedule a meeting with a disabilities management specialist to establish services.

The SSD Office is a resource for students with disabilities.

Students who believe that they may have a disability, but do not have prior verification of a disability, may 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

California State University, Fresno is one of the most accessible university campuses in California. The climate is moderate and the flat terrain poses few mobility obstacles. However, for those individuals who may experience mobility difficulties, the campus provides an on-campus transportation service called SCOUT.

The campus is committed to reducing and eliminating structural obstacles as well as providing accessible elevators, restrooms, drinking fountains, telephones, and TTYs (text telephones). Blue curb parking, campus accessibility maps, on-campus wheelchair loans, and other aids are also available. Some science laboratories have wheel chair accessible stations and others will be added as labs are remodeled.

Students' 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.

University Commitment

California State University, Fresno is committed to meeting the spirit and letter of the Americans with Disabilities Act. SSD staff members work with all areas of the university to reduce or eliminate physical, academic, and other barriers. ❖

Student Activities

Student Activities and Leadership Development
Student Affairs
University Student Union, Room 306
559.278.2741
Gary Nelson, *Coordinator*
http://studentaffairs.csufresno.edu/studentact/

During Vintage Days, students and members of the community can visit artists' booths and enjoy a variety of activities.

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, 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/Recreation Program, student leadership development, 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, Welcome Week, New Student Convocation, Greek Week, Multicultural Student Leadership Conference, Diversity Awareness Program, Student Health Insurance Plan, Cross-Cultural Retreat for Student Leaders, and the Student Services Expo. ❖

Student Affairs

Office of the Vice President for Student Affairs and Dean of Students
Joyal Administration, Room 262
559.278.2541
Paul M. Oliaro, *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 activities and student services. 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
- Central California Educational Opportunity Center
- College Assistance Migrant Program
- CSU Sober Driver Initiative
- Development and Scholarship Programs
- Educational Opportunity Program
- Educational Talent Search
- Financial Aid
- GEAR UP (Mendota Gaining Early Awareness and Readiness for Undergraduate Programs)
- International Student Services and Programs
- Learning Resource Center/ Intensive Learning Experience
- Reentry Program
- Registrar's Office
- Services for Students with Disabilities
- Student Activities and Leadership Development
- Student Support Services Program
- Summer Bridge Program
- Testing Services
- University Courtyard
- University Health and Psychological Services
- University Migrant Services
- University Outreach Services
- University Student Union
- Upward Bound Program/ ESL Upward Bound
- Women's Resource Center

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

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. ❖

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
University Center, Room 125
559.278.4768
FAX: 559.278.6654
http://www.camp.csufresno.edu

The College Assistance Migrant Program (CAMP) at California State University, Fresno provides retention services to university students from migrant and seasonal farm worker 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 preadmission testing, parent orientations, and college tours.

Student Support Services
Peters Annex Trailers
559.278.1000
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/upwardbound

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. ❖

Students for Community Service

Students for Community Service
Academic Affairs
559.278.7079
Chris Fiorentino, *Director*
http://www.csufresno.edu/scs

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 learning 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 and experiential 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 box.)

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 Class Schedule with an "S" designation. (See page 94.) Additional details can be found at *http://www.csufresno.edu/sl*.

Who Should Get Involved?

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 be successful in all your endeavors.

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

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. ❖

"The opportunity to serve the community enriched my life far more than I imagined. I donated my time and in return I gained knowledge, leadership skills, self-esteem, and great memories. Volunteering also helped me relate what I've learned in all my classes to the real world—it all ties together and makes sense now."

Mitchell Casados,
Fresno State Student

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

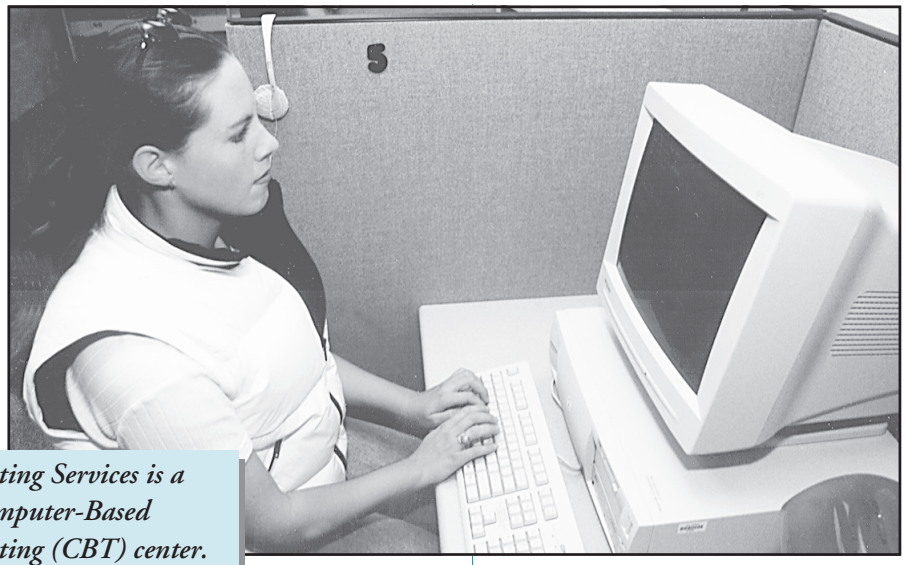
COMS 1. Community Service-Learning (1-3 units)
Provides a community service-learning experience where students apply their academic knowledge and skills to community-based issues and needs. Experiential learning will be enhanced through class discussions and presentations on topics related to community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

COMS 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 service hours with a nonprofit agency of their choice. The required number of service hours is determined by the course and number of COMS units. For more information, contact the SCS director or visit the SCS Web page.

Testing Services

Testing Services
Student Affairs
Family and Food Sciences, Room 110
559.278.2457 • FAX: 559.278.3583
Phyllis Redfield, *Test Officer/Coordinator*
http://www.csufresno.edu/testing



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

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 that will help those involved make sound academic decisions. Towards that end, the office coordinates and administers a wide variety of standardized tests as well as maintains a supply of bulletins for them. These include tests used for admission to colleges, universities, and professional schools; tests for proper placement in English and math classes; tests that assess the writing skills required of graduates of this university; and tests that assess preparation and potential for success in graduate schools and programs.

Also available, on a referral basis from academic or career counselors, are several tests designed to measure career interests and personality characteristics. In addition, 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.

Testing Services includes a Computer-based Testing (CBT) center, open Tuesday through Friday and some Saturdays. Anyone needing the Graduate Record Exam (GRE), Graduate Management Admissions Test (GMAT), Test of English as a Foreign Language (TOEFL), or PRAXIS, may call or come in for an appointment to take these tests.

Undergraduate Entrance Examinations

- The student application for admission to California State University may require scores from the Scholastic Aptitude Test (SAT) or American College Testing (ACT) Program. Though these tests are not routinely administered on this campus at this time, staff members have information about dates and places for them.
- The Test of English as a Foreign Language (TOEFL) is usually required for international students seeking admittance to our university. Special institutional TOEFL dates are scheduled each year for students enrolled in our American English Institute (AEI). For non-AEI students, the TOEFL is offered on computer in our Computer-based Testing (CBT) center.

Undergraduate Required Tests

- The English Placement Test (EPT) and Entry Level Mathematics (ELM) test are given a minimum of eight times each year on our campus. Unless a student has qualified for exception from them, these tests are required for placement into English and math classes the first semester of attendance here.
- The Upper-Division Writing Examination (UDWE) is offered five times each year. Passing this test is one way students may choose to meet the Upper-Division Writing requirement for graduation from this university. Students are eligible to take this exam and need to take it as soon as they have completed 60 units of coursework including ENGL 1; taking it before accumulating 90 units is strongly advised.

Graduate School Testing

Testing Services administers several tests given statewide or nationwide for admission to special programs of study and graduate schools. They include the following:

- Law School Admission Test (LSAT), California Subject Exam for Teachers (CSET), California Basic Educational Skills Test (CBEST), and the PRAXIS — all paper/pencil exams.
- The GRE, GMAT, and TOEFL — all administered only on computer
- Miller Analogies Test (MAT) — a choice of either paper-based or computer-based.

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
Diane Milutinovich, *Director*
http://www.csufresno.edu/USU/

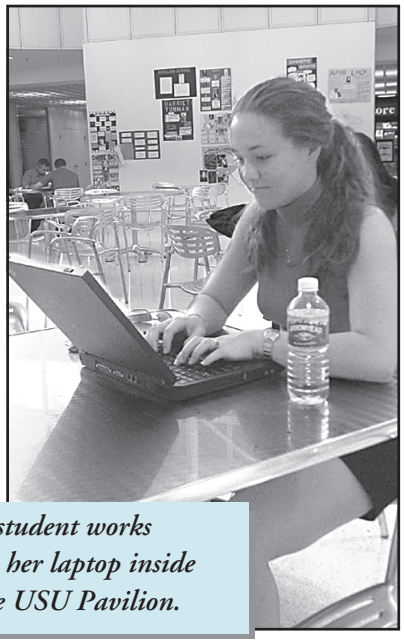
With 36 years of history on the Fresno State campus, the University Student Union is central to campus life and seeks to provide the Fresno State community with quality facilities, services and events.

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, study, 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 one of the many board games that are available.

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**. Rather than stop by the bank on your way home, visit the full service **Golden One Credit Union**. Need an e-mail account? Stop by **CVIP**. Want to check your e-mail? Computer stations are located in the Pavilion for your convenience. Also, use your laptop to access the wireless network. Want a new hairstyle, a haircut, or perhaps a manicure? Stop in at **Pro Hair & Nails**. Hungry? Have lunch at the USU Food Court, which hosts **Taco Bell Express, Subway**, and **Panda Express**. At the Union Snack Bar, you can enjoy Fresno State ice cream, ICEEs, hot dogs, chili fries, nachos, and more.



A student works on her laptop inside the USU Pavilion.

The **USU Information Center** offers a wide range of services designed to help you. Event tickets, money orders, discount movie tickets, bus tickets, and theme park 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, Reservations, Maintenance Services, PR/Graphics Center, Technical Services, and Post Office Express.

The **USU Diversity Awareness Program** is a grant program designed to support student efforts in the promotion of diversity on campus.

Students play a vital role in the governance of the USU by serving on the **USU Board of Directors** 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 of Directors. 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.

Multicultural and diversity activities are also coordinated out of the WRC. Individuals interested in working on issues related to race, class, gender, age, sexual identity, and/or religion are welcome to attend one of the campus National Coalition Building Institute (NCBI) "Welcoming Diversity" workshops that are offered throughout the year. We are also seeking volunteers interested in working on a proposed campus Multicultural Center.

LGBT Allies Network

The purpose of the Allies Network is to develop, train, and maintain a membership of Fresno State faculty and staff allies to support and affirm lesbian, gay, bisexual, and transgender students on the Fresno State campus.

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.

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.

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. WRC also sponsors activities.

Fresno State

Discover
Yourself

Admission Requirements

Admissions Office

Student Affairs

Vivian Franco, *Director*

Joyal Administration North 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 CSU campus Admissions Office.

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 23 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. California State University, Fresno 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 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 (26 U.S.C. 6109). See also *Policies and Regulations*, page 501.

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. The $55 nonrefundable application fee should be in the form of a check or money order payable to *The California State University* or by credit card if submitting the online application 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. 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 Placement Tests Requirements* on page 53-54.)

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. Final 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 initial filing period (October and November for fall terms, June for winter terms, August for spring terms, February for summer terms) than can be accommodated. Some programs are impacted at every campus where they are offered; others are impacted only at some campuses. You must meet supplementary admission criteria if applying to an impacted program.

During the fall filing period, the CSU will announce those programs that are impacted and the supplementary criteria campuses will use. That announcement will be published in the *CSU Review*, distributed to high school and college counselors, and available online at *http://www.calstate.edu/AR/csureview/*. Information about the supplementary criteria also is sent to program applicants. Detailed impaction information is also available at *http://www.calstate.edu/AR/impactioninfo.shtml.*

You must file your application for admission to an impacted program during the initial filing period. If you wish to be considered in impacted programs at more than one campus, 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, completion of specified prerequisite courses, and a combination of campus-developed criteria. If you are required to submit scores on either the SAT I or the ACT and are applying for fall admission, you should take the test as early as possible and no later than October of the preceding year 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., joint Ph.D. and Ed.D. applicants, master's degree applicants, those seeking credentials, those seeking a second bachelor's degree or second major, 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. Applicants 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/*.

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 Oct. 1. The initial filing period lasts until Nov. 30.
- Applications for the spring semester are accepted beginning Aug. 1. The initial filing period lasts until Aug. 31.
- Applications for the summer semester are accepted beginning Feb. 1. The initial filing period lasts until Feb. 28.

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 may also include a request that you submit additional 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. An offer of admission is not transferable to another term or to another campus.

Undergraduate Admission Requirements

Freshman Requirements. Generally, first-time freshman applicants qualify for regular admission if they graduated high school, have a qualifiable eligibility index (see table on the next page), and have completed with grades 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 ACT or the SAT. Your grade point average is based on grades earned in courses taken during your final three years of high school that satisfy all college preparatory "a-g" subject requirements, and bonus points for approved honors courses.

You can calculate the index by multiplying your grade point average by 800 and adding your total score on the SAT I. 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 resident of California for tuition purposes, you need a minimum index of 3502 (SAT I) or 842 (ACT). Graduates of secondary schools in foreign countries must be judged to have academic preparation and abilities equivalent to applicants eligible under this section.

If your grade point average is 3.00 or above (3.61 for nonresidents), you are not required to submit test scores. However, you are urged to take the SAT I or ACT because campuses use these test results for advising and placement

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	Below **2.00** does not qualify for regular admission		
2.68	16	760	**2.33**	23	1040			
2.67	16	770	**2.32**	23	1050			

purposes and may require them for admission to impacted majors or programs.

You will qualify for regular admission when the university verifies that you have graduated from high school, have a qualifiable eligibility index, have completed the comprehensive pattern of college preparatory "a-g" subjects, and, if applying to an impacted program, have met all supplementary criteria.

Honors Courses. Up to eight semesters of honors courses taken in the last two years of high school, including up to two approved courses taken in the tenth grade, can be accepted. Each unit of *A* in an honors course will receive a total of 5 points; *B*, 4 points; and *C*, 3 points.

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.

- 2 years of social science, including one year of U.S. history or U.S. history and government
- 4 years of English
- 3 years of math (algebra, geometry, and intermediate algebra)
- 2 years of laboratory science (1 biological and 1 physical, both with labs)
- 2 years in the same foreign language (subject to waiver for applicants demonstrating equivalent competence)
- 1 year of visual and performing arts (art, dance, drama/theater, or music)
- 1 year of electives selected from English, advanced mathematics, social science, history, laboratory science, foreign language, and the visual and performing arts

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.

Conditional/Provisional Admission - Freshmen. 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 to ensure that those so admitted complete their senior year of studies satisfactorily, including the required college preparatory subjects, and graduate from high school. Students are required to submit an official transcript after graduation to certify that all coursework has been satisfactorily completed. A campus may rescind admission decisions for students who are found not to be eligible after the final transcript has been evaluated.

Transfer Requirements

Students who have completed fewer than 60 transferable semester college units (fewer than 90 quarter units) are considered lower division transfer students. Student who have completed 60 or more transferable semester college units (90 or more quarter units) are considered upper division transfer students. Students who complete college units during high school or through the summer immediately following high school graduation are considered first-time freshmen and must meet those admission requirements. Transferable courses are those designated for baccalaureate credit by the college or university offering the courses.

Lower-Division Transfer Requirements. Generally, applicants qualify for admission as a lower-division transfer student if they have a grade point average of at least 2.0 (*C* or better) in all transferable units attempted, are in good standing at the last college or university attended, and meet any of the following standards:

1. meet the freshman admission requirements (G.P.A. and subject requirements) in effect for the term to which they are applying (see *Undergraduate Admissions Requirements* section); or
2. were eligible as a freshman at the time of high school graduation except for the subject requirements, and have been in continuous attendance in an accredited college since high school graduation, and have made up the missing subjects.

Making Up Missing College Preparatory Subject Requirements. Lower division 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.

Upper-Division Transfer Requirements. Generally, applicants will qualify for admission as upper-division transfer students if the following apply:

1. They have completed a minimum of 60 transferable semester units and have a GPA of at least 2.0* (*C* or better) in all transferable units attempted, **and**
2. they are in good standing at the last college or university attended, **and**
3. they have completed at least 30 semester units of college coursework with a grade of *C* or better in each course at a level at least equivalent to courses that meet General Education requirements. (Courses are to be selected from English, arts and humanities, social science, science, and mathematics.) The 30 units must include all the General Education requirements in communication in the English language and critical thinking (at least 9 semester units) and the requirement in mathematics/quantitative reasoning (usually 3 semester units) ***or*** the Intersegmental General Education Transfer Curriculum (IGETC) requirements in English communication and mathematical concepts and quantitative reasoning.

Conditional/Provisional Admission - Transfers. California State University, Fresno may provisionally admit transfer applicants based on their academic preparation and courses planned for completion. The campus will monitor the final terms to ensure that those admitted complete all required courses satisfactorily. All accepted applicants are required to submit an official transcript of all college level work completed. Campuses will rescind admission for all students who are found not to be eligible after the final transcript has been evaluated.

Test Requirements. Freshman and transfer applicants who have fewer that 60 semester or 90 quarter units of transferable college credit must submit scores, unless exempt (see *Eligibility Index* on page 52), from either the ACT or the SAT I of the College Board. If you are applying to an impacted program on campus and are required to submit test scores, you should take the test no later than October or November. Test scores also are used for advising and placement purposes. Registration forms and dates for the SAT I or ACT are available from school or college counselors or from a CSU campus testing office. Or students may write to or call:

The College Board (SAT I)
Registration Unit, Box 6200
Princeton, New Jersey 08541-6200
Phone 609.771.7588
www.collegeboard.org

ACT Registration Unit
P.O. Box 414
Iowa City, Iowa 52240
Phone 319.337-1270
www.act.org

TOEFL Requirement. All undergraduate applicants whose native language is not English and 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. Some majors may require higher scores. 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 Placement Test Requirements. The California State University requires each entering undergraduate, except those who qualify for an exemp-

*Non-residents must have a 2.4 GPA or better.

tion, to take the CSU Entry Level Mathematics (ELM) examination and the CSU English Placement Test (EPT) prior to enrollment. These placement tests are not a condition for admission to the CSU, but they are a condition of enrollment. They are designed to identify entering students who may need additional support in acquiring basic English and mathematics skills necessary to succeed in CSU baccalaureate-level courses. Undergraduate students who do not demonstrate college-level skills both in English and in mathematics will be placed in appropriate remedial programs and activities during the first term of their enrollment. (See *Academic Placement* for EPT and ELM.)

Students placed in remedial programs in either English or mathematics must complete all remediation in their first year of enrollment. Failure to complete remediation by the end of the first year may result in denial of enrollment for future terms.

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 all college coursework attempted

- **First time freshman**: completion of at least high school level intermediate algebra and high school college prep level English.
- **Lower-division transfer**: completion of at least intermediate algebra at the college level and completion of English composition at the college level.
- **Upper-division transfer**: a student with 56 or more transferable units does not qualify for special admission through this program and must meet all regular admission requirements.

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, admission applications, 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 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 majors or programs 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 submit 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* next section.)

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 (e.g. the University English Exam) is to assess strengths and weaknesses in 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 law governing residence determination for tuition purposes by The California State University is found in *California Education Code* Sections 68000-68090, 68120-68134, and 89705-89707.5, and in Title 5 of the *California Code of Regulations,* Sections 41900-41912. This material can be viewed on the Internet by accessing the California State University's Website at *www.calstate.edu/GC/resources.shtml*.

The campus Admissions Office is responsible for determining the residence status of all new and returning students for nonresident tuition purposes. 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 eligibility for classification as a California resident will be classified as a nonresident.

Generally, establishing California residence for tuition purposes requires a combination of physical presence and intent to remain indefinitely. An adult who, at least one full year prior to the residence determination date for the term in which enrollment is contemplated, can demonstrate both physical presence in the state combined with evidence of intent to remain in California indefinitely may establish California residence for tuition purposes. Minors normally derive residence from the parent(s) they reside with or most recently resided with.

Evidence demonstrating intent may vary from case to case but will include, and is not limited to, the absence of residential ties to any other state, California voter registration and voting in California elections, maintaining California registration and driver's license, maintaining active California bank accounts, filing California income tax returns and listing a California address on federal tax returns, owning residential property or occupying or renting an apartment where permanent belongings are kept, maintaining active memberships in California professional or social organizations, and maintaining a permanent military address and home of record in California.

Adult noncitizens establish residence in the same manner as citizens, unless precluded by the Immigration and Nationality Act from establishing domicile in the United States. Unmarried minor noncitizens derive their residence in the same manner as unmarried minor citizens except that both parent and minor must have an immigration status consistent with establishing domicile in the United States.

Exceptions to the general residence requirements are contained in California Education Code sections 68070-68084 and Title 5 of the California Code of Regulations, sections 41900-41916, and include, but are not limited to, members of the military and their dependents, certain credentialed employees of school districts and most students who have attended high school in California and graduated or attained the equivalent. Whether an exception applies to a particular student cannot be determined before the submission of an application for admission and, as necessary, additional supporting documentation. Because neither campus nor Chancellor's Office staff may give advice on the application of these laws, applicants are strongly urged to review the material for themselves and consult with a legal adviser.

Nonresident students seeking reclassification are required to complete a supplemental questionnaire including questions concerning their financial dependence, which will be considered along with physical presence and intent in determining reclassification.

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.

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 are as follows:

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 the following:

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 and students who have attended high school in California and graduated or attained the equivalent.
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 classified as nonresidents may appeal a final campus decision within 120 days of notification by the campus. A campus residence classification appeal must be in writing and submitted to the following address:

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

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 82.

Regular advising is key to the successful and timely completion of a degree. Depending on the major department's procedure, an academic adviser is assigned to each student, or selected by the student. The Office of Advising Services (Joyal Administration Building, Room 224) advises undeclared majors and can advise all students on General Education and non-major related degree requirements. (See page 22.) At a minimum, all undergraduate students are expected to review their "roadmap" to graduation with an adviser from their major department by the end of the term in which they complete 75 units. Some departments require advising earlier and more often.

Undergraduate students entering the university without a major are strongly encouraged to declare a major before the end of the term in which 45 units are completed toward a degree. Students *must* declare a major no later than the term in which 60 units are completed. Undergraduate transfer students with 60 or more units must declare a major upon entry or before course registration begins for their second semester at the university. Students may contact the Office of Advising Services for further information (Joyal Administration Building, Room 224, or call 278.1787).

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 eligible continuing students in good standing. A continuing student is eligible to register for a subsequent semester if he/she was enrolled by the eleventh day of instruction and had paid registration fees for the previous semester. Students must make progress toward fulfillment of degree requirements to remain in good standing. Students who enroll and withdraw and do not complete coursework for two or more consecutive semesters may lose their continuing student status. 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 telephone/Web registration is finalized and all fees are paid. See the *Academic Calendar* for all deadline dates.

Registration appointment date and time for all students is determined by the number of academic units completed with limited exceptions. After a priority group is processed, then assignments are made based on 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. 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.

Class Schedule. An official *Class Schedule* is listed online each semester with registration procedures, courses offered, class hours and locations, and other important deadlines and updated policy changes as applicable. The schedule is available via the Web at *http://www.csufresno.edu/ClassSchedule/.*

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 (200-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 Registrar's 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 Admissions and Records Office, 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 with a grade point average of 2.0 or better in all work completed at Fresno State; 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 has attained a grade point average of 2.0 or better in all work completed at Fresno State, 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 *Class Schedule* 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 *Class Schedule* for specific add/drop instructions, procedures, and deadlines.

Adding Courses. Once registered, a student may add courses through the tenth day of instruction.

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

After the tenth 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 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 up to the last three weeks of instruction. Complete withdrawal during the last three weeks of instruction is only permitted in cases such as accident or serious illness, where the cause of withdrawal is due to circumstances clearly beyond the student's control. 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 after the tenth day of instruction and who is 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 *Class Schedule* for specific withdrawal instructions, procedures and deadlines.

Request for Record Adjustment. The university recognizes that on rare occasions students will experience exceptional situations that prohibit them from completing some procedures in a timely manner. A student may petition for a record adjustment if a documented hardship occurred during the term for which the adjustment is requested, or in instances where the student will suffer a significant academic hardship if the request is not granted. Contact the Admissions and Records Office for further information.

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. Students must not assume that instructors will exercise their option to submit the Administrative Withdrawal Card. 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, *WU* or *NC*.

Further, in order to permit students on waiting lists to enroll in a class, instructors may administratively withdraw 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.**

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 entering 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 additional 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 or *www.predental.com*.

Dr. Fred Schreiber
Biology Department
559.278.8756; FAX: 559.278.3963
e-mail: fred_schreiber@csufresno.edu

Dr. Saeed Attar
Chemistry Department
559.278.2639; FAX: 559.278.4402
e-mail: sattar@csufresno.edu

Prehealth careers. Advisement is available for students interested in preparing for health careers in occupational therapy, chiropractic medicine, radiological technology, related areas, or as a physician's assistant. While these programs are not offered at California State University, Fresno, most, if not all, prerequisites are. Students should seek academic and career advisement early in their academic programs.

For preoccupational therapy and other prehealth careers, see the Interdisciplinary Health and Rehabilitation Sciences (IHRS) major, under the Physical Therapy Department, or contact the **IHRS undergraduate adviser, Dr. Marilyn Miller, 559.278.4558.** Students seeking information on other graduate allied health programs not offered at this campus may contact the College of Health and Human Services:

Ms. Georgia Porcella, Academic Adviser
College of Health and Human Services
McLane Hall, Room 194
559.278.6579; FAX: 559.278.6360
e-mail: *georgiap@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. Librarianship offers many career opportunities to people of different academic backgrounds, interests, and talents. Librarianship is the profession concerned with collecting, organizing, and preserving the records of society and providing access to them. Librarians work with a wide variety of people and materials (books, music, films, slides, maps, computer files, and more). Professional opportunities include service in academic, research, public, and school libraries as well as libraries and information centers in corporations, medical centers, law firms, museums, and archival collections. Computer technology offers additional career opportunities in traditional library settings and elsewhere. The basic level of education for library and information studies professional positions is the master's degree. The entrance requirements of graduate programs vary, but most library schools require a bachelor's degree, a reading knowledge of a foreign language, and courses in statistics and computer science.

For additional information about library schools, their requirements and programs, and library career opportunities, contact the prelibrarianship adviser.

Kimberley Robles Smith
Henry Madden Library
559.278.4578
FAX: 559.278.6952
e-mail: kimberle@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. Any major will do; choose a major according to your interests. 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 (BIOSC 1A-B), chemistry (CHEM 1A-B, 128A-B, 129A and often 129B), physics (PHYS 2A-B), and two semesters of English. A course in biochemistry is often required or strongly recommended. Courses in genetics, cell biology, molecular biology, and physiology are also recommended and may be helpful in preparation for the Medical College Admission Test (MCAT). Also, some facility with mathematical concepts is usually expected; one semester of calculus and one semester of statistics will meet the requirements for most medical schools. 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 about one year before anticipated matriculation into medical school.

All 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 to plan a program of courses and discuss preparatory procedures for application to medical school. For more, please see *www.csufresno.edu/csm/programs/preprofadvising.html* and 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.

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. 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.

For further information, see optometry school catalogs and consult the preoptometry adviser.

Dr. Amir Huda
Physics Department
559.278.8427; FAX: 559.278.7741
e-mail: ahuda@csufresno.edu
http://medicalphysics.csufresno.edu

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 a high cumulative grade point average should plan to graduate with a bachelor's degree before entering 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 Web sites (*www.aacp.org*).

Dr. Shirley Kovacs
Biology Department
559.278.2389; FAX: 559.278.3963
e-mail: shirley_kovacs@csufresno.edu

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 next column) 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 ASCI 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 ASCI 65, 135, 155, 165; BIOSC 1A, 1B, 140A-B; CHEM 1A, 1B, 128A-B, 129A, 150; MICRO 20; PHYAN 135, 151; and PHYS 2A, 2B. Preveterinary students completing a degree in biology should take the following courses recommended by the Department of Biology: BIOSC 1A, 1B; CHEM 1A, 1B; PHYS 2A, 2B; CHEM 128A-B, CHEM 129A-B; CHEM 150; BIOSC 140A,B; PHYAN 151; and PHYAN 135. 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 W. Thomas
Animal Sciences and Agricultural Education Department
559.278.4288; FAX: 559.278.4101
e-mail: michael_thomas@csufresno.edu

Dr. Paul Crosbie
Biology Department
559.278.2074; FAX: 559.278.3963
e-mail: pcrosbie@csufresno.edu

Fees and Expenses

Business Office

Robert P. Vega, *Director of Accounting Services*

Joyal Administration, Room 152

559.278.2764

Student Fees*

Students are required to pay registration fees (as indicated in the chart on this page), course fees, and nonresident/foreign tuition. General authority governing most fees is contained in the California Education Code, Sections 89700 and 89724.

Course Fees

Course fees are provided in the "class notes" after each subject listing in the *Class Schedule* and at the following Web site: *http://my.csufresno.edu*. Fees may range from $5 to $350 depending on the course.

Non-Resident and Foreign Tuition**

Nonresidents and foreign students are required to pay out-of-state tuition in addition to the mandatory registration and course fees. Tuition is charged at **$339 per unit** with no maximum unit limit. General authority of this fee may be found in the California Education Code, Section 89705.

Extension Program Fees

Extension, per unit
Lecture or discussion course **$110**

Open University,
per unit **$145**
(subject to change by the Campus Fee Committee)

Summer session courses,
per unit **$150**
(may be modified as required by the CSU Board of Trustees)

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**

REGISTRATION FEES PER SEMESTER* (all students)

	Undergraduates		Postbaccalaureates	
	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
Student Academic Service Fee	$18	$18	$18	$18
Student Body Fee	$29	$29	$29	$29
University Key Card Fee	$5	$5	$5	$5
University Student Union Fee	$55	$55	$55	$55
State University Undergrad Fee	$678	$1167	$0	$0
State University Postbacc. Fee	$0	$0	$819	$1410
Total	**$863**	**$1352**	**$1004**	**$1695**

- Graduate and postbaccalaureate students seeking teaching credentials will be charged the postbaccalaureate state university fee rate of $786 (0-6 units) and $1,353 (7 or more units).
- Questions pertaining to your undergraduate/postbaccalaureate class level status may be directed to the Admissions and Records Office 559.278.2261.

Diploma Reissue Fee **$20**

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

Parking Permit Fees
Automobile per semester **$68**
Motorcycle per semester **$17**
Automobile fall/spring **$136**
Motorcycle fall/spring **$34**
Automobile summer **$44**
Motorcycle summer **$11.25**

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
Fee is assessed to corporate and governmental sponsors of international students for required additional services (not a state fee) **$250**

Refund Processing Fee **$5**

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

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

* Legal residents of California are not charged tuition. This catalog copy reflects applicable systemwide fees and nonresident tuition for both the quarter and the semester. (Fees are subject to change without notice.)

** 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.

****Mandatory systemwide fees are waived for those individuals who qualify under the provisions of the California Education code (see section on fee waivers, page 65).

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.

Policy on Refund of Fees. California State University, Fresno (the university) administers refunds in accordance with the California Administrative Code and directives of the California State University (CSU) system. Whether a fee is refundable, in whole or in part, varies according to the particular fee involved.

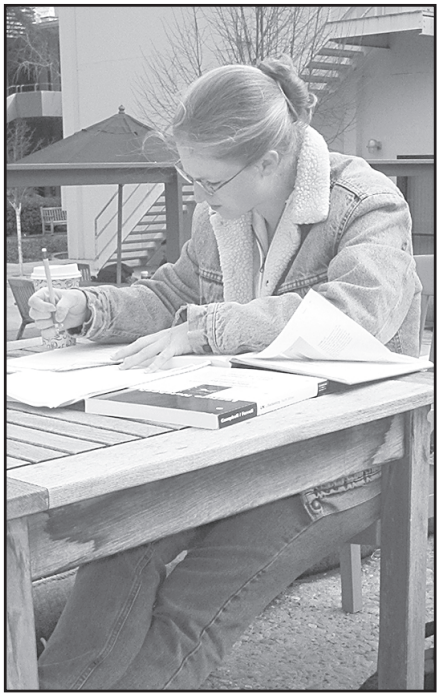
Registration Fees and Tuition Fees for Nonresident and Foreign Students. Registration and tuition fees are refunded under the revised policy adopted by the Board of Trustees at its November 14, 2001 meeting. The refund policy is detailed in Coded Memorandum AA-2002-13 dated February 13, 2002.

In summarized text, beginning with the fall semester 2002, students are entitled to a pro-rata refund determined on the basis of the date of the student's withdrawal and the length of the academic period. Students will be entitled to a full refund of mandatory fees and/or nonresident tuition only if they cancel their registration or drop all courses prior to the first day of instruction for an academic term. Students who drop all courses prior to the end of the designated drop period or who officially withdraw no later than the 60 percent point in the academic period shall be entitled to a pro-rata refund of nonresident tuition and/or mandatory fees.

Any refund due a student is to be applied first toward any required return of student financial aid funds from federal, state, institutional, or external sources and then the balance may be returned to the student. The campus may withhold an administrative fee from the refund amount.

Registration Fee Decrease by Dropping from 7 or More Units to 6 or Fewer Units. Students who drop some but not all units resulting in a lower tuition and/or mandatory fee obligation during the first 10 days of instruction shall be eligible for a refund of the difference in fees.

As specified by Title V of the Education Code, and the Board of Trustees of the CSU, late registration fees are not refundable.



Nonresident Tuition Penalty Fees. Nonresident and foreign students will be charged penalty fees for dropping classes beginning with the first day of instruction. Please refer to the Refund Schedule for Nonresident Tuition at *http://www.csufresno.edu/accountingservices* and click on "Money Matters." Adding and dropping the same number of units on the same day will not result in penalty fees.

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. Use of the Health Center will preclude a refund of the $65 mandatory fee. ($60 health fee and $5 financial aid fee)

Application Fees. Application fees shall be refunded only upon satisfactory proof that the applicant was unable to begin the term with respect to which application was made by reason of his or her death, physical disability, or compulsory military service (Title 5, Section 41802, E,5).

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

Note: A copy of the University Refund Policy may be obtained from Student Financial Services in the Joyal Administration Building, Room 181.

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.
3. Enrollment of classes will be cancelled. Once enrollment is cancelled, the student will not be reinstated.

SOURCE OF FUNDS AND AVERAGE COSTS FOR 2003-04 CSU BUDGET

	Amount	Average Cost Per FTE Student	Percent
Total Cost of Education	$3,294,808,000	$9,838	100
•State Appropriation	2,492,021,000	7,441	76
•Student Fee Support	621,787,000	2,397	24

- 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)

Fees and Debts Owed to the Institution

Should a student or former student fail to pay a fee or a debt owed to the institution, the institution may "withhold permission to register, to use facilities for which a fee is authorized to be charged, to receive services, materials, food or merchandise or any combination of the above from any person owing a debt" until the debt is paid (see Title 5, California Code of Regulations, Sections 42380 and 42381).

Prospective students who register for courses offered by the university are obligated for the payment of fees associated with registration for those courses. Failure to cancel registration in any course for an academic term prior to the first day of the academic term gives rise to an obligation to pay student fees including any tuition for the reservation of space in the course.

The institution may withhold permission to register or receive official transcripts of grades or other services offered by the institution from anyone owing fees or another debt to the institution. If a person believes he or she does not owe all or part of an asserted unpaid obligation, that person may contact the business office. The business office, or another office on campus to which the business office may refer the person, will review all pertinent information and will advise the person of its conclusions.

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 $13,328. 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) $7,344
Registration Fees $1,726-3,190
Books and Supplies (approx.) $900

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 by funding provided by the taxpayers of California and student fee revenue. The systemwide cost of education is defined as total support expenditures (State University Fee revenue and General Fund support appropriations) divided by the number of full-time equivalent students. The total 2003/04 state General Fund appropriation to the CSU (not including capitol outlay funding in the amount of $199,495,000) is $2,492,021,000 and campus budgeted State University Fee Revenue is $802,787,000 for a total of $3,294,808,000. The total cost of education for CSU must provide support for a projected 334,914 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 2003/04 systemwide cost of education per full-time equivalent student is $9,838. Of this amount, the average student fee support per FTE is $2,572. (The State University Fee and campus fees that must be paid to apply to, enroll in, or attend the university are included in the average costs paid by the students. Individual students may pay less or more than $2,572, depending on the campus and whether student is attending part-time/full-time, or is resident/nonresident student. Also, other campus fees may be charged that are not required of all enrolled students, which include user and penalty/deposit fee types).

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.

Need-Based Financial Aid Programs

For the following need-based aid programs, students are required to submit the Free Application for Federal Student Aid (FAFSA). Students are encouraged to submit the FAFSA through the Internet at *www.fafsa.ed.gov*. Paper applications are also available at high schools and college financial aid offices in late December and should be completed after January 1st for the next academic year.

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 66-67 under the heading *Program Specifications*.

Additional Financial Aid Sources

Alan Pattee Scholarships. Pursuant to the Alan Pattee Scholarship Act, *Education Code* Section 68120, 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. Students who may qualify for these benefits should contact the Registrar's Office for an eligibility determination.

Air Force Reserve Officer Training Corps Scholarships. The Air Force ROTC program at California State University, Fresno offers full two-year, three-year, four-year, and graduate degree scholarships for both technical and non-technical majors. These scholarships cover a tuition of up to $4,500 per semester for undergraduate and graduate students working toward their perspective degree.

One of the newest scholarships added to our program is the Hispanic Serving Institution (HSI) scholarship provided only to Fresno State students (the student does not have to be Hispanic.) The HSI scholarship allows the student to activate during the spring semester once minimum qualifications have been met and the AFROTC Det 035 commander approves.

These scholarships also include a yearly textbook payment of up to $600. This total does not include a monthly stipend pay for all cadets who are contracted, whether under a scholarship or not. Stipend pay is tax free money that is given to students who are contracted with the Air Force ROTC program and carry a full-time student load (12 or more units). Stipend pay depends on your academic year as follows: freshmen $250, sophomores $300, juniors $350, and seniors $400. To qualify for the scholarships, you must graduate before turning age 31 and have at least a 2.50 cumulative GPA. 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 full two-, three-, and four-year scholarships at different monetary levels – up to $20,000 annually to qualified students in a variety of academic disciplines. It also offers full graduate scholarships for qualified students. Scholarships cover tuition and mandatory fees, provide funds for books, and supply a monthly tax-free subsistence allowance ranging from $250 to $400. All students formally enrolled in the ROTC program receive an annual allowance of as much as $4,000 and can earn as much as $23,000 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* at *http://www.csufresno.edu/gradstudies.*

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. 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 17 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.

Financial Aid Office

Student Affairs

Maria Hernandez, *Director*

Joyal Administration, Room 296

General Information 559.294-2200

559.278.2182

http://studentaffairs.csufresno.edu/financial_aid

* 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.

University Association and Foundation Loan Funds. The university operates an Emergency Loan Fund to assist students who need up to a maximum of $600 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 Kremen 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 students.

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

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

To maintain satisfactory progress, students must successfully complete a minimum percentage of the total units they have taken. (See *http://studentaffairs.csufresno.edu/financial_aid/letter%20document/satprog.10.27.2003.pdf.*)

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 aid received.

The regulations also address the issue of time-to-degree. An undergraduate student's funding will be limited to 138% of the units required for his or her degree program. Funding will be suspended once a student exceeds 172 total units taken. (Some exceptions are granted.) A postbaccalaureate student's funding will be limited to 138% of the units required for his or her degree or credential program. Funding will be suspended once a student in a 30-unit degree program exceeds 41 total units taken. (Some exceptions are granted.) Graduate students enrolled in programs requiring 60 units will be granted an exception upon **request**.

All prior academic activity at the college level is considered in determining total units taken. Total units taken includes all transfer credit recorded, whether or not applicable to the degree, in addition to units taken at California State University, Fresno.

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, WU, NC, RP, RD, AU*** are not acceptable.

A more detailed explanation of satisfactory academic progress requirements at California State University, Fresno is available on the Website at *http://studentaffairs.csufresno.edu/financial_aid* or 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 $20,000 during the course of their undergraduate degree. Graduate students may borrow up to $40,000 (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 employment program. Awards are based on financial need. Both undergraduate and postbaccalaureate students are eligible to participate. Students receiving FWS awards are placed in jobs on-campus and with selected off-campus agencies, including community service programs such as America READS.

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 some credential programs and for all eligible undergraduate students to assist them in meeting educational costs. Program regulations change from year to year.

Cal Grants A and B Entitlement and Competitive awards. 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.

Law Enforcement Personnel Dependents Grants (LEPD). Law Enforcement Personnel Dependents Grants range from $100 to $1,259 per year for dependents and spouses 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.

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.

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 and at the Web site at *http://studentaffairs.csufresno.edu/financial_aid.*

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 pool of individuals who show promise of becoming strong candidates for California State University instructional faculty positions. 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 through the Division of Graduate Studies, Thomas Administration Building, Room 132, 559.278.2448.

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

Scholarships

Scholarship Office

Student Affairs

Paul J. DeRuosi, *Director*

Joyal Administration, Room 274

559.278.6572

http://studentaffairs.csufresno.edu/scholarships

University Scholarship Program

Each year, California State University, Fresno awards over a thousand scholarships totaling more than two million dollars to incoming and continuing students. Institutional scholarships range from $100 to almost $5,000 and are awarded to both undergraduate and graduate students who have a high level of academic achievement.

Factors for Consideration Scholastic Achievement

- Academic major or career interests
- Involvement in school organizations
- Leadership and participation in community activities
- Full-time enrollment

Depending on specific donor criteria these factors can vary, so regardless of accomplishments, interests, or background, we encourage all students to apply online for consideration of general and departmental scholarships.

Scholarship Application Procedures

Scholarship applications for the 2006-2007 academic year will only be available and accepted online from students. The "priority application" period for "full consideration" of scholarship opportunities has been established as September 1, 2005 through November 30, 2005. However, the application will actually remain online until May 31, 2006. This gives late applicants the opportunity to submit an application for consideration of any unused scholarship funds.

Simply log on to our Web site at ***http://studentaffairs.csufresno.edu/scholarships*** to complete and submit the online scholarship application. This web site and single application provides a one-stop opportunity to apply for hundreds of scholarships available at California State University, Fresno.

Additional On-Campus Scholarship Opportunities Requiring a Separate Application

Air Force Reserve Officer Training Corps Scholarships. Air Force ROTC three-year, four-year, and graduate degree scholarships are available in many technical and non-technical majors to cover the costs of fees and tuition, book allowance, lab fees, and a monthly stipend. For additional information log on to ***http://www.csufresno.edu/afrotc*** or see *Aerospace Studies* in this catalog.

Army Reserve Officer Training Corps Scholarships. The U.S. Army offers two-, three-, and four-year scholarships at different monetary levels to qualified students in a variety of academic disciplines. For additional information log on to ***http://www.csufresno.edu/rotc*** or see *Military Science* in this catalog.

Fee Waivers. The California Education Code includes provisions for the waiver of mandatory systemwide fees as follows:

- 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 (referred to as Alan Pattee Scholarships);
- Section 66025.3 – Qualifying children, spouses, or unmarried surviving spouses of a war period veteran of the U.S. military who is totally service-connected disabled or who died as a result of service-related causes; children of any veteran of the U.S. military who has a service-connected disability, was killed in action, or died of a service-connected disability and who meet specified income provisions; qualifying dependents of a member of the California National Guard who in the line of duty and in active service of the state was killed or became permanently disabled or died of a disability as a result of an event while in active service of the state; and undergraduate students who are the recipients of or the child of a recipient of a Congressional Medal of Honor and meet age and income restrictions; and
- Section 68121 – Students enrolled in an undergraduate program who are the surviving dependents of any individual killed in the September 11, 2001, terrorist attacks on the World Trade Center in New York City, the Pentagon building in Washington, D.C., or the crash of United Airlines Flight 93 in southwestern Pennsylvania, if the students meet the financial need requirements set forth in Section 69432.7 for the Cal Grant A Program; either the surviving dependent or the individual killed in the attacks must have been a resident of California on September 11, 2001.

Students who may qualify for these benefits should contact the Admissions/Registrar's Office for further information and/or an eligibility determination.

Athletics. 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. For additional information see *Athletics* in this catalog.

Craig Scholarships and Fresno Merchants Scholarship Program. These are awarded to incoming freshmen who certify their intention of obtaining a B.S. degree in business administration. Renewal each year is based on continued eligibility and proper progress toward the business degree. For additional information log on to ***http://zimmer.csufresno.edu/~karenb/CraigScholars/OnlineApplication.htm*** or contact the Craig School of Business at 559.278.2482.

The Community Service Scholarship Program provides scholarships of up to $1000 to students who are selected to complete 150 hours of community service. Positions are available to Fresno State students during the academic year and summer months. For more information, contact the office of Career Services at 559.278.2381.

Smittcamp Family Honors College. California State University, Fresno also offers the President's Honors Scholarships through the Smittcamp Family Honors College. Admission to this prestigious program provides a four-year scholarship to high achieving, incoming freshmen. Each student receives a grant equivalent to full tuition and fees, an annual $200 book allowance, and costs to cover housing on campus for all four years of study. For additional information log on to ***http://honors.csufresno.edu*** or contact the Honors College at 559.278.8160.

For a comprehensive listing of these and other scholarship opportunities at California State University, Fresno, visit our web site at ***http://studentaffairs.csufresno.edu/scholarships***

Availability of Institutional and Financial Assistance Information

Information concerning student financial assistance may be obtained from the Financial Aid Office, Joyal Administration Building, Room 296, 559.278.2182. Descriptions are available for financial aid programs, criteria, procedures, and forms; rights and responsibilities of students receiving financial assistance; satisfactory academic progress standards; financial assistance disbursement methods; and terms of loans and conditions for deferral of loan payments. Also available are general conditions and terms applicable to any employment provided as part of the student's financial aid package. See also pages 65-67.

Information concerning the cost of attending California State University, Fresno is available from the Financial Aid Office, Joyal Administration Building, Room 296, 559.278.2182. The Financial Aid Office provides information on fees; estimated costs of books and supplies; estimated costs of typical student room, board, and transportation; and (if requested) additional costs for specific programs. See also page 64.

Information concerning refund policies of California State University, Fresno may be obtained from the Office of Accounting Services, Joyal Administration Building, Room 181, 559.278.2876. The listing of complete policy and procedures is available online at *http://www.csufresno.edu/accountingservices/refundoffees.htm*.

Information concerning the undergraduate academic programs of California State University, Fresno may be obtained from the Office of the Dean of Undergraduate Studies, Thomas Administration Building, Room 130, 559.278.4468.

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 services available to students with disabilities may be obtained from the director of Services for Students with Disabilities, 559.278.2811.

Information concerning California State University, Fresno policies, procedures, and facilities for students and others to report criminal actions or other emergencies occurring on campus may be obtained from the Police Department, Public Safety Building, 559.278.2132.

Information concerning California State University, Fresno annual campus security report may be obtained from the Police Department, Public Safety Building, 559.278.2132.

Information concerning the prevention of drug and alcohol abuse and rehabilitation programs may be obtained from Health and Psychological Services, Student Health Center, 559.278.2734.

Information regarding student retention and graduation rates at California State University, Fresno and the number and percentage of students completing the program in which the student is enrolled or has expressed interest may be obtained from Institutional Research, Thomas Administration Building, Room 107, 559.278.3906.

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 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.

Information concerning teacher preparation programs, including the pass rate on teacher certification examinations, may be obtained from the Kremen School of Education and Human Development, Student Services, Education Building, Room 100, 559.278.0300.

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*.

Cancellation of registration or withdrawal from the institution. Students who find it necessary to cancel their registration or to withdraw from all classes after enrolling for any academic term are required to follow the university's official withdrawal procedures. Failure to follow formal university procedures may result in an obligation to pay fees as well as 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 canceling registration and withdrawal procedures is available from the Admissions and Records Office, 559.278.2261.

Prior to withdrawing from the university, students who receive financial aid funds must consult with Financial Aid Office regarding any required return or repayment of grant or loan assistance received for that academic term or payment period. If a recipient of student financial aid funds withdraws from the institution during an academic term or a payment period, the amount of grant or loan assistance received may be subject to return and/or repayment provisions.

Read a Good Book

Reading List

Being well-read is one of the hallmarks of an educated person. It is easy for students to become caught up in the rush of studying, classes, and work. Sometimes this means students read very little other than assigned readings for a class.

After consulting a wide range of faculty in many disciplines, the Senate Library Subcommittee and the Madden Library have created a reading list of recommended books in various subject areas. Students are encouraged to consult the list at *http://www.lib.csufresno.edu/libraryinformation/libraryreadinglist.html* and to take time to read some titles that appeal to them. The subcommittee and the library are holding monthly discussion groups at which an interested faculty member will facilitate discussion of a particular title.
Look for announcements from the Madden Library.

Fresno State

Discover
Yourself

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 *Kremen School of Education and Human Development* for public school credentials for which the university is authorized to recommend candidates.

Definition of Key Terms

Academic Advisement Report. The Academic Advisement Report is a tool to assist in the advising process. Advisers can request Academic Advisement Reports online. The Academic Advisement Report shows the student's progress in a chosen degree program, using courses taken at California State University, Fresno and transfer institutions. The report displays how courses apply toward the student's declared major, General Education, and degree requirements, and displays a list of approved courses for each requirement to be completed.

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.

Certificate. A set of interdisciplinary courses comprised of a minimum of 12 units focusing on a special area of study. Students are not required to be matriculated or be undergraduates. Certificates are awarded upon completion of the program regardless of catalog year or degree status. The university awards three types of certificates. They include the Certificate of Completion, the Certificate of Special Study, and the Certificate of Advanced Study. See page 86 for more information. Consult the index for a complete list of certificates available.

Certificate of Advanced Study. A certificate program of special study at the postbaccalaureate level.

Concentration. A specialized area of study within a major. The concentration does not appear on the diploma. Concentrations may or may not appear within majors that have also approved formal options. The term concentration is often used interchangeably with the terms emphasis, specialization, or track.

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 Admissions and Records Office, North Lobby, Joyal Administration Building.

See also *Intrasystem and Intrasystem Enrollment Programs*, page 81.

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 and/or to complete requirements for the major.

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. In addition to academic majors, the university offers a number of minors. These minors are sets of courses, totaling a minimum of 12 semester units, including a minimum of 6 upper-division

residence units. Minors must be completed with a minimum GPA of 2.0. Minors offered by academic departments and programs are listed on page 88 of this catalog. Detailed descriptions are found in the listings of the particular departments and programs. Courses in the minor may not also count toward a student's major except as Additional Requirements to that major. However, courses fulfilling requirements for a minor usually may be counted toward General Education. Refer to the description of the specific minor for exceptions.

A student may earn two minors provided that the requirements above are met for each and that at least 12 units in each of the two minors are distinct and include at least 6 upper-division units in residence.

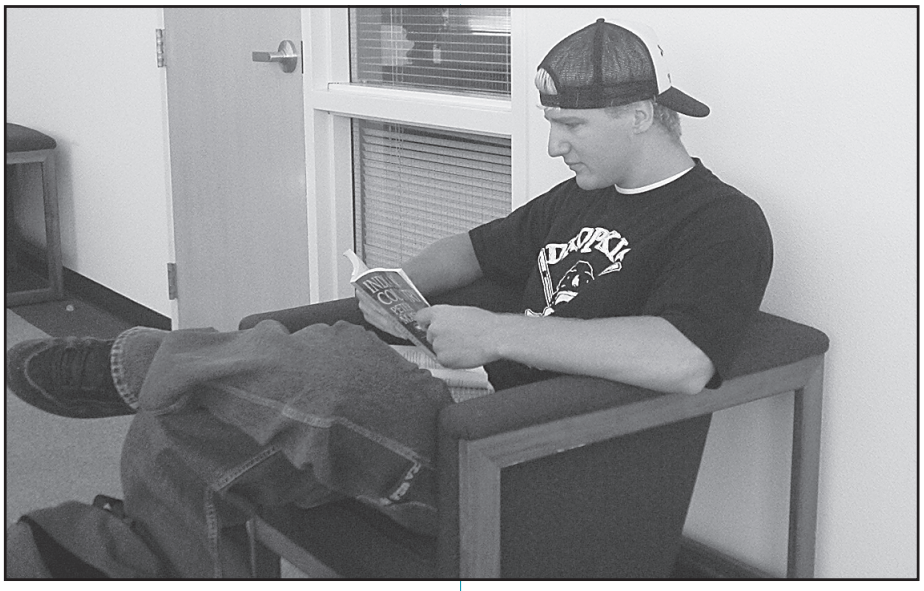
Option. Set of required courses within a major in addition to the major core courses that emphasizes one important aspect of that school, department, or program.

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 attempted and units earned are terms that appear on the student's transcript and evaluation. Units attempted is the column used for GPA calculation. The units earned column is used to determine units completed toward the total unit requirement for the degree.



Choice of Catalog

Election of Regulations. An undergraduate student or postbaccalaureate student pursuing a second bachelor's degree or second major 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 enters a California community college or a campus of the California State University system.
2. The catalog in effect at the time a student enters California State University, Fresno.
3. The catalog in effect at the time the student applies to graduate from California State University, Fresno.

Continuous attendance is defined as being officially enrolled at least one semester or two quarters during a calendar year. Students must demonstrate progress toward fulfillment of degree requirements to maintain registration eligibility as a continuing student. Students who enroll and withdraw from courses for two or more consecutive semesters may not be eligible for registration as a continuing student.

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.*)

*A student may not begin "continuous attendance" while still enrolled in high school.

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.

During the first semester of enrollment, transfer students should receive a copy of a computerized evaluation (Academic Advising Report) detailing how prior coursework has transferred into the university and indicating remaining degree requirements. It is recommended that students request an updated Academic Advising Report from their major department at least once a year for review with their academic adviser. 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 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 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.**)

WU — Failure — Withdrawal Unauthorized.[4] The symbol *WU* 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 Authorized. Required coursework has not been completed and evaluated yet. (**Not used in grade point calculation.**) See *Incomplete Grade — Explanation*, page 75.

IC — Incomplete Charged. Student who received an authorized Incomplete (*I*) has not completed the required coursework within the allowed time limit (**0 grade points per unit**).

RD — Report delayed. Grade must be cleared before a degree is awarded. (Not used in grade point calculation.)

RP — Report in 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 *Class Schedule*.)

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

[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 *WU* is assigned only for courses graded *A* through *F*. The course can be repeated and the new grade may be substituted for the *WU* by petition, except for master's degree students. (See *Repeating Courses*.)

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 or by using the Web registration system.
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 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 *Class Schedule* 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. It is the responsibility of the student to bring pertinent information to the attention of the instructor and to determine from the instructor the remaining course requirements 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 an *IC*, or 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 *IC* (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 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.

Report in Progress (*RP*). The *RP* 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 *RP* may be used only in courses designated on the approved *RP* 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 *RP* 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 *RP* 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 *RP* 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*.)

Withdrawal Unauthorized (WU). The symbol *WU* 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 *WU* 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.

Dean's List and President's List. Students enrolled in at least 12 units during a term, earning no grade lower than a ***C***, and earning at least a 3.5 grade point average (GPA) for the term are placed on the Dean's List for that term and a note is added to their transcript. Students meeting these requirements and having a 4.0 GPA for the term are placed on the President's List.

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***, ***WU***, ***I,*** or ***IC***, and the subsequent grade is the same or higher, the new grade will be substituted for the original grade. Only the substituted grade will be used in determining the student's grade point average. Grade substitution can be made only once for each course. If the original grade was ***C***, ***CR***, or better, the course cannot be repeated for grade substitution.

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, the student must file a Grade Substitution Petition form with the Admissions, Records, and Evaluations Office public service windows in the Joyal Administration Building by the last day of the semester/term in which the course is being repeated.

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 degree, master's degree, or certificate of advanced study 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 *Class Schedule* or contact the Admissions, Records, and Evaluations Office located in the 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 Evaluations Office, **559.278.4076**.

Planned Educational Leave of Absence. A planned educational leave of absence is defined as a planned interruption or pause in a student's regular education during which the student temporarily ceases 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 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.

A planned educational leave for graduate students must be recommended by the dean, Division of Graduate Studies. Information is available, Division of Graduate Studies, Thomas Administration Build, Room 132.

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 university official, contributes to his or her educational goals and objectives.
2. A student must have a verified medical condition that warrants absence from the university. Medical documentation must be submitted with request.
3. The request must be for a specific period of time which shall not exceed four consecutive semesters.
4. 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. 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 Registrar's 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.
7. Students who do not return to the university at the conclusion of their planned educational leave and those who enroll elsewhere will be considered to have withdrawn from the university at the end of their last semester of regular enrollment at California State University, Fresno and will have to reapply for admission upon their return.

Students wishing to apply for a planned educational leave should obtain a request form from the Registrar's Office, 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 must 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. The instructor has five working days to respond. For cases in which an incorrect grade was assigned due to a recording error, the instructor will submit a Grade Correction Request form to the Admissions and Records Office.

If the issue is not resolved, a student must immediately consult with the department chair, who will give the student an answer within 10 working days. 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. To request review, students must immediately 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 chair of 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 allow their GPA to fall within the disqualified range on either the overall or California State University, Fresno record equal to or greater than that indicated in the copy that follows.

A student becomes disqualified when the campus or cumulative grade point average in college work attempted falls below 1.50 for freshmen, 1.70 for sophomores, 1.85 for juniors, and 1.95 for seniors.

- As a freshman (fewer than 30 semester hours of college work completed) the student falls below a grade point average of 1.50 in all units attempted or in all units attempted at the campus where enrolled
- As a sophomore (30 through 59 semester hours of college work completed) the student falls below a grade point average of 1.70 in all units attempted or in all units attempted at the campus where enrolled
- As a junior (60 through 89 semester hours of college work completed) the student falls below a grade point average of 1.85 in all units attempted or in all units attempted at the campus where enrolled
- As a senior (90 or more semester hours of college work completed) the student falls below a grade point average of 1.95 in all units attempted or in all units attempted at the campus where enrolled
- Postbaccalaureate students who fall below a grade point average of 1.95 in all postbaccalaureate units

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 *WU* grades. 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 falls below a grade point average of 1.95.

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.

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 unpaid financial obligations and 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. Students may obtain their grades via the telephone/Web systems 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 or print a copy off of the Web system.

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. The EPT is designed to assess the level of reading and writing skills of entering undergraduate students so that they can be placed in appropriate baccalaureate-level courses. The CSU EPT must be completed by all entering undergraduates, with the exception of those who present proof of one of the following:

- A score of "Exempt" on the augmented English CST taken in grade 11.
- A score of 550 or above on the verbal section of the College Board SAT I Reasoning Test taken April 1995 or later.
- A score of 680 or above on the re-centered and adjusted College Board SAT II: Writing Test taken May 1998 or later.
- A score of 24 or above on the enhanced ACT English Test taken October 1989 or later.
- 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.
- Completion and transfer to the CSU 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 1LA-C in conjunction with ENGL 1, or if they are nonnative speakers of English, in ESL 30. ENGL 1LA-C must be completed with a credit grade by the end of the first year of enrollment.

Entry-level Mathematics Exam. The ELM examination is designed to assess the skill levels of entering CSU students in the areas of mathematics typically covered in three years of rigorous college preparatory mathematics courses in high school (Algebra I, Algebra II, and Geometry). The CSU ELM must be completed by all entering undergraduates, with the exception of those who present proof of one of the following:

- A score of "Exempt" on the augmented mathematics CST taken in grade 11.
- 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 ACT Mathematics Test taken 1989 or later.
- A score of 3 or above on the College Board Advanced Placement Mathematics examination (AB or BC) or 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 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

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	CSCI 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

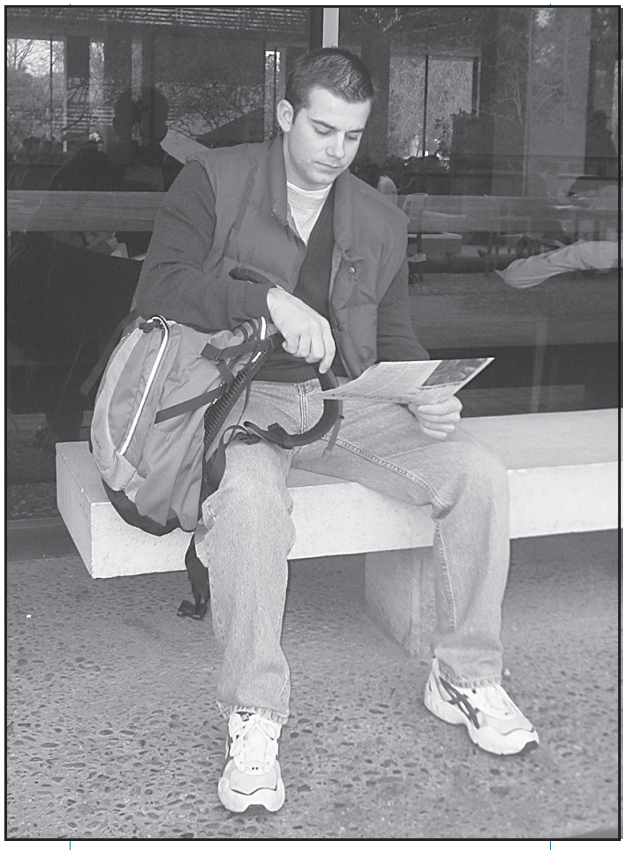
For more information, contact the Evaluations Office, Joyal Administration Building, Room 115.

* 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.

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 Testing Services.

Credit by Examination. Students may challenge courses by taking examinations developed at California State University, Fresno. 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. Students will receive a credit (***CR***) grade if the examination is passed with a ***C*** or higher 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 79.

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 appropriate to the baccalaureate degree 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 Coursework. 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 220 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. They are now offered only as computer-based tests and are available through Testing Services on campus.

Within the restrictions of systemwide policy, this university awards up to 6 units of 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. It is the responsibility of the student to check with the appropriate department to determine whether it accepts CLEP credit. This should be done prior to taking the CLEP exam.

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**.

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**.

Intrasystem and Intersystem Enrollment Programs. Students enrolled at any CSU campus will have access to courses at other CSU campuses on a space available basis unless those campuses or programs are impacted. This access is offered without students being required to be admitted formally to the host campus and sometimes without paying additional fees. Although courses taken on any CSU campus will transfer to the student's home CSU campus as at least elective credit, students should consult their home campus academic advisers to determine how such courses may apply to their degree programs before enrolling at the host campus.

There are two programs for enrollment within the CSU and one for enrollment between CSU and the University of California or California community colleges. Additional information about these programs is available from Enrollment Services 559.278.6124.

- **CSU Concurrent Enrollment** – matriculated students in good standing may enroll at both their home CSU campus and a host CSU campus during the same term. Credit earned at the host campus is automatically reported to the home campus to be included on the student's transcript at the home campus.
- **CSU Visitor Enrollment** – matriculated students in good standing enrolled at one CSU campus may enroll at another CSU campus for one term. Credit earned at the host campus is reported automatically to the home campus to be included on the student's transcript at the home campus.
- **Intersystem Cross Enrollment** – matriculated CSU, UC, or community college students may enroll for one course per term at another CSU, UC, or community college and request that a transcript of record be sent to the home campus.

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 120 semester units for B.A. programs and a minimum of 124 semester units for most B.S. degree programs
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.

Double (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 double major). When students apply for graduation, they must designate which is the primary degree major. Minimum requirements and exceptions for double majors are as follows:

- Double B.A. majors must include a minimum of 24 units exclusive of the other major, 12 of which must be upper-division.
- Double 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 double major.

Special Major for the Bachelor of Arts Degree

The special major for a bachelor's 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 double 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 total unit requirement for a special major is 120 units. 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 do the following:

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.

Special Major for the Bachelor of Science Degree

Those seeking admission to the B.S. Special Major must adhere to university admissions requirements, including submission of applications, official transcripts, and appropriate standardized test scores.

Candidates must have one full year of academic work (at least 30 units) still to be completed to apply for this program. Students should seek the support of a faculty adviser and gain their adviser's counsel and advice in outlining a program of study. After formal consultation, the student should complete the Application to Pursue a Special Major Bachelor's Degree Program available from the Office of Advising Services. The application includes the list of courses, any required prerequisites, and a plan to meet the undergraduate writing skills requirement. A personal statement giving the applicant's career objectives, intellectual interests and qualifications for pursuing interdisciplinary work is required. Special majors cannot be pursued as dual majors or second majors.

The application must receive approval from the special major (faculty) adviser and relevant department chairs. After approval, the application is forwarded to the Office of the Provost and Vice President for Academic Affairs for formal approval.

B.S. Program Requirements: The minimum total unit requirement for a special major is 120 units. 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 Office of the Provost and Vice President for Academic Affairs upon written recommendation by the special major adviser prior to registration for the additional units. At least 25 units of the B.S. Special Major must be from campus colleges offering a broad range of instructional programs in science- or technology-based disciplines. These colleges include the following: Agricultural Sciences and Technology, Craig School of Business, Engineering, Health and Human Services, Science and Mathematics, and Social Sciences. Coursework must be taken in at least two different subject areas or fields of study, with no less than 9 units each from a minimum of two areas. All established campus requirements and procedures for awarding bachelor's degrees will apply, including residence units, the upper-division writing requirement and number of acceptable transfer units.

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. After completing 60 units and English Composition (ENGL 1) or its equivalent with a *C* or better, students may meet this requirement in one of two ways:

either

1. Pass the Upper-Division Writing Examination (UDWE) composed of both essay and multiple choice components. This examination is given five 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 will be posted to their transcripts the semester following the date the UDWE was passed. For details, call Testing Services, 559.278.2457.

or

2. Obtain a *C*, *CR*, or letter grade of *C* or better in an approved upper-division writing course at this university. Approved writing courses can be identified in the catalog and *Class Schedule* by the letter *W* (e.g., ENGL 160W, BA 105W).

It is imperative that the UDWS requirement be met within two semesters after completing 60 units. 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., BA 105W for business majors.

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 usually designated by the letter *R* following the course number. 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 as long as

1. the courses are not needed for the bachelor's degree.
2. the student is neither on academic probation nor academic disqualification at the beginning of the final term.
3. 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 75.)

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 *Class Schedule*, 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. 120 Unit Programs. Students must complete an average of 30 units per year (which could include winter and summer sessions) to finish in four years.
   b. 124-128 Unit Programs. Students must complete an average of 32 units per year (which could include winter and summer sessions) to finish in four years.
   c. Programs Exceeding 128 units. In addition to an annual average of 32 units, students in these majors will be required to complete 3 to 9 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 register through STAR by phone at 559.294.7827 or by Web at *http://my.csufresno.edu* during the appropriate time 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. Degree Filing. Students must file their application for graduation and pay the related fees by the university deadline.
13. 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 13 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 coordinator of the Four-Year Degree Guarantee Program in the Office of Advising Services at 559.278.1787.

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 Kremen 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 deaf and hard-of-hearing — 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

Basic Teaching Credentials, Elementary

Multiple Subject:

Multiple Subject, BCLAD

Multiple Subject, with emphasis in Early Childhood Education

Multiple Subject — Internship

CalState TEACH

Basic Teaching Credentials, Secondary

Single Subject:

Agriculture
Art
Business
English; English-Drama; English-ESL; English-Speech
Foreign Languages
Home Economics
Industrial Technology
Mathematics
Music
Physical Education
Science
Social Science

Single Subject

Single Subject Internship

Basic Teaching Credentials, Special Education

Preliminary Level I Education Specialist:

- Mild/Moderate Disabilities (including internship)
- Moderate/Severe Disabilities (including internship)
- Deaf and Hard of Hearing

Advanced Specialist and Services Credentials

Specialist Teaching Credentials
Agriculture

Early Childhood

Reading/Language Arts

Professional Level II Education Specialist:

- Mild/Moderate Disabilities
- Moderate/Severe Disabilities
- Deaf and Hard of Hearing

Services Credentials

- Preliminary Administrative
- Professional Administrative

Clinical-Rehabilitative

School Nurse Services

Pupil Personnel in

- School Counseling
- School Psychology
- School Social Work, Child Welfare and Attendance

Fresno State

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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.

Accountancy: M.S.

Aerospace Studies: Minor

African American Studies: B.A.

Africana Studies: Minor

Agricultural Business: B.S.; Minor

Agricultural Education: B.S. (options: Agricultural Communications, Teacher Preparation)

American Indian Studies: Minor

Animal Sciences: B.S. (options: Production Management, Science); Minor; M.S.

Anthropology: B.A.; Minor

Armenian Studies: Minor

Art: B.A. (option: Graphic Design); M.A.; Minor

Asian American Studies: Minor

Asian Studies: Minor

Astronomy: 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, Graduate Business Preparation)

Business Administration: B.S. (options: Accountancy, E-Business*, Entrepreneurship, Finance, Human Resource Management, Information Systems, International Business, Legal Environment of Business*, Management, Marketing, Real Estate and Urban Land Economics, Special); M.B.A.

Chemistry: B.A.; B.S.; M.S.; Minor

Chicano/Latino Studies: Minor

Chicano Studies: B.A.

Child Development: B.S. (options: Child Development Pre-Credential, Child Development Practitioner)

Classical Studies: Minor

Coaching: Minor

Cognitive Science: Minor

Communication: B.A.; M.A.; Minor

Communicative Disorders: B.A.; M.A. (options: Deaf Education, Speech-Language Pathology); Minor

Computational Linguistics: Minor

Computer Science: B.S.; M.S.; Minor

Construction Management: B.S.; Minor

Counseling: M.S. (options: Marriage and Family Therapy, Counseling and Student Services)

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, Curriculum and Instruction, Early Childhood, Reading/Language Arts)

Educational Leadership:** Ed.D.

Engineering: M.S.
(options: Electrical Engineering, Mechanical Engineering)

Civil: B.S.; M.S.

Computer: B.S.

Electrical: B.S.

Geomatics: B.S.

Industrial: B.S.

Mechanical: B.S.

English: B.A.; M.A. (options: Composition Theory, Literature); Minor

English as a Second Language: Minor

Enology: B.S.

Environmental Sciences*:** B.S.

Ethnic Studies: Minor

Family and Consumer Sciences: B.A.; M.S.****; Minor

Fashion Merchandising: Minor

Food and Nutritional Sciences: B.S. (options: Culinology, Dietetics and Food Administration, Food Science); M.S.; Minor

French: B.A.; Minor

Geography: B.A.; Minor

Geology: B.S.; M.S.; Minor

German: Minor

Gerontology: Minor

Health Science: B.S. (options: Community Health, Environmental/Occupational Health and Safety, Health Administration); Minor

History: B.A.; M.A.; Minor

Humanities: Minor

Industrial Technology: B.S.; M.S.; Minor

Interdisciplinary Health and Rehabilitation Sciences: B.S. (options: Pre-Occupational Therapy, Pre-Physical Therapy, Pre-Rehabilitation Services); Minor

Interdisciplinary Studies: M.A., M.S.

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. (options: Exercise Science, Sport Psychology)

Latin American Studies: Minor

Liberal Studies: B.A.

Linguistics: B.A. (options: Teaching English as a Second Language, General Linguistics, Computational Linguistics); M.A. (options: Teaching English as a Second Language, Linguistics); Minor

Marine Science: M.S.

Mass Communication and Journalism: B.A. (options: Advertising, Broadcast Journalism, Digital Media, Electronic Media Production, Photojournalism, Print Journalism, Public Relations); M.A.; Minor

Mathematics: B.A.; M.A. (option: Teaching); Minor

Medical Physics: 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. (options: Biology, Chemistry, Earth Science, Physics)

Nursing: B.S.; M.S. (options: Clinical Nurse Specialist/Nursing Education, Primary Care/Nurse Practitioner)

Peace and Conflict Studies: Minor

Philosophy: B.A. (options: Prelaw, Religious Studies); Minor

Physical Science: Minor

Physical Therapy: M.P.T.

Physics: B.S.; M.S.; Minor

Plant Science: B.S. (options: Agronomy, Horticulture, Plant Health, General Plant Science); M.S.; Minor

Political Science: B.A.; Minor

Psychology: B.A. (option: pre-M.B.A.); M.A.; M.S.; Minor

Public Administration: B.A.; M.P.A.; Minor

Public Health: Minor, M.P.H. (options: 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., B.S.

Theatre Arts: B.A. (option: Dance); Minor

Urban Studies: Minor

Viticulture: B.S.

Viticulture and Enology: M.S.

Women's Studies: B.A.; Minor

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* Admissions to the E-Business Option and Legal Environment of Business Option are currently suspended.

** The Ed.D. is jointly conferred with UC Davis.

*** The B.S. in Environmental Sciences is jointly conferred with UC Riverside.

**** Admission to the M.S. in Family and Consumer Sciences is currently suspended while the program is being restructured.

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 *Residence Requirements*, page 82) 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 1,000 words.

All upper-division courses (IB, IC, ID, and M/I) will require writing assignments totaling at least 2,000 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.

- 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.*

Notice to students enrolled under the 1998-99 or 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.

Area C – Arts and Humanities.

Required: three lower-division courses, at least one in each sub-area.

- 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 an A2 course satisfying the **Foundation** Written Communication requirement is required for enrollment in any **Breadth** Area C2 course.)

  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.

A third course is required in either C1 or C2.

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.

- B1, B2 are prerequisite to IB
- C1, C2 and an additional Breadth course in either is prerequisite to IC
- D1, D2, D3 are prerequisite to ID and MI

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 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

Notice to Smittcamp honors, liberal studies, and engineering students:
Smittcamp honors, liberal studies and engineering students follow a distinct G.E. pattern. Please see Smittcamp Honors, pages 95-98, liberal studies, pages 251-252, and engineering, pages 292-322.

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 subjects in the table. The following list reflects those courses accepted into the G.E. program as of December 15, 2003.

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
- CLS 30 - Critical Thinking in Chicano and Latin American Studies
- COMM 5 - Argumentation
- CSCI 1 - Critical Thinking and Computer Science
- GME 5 - Critical Reasoning
- NSCI 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
- WS 12 - Critical Thinking: Gender Issues

Quantitative Reasoning

(Area B4)

- DS 71 - Quantitative Analysis
- 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

	Foundation	Breadth	Integration & Multicultural/ International
Area A	A1, A2, A3		
Area B	B4	B1, B2	IB
Area C		C1, C2, C1 or C2	IC
Area D		D1, D2, D3	ID, MI
Area E		E1	

- PSCI 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)

- ARMS 20 - Arts of Armenia
- ART 1 - Art Forms
- ART 20 - Drawing
- ART 40 - Painting
- ART 50 - Beginning Sculpture
- ARTH 10 - The Ancient and Primitive World
- ARTH 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
- CHIN 1A - Elementary Chinese
- CHIN 1B - Elementary Chinese
- 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 - Humanities from Antiquity to the Renaissance
- HUM 11 - Humanities from Baroque to Modern
- 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 1A - Elementary Japanese A
- JAPN 1B - Elementary Japanese B
- 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 1877
- HIST 12 - American History from 1877

American Government (Area D2)

- PLSI 2 - American Government and Institutions

Social Science (Area D3)

- AAIS 1 - Ethnic Experience
- AAIS 27 - Africana Cultures and Images
- AGEC 1 - Introductory Agricultural Economics
- ANTH 2 - Introduction to Cultural Anthropology
- ANTH 3 - Introduction to Prehistory
- ARMS 10 - Introduction to Armenian Studies
- ASAM 15 - Introduction to Asian Americans
- CFS 31 - The Family in America
- CLS 3 - Introduction to Chicano/Latino Studies
- CLS 5 - Chicano Culture
- CRIM 10 - Crime, Criminology, and Justice
- CSD 98 - Introduction to Hard of Hearing and Deaf People
- ECON 25 - Introduction to Economics
- ECON 40 - Principles Microeconomics
- ECON 50 - Principles Macroeconomics
- GEOG 2 - Introduction to Cultural Geography
- GEOG 4 - World Geography
- HIST 20 - World History
- HIST 21 - World History II
- IT 20 - Technology and Society
- MCJ 1 - Mass Communication and Society
- PLSI 1 - Modern Politics
- PLSI 71 - Introduction to Environmental Politics
- PSYCH 10 - Introduction to Psychology
- SOC 1 - Principles of Sociology
- SOC 2 - Social Problems
- WS 10 - Introduction to Women's Studies

Lifelong Understanding and Self-Development

(Area E1)

- ASCI 67 - Animals and Society
- ART 13 - Design
- CFS 38 - Life Span Development
- DANCE 16 - Introduction to Modern Dance
- DANCE 70 - Balance BodyMind
- DRAMA 32 - Introduction to Acting
- FIN 30 - Personal Financial Planning
- GERON 10S - The Journey of Adulthood: Planning a Meaningful Life (same as RLS 10S)
- GERON 18 - Women and Aging (same as WS 18)
- GERON 111 - Heritage and Aging
- HS 90 - Contemporary Health Issues
- HS 91 - Introduction to Human Sexuality
- HS 110 - Drugs, Society, and Health
- IE 95 - Human Factors/Ergonomics
- KINES 32 - Lifetime Fitness and Wellness *concurrent with KAC 6, 21, 24, 31, 33, 39, or 103*
- LING 30 - Language through the Lifespan
- NUTR 53 - Nutrition and Health: Realities
- PSYCH 61 - Personal Adjustment
- PSYCH 171 - Adjustment and Mental Health
- RLS 10S - The Journey of Adulthood: Planning a Meaningful Life (same as GERON 10S)
- RLS 80 - Lifelong Learning in the Natural Environment
- WS 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
- GEOG 115 - Violent Weather/ Climatic Hazards
- GEOG 128 - Environmental Pollution
- GEOL 112 - Planet Earth through Time
- GEOL 167 - Oceans, Atmosphere, and Climate Change
- GEOL 168 - California's Earth System
- HS 161 - Environment and Human Health
- NSCI 115 - Environmental Earth and Life Science
- NSCI 120 - Biotechnology and Its Impact on Society
- NSCI 121 - Blood
- NSCI 125 - Revenge of the Killer Microbes
- NSCI 131 - Biological Bases of Neurological Disorders
- PSCI 131 - Concepts of Classical Physics from Babylon to Maxwell
- PSCI 168 - Environmental Impact of Energy Demands by Society
- PHYAN 110 - Human Reproductive Physiology, Aging, and Death
- PHYS 100 - Concepts of Quantum Physics
- PLANT 105 - Food, Society, and Environment
- PSYCH 126 - Cognitive Neuroscience

Arts and Humanities

(Area IC)

- AETH 100 - Contemporary Conflicts of Morals (same as PHIL 120)
- ARM 148 - Masterpieces of Armenian Culture
- ART 102 - Ideas of Visual Culture: Art, Media, and the Computer
- DANCE 171 - Philosophical Bases and Trends in Dance
- DRAMA 163 - Dramatic Literature
- ENGL 101 - Masterpieces of World Literature
- ENGL 102 - Masterpieces of English Literature
- ENGL 103 - Masterpieces of American Literature
- ENGL 112 - World Literature: Ancient
- ENGL 113- World Literature: Medieval and Renaissance
- ENGL 114 - World Literature: Modern
- ENGL 174 - Popular Fiction
- FREN 109 - French Literature, Culture, and Society from the Middle Ages to Today *(taught in French)*
- FREN 149 - Voices of Africa *(taught in English)*
- HUM 104 - Humanities in the Middle Ages and Renaissance
- HUM 108 - Humanities in Classical Athens
- HUM 110 - Humanities in Republican and Imperial Rome
- HUM 118 - Folklore in Contemporary Life
- LING 115 - Language, Culture, and Society
- LING 130 - Language and Gender
- MUSIC 170A - Music of the Americas: Latin American
- MUSIC 171 - Introduction to the World's Music
- MUSIC 187 - Popular Music: Jazz and Rock
- PHIL 120 - Contemporary Conflicts of Morals (same as AETH 100)
- PHIL 150 - Foundation of Knowledge
- PHIL 151 - Cognitive Science: Mind
- SPAN 125 - Hispanic Cultural Productions *(taught in Spanish)*
- SPAN 129 - Mexican Culture *(taught in Spanish)*

Social, Political, and Economic Institutions and Behavior, Historical Background

(Area ID)

- AAIS 103 - Indians of California
- ANTH 116W - Anthropology of Religion
- ANTH 145 - Cultural Resources Management
- CLS 114 - Mexico and the Southwest 1810-1910
- CRIM 101 - Crime and Violence in America
- CRIM 120 - Juvenile Delinquency
- 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
- GEOG 169 - The American West
- GERON 100 - Images of Aging in Contemporary Society
- HIST 101 - Women in History (same as WS 101)
- KINES 111 - Olympic Games
- MCJ 178 - New Information Technologies
- PSYCH 123 - Developmental Psychobiology
- PSYCH 173 - Environmental Psychology
- SSCI 110 - California Studies
- SOC 131 - Sociology of Sex and Gender
- SOC 143 - Deviance and Control
- SOC 163 - Urban Sociology
- WS 101 - Women in History (same as HIST 101)

Multicultural/International

(Area MI)

- AAIS 150 - South Africa
- AAIS 164 - African Cultural Perspectives
- ANTH 105W - Applied Anthropology
- ANTH 120 - Ethnic Relations and Cultures
- ANTH 123 - Peoples and Cultures of Southeast Asia
- ANTH 125 - Tradition and Change in China and Japan (same as HUM 140)
- ASAM 110 - Asian American Communities
- BA 104 - Global Business
- CLS 160 - Sex, Race, and Class in American Society
- CLS 170 - Latin American Studies
- COMM 164 - Intercultural Communication
- CSD 139 - Deaf Culture
- ECON 181 - Political Economy of Latin America
- GEOG 167 - People and Places - A Global Perspective
- GERON 161 - Multiculture/Aging
- HIST 186 - American Immigration and Ethnic History
- HS 104 - Global and Cultural Issues in Health
- HUM 140 - Tradition and Change in China and Japan (same as ANTH 125)
- LING 147 - Bilingualism
- MCJ 175 - Multicultural Mass Communication and Media Stereotypes
- MCJ 176 - International Mass Communication
- PHIL 131 - Comparative Religion
- PHIL 132 - Religion and the Margin
- PLSI 120 - International Politics
- SOC 111 - Sociology of Race and Ethnicity
- SOC 142 - Sociology of Popular Culture
- SSCI 180 - Diversity in the United States
- SWRK 136 - Cultural Diversity and Oppression
- WS 110 - Representations of Women
- WS 120 - Women of Color in the United States
- WS 135 - Women in Other Cultures

Course Subjects, Symbols, and Terms

Course Subjects, Symbols, and Terms

The following chart is a guide to the appropriate subjects used in this catalog for the university's departments and programs of study.

AAIS	Africana and American Indian Studies
ACCT	Accountancy
AETH	Applied Ethics
AGBS	Agricultural Business; Graduate
AGEC	Agricultural Economics
AGED	Agricultural Education
AGRI	Agriculture; Graduate
AH	Arts and Humanities
ANTH	Anthropology
ARM	Armenian
ARMS	Armenian Studies
ART	Art
ARTDS	Art and Design
ARTH	Art History
ASAM	Asian American Studies
ASCI	Animal Sciences
ASP	Aerospace Studies
ATHL	Athletics
BA	Business Administration
BIOL	Biology
BIOSC	Biological Science Core
BOT	Botany
BUS	Business
CE	Civil Engineering
CFS	Child and Family Sciences
CGSCI	Cognitive Science
CHEM	Chemistry
CHIN	Chinese
CI	Curriculum and Instruction
CLS	Chicano and Latin American Studies
COMM	Communication
COMS	Community Service
CONST	Construction Management
COUN	Counselor Education
CRIM	Criminology
CRP	City and Regional Planning
CRSC	Crop Science — Agronomy and Vegetable Crops
CSB	Craig School of Business
CSCI	Computer Science
CSD	Communicative Sciences and Disorders
CSH	Consumer Science and Housing
CST	CalState TEACH
DANCE	Theatre Arts
DRAMA	Theatre Arts
DS	Decision Sciences
EAD	Educational Administration
ECE	Electrical and Computer Engineering
ECOL	Ecology
ECON	Economics
EDL	Educational Leadership
EDU	Education
EE	Electrical Engineering
EHD	Education and Human Development
ENGL	English
ENGR	Engineering
ENOL	Enology
ENSC	Environmental Science
ENTR	Entrepreneurship
ERF	Educational Research, Foundations
ESL	English as a Second Language
FCS	Family and Consumer Sciences
FIN	Finance
FL	Foreign Language
FM	Fashion Merchandising
FN	Food and Nutrition
FREN	French
FSC	Food Science
FSM	Food Systems Management
GD	Graphic Design
GENET	Genetics
GEOG	Geography
GEOL	Geology
GERM	German
GERON	Gerontology
GME	Geomatics Engineering
GPA	Graduate Public Administration
GRK	Greek
GS	Graduate Studies
GSCC	Graduate Studies - Community College
HEBR	Hebrew
HEC	Home Economics Education
HHS	Health and Human Services
HIST	History
HMONG	Hmong
HONOR	Honors
HORT	Horticulture
HRM	Human Resource Management
HS	Health Science
HUM	Humanities
ID	Interior Design
IE	Industrial Engineering
INOV	Institute of Innovation
IPC	Interprofessional Collaboration
IS	Information Systems
ISA	International Studies Abroad
ISC	International Studies Course
IT	Industrial Technology
ITAL	Italian
JAPN	Japanese
KAC	Kinesiology Activity
KINES	Kinesiology
LATIN	Latin
LCOM	Learning Communities
LEE	Literacy and Early Education
LING	Linguistics
MATH	Mathematics
MBA	Master of Business Administration
MCJ	Mass Communication and Journalism
ME	Mechanical Engineering
MEAG	Mechanized Agriculture
MGT	Management
MICRO	Microbiology
MKTG	Marketing
MS	Military Science
MSA	Master of Science in Accountancy
MSCI	Marine Science
MUSIC	Music
NSCI	Natural Science
NURS	Nursing
NUTR	Nutrition
OH	Ornamental Horticulture
PAX	Peace and Conflict Studies
PH	Master of Public Health
PHIL	Philosophy
PHTH	Physical Therapy
PHYAN	Physiology/Anatomy/ Development
PHYS	Physics
PLANT	Plant Science
PLSI	Political Science
PLTH	Plant Health
PORT	Portuguese
PSCI	Physical Science
PSYCH	Psychology
RES	Revising and Editing Skills
RLS	Recreation and Leisure Studies
SC	Solutions Center
SKT	Sanskrit
SOC	Sociology
SPAN	Spanish
SPED	Special Education
SSCI	Social Science
SW	Soil and Water
SWRK	Social Work
UNIV	University
VEN	Viticulture and Enology
VIT	Viticulture
WS	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
E1	G.E. BREADTH
IB	G.E. INTEGRATION
IC	G.E. INTEGRATION
ID	G.E. INTEGRATION
MI	G.E. MULTICULTURAL/ INTERNATIONAL

Catalog Numbering System

1-99
Lower-division courses are designed for first- and second-year students but open to other 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

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 493-494. Project class 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. For complete eligibility requirements, see *Criteria for Thesis and Project* under Graduate Studies, page 493-494. Thesis class numbers are obtainable through the student's department. Failure to meet eligibility requirements may result in cancellation of such enrollment. Thesis enrollment is not available through Extension or Open University.

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 Catalog Number Symbols

A-B Two-semester course normally taken in sequence

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

F Field course

G 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.

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 (UDWS) 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 *Class Schedule*.

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. Students will not be able to register in courses when proper prerequisites have not been met. The instructor can also 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.

Smittcamp Family Honors College

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 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.

Department Honors, also earned at the upper-division level, allow students to pursue an advanced program of study within their major. The Psychology Department and the Criminology Department currently have such programs, and the university is actively encouraging and supporting the development of honors programs in other departments.

The Smittcamp Family Honors College

Stephen Rodemeyer, *Director*

McLane Building, Room 200
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*

http://honors.csufresno.edu

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. Sample topics might be "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 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.

COURSES

Honors (HONOR)

1. Honors Colloquium (1; max total 6)
Open to students in the honors program only. 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.

101. Emerging Voices after Colonialism: Revolution in Theory, Revolution in Practice (4)
Open to students in the honors program only. Explores the expanding field of postcolonial studies. Postcolonialism studies critically analyzes the dialectic between Western imperialism and resistance to colonialism in Africa, Asia, and the Caribbean. Readings will include primary sources, essays of criticism and theory, colonial literature, and a diverse selection of novels from formerly colonized nations.*

*For honors students, HONOR 101, 102, and 103 fulfill G.E. areas IB, IC, ID, and M/I. See honors adviser for prerequisites.

102. Revolutions in Natural and Social Sciences (4)
Open to students in the honors program only. Examines fundamental changes in natural and social sciences. Focuses first on revolutions in natural sciences particularly in physics and biology. Then surveys major changes in economic theory with an emphasis on the so-called marginal revolution.*

103. Ecological Social Effects (4)
Open to students in the honors program only. Examines the impact of the Industrial Revolution and the accompanying industrialized nations' demand on Third World nations for tropical products. Puts the Industrial Revolution into global perspective by integrating biological, geographical, ecological, historical, and social effects.*

180. Special Projects in Honors (1-3; max total 9)
Open to students in the honors program only. Individual projects in the Smittcamp Family Honors College. Projects related to Honors College courses; for example, internships, research papers, community service projects, new classroom approaches, and learning communities.

Other Honors Courses

ARMS 20H. Arts of Armenia (3)
Open to students in the honors program only. Introduces Armenian architecture, painting, sculpture, ceramics, metal work and textiles. G.E. Breadth C1.

BIOL 10H. Life Science (3)
Open to students in the honors program only. Not open to students with credit BIOSC 1A. Shows how living things work and why they work that way. Discusses biology from chemical and physical foundations through ecological and evolutionary processes. Examines biology and its relationship to human affairs. (2 lecture, 2 lab hours) G.E. Breadth Area B2.

CFS 38H. Honors Life Span Development (3)
Open to students in the honors program only. Basic theories, research, and principles of physical, cognitive, and psychological development from conception to death presented from the perspective of diverse families. Emphasizes reading original theoretical and empirical works by prominent developmentalists and requires a student-conducted research project. G.E. Breadth E1.

CHEM 10H. Chemistry and Society (4)
Open to students in the honors program only. Prerequisite: G.E. Foundation B4. Not open to students with credit in college chemistry; for non-science majors. Discusses significance of chemical principles in contemporary society; benefits and hazards relative to areas such as energy, health, diet, environment and agriculture. (3 lecture, 3 lab hours) G.E. Breadth B1.

COMM 6H. Rhetoric for Autonomy and Collaboration in the Marketplace of Ideas (3)
Open to students in the honors program only. Explores invitational rhetoric and its civic function in contemporary public discourse; experiences designed to enhance fundamental communication skills — research, organization, reasoning, empathic listening and problem-solving — through series of oral presentations. G.E. Foundation A1.

DRAMA 75H. Theatre in Contemporary American Culture (3)
Open to students in the honors program only. Introduction to the practice and scholarship of American theatre today. Application of critical methodology for four areas of theatrical production (1) theatre architecture, (2) acting, (3) directing, and (4) design. Attendance at two to three theatre performances is required. G.E. Breadth C1.

ENGL 42H. Creative Writing (4)
Open to students in the honors program only. Prerequisite: G.E. Foundation A2 (ENGL 1). Beginning workshop in the writing of poetry and fiction; appropriate readings and analysis. G.E. Breadth C1.

GEOL 8H. Natural Disasters and Earth Resources (4)
Open to students in the honors program only. Prerequisite: G.E. Foundation B4. Processes and materials that 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. (3 lecture, 2 lab hours)

HIST 15H. Trials of the Century (3)
Open to students in the honors program only. Prerequisite: G.E. Foundation A2 (ENGL 1). Studies celebrated legal trials from 1896 to 2000 as windows for understanding larger historic context. Cases address issues such as racial discrimination, freedom of speech and religion, reproductive rights, consumer protection, war crimes, treason and capital punishment. G.E. Breadth D1. (Formerly HIST 12H, HIST 20H)

HUM 10H. Introduction to the Humanities of the Western World (3)
Open to students in the honors program only. Prerequisites: G.E. Foundation A2 (ENGL 1). Accelerated survey of the relationships between the art, literature, and philosophy of classical antiquity, from classical Greece to the dawn of the Renaissance. G.E. Breadth C2.

MATH 45H. Exploring Mathematics (3)
Open to students in the honors program only. Prerequisite: Students must meet the ELM requirement. Covers topics from the following areas: (1) The Mathematics of Social Choice, (2) Management Science and Optimization, (3) The Mathematics of Growth and Symmetry, and (4) Statistics and Probability. G.E. Foundation B4, Quantitative Reasoning.

MUSIC 60H. Music in Social Context (3)
Open to students in the honors program only. Exploration of various settings in which music has been an important indicator of social class and class values. Emphasis on western classical music and American jazz. Attendance at 2-3 performances of music required. G.E. Breadth C1.

NSCI 4H. Science and Nonsense: Critical Thinking and the Philosophy of Science (3)
Open to students in the honors program only. Shows the use of language, rational inquiry, and logic in science, distinguishing science fact from science fiction. Inductive and deductive methods, judgement, opinion, origins of knowledge, belief and

*For honors students, HONOR 101, 102, and 103 fulfill G.E. areas IB, IC, ID, and M/I. See honors adviser for prerequisites.

actions. A critical examination of contemporary pseudoscientific issues (creation science, UFOs, astrology, etc.). G.E. Foundation A3.

NUTR 53H. Nutrition and Health: Realities and Controversies (3)
Open to students in the honors program only. Optimal nutrition to reduce the risk of cancer, heart disease, allergies, hyperactivity, 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.

PHIL 32H. Life, Death, and Afterlife (3)
Open to students in the honors program only. Diverse reflections (religious and philosophical) on the meaning of life, death, and afterlife. The nature of the soul (e.g. immortal/mortal); connection to body; implications of an afterlife (if any) for this life; includes Western and non-Western perspectives. G.E. Breadth E1.

PHIL 35H. Logic for Autonomy and Collaboration in the Marketplace of Ideas (3)
Open to students in the honors program only. Explores techniques for analysis of reasoning in contexts ranging from interpersonal communication through scholarly and political discourses. Theoretical grounding for these techniques, including both central ideas from philosophy of logic and readings from classical and contemporary sources on freedom of thought, freedom of conscience, and the autonomy of reason. G.E. Foundation A3.

PLSI 2H. American Government and Institutions (3)
Open to students in the honors program only. Prerequisite: G.E. Foundation A2 (ENGL 1). Meets the United States Constitution requirement and the federal, California state, and local government requirement. Not open to students with credit in PLSI 101. Development and operation of government in the United State; study of how ideas, institutions, laws and people have constructed and maintained a political order in America. G.E. Breadth D2.

PLSI 71H. Introduction to Environmental Politics (3)
Open to students in the honors program only. Prerequisite: G.E. Foundation A2 (ENGL 1). Introduction to study of environmental politics and policy making in the United States; a brief history of environmentalism; basic principles in environmental policy making, including policy making for interest groups, legislatures, and levels of government; and selection of current topics in environmental issues. G.E. Breadth D3.

PSYCH 62H. Introduction to Social and Cultural Psychology (3)
Open to students in the honors program only. Prerequisite: G.E. Foundation A2 (ENGL 1). Interaction between social environments and behavior with an emphasis on culture and cultural differences. Includes topics such as social influence and beliefs, conformity, the self, attitude change, group influence, prejudice and racism, aggression, attraction and intimacy, altruism and helping. G.E. Breadth D3.

Athletics

In 2004, the Development of Athletics implemented a new strategic plan. Accompanying that were new vision and mission statements and a set of core values.

Vision Statement

Fresno State Athletics: Providing competitive opportunities for today's student-athletes to become tomorrow's leaders.

Mission Statement

Fresno State Athletics is committed to developing champions for life by inspiring academic and athletic excellence in an environment that promotes diversity, equity, and integrity while providing opportunities for today's student-athletes to become tomorrow's leaders.

Core Values

Pride • Success • Integrity • Commitment

The Strategic Plan focuses on providing an academically and athletically successful collegiate experience for student-athletes in all sports, and will be used as an evaluation tool to gauge the success of staff and operations areas based on their accomplishments toward these prescribed goals and objectives.

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.

Student-Athlete Services

The Student-Athlete Services Office provides tutoring, academic advising, individual consultations, and NCAA eligibility monitoring for more than 550 student athletes on a year-round basis. It works with the NCAA in providing a Life Skills Development program that emphasizes personal, career, community service and athletic development, and it advises the Student Athlete Advisory Council. The council, 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 partners with Kiwanis International to host 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)

ATHL 10. Strategies for Academic Success (3)
Some sections are specially designated for students in intercollegiate athletics and include strategies for academic success. (See *University 1* on page 17.) 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.

INTERCOLLEGIATE ATHLETICS*
(Courses may be repeated)

ATHL 100. Conditioning of Athletes (1)
Prerequisite: must be enrolled in a varsity team sport (ATHL 176-199). Refer to current *Class Schedule* for appropriate section and class number.

ATHL 176. Baseball (2)
Men only.

ATHL 177. Basketball (2)
Men only.

Office of the President

Department of Athletics
Scott L. Johnson, *Athletic Director*
North Gym, Room 146
559.278.2643

ATHL 178. Basketball (2)
Women only.

ATHL 180. Cross Country (2)

ATHL 181. Equestrian (2)
(Same as ASCI 187.) Women only.

ATHL 182. Football (2)

ATHL 183. Golf (2)
Men only.

ATHL 184. Golf (2)
Women only.

ATHL 185. Soccer (2)
Women only.

ATHL 187. Softball (2)
Women only.

ATHL 191. Tennis (2)
Men only.

ATHL 192. Tennis (2)
Women only.

ATHL 193. Track and Field (2)

ATHL 196. Volleyball (2)
Women only.

ATHL 199. Wrestling (2)
Men only.

* Students majoring in kinesiology or dance 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

Scott L. Johnson, *Chair*

Mike Batesole
Angie Cates
Dennis A. DeLiddo
Deena Diboll
Robert E. Fraley
Linda Gannaway
Pat Hill
Stacy Johnson-Klein
John Kriebs
Ray Lopes
Rebecca Malmo
Desireé Reed-Francois
Steve Springthorpe
Simone Thibodeau
Greg Walaitis
L. Michael Watney
Steve Weakland
Randal Welniak
Marjorie A. Wright

The College of Agricultural Sciences and Technology

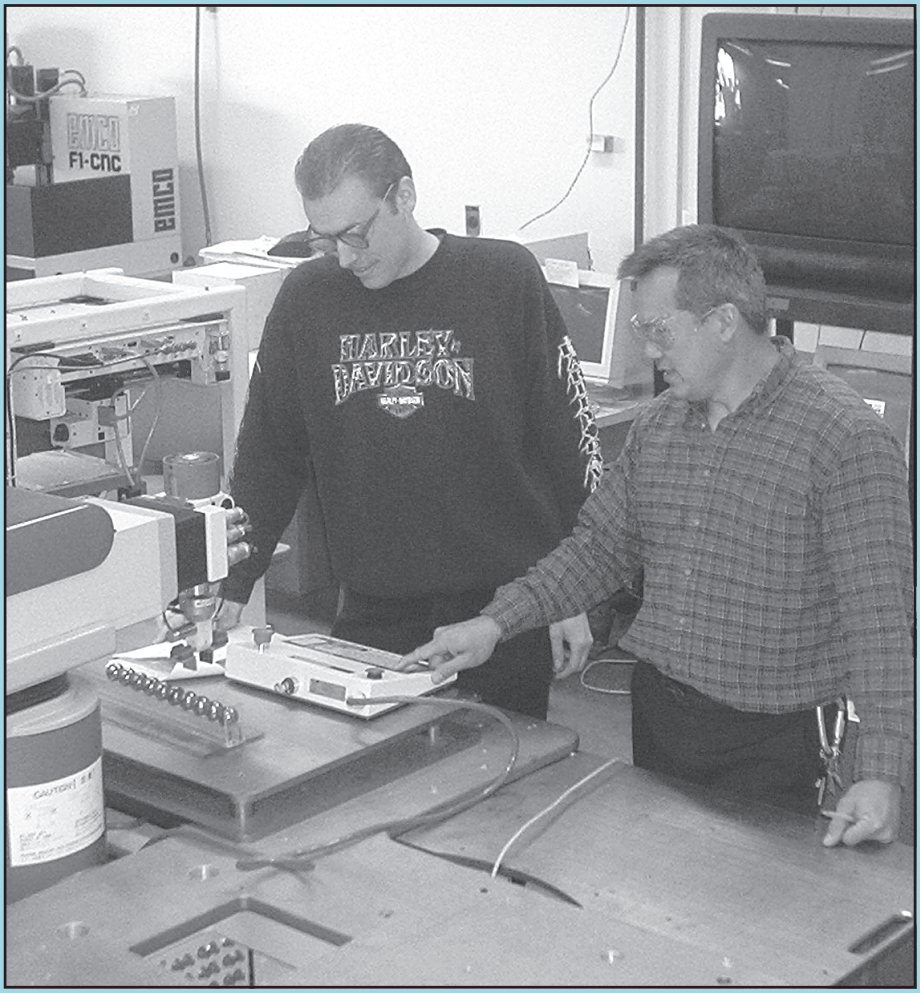
Agricultural Sciences Building, Room 102
Daniel P. Bartell, *Dean,* 559.278.2061
http://cast.csufresno.edu/

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. 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.

Upon graduation, 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 Agricultural 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
James E. Casey, *Chair*
Christina H. Fitz Gibbon, *Administrative Support Coordinator*
Leon S. Peters Building, Room 302
M/S PB 101
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 for other colleges and universities 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 (AGEC) 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. The 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 (AGBS) with core courses from business. This AACSB accredited degree program is administered by the 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, 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 (AGEC 194).

- **University Agricultural Laboratory Project**. Students gain farming experience through participation in the faculty supervised, student project program and concurrent enrollment in an Enterprise Management course (PLANT, ASCI, ENOL 196). Such a course is highly recommended and can be used in the major.
- **Solutions Program Team Project**. Students earn academic credit (SC 197) through experiential learning. The team is faculty advised and charged with solving a problem or exploiting an opportunity faced by a real world client. Clients are private businesses or public agencies that have 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 (AGEC 168).

Faculty

James E. Casey, *Chair*
James H. Cothern
Herbert O. Mason
Dwight D. Minami
Dennis L. Nef
Carl L. Pherson
John R. Shields
Dennis Wichelns
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*

Major requirements 60

Agricultural Foundation ..... (9)
(Select three courses from the below areas. No more than 3 units are allowed in the Ag Business area. No more than 6 units may be taken in any of the remaining areas. Courses listed are suggested introductory level courses; however, other area related courses are acceptable.)
Ag Business: AGEC 5
Animal Sci: ASCI 1
Food Sci/Nutr: FSC 1, NUTR 54
Mech Ag: MEAG 3, MEAG 20
Plant Sci: CRSC 1, PLANT 1, OH 1, PLTH 1
Soil/Water: SW 1, SW 2
Vit/Enol: HORT 1, ENOL 15

Business Management Base ..... (18)
AGEC 2 or ECON 50
AGEC 28 or BA 18
AGEC 31 or ACCT 4A
AGEC 32 or ACCT 4B
AGEC 71 or DS 73 or MATH 11
AGEC 76 or IS 52, 52L

Agricultural Economics Core ..... (21)
AGEC 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 1-2
Agricultural Business majors must take the following courses, which also satisfy General Education requirements amounting to 12 units plus 1-2 excess units beyond the normal 3 unit General Education requirements in Foundation (Area B4: MATH 75) and Breadth (Area B1: CHEM 3A).
FOUNDATION
Area B4: DS 71 or MATH 75
BREADTH
Area B1: CHEM 3A
Area B2: BIOL 10, BOT 10, or ZOOL 10
Area D3: AGEC 1

General Education requirements 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)

Electives and remaining degree requirements 7-8
Upper-division writing skills by exam or writing course (PLANT 110W, BA 105W, ECON 102W recommended).
Courses supplementary to the major are strongly recommended.

Total units 120

Advising Notes

1. New students should request the *Advising Information* brochure that includes a program-of-study check sheet and explanatory notes about requirements for the major.
2. All students are assigned a faculty adviser. Consult the department bulletin board for the current listing. Make an appointment each semester to review your academic record and to schedule remaining courses in order to graduate in a timely manner.
3. Prospective transfer students should consult with a community college academic adviser about their program of study to determine which California State University, Fresno AGEC courses are articulated as equivalent for lower-division credit. Transfer students may also consult *ASSIST,* the statewide articulations database, at *www.assist.org*.
4. Credits earned for articulated community college courses do not count toward upper-division units in the major.
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 double 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 double 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 *Double Major* or *Minor* in this catalog and consult with the appropriate department adviser.)
7. Unit limits for courses included in the major exist for AGEC 80/180 (4 units combined maximum allowed) and AGEC 194 (3 units maximum allowed).

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 as well as agricultural education 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 filed with the Office of Evaluations, and recorded on your transcript.

The minor consists of 24 units, of which equivalent courses are acceptable for a maximum of 12 units.

Units

Core Requirements

Intro Microeconomics: AGEC 1 ..... **3**
Financial Accounting: AGEC 31 ..... **3**
Intermediate Microeconomics: AGEC 100 ..... **3**
Production Operations: AGEC 110N/110 or AGEC 124 ..... **3**
Organizational Behavior: AGEC 120 ..**3**
Financial Principles: AGEC 130 ..... **3**
Government Policy: AGEC 150 ..... **3**
Agricultural Marketing: AGEC 160 ... **3**
Total units 24

Note: The Agricultural Business Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Advising Notes

1. University policy states that courses fulfilling requirements for a minor may be counted toward General Education.
2. Students pursuing a minor are expected to have basic computer competencies (AGEC 76 recommended) and fundamental quantitative reasoning skills (AGEC 78 or DS 71 or MATH 75 recommended) before enrolling in the required upper-division courses.
3. The department waives AGEC 1, 31, 120, and 130 for students who have already received credit for ECON 40, ACCT 4A, MGT 104 or 110, and FIN 120 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."
4. Concerning the course selections to satisfy the production operations core requirement, consult with the minor adviser about which choices match your career plans.
5. All courses in the minor must be taken for a letter grade; ***CR/NC*** grading is not acceptable.

Prerequisite Notice

1. **Agricultural business majors** *must* complete the lower-division business management base courses (AGEC 2, 28, 31, 32, 71, 76) and the lower-division additional requirements to the major in General Education Foundation Area B4 (DS 71 or MATH 75) and Breadth Area D3 (AGEC 1) before enrolling in upper-division AGEC courses.
2. **Non agricultural business majors** who select the Production Management Option (Animal Sciences Major), the Production Management Emphasis (Plant Science Major), or the Teacher Preparation Option (Agricultural Education Major) *must* complete AGEC 1, 31, and 76 before enrolling in any upper-division AGEC courses. Permission of instructor may be necessary to register for some upper-division AGEC courses because of the general prerequisite structure indicated in note 1 above for students majoring in agricultural business and the specific prerequisites listed in individual course descriptions.

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 (AGEC)

AGEC 1. Introductory Agricultural Economics (3)
Prerequisite: G.E. Foundation A2. Microeconomic principles of resource allocation, production, cost, and market price equilibrium with primary application to farms and agribusinesses. Supply and demand in commodity pricing under perfect and imperfect competition. Optimizing single variable input production function; total/marginal approaches to profit maximizing output. G.E. Breadth D3.

AGEC 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.

AGEC 5. Survey of Agricultural Economics and Agribusiness (3)
Not open to students with credit in any upper-division AGEC course. Orientation to agricultural sector, institutions, and historic farm problems. Basic economic concepts and business principles applied to management, marketing, finance, and trade. Consumer demand and producer supply functions. Competitive market price determination. Overview of resource, environmental, consumer, and farming issues and government policies.

AGEC 100. Intermediate Agricultural Economics (3)
Prerequisites: AGEC 1; AGEC 78 or DS 71 or MATH 75. 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 (AGEC)

AGEC 110N. Introductory Farm Management (3)
Prerequisites: AGEC 1, 31, and 76. 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)

AGEC 110. Farm Management (3)
Prerequisites: AGEC 31, 76, and 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)

AGEC 114. Advanced Farm Management (3)
Prerequisite: AGEC 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.

AGEC 117. Agricultural Labor-Management Relations (3)
Prerequisite: AGEC 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 (AGEC)

AGEC 28. Introductory Agricultural Law (3)
Fundamentals of agricultural law including historical sources; legislative laws and business ethics; 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.

AGEC 120. Agribusiness Management (3)
Prerequisite: AGEC 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.

AGEC 122. Agricultural Cooperative Management (3)
Prerequisite: AGEC 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.

AGEC 124. Food and Fiber Industry Management (3)
Prerequisite: AGEC 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.

AGEC 128. Advanced Agricultural Law (3)
Prerequisite: AGEC 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 (AGEC)

AGEC 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.

AGEC 32. Agribusiness Managerial Accounting (3)
Prerequisite: AGEC 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. (2 lecture, 1 arranged)

AGEC 130. Agricultural Finance (3)
Prerequisites: AGEC 2, 31, 76; 100 or instructor's permission. AGEC 32 recommended. 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.

AGEC 131. Agricultural Capital Markets (3)
Prerequisites: AGEC 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 AGEC 185T)

AGEC 136. Farm and Ranch Appraisal (3)
Prerequisites: AGEC 1. AGEC 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 (AGEC)

AGEC 140. International Development and Agriculture (3)
Comparative development of low- and high-income countries; policies/programs addressing inequality, poverty, malnutrition, disease, overpopulation, underemployment, pollution, globalization; structural, institutional, technological change; investment, trade, and aid strategies for growth; food production and distribution efficiency; environmentally sustainable, culturally compatible, economically viable agricultural systems.

Public Policy (AGEC)

AGEC 150. Agricultural and Food Policy (3)
Prerequisite: AGEC 1. AGEC 2 recommended. 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.

AGEC 153. Agricultural Trade (3)
Prerequisites: AGEC 2, 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.

AGEC 155. Environmental and Natural Resource Policy (3)
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 (AGEC)

AGEC 64. Agricultural Sales and Promotion (3)
Principles and practices of selling agricultural products; merchandising techniques and sales approaches; customer prospecting and service; promotional programs,

advertising campaigns, and public relations for agricultural industries and organizations; multimedia utilization strategies; written/oral communication abilities, and computer presentation skills development.

AGEC 160. Agricultural Market Analysis (3)
Prerequisite: AGEC 100 or permission of instructor. 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.

AGEC 162. Commodity Futures Trading (3)
Prerequisite: AGEC 160 or permission of instructor. Study of commodity futures and options markets; speculative trading and techniques of fundamental and technical analyses; crop and livestock hedging strategies for commodity procurement and marketing; integrating options and futures trading for risk management; and development of futures trading plans.

AGEC 163. Agricultural Export Marketing (3)
Prerequisite: AGEC 160 or permission of instructor. 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.

AGEC 164. Agribusiness Sales Management (3)
Prerequisite: AGEC 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.

AGEC 168. Agricultural Marketing Management Project (1-3; max total 3)
Prerequisites: AGEC 71, 160, 164 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 (AGEC)

AGEC 71. Agricultural Business Statistics (3)
Prerequisite: ELM requirement met. 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.

AGEC 76. Agribusiness Microcomputer Applications (3)
Applied microcomputing for agribusiness management; use of spreadsheet, database management, and presentation software; applications to basic farm accounting and financial budgeting, farm production recordkeeping, crop and livestock enterprise management, and commodity price trend tracking. (2 lecture, 3 lab hours)

AGEC 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.

AGEC 170. Advanced Agribusiness Applications (3)
Prerequisites: AGEC 110, 120, 130, 150, 160; upper-division writing skills requirement. Research methods applied to agricultural business; problem definition and solution formulation; data collection and analysis using statistics and other techniques. Culminating activities may include research proposal, feasibility study, project review, business plan, strategic management, case study; written reports and oral presentations.

Special Topics (AGEC)

AGEC 80. Undergraduate Research (1-4; max total 4)
Prerequisites: AGEC 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 *RP* grading.

AGEC 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.

AGEC 180. Undergraduate Research (1-4; max total 4)
Prerequisites: senior standing, upper-division writing skills requirement, 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 *RP* grading.

AGEC 185T. Topics in Agricultural Business (1-3; max total 9)
Prerequisite: AGEC 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 (AGEC)

AGEC 192. Agricultural Business Field Studies (2)
Prerequisite: AGEC 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, $75)

AGEC 194. Agribusiness Internship (1-3; max total 6)
Prerequisites: junior standing. 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 *Catalog Numbering System and Eligibility*.)

Agricultural Business (AGBS)

AGBS 210. Agribusiness Industry Analysis (3)
Prerequisite: classified standing or permission of instructor. Analysis of characteristics unique to agricultural institutions; practices in financing, producing, and marketing food and fiber products; integration of economic principles with management techniques for optimum decision-making under risk and uncertainty; crop/livestock enterprise budgeting; policy environment impact on agriculture.

AGBS 220. Food Processing and Distribution Management (3)
Prerequisite: AGBS 210. Classified standing or permission of instructor. Analysis of strategic management decisions involving pricing relationships, processing and packaging systems, supply channel management, transportation modes and distribution logistics for agricultural products in domestic and global markets; applications to food industry case problems including international food marketing firms. (Formerly AGBS 225)

AGBS 240. International Trade and Agricultural (3)
Analysis of global markets and national trade policies; economic principles underlying free trade and World Trade Organization; regional integration for growth/development; protectionism/preferences impact on capital investment flows, firm productivity, and industry competitiveness; domestic farm programs, international commodity agreements, and agricultural trade distortions.

AGBS 250. Agricultural Policy Analysis (3)
Classified standing or permission of instructor. Examination of policy-making processes; evaluation of government farm and food programs; determination of industry responses and firm adjustments to changing market structures and government policies; urbanization and other land, air, water resource issues impacting agriculture; geopolitics and agricultural trade policy.

AGBS 260. Commodity and Food Market Analysis (3)
Prerequisite: AGBS 210. Classified standing or permission of instructor. Economic and institutional relationships in food and fiber markets; commodity futures trading and risk management; derived demand by agribusiness for raw commodities; food industry marketing margins and market price determination; distribution and merchandising strategies; spatial and intertemporal price equilibrium models.

AGBS 280T. Topics in Agricultural Business (3; max total 6)
Prerequisite: AGBS 210. Classified standing or permission of instructor. Fields of study include: farm management, agribusiness management, financial planning, international agriculture, public policy, and product marketing.

AGBS 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Agriculture (AGRI)

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

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 careers in dairy herd management, genetics, nutrition, physiology, animal reproduction, animal health, health inspection, milk handling, 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*
Rosco C. Vaughn, *Agricultural Education Credentialing Coordinator*
John F. Cordeiro
Ann M. De Lay
John A. Henson
Randy C. Perry
Jon D. Robison
Michael W. Thomas
Scott A. Williamson

College of Agricultural Sciences and Technology

Department of Animal Sciences and Agricultural Education
Arthur A. Parham, *Chair*
Sandra Daily, *Administrative Support Coordinator*
Agriculture Building, Room 232, M/S AS75
559.278.2971
http://cast.csufresno.edu/asae/

B.S. in Animal Sciences
Options:
- Production Management
- Science

B.S. in Agricultural Education
Options:
- Agricultural Communications
- Teacher Preparation

M.S. in Animal Science

Minor in Animal Sciences

Agricultural Specialist Credential

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

Major requirements 56-65

Animal Science Core ..... (41)

ASCI 1, 35, 65, 71, 101, 125, 135, 145, 155, 165, 186

Select two from the following: ASCI 21, 31, 41 51**, 61**, 91

Select 3 units from ASCI 180, 181, 190, 194, 196

Production Management Option

Career specialization *(choose one)*

Livestock Business Management

Specialization..... (22)

ASCI 11, 81, 156

Select 9 units from: AGEC 28 or BA 18; AGEC 31 or ACCT 4A; AGEC 110*** or 110N or 120; AGEC 117, 130; AGEC 160 or 162

Select two from: ASCI 121, 131, 151, 161, 171

Dairy Science

Management..... (22)

ASCI 61** (from ASCI core), 146, 156, 161, 162, 163

Select 9 units from: AGEC 31, 110N***, 117, 120, 130, 160, 162

Processing..... (22)

ASCI 61** (from ASCI core), 146, 161, 162; CHEM 8, 150; FSC 112 or 125, 142

Equine Science

Specialization..... (17)

Select 3 units from: AGEC 110N*** or 117 or 120

Select 4 units from: ASCI 52, 53, 54, 55, 187

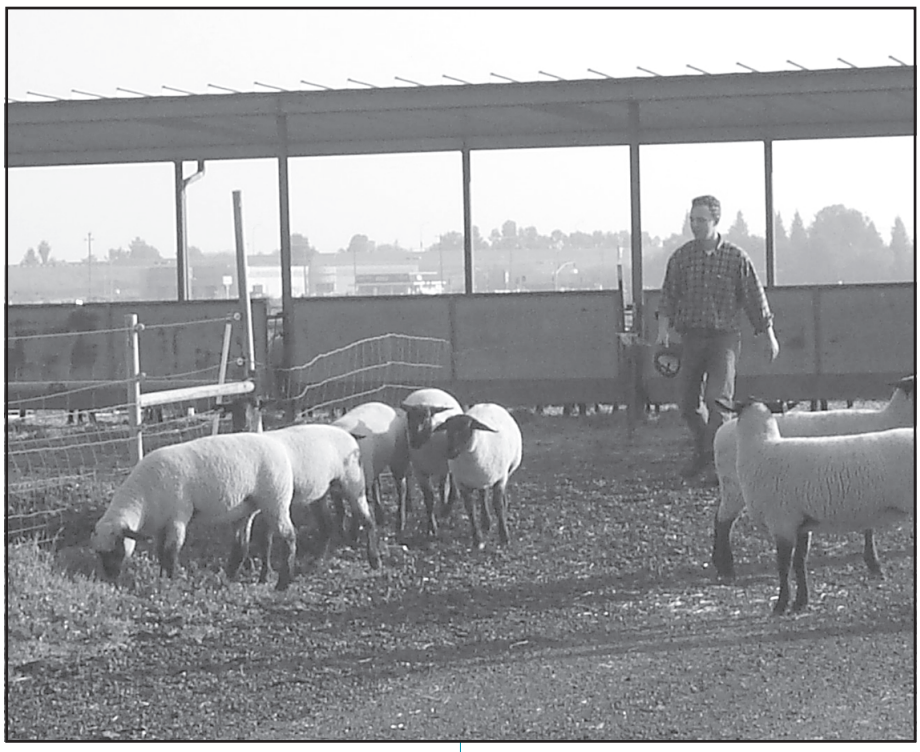
ASCI 51** (from ASCI core), 151, 156,

Select 6 units from: ASCI 152, 153, 185T

Meat Technology

Specialization..... (22)

ASCI 11, 162, 171, 172, FSC 125; CHEM 8; 150



Science Option

Career specialization *(choose one)*

Basic Animal Science

Specialization..... (15)

ASCI 156

BIOSC 1B; CHEM 8, 150

Select one from: ASCI 121, 131, 151, 161, 171, 172

Preveterinary Medicine

Specialization..... (24-25)

ASCI 68; BIOSC 1B; CHEM 1B, 8, or 128A/B; 109 or 129A, 150; PHYS 2A

Additional requirements 19-20*

Production Management Specializations ..... (20)

AGEC 1; 76 or CSCI 101 or IS 52 and 52L; ASCI 67; MICRO 20 or 140; BIOL 10 or ZOOL 10; CHEM 3A

Science Specializations (See advising note 9)..... (19)

AGEC 76 or CSCI 101 or IS 52, 52L; ASCI 67; MICRO 20 or 140; CHEM 1A; BIOSC 1A

General Education requirements 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, E1)

Breadth Area C2: ENGL 20 (recommended)

INTEGRATION

Area IB: CHEM 170 or NSCI 120 or PLANT 105 (recommended)

Electives and remaining degree requirements..... 0-11*

Total minimum requirements..... 124

* Of the 51 required General Education units, 9-12 units will be satisfied in additional requirements: CHEM 1A or 3A in B1, BIOSC 1A or BIOL 10 or ZOOL 10 in B2, AGEC 1 in D3, and ASCI 67 in E1. Consult the department chair or faculty adviser for additional details.

** Equine specialization majors are required to take ASCI 51. Dairy specialization majors are required to take ASCI 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 124 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

Major requirements 54-61

Select *Teacher Preparation* or *Agricultural Communications*

Teacher Preparation Core ..... (39)

***Agricultural Economics*.....** (6)
AGEC 31, 110N or 120

***Animal Science*.....** (9)
ASCI 1, 11; select one of the following: ASCI 21, 31, 41, 61, 91

***Natural Resources and Forestry*.....** (3)
CRSC 105 or AGEC 155

***Ornamental Horticulture*.....** (3)
OH 1

***Plant Science*.....** (9)
CRSC 1; SW 100; HORT 110

Mechanized Agriculture ... (9)
MEAG 1S, 50, 114

Teacher Preparation Career Specialty..... (15)
Select one: Agricultural Business, Animal Science, Mechanized Agriculture, or Plant Science (see *Teacher Preparation Option check sheet available in the department office.*)

Agricultural Communications Core ..... (45)

***Agricultural Economics*.....** (3)
AGEC 150

***Agricultural Education*.....** (6)
AGED 66, 150

***Mass Communication and Journalism*.....** (9)
MCJ 1, 10, 104

***Plant Science*.....** (12)
CRSC 1; OH 1; SW 100; HORT 110

Mechanized Agriculture ... (3)
MEAG 20

***Food Science and Nutrition*.....** (3)
ASCI 71

***Animal Science*.....** (9)
ASCI 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 20-28

CHEM 3A [B1]; BIOL 10 or BOT 10 or ZOOL 10 [B2]; ENGL 20 [C2]; AGEC 1 [D3]; ASCI 67 [E1] ..... (17)

Teacher Preparation ..... (9-11)
Upper-division writing skills
Teacher Education requirements: AGED 135, 150; EHD 50

Agricultural Communications ..... (3)
Upper-division writing skills (MCJ 102W required)

General Education requirements 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 [ ].

Electives and remaining degree requirements..... 1-2*
Courses supplementary to the major are strongly recommended.

Total minimum requirements..... 120

* Up to 15 of the 17 units of the courses listed in the first part of Additional Requirements also may be applied to fulfill General Education requirements. Consult the department chair or faculty adviser for additional details.

Advising Notes

1. See *Advising Notes 1-8* following animal sciences major.
2. Teacher preparation majors seeking the Agriculture Specialist Credential must also take AGED 187 and AGED 189.
3. 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.)
4. Contact the Admissions Office of the Kremen School of Education and Human Development for requirements related to the California Basic Educational Skills Test (CBEST).
5. 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.
6. 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.)
7. 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 Kremen 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 Kremen 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 AGED 135, 150, 187, 189; EHD 155B; CI 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 college 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: ASCI 1	**3**
Livestock Evaluation: ASCI 11	**3**
Animal Nutrition: ASCI 35	**3**
Farm Animal Environment: ASCI 101	**3**
Focus Areas	
Animal Science Principles	**3-6**
Production and Management	**3-6**
Total	**21**

Note: The Animal Sciences Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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 Science Degree Program

The Master of Science in Animal Science is a 30-unit degree program designated to extend professional competencies in animal science to professionals in the industry and to provide the first graduate degree for students anticipating advanced graduate work in the animal sciences. The curriculum is flexible to accommodate a wide variety of areas of interest in animal science. Coursework in animal science includes ruminant and non-ruminant nutrition, environment, reproduction, meats, and health. Appropriate coursework in agricultural education, chemistry, biology, food science, business, or in other areas may also be taken with approval to meet the needs of individual student programs. A thesis or a comprehensive exam can be taken. 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 Science in Animal Science assumes preparation equivalent to a bachelor of science in animal science or agricultural education from an accredited institution. The preparatory baccalaureate degree must include the following courses or their equivalents:

a. ASCI 35 and three of the following five courses: ASCI 125, 135, 145, 155, 165;
b. BIOSC 1A or ZOOL 10;
c. CHEM 1A or 3A;
d. two of the following courses: CHEM 8, 150, MICRO 20, PHYS 2A and 2B; and
e. two animal science production courses.

The above courses or equivalents must be completed prior to enrollment in courses that will be applied to the master's program.

Admission to unclassified postbaccalaureate standing by the university does not imply acceptance in the Master of Science in Animal Science 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 in a related field with appropriate preparatory coursework from an accredited institution; official transcripts of all college work, scores from the Graduate Record Examination General Test (GRE); university application for graduate/postbaccalaureate admission to the Graduate Admissions Office; 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.

Program admission criteria. Candidates for admission will be evaluated using the following criteria: undergraduate coursework, grade point average of 3.0 or better on the 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 program 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, AGEC 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 (or BIOL 274), 201, 220; ASCI 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:	
ASCI 240T, 241, 242, 246, 247, 248, 290	
AGRI 280, 281	
CHEM 150, 151, 153, 156	
Courses in agriculture, business, food science, biology, or other	
Culminating experience	**0-4**
Thesis (4 units) or	
Comprehensive Exam (0 units)	
Total minimum units	**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 do the following:
   a. Maintain a minimum 3.0 GPA
   b. Complete all prerequisite coursework
   c. Attain classified standing
   d. Meet university graduate writing requirement by passing the writing component of AGRI 220 (contact the department office or the graduate coordinator for more information)
   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 or pass a comprehensive examination
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. Thesis students may apply a maximum of 2 units of independent study to the master's program.
7. A maximum of 9 units of 100-level courses may be used to meet degree requirements.
8. 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 within the University Agricultural Laboratory.

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 (ASCI)

ASCI 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)

ASCI 35. Feeds and Feeding (3)
Prerequisite: ASCI 1 (may be taken concurrently). 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)

ASCI 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)

ASCI 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.

ASCI 101. Environmental Management of Farm Animals (3)
Prerequisite: ASCI 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.

ASCI 125. Animal Genetics (3)
Prerequisite: ASCI 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.

ASCI 135. Animal Nutrition (3)
Prerequisite: ASCI 35, CHEM 3A. Principles of nutrition and metabolism; digestive physiology of farm animals.

ASCI 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.

ASCI 146. Physiology of Lactation (3)
Prerequisites: ASCI 61, CHEM 3A. Fundamentals of anatomy, physiology, and endocrinology of milk synthesis and secretion; milking machine systems and management; pathological and environmental factors affecting lactation.

ASCI 155. Animal Reproduction (3)
Principles of reproductive physiology, associated endocrine hormones, and their application to domestic animals.

ASCI 156. Artificial Insemination — Embryo Transfer (1)
Prerequisite: ASCI 155 (may be taken concurrently). Basic principles of artificial in-

semination and embryo transfer with emphasis on application to cattle. (3 lab hours)

ASCI 163. Dairy Cattle Nutrition (3)
Prerequisite: ASCI 35. 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.

ASCI 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 (ASCI)

ASCI 11. Meat Animal Selection and Evaluation (3)
Prerequisite: ASCI 1 (may be taken concurrently). Basic factors involved in selection and evaluation of market animals; relationships of live market animal traits to carcass cutability and quality. (2 lecture, 3 lab hours)

ASCI 21. Beef Cattle Production (3)
Prerequisite: ASCI 1 (may be taken 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)

ASCI 31. Swine Production (3)
Prerequisite: ASCI 1 (may be taken 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)

ASCI 41. Sheep Production (3)
Prerequisite: ASCI 1 (may be taken 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)

ASCI 51. Horse Production (3)
Prerequisite: ASCI 1 (may be taken concurrently). Breeds, selection, and care and feeding of light horses. (2 lecture, 3 lab hours)

ASCI 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)

ASCI 53. Intermediate English Equitation (2)
Prerequisite: ASCI 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)

ASCI 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)

ASCI 55. Intermediate Western Horsemanship (2)
Prerequisite: ASCI 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)

ASCI 61. Dairy Cattle Production (3)
Prerequisite: ASCI 1 (may be taken concurrently). Principles and practices of milking, feeding, breeding, evaluating, housing, health, behavior, and management of dairy cattle. (2 lecture, 3 lab hours)

ASCI 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.

ASCI 71. Meat Science (3)
Prerequisite: ASCI 1 (may be taken concurrently). Basic meats course covering topics from harvest to consumption. Discussion of meat quality versus quantity, general food safety, and meat preparation. Lab will demonstrate all aspects of modern meat industry practices including harvest, fabrication, and further processing. (2 lecture, 3 lab hours)

ASCI 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)

ASCI 91. Poultry Production (3)
Prerequisite: ASCI 1 (may be taken 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)

ASCI 121. Advanced Beef Management (3)
Prerequisite: ASCI 21. Prevailing and alternative management systems and techniques of beef production in the United States and California including economic analysis. (2 lecture, 3 lab hours)

ASCI 131. Advanced Swine Management (3)
Prerequisite: ASCI 31. A comprehensive study of the swine industry. Laboratory exercises designed to improve the management decision ability of students. (2 lecture, 3 lab hours; field trips)

ASCI 151. Advanced Horse Management (3)
Prerequisite: ASCI 51. Advanced principles of horse management, reproduction, breeding systems, nutrition, facilities, business aspects, exercise physiology, training colts. (2 lecture, 3 lab hours)

ASCI 152. Equine Nutrition (3)
Prerequisite: ASCI 51. Principles of equine nutrition; digestive anatomy and physiology nutrient requirements; feed formulation, nutritional management, and diseases. (Formerly ASCI 185T)

ASCI 153. Stable Management (3)
Prerequisite: ASCI 51. An overview of horse farm and stable management theories and applications. The impact of management practices on the animal, on the environment, and on economic viability is considered. (2 lecture, 3 lab hours) (Formerly ASCI 185T)

ASCI 161. Advanced Dairy Farm Management (3)
Prerequisite: ASCI 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. (2 lecture, 3 lab hours; field trips)

ASCI 162. Dairy and Meat Systems Management (3)
Prerequisite: ASCI 61 or 71. A comprehensive study of technological systems employed in commercial dairies and meat processing facilities. Exercises involve analysis of systems for application in various facilities and evaluation of dairy and meat plant sanitation systems, HACCP, and production/processing systems. Control of food specific pathogens and their impact on the animal, on food safety, on public health, and on environment. Economic viability is considered. (2 lecture, 3 lab hours)

ASCI 171. Advanced Meat Science (3)
Prerequisite: ASCI 11 or 71. Basic advanced meats course that covers comprehensive study of the conversion of muscle to meat and factors that affect meat quality. Topics include muscle structure and function and muscle anatomy. Laboratory exercises involve hands-on techniques of harvest, fabrication, and further processing of various products from the major species of production livestock. (2 lecture, 3 lab hours)

ASCI 172. Meat Technology (3)
Prerequisite: ASCI 171. Comprehensive study of meat science topics. Emphasis placed on food safety systems including HACCP and current product development efforts in the meats industry. Laboratory exercises are designed to improve student application of HACCP principles and to strengthen understanding of the vast array of new and innovative products on the market. (2 lecture, 3 lab hours)

Special Topics and Industry Relations (ASCI)

ASCI 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.

ASCI 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 *RP* grading.

ASCI 181. Advanced Livestock and Dairy Evaluation (3; max total 6)
Prerequisite: ASCI 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)

ASCI 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. Approved for *RP* grading. (2 lab hours per unit)

ASCI 183. Issues and Opportunities in Animal Sciences (2; max total 4)
Prerequisite: ASCI 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.

ASCI 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.

ASCI 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.

ASCI 187. Equestrian (2)
Women only. (See ATHL 181.)

ASCI 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

ASCI 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.

ASCI 196. Enterprise Management (1-3; max total 6)
Prerequisites: ASCI 21 or 31 or 41 or 51 or 61 or 91; MEAG 3 or 5; or permission of instructor; concurrent participation in project program required. Theory and field application of management principles in beef, sheep, swine, horses, dairy cattle, or poultry. Other appropriate animal science enterprises. Approved for *RP* grading.

Agricultural Education (AGED)

AGED 66. Agricultural Communications (3)
Agricultural news and information gathering and dissemination to food producers and consumers through print/broadcast media and computer networks; mass communications writing, editing, and simulated electronic presentations. (Formerly AGEC 66, 166)

AGED 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 *RP* grading.

AGED 115. FFA Activities (2; max total 4)
Organization and administration of various FFA activities. Parliamentary procedure and meeting organization; committee work and structure.

AGED 120. Leadership and Communication (2; max total 4)
Develops student leadership and communication skills. Through class instruction and field experience, students will learn team building, speaking ability, self-confidence, and communication skills. Students will develop their own recruitment and teaching information and integrate this material into presentation software. (Formerly AGED 160T)

AGED 120S. Leadership and Communication (2; max total 4)
Develops student leadership skills, self-confidence, and oral and written communication skills. Students experience the benefits of volunteerism through participation in various service-learning activities within their community, industries, and the university. Approved for *RP* grading. (Formerly AGED 160T)

AGED 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.

AGED 150. Agricultural Resources and Computer Applications (3)
Prerequisite: junior 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)

AGED 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.

AGED 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 ***RP*** grading.

AGED 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.

AGED 189. Education in Agricultural Mechanics (3)
Prerequisites: MEAG 15; junior standing. Strategies for organizing, teaching, and administering educational programs in agricultural mechanics for youth and adults.

AGED 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** 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)

AGRI 200. Biometrics in Agriculture (3)
Prerequisite: PLANT 99, AGEC 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.

AGRI 201. Agricultural Laboratory Techniques (3)
Prerequisite: One of the following courses: BOT 130; CHEM 105, 129A, 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)

AGRI 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 ***RP*** grading.

AGRI 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 ***RP*** grading.

AGRI 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.

Animal Sciences (ASCI)

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)

AGRI 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. (Formerly AGRI 240T)

AGRI 241. Endocrine and Reproductive Physiology (3)
Prerequisite: ASCI 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. (Formerly AGRI 241)

AGRI 242. Environmental Physiology of Domestic Animals (3)
Prerequisite: ASCI 145; permission of instructor. A study of environmental factors affecting domestic animals under field and controlled conditions. (Formerly AGRI 242)

AGRI 246. Ruminant Nutrition (3)
Prerequisite: ASCI 135, CHEM 150. Ruminant physiology of digestion, absorption, and metabolism and nutrients, and the relationship of enzymes and hormones. (Formerly AGRI 246)

AGRI 247. Concepts in Non-Ruminant Nutrition (3)
Prerequisite: ASCI 135 or equivalent, graduate standing or consent of instructor. Digestion, absorption, nutrient utilization, and interrelationships in poultry, swine, and other non-ruminants. (Formerly AGRI 247)

AGRI 248. Meat Science and Muscle Biology (3)
Prerequisite: ASCI 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. (Formerly AGRI 248)

AGRI 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading. (Formerly AGRI 290)

AGRI 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 ***RP*** grading. (Formerly AGRI 291)

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Agriculture (AGRI)

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

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 emphases 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

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.

William R. Fasse, *Chair*

Richard D. Berrett	Alma Major
Nina J. Dilbeck	Gary A. Malone
Carolyn B. Jackson	Kathleen Ramos
Marianne Jones	Kathie Reid
Uma D. Krishnan	

College of Agricultural Sciences and Technology

Department of Child, Family, and Consumer Sciences
William R. Fasse, *Chair*
Belinda Rossette, *Administrative Support Coordinator*
Family and Food Sciences Building, Room 204, M/S FF12
559.278.2283
http://cast.csufresno.edu/cfcs/

B.A. in Family and Consumer Sciences
Emphases:
- 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
Options:
- Child Development Pre-Credential
- Child Development Practitioner

M.S. in Family and Consumer Sciences*

Minor in Family and Consumer Sciences

Minor in Fashion Merchandising

Certificate of Special Study in Fashion Merchandising

* Admissions to the M.S. in Family and Consumer Sciences are currently suspended while the program is being restructured.

Bachelor of Arts Degree Requirements

Family and Consumer Sciences Major — *Units*

Major requirements 48

Department Core ..... (18)
CSH 113, 116; CFS 131; FM 120; FCS 1; NUTR 53

Emphasis ..... (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
FM 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; plus 18 upper-division units in consultation with adviser

Fashion Merchandising
FM 20, 22, 24 or 26, 124, 126, 127, 128, 129 (repeatable for 6 units); ART 13; plus 2 upper-division units in consultation with adviser

General Family and Consumer Sciences
Minimum 6 units from each discipline: CFS, CSH, FM, 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 0-17

Child and Family Sciences
BIOL 10 ..... (3)

Clothing and Textiles
CHEM 3A, 3B ..... (7)

Consumer Science
ECON 40 or AGEC 1, and ECON 50 or AGEC 2 ..... (6)

Fashion Merchandising
ACCT 3 or 4A; AGEC 1 or ECON 40; MGT 104 or 106 or HRM 150; MKTG 100 or 100S, MKTG 103, and MKTG 130 ..... (17)

General Family and Consumer Sciences
No additional requirements ..... (0)

Home Economics Teacher Education
CHEM 3A, 3B; BIOL 10; PSYCH 10; AGEC 1 or ECON 40 ..... (17)

General Education requirements 51

Electives and remaining degree requirements 7-21*
(See *Degree Requirements*); may be used toward a double major or minor
- Upper-division writing skills (by examination or course)
- Courses supplementary to the major are strongly recommended.

Total units 120

* This total indicates that up to 9 units of courses in Additional Requirements also may be applied to fulfill General Education Breadth requirements. These include 3 units of CHEM 3A in B1; BIOL 10 in B2; AGEC 1 or ECON 40 or ECON 50 or 3 units of PSYCH 10 in D3. Consult your faculty adviser for additional details.

Subject Matter Program in Home Economics Education

Students who successfully complete the Subject Matter Program in Home Economics Education 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 Subject Matter Program in Home Economics Education consists of **Core**: ART 13, CFS 37, 39, 131; CSH 113 or 114, 116; FM 20, 24 or 26; FSC 1; FSC 50; ID 70; NUTR 54; **Breadth**: CFS 135; CSH 114; FM 120; FSC 152; HEC 148. Students who are interested in teaching occupational programs at the secondary level may select one of the following concentrations.

Child Development and Education Occupations: CFS 139; Consumer Services Occupations: CSH 115, 117; Fashion Design, Manufacturing and Merchandising Occupations: FM 126, 127, 130; Food Science, Dietetics, and Nutrition Occupations: NUTR 149, 153.

Additional requirements by the Commission on Teacher Credentialing include CI 101, 159, 161; EHD 50, 155A, 155B; ERF 151, 152; HEC 148; HS 121; 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. 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.
5. 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 in Child Development is ideally suited to students interested in career opportunities based on work with children and families. This degree provides an excellent foundation for those who wish to teach at the infant-toddler, preschool, or elementary levels, for those who are interested in working with high-risk, special needs, or adult education populations, or interested in entering human services professions.

The major consists of a core of 33 units, plus 15 units of approved electives.

Note: CFS 38, CFS 39, or PSYCH 101 are prerequisites for most upper-division CFS courses. See course descriptions in this catalog for prerequisites. CFS 37 and CFS 139 may not be taken concurrently.

Units

Major requirements 48

Core courses ..... (33)
CFS 37, 39, 131, 133S, 134, 135, 139, 140
COUN 150
PSYCH 153
either CFS 136 or 137 or 142

Elective courses ..... (15)
See an adviser for approved elective courses.

Note: Completion of the victim services cluster may lead to the Certificate in Victim Services. See Criminology Department adviser for approval.

General Education requirements 51

Electives and remaining degree requirements 21
(see *Degree Requirements*); may be used toward a minor

Total units 120

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.

Child Development Pre-Credential Option

This option is designed for students who want comprehensive preparation in child development and family sciences at the bachelor's degree level as a foundation for the Multiple Subjects Teaching Credential. It prepares students to understand children and learning within developmental, systems, and ecological contexts. Students selecting this option are strongly encouraged to seek advising from child development faculty prior to planning their programs.

	Units
Major requirements	**51**
CFS 39 or PSYCH 101; CFS 131, 133S, 134, 140, 141, 143, 145A, 145B, 146; PSYCH 153; ETHS 104W; LING 132, 146, 165; COMM 114 or 164; LEE 120CL	
General Education requirements	**51**
(See adviser for recommended courses.)	
Other electives	**18**
(See adviser for recommended courses.)	
Total units	**120**

Child Development Practitioner Option

The Bachelor of Science degree in Child Development, Child Development Practitioner Option, is a degree completion program tailored to the unique needs of working professionals in the child development field. This option is designed to address the career objectives of individuals who choose to work in infant, toddler, preschool, after-school, or child development support programs in teaching, administration, advocacy, leadership, or development. Under the California Child Development Permit structure, the bachelor's degree qualifies practitioners for the master teacher, site supervisor, and program director levels.

Note: The Child Development Practitioner Option is not a credential preparation program and is not an appropriate option for those who wish to teach in the elementary school classroom.

	Units
Major requirements	**43**
Child Development Practitioner Option required courses: CFS 110, 112, 113, 114, 115, 117, 118, 119, 120, 121, 122	
General Education requirements	**51**
Electives and remaining degree requirements	**26**
Must include 12 units of lower-division child development coursework specified in Title 22 of the California Administrative Code (i.e., child development; child, family, and community; creative experiences for young children; child development practicum; or equivalents.)	
Total units	**120**

Admission requirements

1. Admission to California State University, Fresno.
2. Completion of lower-division General Education requirements; G.E. certified or approval of coordinator. Students must develop a plan with the CDP option coordinator for completion of other degree requirements.
3. Junior standing.
4. Minimum of three years full-time experience in child development programs.
5. Current employment in a child development program.
6. Statement from employer granting permission for student to use work site for program activities.
7. Twelve units of specified early childhood education or child development coursework - see *Electives and Remaining Degree Requirements* above.)
8. A passing score on the Upper-Division Writing Skills Exam or a *C* or higher in a UDWS course. *Note*: Students who do not earn a passing grade on the UDWS exam, but who are admitted into the Child Development Practitioner Option, must successfully complete the university writing requirement by exam or course by the beginning of the third competency.
9. Admission to the Child Development Practitioner Option.

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

FM 20	Beginning Textiles	**3**
FM 22	Fashion Analysis	**1**
FM 120	Soc/Psy Aspects of Clothing	**3**
FM 127	Fashion Merchandising	**3**
FM 128	Fashion Display Techniques	**3**
Electives		**8**
(8-units in fashion merchandising in consultation with an adviser)		
Minimum total		**21**

Note: The minors also require a 2.0 GPA and 6 upper-division units in residence.

Fashion Merchandising Certificate of Special Study

Requirements:

FM 127	Fashion Merchandising	**3**
FM 130	Fashion Study Tours	**3**

Electives:

(Select 6-8 units from the following)

FM 126	History of Costume	**3**
FM 128	Fashion Display Tech	**3**
FM 129	Fashion Merchandising Practicum	**3**
FM 131	Fashion Entrepreneurship	**2**
FM 132	Textile Care	**3**
FM 133	Textile/Apparel Economics	**3**

Master of Science 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.

The M.S. in Family and Consumer Sciences is currently not accepting applications. Please contact the department office at 559.278.2283 for more information.

Admission Requirements. The Master of Science 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; FN 200 or ERF 220	
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 Graduate Writing Skills requirements for the graduate program in Family and Consumer Sciences may be met by passing the writing component of AGRI 220. Please see the program's graduate adviser for more information.
7. See *Division of Graduate Studies* in this catalog for university requirements.

COURSES

Family and Consumer Sciences (FCS)

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.

FCS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

FCS 192. Readings and Conference (1-3; max total 6)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged) Approved for *RP* grading.

FCS 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.

Consumer Science and Housing (CSH)

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.

CSH 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.

CSH 114. Child, Family, and Consumer Sciences Practicum (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)

CSH 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.

CSH 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.

CSH 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.

CSH 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.

CSH 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 (FM)

FM 20. Beginning Textiles (3)
Fiber classification, yarn construction, fabric construction and production. Selection, use and care of fabrics in relation to consumer needs.

FM 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.

FM 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 HEC 10)

FM 26. Clothing Construction II (3)
Prerequisite: FM 24 or experience in clothing construction. Individualization of basic and designer patterns: alteration principles; techniques of handling new fabrics. (6 lab hours)

FM 120. Social and Psychological Aspects of Clothing (3)
The psychological, social, and economic aspects of clothing related to the individual, family, and society.

FM 121. Tailoring (3)
Prerequisites: FM 22 and 26. Tailoring a suit or coat using various techniques. (6 lab hours)

FM 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.

FM 123. Pattern Design (3)
Prerequisites: FM 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)

FM 124. Textile Finishing (3)
Prerequisite: FM 20. Finishing, dyeing and printing techniques, material and equipment. Evaluation through standard laboratory tests. (2 lecture, 2 lab hours)

FM 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.

FM 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)

FM 128. Fashion Display Techniques (3)
Prerequisite: FM 127 (may be taken concurrently). 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)

FM 129. Fashion Merchandising Practicum (3; max total 6)
Prerequisites: senior standing or permission of instructor; 12 upper-division units in the major including FM 127. Integrated field experience in various areas of fashion merchandising; seminar.

FM 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)

FM 131. Fashion Entrepreneurship (2)
Prerequisite: FM 127. Investigation of start-up procedures, location, financing, supplies, legal implications, target customers, record keeping, promotion, and customer relations are covered.

FM 132. Textile Care (3)
Prerequisite: FM 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.

FM 133. Textile/Apparel Economics (3)
Prerequisites: FM 20 (may be taken concurrently); 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)

CFS 31. The Family in America (3)
Prerequisite: G.E. Foundation A2. 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.

CFS 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.

CFS 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)

CFS 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.

CFS 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 HEC 14)

CFS 110. Child Development, Play, and Learning (4)
Open only to students enrolled in the Child Development Practitioner Option. Examination of child development theories as they relate to play and learning in young children. Considers cultural and developmental perspectives, emphasizes theories in practice, and provides a theoretical framework for structuring, observing, analyzing, and evaluating play and play problems.

CFS 112. Developmentally Appropriate Curriculum and the Environment (4)
Open only to students enrolled in the Child Development Practitioner Option. Developmentally appropriate curriculum planning, implementation, and assessment in the child care setting. Addresses content area integration and literacy development in a context of social/emotional development and interaction. Considers the role of environment in the curriculum.

CFS 113. Working with Diverse Families (3)
Open only to students enrolled in the Child Development Practitioner Option. Examines communication patterns, barriers, and strategies that impact practitioner-parent and practitioner-child interactions. Emphasis on perspective-taking, cultural responsiveness, and anti-bias practices as well as on building partnerships.

CFS 114. Child Crisis and Community Resources (3)
Open only to students enrolled in the Child Development Practitioner Option. Examination of common childhood crises such as divorce, loss through death, abuse and neglect, and societal violence. Emphasizes intervention strategies appropriate to child care settings. Familiarizes students with community resources.

CFS 115. Action Research in the Classroom (6)
Open only to students enrolled in the Child Development Practitioner Option. Introduction to action research methodology and practice for the child development practitioner. Includes orientation to print and electronic research sources, familiarization with the Henry Madden Library, research at students' work sites, and documentation and presentation of findings.

CFS 117. Advocacy and Policy Development (2)
Open only to students enrolled in the Child Development Practitioner Option. Examination of social trends and policies affecting young children and the child development field. Familiarization with child advocacy organizations. Strategies and tools for affecting policy at the work site and within local and state government. Practical application at the community level. Not available for ***CR/NC*** grading.

CFS 118. Program Evaluation: Models and Tools (3)
Open only to students enrolled in the Child Development Practitioner Option. Introduction to and application of current accreditation, quality standards and evaluation instruments in use in child development programs at the national and California state levels.

CFS 119. Portfolio Development Workshop (1; max total 3)
Open only to students enrolled in the Child Development Practitioner Option. Summary seminar and portfolio development workshop required at the conclusion of each CDP Option competency. (Only open to students enrolled in CDP option.) ***CR/NC*** grading only.

CFS 120. Professional Development Seminar (4)
Open only to students enrolled in the Child Development Practitioner Option. Culminating experience in the CDP Option. Competency validation includes finalizing and presenting program portfolio, site review, and preparation for presentation of action research. ***CR/NC*** grading only.

CFS 121. Field Work (2; max total 8)
Open only to students enrolled in the Child Development Practitioner Option. Supervised practice in an early care and education program. Concurrent with CFS 110, 112, 113, 115, and 122. ***CR/NC*** grading only.

CFS 122. Developmentally Appropriate Curriculum: Foundation and Models (3)
Open only to students enrolled in the Child Development Practitioner Option. A study of the historical and contextual factors that have influenced curriculum development in early care and education. Examines the purpose and function of curriculum models. Compares and contrasts enduring models such as High Scope, Montessori, Direct Instruction, and Developmental-Interaction.

CFS 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.

CFS 131. Family Relations (3)
A study of marriages and families, with a focus on strengths. Topics will include methods of studying marriages and families over time, diversity in families, adult gender roles, friendship, mate selection, love, communication, conflict resolution, sexuality, and transition to parenting.

CFS 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.

CFS 133S. Child and Family Crisis (3)
Prerequisite: CFS 38 or 39 or PSYCH 101. Examines stress and crisis as experienced and perceived by children and their families. Topics to be covered include child abuse, divorce, remarriage, death, substance abuse, disability, immigration, poverty, and diverse populations. (Formerly CFS 133)

CFS 134. Multicultural Perspectives on Children and Families (3)
Prerequisites: CFS 38 or 39 or PSYCH 101. 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.

CFS 135. Parenting (3)
Prerequisite: CFS 38 or 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.

CFS 136. Adolescent Development (3)
Prerequisite: CFS 38 or 39 or PSYCH 101. Theories, research, and principles of physical, intellectual, social, and emotional development within the contexts of the self, the family, educational environments, and peer groups.

CFS 137. Infant and Toddler Development (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.

CFS 139. Advanced Child Development Practicum (3)
Prerequisites: CFS 37; CFS 38, 39, or PSYCH 101; junior or senior standing. 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)

CFS 140. Advanced Child Development Theories and Play (3)
Prerequisites: CFS 38 or 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.

CFS 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.

CFS 142. Adulthood (3)
Prerequisite: CFS 38 or 39 or PSYCH 101. In- depth study of 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. (Formerly CFS 40)

CFS 145A. Observing the Development of Children (3)
Techniques in observing and recording development and behavior of school-age children. Interpretation and reporting of observational data. Emphasis on children six to 13 years of age in diverse settings from developmental, ecological, and systems perspectives.

CFS 145B. Advanced Observing of the Development of Children (3)
Prerequisite: CFS 145A. Advanced application of techniques in observing and recording child development and behavior. Observation of children six to 13 years of age in diverse elementary school settings in affective, physical, and cognitive domains. Interpretation and reporting of observational data.

Home Economics Education (HEC)

HEC 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.

HEC 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)

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 HEC 241)

FCS 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. (Fulfills university's graduate writing proficiency requirement) (Formerly HEC 201)

FCS 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.

FCS 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.

FCS 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.

FCS 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.

FCS 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.

FCS 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

FCS 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 ***RP*** grading.

FCS 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 ***RP*** grading.

FCS 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 ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Home Economics Education (HEC)

HEC 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

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, M/S FF17
559.278.2164
http://cast.csufresno.edu/fsn/

B.S. in Food and Nutritional Sciences
Options:
- Culinology
- Dietetics and Food Administration
- Food Science

M.S. in Food and Nutritional Sciences*

Minor in Food and Nutritional Sciences

Certificate of Advanced Study in Dietetics (Dietetic Internship)

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, Food Science Analytical Laboratory, Food Sensory Laboratory, 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 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 accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. The American Dietetic Association can be reached at 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995 or at (312) 899-0040 ext. 5400. 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.

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, marketing, management, distribution, and field service opportunities are present in many scientific, technological, and business endeavors. This program is approved by the Institute of Food Technologists (IFT). Information on careers in food science and IFT contacts can be obtained at *www.ift.org*.

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:
Erin S. Dormedy, *Food Science Program*
Mollie Smith, *Internship Director*
Sandra Witte, *Dietetics and Food Administration Program and Graduate Program*

Joo I. Kim, *Stoller Distinguished Professor*
Gour Choudhury
Dennis Ferris
Constance Schneider

Bachelor of Science Degree Requirements

Food and Nutritional Sciences Major — *Units*

Major requirements 42-53

Options (select one)

Culinology 53
FSC 1, 41, 50, 55, 100, 112, 120, 125, 151, 152, 178, 193; FSM 60, 131, 133, 134; NUTR 54

Dietetics and Food Administration 45
FSC 1, 50, 152; FSM 60, 131, 133, 134; NUTR 54, 61, 149, 153, 156, 157, 160, 166

Food Science 42
FSC 1, 41, 100, 112, 115, 120, 125, 141, 142, 144, 178, 199; NUTR 54

Additional requirements 16-29

Culinology ..... (16)
CHEM 1A, 8, 150; MICRO 20; MATH 11, 75

Dietetics and Food Administration ..... (26)*
ACCT 4A; CHEM 3A, 8, 150; MICRO 20; PHYAN 65; PSYCH 10; COUN 174; approved statistics course

Food Science ..... (29)**
CHEM 1A, 1B, 8, 150; MATH 11, 75, 76; MICRO 20; PHYS 2A

General Education requirements 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)

Total units 122

* This total indicates that 6 units for CHEM 3A and PSYCH 10 are being used to satisfy the General Education requirement of 51 units.

** This total indicates that 6 units for MATH 75 and PHYS 2A or CHEM 1A are being used to satisfy the General Education requirement of 51 units.

Advising Notes

1. Students should contact the program coordinator to schedule an academic advising appointment each semester. 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. *CR/NC* grading is not permitted for courses included in the major and additional requirements, except work experience (FSC 193; FSM 193; and NUTR 193).
3. Grade Policy — all courses listed under major and additional requirements require a grade of *C* or better.
4. General Education courses designated as required by the department are prerequisite to many courses in the program of study.
5. The upper-division writing skills requirement can be met by passing the university upper-division writing examination or by passing 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.
6. 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. The certified minor program will be filed with the Office of Evaluations.

Note: The Food and Nutritional Sciences Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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: 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; official 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 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 food science or nutrition. The degree is applicable to specializations in food research, production, processing, chemistry, and microbiology and dietetics, nutrition, nutrition education, and food service 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, nutrition, dietetics and food administration, 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:

Food Science: FSC 112, 115, 125, 141, 144; NUTR 54

Nutrition/Dietetics: FSC 152 and NUTR 54, 147, 149, 153, 160, or completion of an ADA-accredited 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 requirement 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
   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, 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 each of FN 290 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 for Dietetics Education of the American Dietetic Association has granted accreditation to the program as a dietetic internship. The American Dietetic Association can be reached at 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995 or at (312) 899-0040 ext. 5400. 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 accredited/approved didactic program in dietetics within the last five years, GRE scores (480V/580Q recommended), statement of professional goals, 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, official report of GRE scores, an application to the dietetic internship, three letters of reference from employers or faculty, statement of professional goals, 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	**3**
FN 229	**1+1**
FN 230	**3**
NUTR 193	**4**
FSM 193	**4**
Total units	**16**

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.

Food Science (FSC)

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.

FSC 41. Introduction to Food and Dairy Processing (2)
Prerequisite: FSC 1. Introduction to the technology of processing foods, including dairy products, with special reference to unit operations and sanitation. Laboratory includes computer applications related to food technology. (1 lecture, 3 lab hours) (Field trips)

FSC 50. Food and Culinary Science I (3)
Introduction to high quality food. Emphasis on principles of food safety, nutrition, food preparation, and sensory evaluation. (2 lecture, 2 lab hours) (CAN FCS 8)

FSC 55. Food and Culinary Science II (3)
Prerequisite: FSC 50. Advanced preparation of high-quality food. Includes wine and food pairing, nouvelle cuisine, advanced plate presentation, advanced knife and culinary skills, and professional methods of production. (2 lecture, 3 lab hours)

FSC 100. Sensory Evaluation (3)
Prerequisite: MATH 11. Analysis, measurement, and methods used in sensory evaluation of foods. (2 lecture, 3 lab hours)

FSC 112. Food and Dairy Chemistry (4)
Prerequisites: CHEM 150 or concurrently; FSC 1. 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)

FSC 115. Food Analysis (4)
Prerequisites: FSC 41 or 112; MATH 11; or 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)

FSC 120. Quality Assurance in the Food and Dairy Industry (4)
Prerequisites: FSC 1; FSC 178; CHEM 1A; MICRO 20; MATH 11; or permission of instructor. Physical, chemical, and microbiological methods for determining quality in food and dairy 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)

FSC 125. Food and Dairy Microbiology (4)
Prerequisites: FSC 41, 178; MICRO 20; or permission of instructor. Physical, chemical, and biological control of microorganisms in foods. Beneficial microorganisms used in food and dairy production. Laboratory emphasis on microbiological methods used in examining foods. Computer applications. (2 lectures, two 3-hour labs) (Field trips)

FSC 141. Fruit/Vegetable Processing and Waste Management (4)
Prerequisites: CHEM 8; FSC 41, 178; MATH 75; PHYS 2A; MICRO 20. Characteristics of raw fruits and vegetables. Application of storage and thermal dehydration, refrigeration/freezing, waste management, and packaging principles that influence quality. Computer applications. (3 lecture, 3 lab hours) (Field trips)

FSC 142. Dairy Processing (4)
Prerequisite: FSC 125; or permission of instructor. Unit operation approach to processing, including the three major steps of processing (raw material preparation, processing and packaging.) Overview of applied processing such as fluid milk, concentrated milks, cream, non-fat dried milk (NFDM) powder, ice cream, butter, and cheese. (2 lecture, two 3-hour labs) (Field trips)

FSC 144. Food Engineering (4)
Prerequisites: FSC 41; PHYS 2A; MATH 75; or 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)

FSC 151. Food Product Development (3)
Prerequisites: FSC 55, 100, 112. Experimental approach to development of new food products. Explores both scientific and marketing parameters of product development. Includes concepts of proper wine and food pairings, food styling and presentation, and other culinary techniques. (2 lecture, 3 lab hours)

FSC 152. Food for Health (3)
Prerequisites: FSC 112; NUTR 53 or 54 or permission of instructor; computer competency recommended. 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)

FSC 162T. Topics in Food Science (1-4; max total 12 if no topic repeated)
Prerequisites: FSC 41, 50; NUTR 54. Topics relating to food science. Some topics may have labs.

FSC 178. Food Laws, Regulations, Inspection, and Grading (2)
Prerequisite: 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)

FSC 180. Undergraduate Research (1-4; max total 4)
Prerequisite: permission of instructor. Exploratory work on a suitable problem in food science. Approved for ***RP*** grading.

FSC 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

FSC 192. Readings and Conference (1-3; max total 3)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged)

FSC 193. Supervised Work Experience (1-6; max total 6)
Prerequisite: permission of instructor. Supervised work experience in food science. ***CR/NC*** grading only.

FSC 199. Senior Seminar (1)
Prerequisite: 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)

FSM 60. ServSafe (1)
Up-to-date information on all aspects of handling food, from receiving and storing to preparing and serving.

FSM 131. Introduction to Food Systems Management (3)
A managerial and systems approach to food service operations. Impact of legislation, labor relations, and marketing on industry.

FSM 133. Quantity Food Production (3)
Prerequisites: FSM 60 or concurrently; FSM 131; FSC 50; health clearance and health and accident insurance required. Preparation and service in quantity foodservice operations. Menu planning, recipe standardization, equipment and layout, production controls, work simplification, and quality assurance. (2 lecture, 3 lab hours)

FSM 134. Cost Analysis in Food Systems Management (3)
Prerequisites: FSM 133; computer competency recommended. 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)

FSM 135. Institutional Experience (3)
Prerequisites: FSM 134 or permission of instructor; health clearance and health and accident insurance required. Supervised work experience in food systems management. (1 lecture, 4 lab hours)

FSM 162T. Topics in Food Systems Management (1-4; max total 12 if no topic repeated)
Prerequisites: FSC 50; FSM 131; NUTR 54. Topics relating to food systems management.

FSM 180. Undergraduate Research (1-4; max total 4)
Prerequisite: permission of instructor. Exploratory work on a suitable problem in food systems management. Approved for ***RP*** grading.

FSM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

FSM 192. Readings and Conference (1-3; max total 3)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged)

FSM 193. Supervised Work Experience (1-6; max total 6)
Prerequisite: permission of instructor. Supervised work experience in food systems management. A health clearance may be required. ***CR/NC*** grading only.

Nutrition (NUTR)

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.

NUTR 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.

NUTR 61. Introduction to the Profession of Dietetics (1)
Survey of food and nutrition services and programs. Identification of marketing and legislative issues in dietetics. (1 lecture) (Formerly NUTR 161)

NUTR 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.

NUTR 149. Food and Nutrition Communication (3)
Prerequisites: COUN 174; NUTR 156 (may be taken concurrently); computer competency recommended. 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. Application of nutrition counseling skills. (2 lecture, 2 lab hours)

NUTR 153. Advanced Nutrition (3)
Prerequisites: NUTR 54 and CHEM 150 or concurrently. 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.

NUTR 156. Nutrition Assessment (3)
Prerequisites: NUTR 153; PHYAN 65 or concurrently. 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)

NUTR 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. (3 lecture, 3 lab hours) (Formerly NUTR 157B)

NUTR 160. Nutrition across the Life Cycle (3)
Prerequisite: NUTR 54. 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.

NUTR 162T. Topics in Nutrition (1-4; max total 12 if no topic repeated)
Prerequisites: NUTR 54, 160. Topics relating to nutrition. Some topics may have labs.

NUTR 166. Community Nutrition (3)
Prerequisite: NUTR 160 or permission of instructor. Survey of nutrition programs created to improve community health. Development and examination of public health nutrition policy. Proposal writing.

NUTR 180. Undergraduate Research (1-4; max total 4)
Prerequisite: permission of instructor. Exploratory work on a suitable problem in nutrition and dietetics. Approved for ***RP*** grading.

NUTR 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

NUTR 192. Readings and Conference (1-3; max total 3)
Prerequisite: permission of instructor. Individually directed readings; reports and evaluation. (Hours arranged)

NUTR 193. Supervised Work Experience (1-6; max total of 6)
Prerequisite: permission of instructor. Supervised work experience in dietetics and nutrition. ***CR/NC*** grading only.

GRADUATE COURSES

(See *Catalog 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)

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.

FN 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.

FN 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.

FN 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.

FN 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.

FN 230. Advanced Nutrition Counseling (3)
Prerequisite: NUTR 157. Advanced counseling techniques including learning and behavioral theories and principals of goal setting. Design, delivery, and evaluation of nutrition counseling. Development and evaluation of nutrition education materials. Role-playing and case studies assigned. (Formerly FN 221T)

FN 290. Independent Study (1-3; max total 3)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

FN 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 ***RP*** grading.

FN 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 ***RP*** grading.

Industrial Technology

College of Agricultural
Sciences and Technology

Department
of Industrial Technology
Tony M. Au, *Chair*
Meg Broderick, *Administrative Support Coordinator*
M. Grosse Industrial Technology
Building, Room 212, M/S IT 9
559.278.2145
FAX: 559.278.5081
http://www.csufresno.edu/indtech/

B.S. in Industrial Technology
Emphases:
- CAD/CAM Systems Management
- Industrial Control Systems Management
- Quality Systems Management
- Transportation Systems Management
- Networking Systems Management

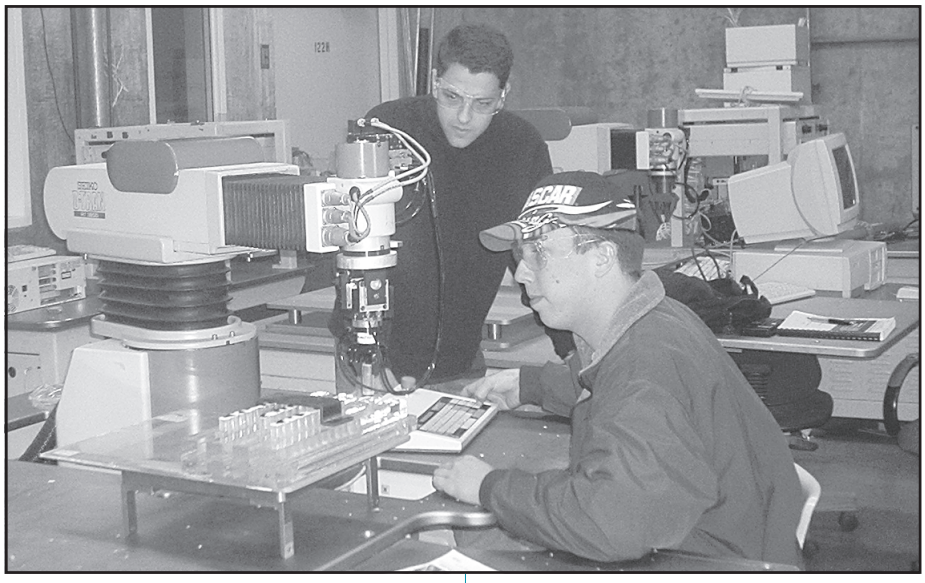
M.S. in Industrial Technology

Minor in Industrial Technology

Industry and Technology Teaching Credential Waiver

Certificate in Computer Process Control Network Administration

Certificate in Networking Routing and Internetworking Technology



Industrial Technology

Industrial technology is a field of study designed to prepare the technical and/or management oriented professional for employment in business, industry, education, and government. Industrial technology is primarily involved with the management, operation, and maintenance of complex technological systems. Engineering is primarily involved with the design and installation of these systems.

Typically, the graduate finds employment as a manufacturing engineer, process engineer, production supervisor, quality systems engineer, computer networking systems administrator, technical specialist, or plant manager. Positions in industrial and technical sales, design, and testing also offer the graduate abundant opportunities.

Enrichment opportunities abound for IT students. Professional societies active in the program include Epsilon Pi Tau (EPT) and the American Society of Automotive Engineers (SAE). 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.

IT graduates obtain technically oriented jobs with an average starting salary of $43,000-$48,000 in the San Joaquin Valley, and $50,000-$55,000 in the Bay Area and Los Angeles Area. A recent survey of alumni indicates that after eight years on the job, the typical graduate is making $55,000-$90,000 and is in a technical management position.

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.

Mission Statement

The curriculum of the Industrial Technology Program is a discipline associated with implementing, operating, and continuously improving systems of machines, materials, and processes, as well as financial, human, and energy resources. The discipline emphasizes the integration of technological management knowledge with leadership skills. Graduates are trained to help manufacturing/processing industries achieve desired goals efficiently and with appropriate concern for the environment, ethics, quality, and human diversity.

The mission of the program is to develop the managerial and technical knowledge of individuals by transferring and sharing the most recent technology and practices through cooperative efforts with industry, government, and other educational institutions. The program encourages research and problem-solving and provides services to the public, business, and industrial sectors.

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.

Solutions Center Program

The Solutions Center 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 co-

operative 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, Haeger Company, and Canandaigua Winery. Industrial Technology students typically participate in a Solutions Center program in their senior year. See also page 484.

Cisco Academy. The Cisco Networking Academy Program is a partnership between Cisco Systems and California State University, Fresno. The networking academy curriculum centers on teaching students to design, build, and maintain computer networks; to design web pages; and to manage network servers. The course paths will lead to professional certificates and can be integrated into the degree programs.

Faculty

Tony M. Au, *Chair*

Coordinator:

Darnell P. Austin, *Technology Teacher Education*

Clift C. Cullen
Edward A. Gaiser
Gary B. Paglierani
Matthew M. Yen

Bachelor of Science Degree Requirements

Industrial Technology Major *Units*

Major requirements 72

Technical Core ..... (29)
IT 52, 74, 102, 104, 114, 115, 196, 199; DS 73; CHEM 3A

Management Core ..... (18)
IT 92, 107, 117, 118, 137, 148

Specialty Area ..... (21)
Consult with a department adviser to develop 21 units of electives to satisfy the "specialty" requirements. Electives should be chosen from the following list with adviser approval: IT 30, 41, 58, 63, 110, 112, 116, 120, 121, 122, 127, 129, 131, 133, 134, 144, 146, 147, 156, 164, 165, 177, 184, 190, 191T, 194.

Emphases:

- CAD/CAM Systems Management
- Industrial Control Systems Management
- Quality Systems Management
- Transportation Systems Management
- Networking Systems Management

General Education requirements 51
(Includes 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed.)

Additional requirements 1
Upper-division writing skills: Students must pass the Upper-Division Writing Exam or complete IT 198W (recommended); PHYS 2A, IT 20. (***Note:*** PHYS 2A and IT 20 satisfy two G.E. area requirements [B1 and D3]. Consult the *Class Schedule* for a current list of approved G.E. courses).

Total units 120*

*This total indicates that PHYS 2A and IT 20 also may be applied to G.E. area requirements, and it presumes that the student has fulfilled the Upper-Division Writing Skills requirement by passing the Upper-Division Writing Exam for zero units. Contact the department chair or faculty adviser for additional details. Three units of PHYS 2A also will satisfy the G.E. Foundation B1 requirement.

Advising Notes

1. All courses (except IT 194) required for the major must receive a letter grade.
2. Students must pass the upper-division writing exam or complete IT 198W with a grade of ***C*** or higher (to be taken no sooner than the term in which 60 units are completed) to fulfill the upper-division writing skills graduation requirement.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/industrec.html.*

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, networking systems management, quality systems management, or transportation systems management.

Note: The Industrial Technology Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Certificate in Network Routing and Internetworking Technology

The Certificate in Network Routing and Internetworking consists of 16 units in industrial technology courses. The student is required to take IT 58, 63, 164, and 165. In addition, 3 units must be selected from the following: IT 116, 146, 190, 194.

Certificate in Computer Process Control Network Administration

The Certificate in Computer Process Control Network Administration consists of 19 units in industrial technology coursework. The student is required to take IT 58, 112, 117, and 133. In addition, 3 units must be selected from the following: IT 116, 134, 156, 177, 190, or 194.

Industry and Technology Teaching Credential Waiver Program

The following course of study will prepare students for entry into the teacher education program. Students will complete the 120 unit requirement for the Bachelor of Science in Industrial Technology (BSIT) with teacher credentialing as their optional emphasis.

1. Complete the BSIT General Education requirement (51 units)
2. Complete the BSIT Technical Core (29 units)
3. Complete the BSIT Management Core (18 units)
4. Complete the Teacher Education Credential Core (15 units): IT 12, 30, 58, 80; EHD 50
5. Area of emphasis (6 units)
   Select one area of emphasis below and take a minimum of 6 units in that area.
   - Engineering Design Technology: IT 41, 116, 144, 147, 177
   - Communication Technology: IT 63, 103, 116, 146, 164, 165
   - Manufacturing Technology: IT 112, 131, 133, 134, 156, 177, 184
   - Power, Energy, and Transportation: IT 106, 110, 120, 122, 127, 129
6. Additional requirements (1 unit)

Upper-division writing skills as noted under the BSIT requirements.

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: IT 41, 52, 74, 102, 114, 115; MATH 11 or DS 71.

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; 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; 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**
IT 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**
IT 298 or 299	
Total minimum requirements	**30**

Graduate Advising Notes

1. Upon admission, students should see the department graduate program coordinator for aid in program planning.
2. 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
3. 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.
4. Students must meet the university graduate writing competency requirement by passing the writing component of IT 280 or AGRI 220. Students should complete the writing requirement prior to advancement to candidacy. Please see the graduate program coordinator for more information.
5. 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.

COURSES

Industrial Technology (IT)

IT 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, 2 lab hours)

IT 20. Technology and Society (3)
Prerequisite: G.E. Foundation A2. 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.

IT 30. Exploring Technology Systems (3)
Survey of the technology systems discipline including history (medieval apprenticeship to present), technology subsystems (information and communications, transportation, manufacturing, construction), and relationships to other disciplines, including business, industry, and education. (2 lecture, 2 lab hours; field trips)

IT 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)

IT 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 IT 145)

IT 52. Electricity and Electronics (3)
(Same as MEAG 53.) Introduction to electricity including fundamentals of electrostatics, alternating and direct current electrical circuits, electrical calculations, magnetics, circuit applications, electrical measuring, and test equipment. Schematics and wiring diagrams, standards, and codes. (2 lecture, 2 lab hours) (Course fee, $5)

IT 58. Applied Computer Networking I (4)
Internet, intranet, local area network concepts, protocols, architectures, and implementation issues. Data communication in office technology and manufacturing automation. (2 lecture, 4 lab hours; field trips) (Formerly IT 158)

IT 63. Applied Computer Networking II (4)
Prerequisite: IT 58. Understanding complex networks, such as IP, IPX, Frame Relay and ISDN. An analysis of the technology used to increase bandwidth and quicken network response times. Network security, global intranet, custom queuing, and routed priority services. (2 lecture, 4 lab hours; field trips) (Formerly IT 163)

IT 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)

IT 71. Metallurgical Processes (3)
(Same as MEAG 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)

IT 74. Manufacturing Processes (3)
Study of how consumer and industrial products are manufactured, focusing on how raw materials (primarily metal and plastic) are changed into finished products. Topics include production processes of material addition, forming, casting, removal, separation, assembly, and finishing. (2 lecture, 2 lab hours) (Course fee, $7)

IT 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)

IT 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.

IT 102. Industrial Computer Concepts and Applications (3)
Introduction to computer systems hardware and software, operating system basics and installation, computer maintenance and troubleshooting. (2 lecture, 2 lab hours)

IT 103. Network Operating Systems (3)
Prerequisite: IT 102. Introduction to multiuser and multitasking network operating systems. Covers characteristics of the Linux, Windows 2000, NT, and XP network operating systems. Installation procedures, security issues, backup procedures, and remote access. (2 lecture, 2 lab hours)

IT 104. Product Design (3)
Prerequisite: IT 115. 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)

IT 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)

IT 107. Facilities Planning and Materials Handling (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.

IT 110. Fluid Power (3)
Prerequisite: IT 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)

IT 112. Industrial Process Control Systems I (3)
Prerequisite: IT 52. Process control principles; components and principles; transducers, actuators, sensors, and instrumentation; computer interface software, terminologies, standards, and trends in control technologies. Programmable logic controller principles, hardware, and software. (2 lecture, 2 lab hours)

IT 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)

IT 115. CAD Principles and Methods (3)
IT 41 recommended prior to enrollment. Computer-aided design applications. Special emphasis in manufacturing, construction, and interior design applications. Exposure to CAD software packages. (2 lecture, 2 lab hours)

IT 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)

IT 117. Quality Assurance (3)
Prerequisites: IT 102. 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.

IT 118. Production Operations (3)
Prerequisite: IT 102. 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)

IT 119. Computer-Integrated Manufacturing Concepts (3)
Prerequisites: a computer programming language; IT 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)

IT 120. Vehicle Engine Systems (3)
Prerequisites: IT 12, 52 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)

IT 121. Automotive Engine Machining (3)
Prerequisites: IT 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)

IT 122. Vehicle Chassis Analysis (3)
Prerequisite: IT 12. Advanced study of vehicle chassis components including power transmission, brake systems, wheel suspension, air conditioning, body repair and refinishing, computer controls and diagnostics. (2 lecture, 2 lab hours; field trips)

IT 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)

IT 129. Vehicle Diagnostic Procedures (3)
Prerequisites: IT 12, 52 or concurrently. Laboratory study and analysis of mechanical, electrical, and computer control problems. Technical reports. (6 lab hours) (Course fee, $5)

IT 131. Automated Systems I (3)
Prerequisite: IT 52. Number systems, Boolean logic, and fundamentals of digital devices; basic applications of logic devices in computers and control systems. (2 lecture, 2 lab hours; field trips) (Course fee, $5)

IT 133. Industrial Process Control Systems II (3)
Prerequisite: IT 52. Programmable logic controller principles and equipment; programming languages, procedures, and documentation; equipment and software selection and application. (2 lecture, 2 lab hours)

IT 134. Computer-Aided Manufacturing Systems I (3)
Prerequisite: IT 74. 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, 2 lab hours)

IT 137. International Quality Standards (3)
Prerequisite: IT 117. ISO 9000 and related international quality systems. Implementation process. Conformance standards, quality system requirements, and the registration and audit processes.

IT 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)

IT 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 IT 191T)

IT 147. Advanced CAD Applications (3)
Prerequisites: IT 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)

IT 148. Project Management and Control (3)
Project management process and tools, planning, scheduling, organizing, and controlling projects. Project planning and control using qualitative and quantitative methods. (2 lecture, 2 lab hours)

IT 156. Automated Systems II (3)
Prerequisite: IT 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. (2 lecture, 2 lab hours; field trips) (Course fee, $4)

IT 160. Graphic Communication Developments (3)
Prerequisite: IT 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)

IT 164. Routers and Internetworking I (4)
Prerequisite: IT 63. Implementation of appropriate technologies to build a scalable routed network. Building of campus networks using multilayer switching technologies. Improving traffic flow, reliability, redundancy, and performance for campus LANs, routed and switched WANs, and remote access networks. (2 lecture, 4 lab hours)

IT 165. Routers and Internetworking II (4)
Prerequisite: IT 164. Creation and deployment of a global internet. Troubleshooting an environment that uses routers and switches for multiprotocal client hosts and services. Addresses those tasks that network managers and administrators need to perform in managing access and controlling overhead traffic over LANs and WANs. Connecting corporate networks to an Internet Service Provider (ISP). (2 lecture, 4 lab hours)

IT 177. Computer-Aided Manufacturing Systems II (3)
Prerequisite: IT 74. 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, 2 lab hours)

IT 184. Advanced Manufacturing Technology (3)
Prerequisite: IT 74. Production processing, using metallic and nonmetallic materials, including product design, work cells, tooling, capacity planning, material handling, scheduling and flow chart. (2 lecture, 2 lab hours; field trips) (Course fee, $10)

IT 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

IT 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)

IT 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.

IT 196. Senior Seminar (1)
Prerequisite: senior standing. Exploration of technology systems management trends and preparation for employment or further study in technical fields. Technology forecasting, orientation to professional certifications, employment correspondence, and interview techniques. ***CR/NC*** grading only.

IT 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.

IT 199. Senior Problem in Industrial Technology (3)
Prerequisite: successful completion of Upper-Division Writing Exam or IT 198W. Approved problem or research project, with seminar, in the area of the student's option and emphasis. Approved for ***RP*** grading.

GRADUATE COURSES

(See *Catalog 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 (IT)

IT 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.

IT 280. Research Methodology (3)
Prerequisites: MATH 11 or DS 73. Seminar in research procedures in industrial education and technology; basic bibliography, research form and methods.

IT 282. Advanced Communication Concepts and Visual Presentations (3)
Prerequisite: IT 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.

IT 283. Advanced Materials and Processes (3)
Prerequisite: IT 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.

IT 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.

IT 285. Advanced Manufacturing Systems (3)
Prerequisites: IT 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.

IT 290. Independent Study (1-3; max total 6 if no area repeated; max combined total with IT 270 is 12)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

IT 298. Project (2-4; max total 4)
Prerequisites: IT 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 ***RP*** grading.

IT 299. Thesis (2-4; max total 4)
Prerequisites: IT 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 ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

Industrial Technology (IT)

IT 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
Charles F. Krauter, *Chair*
Marlene Miyasaki, *Administrative Support Coordinator*
Agriculture Building, Room 222,
M/S AS 72
559.278.2861
FAX: 559.278.7413
http://cast.csufresno.edu/PlantSci/

B.S. in Plant Science
Options:
- Agronomy
- Horticulture
- Plant Health
- General Plant Science

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. Students select an option in agronomy (CRSC and SW courses), horticulture (OH, HORT, VIT, and some CRSC courses), or plant health (PLTH, CRSC, HORT, OH, and VIT courses), or they may choose a broad general plant science option.

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.

Mandatory Advising

It is the policy of the department that every student see his/her assigned adviser at least once during the academic year.

Faculty

The faculty members 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 members 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.

Charles F. Krauter, *Chair*
Sharon E. Benes, *Co-Graduate Coordinator*
Andrew B. Lawson, *Co-Graduate Coordinator*

Daniel P. Bartell
Carlos Crisosto
James J. Farrar
Dave Goorahoo
Ken Heupel
Brad Ramsdale
Bruce A. Roberts
David Zoldoske

Bachelor of Science Degree Requirements

Plant Science Major

Options: Agronomy, Horticulture, Plant Health, General Plant Science

Recommended curriculum for students interested in agronomy (crop science and soil and water courses), horticulture (ornamental horticulture, horticulture, viticulture, and some crop science courses), plant health, and general plant science.

Units

Major requirements 51

Plant Science Core ..... (30)
- PLANT 99, 107; PLTH 103, 105, 106; SW 2, 100, 100L; MEAG 3
- Choose one from CRSC 1, OH 1, HORT 1
- Choose 2 units from PLANT 180, 190, 194, 196, or VIT 196

After consultation with your adviser, choose an option and courses that best serve your career objectives. Core courses cannot be counted in the option.

Agronomy Option ..... (21)
Choose a minimum of 12 upper-division units from CRSC and/or SW courses
Choose a minimum of 9 units including one course from three different prefixes (6 upper-division units): PLTH, SW, PLANT 108, PLANT 170T, and MEAG (excluding MEAG 1S)

Horticulture Option ..... (21)
Choose a minimum of 12 upper-division units from HORT, OH, VIT, CRSC 111 and CRSC 112
Choose a minimum of 9 units including one course from three different prefixes (6 upper-division units): PLTH, SW, PLANT 108, PLANT 170T, and MEAG (excluding MEAG 1S)

Plant Health Option ..... (21)
Choose a minimum of 12 upper-division units from PLTH and/or SW courses
Choose a minimum of 9 units including one course from three different prefixes (6 upper-division units): OH, HORT, CRSC, VIT, PLANT 108, PLANT 170T, and MEAG (excluding MEAG 1S)

General Plant Science Option ..... (21)
Choose from the following:
A minimum of 3 upper-division units from each of PLTH, SW
A minimum of 3 units from MEAG (excluding MEAG 1S)
A minimum of 6 units from OH, HORT, CRSC, PLANT 108, PLANT 170T, and/or VIT
18 units must be upper division

Additional requirements 20-21*
CHEM 3A*, BOT 10*, AGEC 1*, CHEM 8 or 3B, BOT 130, BIOSCI 140A or PLANT 150, AGEC 76
Depending on career goals, choose either of the following:
Management courses**: AGEC 31 and select one from AGEC 110N, 117, 120, 130, 160, 164
Science courses: CHEM 150 and MICRO 20

General Education requirements 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. No General Education Integration or Multicultural/International course offered by the Plant Science Department may be used to satisfy the G.E. requirements for majors in the department.

Electives 0

Total units 122-123*

* This total assumes that CHEM 3A, BOT 10, and AGEC 1 are being used to satisfy 9 units of the G.E. requirement.

** Additional prerequisites may be required for some upper-division AGEC courses.

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 passing 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 Minor

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* (MEAG 3 and permission of instructor and appropriate production course)	
PLANT 150: Crop Improvement* (BOT 10 or BIOL 10)	
Select from the following	**6**
PLTH 103: Economic Entomology* (BOT 10 or BIOL 10 or ZOOL 10)	
PLTH 105: Weeds* (BOT 10 or BIOL 10 and CHEM 3A)	
PLTH 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 units	**21**

*Course requires a prerequisite.

Note: The Plant Science Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Master of Science Degree Requirements

The Master of Science 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 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; PLTH 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 2-5 units of approved electives. Each student is also expected to complete a 3- or 6-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	**2-5**
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 or 6**
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. Pass the department qualifying examination
   f. File for advancement to candidacy
   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. Students must meet the university graduate writing competency requirement by passing the writing component of AGRI 220 or FN 200. (See Plant Science Department graduate policy manual or graduate program coordinator for details.)
8. All students must successfully complete the department qualifying exam. This exam is designed to be taken during the third semester the student is in the M.S. program or after completion of AGRI 200, AGRI 201, and PLANT 257. Information on the department qualifying exam is available from the Plant Science Department's secretary.
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 within the University Agricultural Laboratory.

Note: Cost to the student of extended field trips varies each semester depending upon itinerary. The student should ask the course instructor.

Crop Science — Agronomy and Vegetable Crops (CRSC)

CRSC 1. Introduction to Crop Science (3)
Not open to students with credit in upper-division CRSC courses. Principles of production for cereal, row, forage and vegetable crops. Culture, insect and disease control, harvesting, storage, and marketing.

CRSC 101. Row Crops (3)
Prerequisites: BOT 10 or BIOL 10, CRSC 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)

CRSC 102. Cereal Crops (3)
Prerequisites: BOT 10 or BIOL 10, CRSC 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)

CRSC 103. Forage Crops (3)
Prerequisites: BOT 10 or BIOL 10, CRSC 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. (3 lecture hours; field trips)

CRSC 104. Seed Production and Technology (3)
Prerequisites: BOT 10 or BIOL 10, CRSC 1, CHEM 3A, 3B, or 8. 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)

CRSC 105. Range Management (3)
Prerequisites: BOT 10 or BIOL 10, CRSC 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)

CRSC 111. Warm Season Vegetables (3)
Prerequisites: BOT 10 or BIOL 10, CRSC 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)

CRSC 112. Cool Season Vegetables (3)
Prerequisites: BOT 10 or BIOL 10, CRSC 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)

Horticulture (HORT)

HORT 1. Introduction to Fruit Science (3)
Not open to students with credit in upper-division HORT courses. Origin and distribution of grape and tree fruit crops. Botanical and commercial classification of grapes and tree fruits and their culture in California. (Formerly VTF 1; FRSC 1)

HORT 110. Fruit Species of California (3)
Prerequisite: BOT 10 or BIOL 10 or HORT 1 or OH 1. Fruit and nut species common to California, their adaptation and uses. (Formerly VTF 110; FRSC 110)

HORT 112. Principles of Pomology (3)
Prerequisite: BOT 10 or BIOL 10 or HORT 1. Pruning, fruit and vegetative development, pollination, rootstocks; propagation, and nutrition. Crop cultural practices. (Formerly VTF 112; FRSC 112)

HORT 113. Citrus and Subtropical Fruits (2)
Prerequisite: BOT 10 or BIOL 10 or HORT 1, 110, or 112. Geographic distribution, climatic and soil adaptation of subtropical fruit crops. Fruit and vegetative development and cultural practices for globally important fruit crops. Emphasis on citrus and olive. (1 lecture, 3 lab hours) (Formerly VTF 113; FRSC 113)

HORT 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) (Formerly VTF 114; PLANT 114)

Mechanized Agriculture (MEAG)

Note: Suitable eye protection is required in many MEAG laboratory classes.

MEAG 1S. Introduction to Agricultural Mechanics (3)
Selection, care, and use of common tools, projects of wood and metal; mechanical skills in the field of agriculture. (2 lecture, 3 lab hours) (Course fee, $25) (Formerly MEAG 1)

MEAG 3. Agricultural Tractors (3)
Study of functions, physical capabilities, applications, economics, and improvement of tractors. Testing and analysis of tractors in laboratory and field conditions to maximize efficiencies. (2 lecture, 3 lab hours; 5 hours field operation)

MEAG 5. Power Equipment Safety (1)
Safety training for operation of power equipment. Meets requirements of Senate Bill 198 and University Agricultural Laboratory (UAL) for classroom safety instruction on using tractors and similar power equipment. Satisfactory completion meets safety training portion requirement of the UAL Tractor License. (16 hours, meets four consecutive times) *CR/NC* grading only. (Formerly PLANT 170T)

MEAG 20. Agricultural Machinery and Equipment (3)
The study of functions and applications of machinery and equipment. Setup, calibration, analysis, and adjustment of agricultural 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)

MEAG 50. Metallurgical Processes (3)
(Same as IT 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)

MEAG 53. Electricity and Electronics (3)
(See IT 52.)

MEAG 103. Electro-Hydraulics (3)
Prerequisite: MEAG 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)

MEAG 112. Power Systems Technology (3)
Prerequisite: MEAG 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)

MEAG 113. Power Transmissions (3)
Prerequisite: MEAG 3. Theory and operation of electro-hydraulic assist transmissions, 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)

MEAG 114. Small Gasoline and Compact Diesel Engines (3)
Prerequisite: MEAG 15. Theory of operation, maintenance, and repair of small gasoline and compact diesel internal combustion engines. Emphasizes use of small engines in agricultural education. (2 lecture, 3 lab hours)

MEAG 120. Advanced Farm Machinery (3)
Prerequisite: MEAG 3. Theory, operation, and management economics of planters, tillage tools, harvesting, spraying equipment, and precision farming equipment. Managerial responsibilities under state and federal mandates will be emphasized. (2 lecture, 3 lab hours)

MEAG 130. Precision Agriculture (3)
Survey of current geo-spatial technologies (GIS) and their application to agriculture. Theory and application of precision agriculture technologies such as remote sensing, parallel swathing, yield monitoring, precision navigation, and variable rate application to California crops. (2 lecture, 3 lab hours) (Formerly PLANT 170T)

Ornamental Horticulture (OH)

OH 1. Introduction to Ornamental Horticulture (3)
Not open to students with credit in upper-division OH courses. Planting and maintenance of the home landscape; selection, planting, fertilization, and pruning of plants; lawn planting and care. (2 lecture, 3 lab hours)

OH 2. Introduction to Landscape Design (3)
History and development of landscape design. Study of the need for landscaping in the modern human environment. Consideration of landscaping practices for modern home and their effect on the home microenvironment.

OH 4. Floral Design (3)
Principles and rules of design and color using plants as a media; European and Japanese influences; emphasis on American line-mass and contemporary designs. An assortment of arrangements are made in lab. (2 lecture, 3 lab hours) (Course fee, $25)

OH 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)

OH 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)

OH 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)

OH 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)

OH 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)

OH 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 (PLTH)

PLTH 1. Introduction to Plant Health (3)
Not open to students with credit in upper-division PLTH 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.

PLTH 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.

PLTH 103. Economic Entomology (3)
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)

PLTH 105. Weeds (3)
Prerequisites: BOT 10 or BIOL 10; CHEM 3A, 3B, or 8. Vegetation management in California. Identification of common weeds. Fundamentals of preventive, cultural, biological, physical, and chemical weed control methods. (2 lecture, 3 lab hours)

PLTH 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)

PLTH 107. Biological Control (3)
Prerequisite: PLTH 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)

PLTH 108. Integrated Pest Management (3)
Prerequisite: PLTH 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)

PLTH 109. Diagnosis and Control of Plant Diseases (3)
Prerequisite: PLTH 106. Techniques for diagnosis of specific diseases in California and selection criteria for control strategies. Students will practice diagnostic techniques and select preventative, cultural, biological, physical, and chemical disease control strategies for major plant diseases. (2 lecture, 3 lab hours)

Plant Science (PLANT)

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.

PLANT 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 ***RP*** grading.

PLANT 99. Introduction to Biometrics (3)
Prerequisite: ELM requirement met. 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)

PLANT 105. Food, Society, and Environment (3)
Prerequisites: G.E. Foundation and Breadth Areas B. 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.

PLANT 107. Plant Propagation (3)
Prerequisite: BOT 10 or BIOL 10; CHEM 3A. 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)

PLANT 108. Micropropagation (3)
Prerequisites: BOT 10 or BIOL 10; 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) (Formerly PLANT 102)

PLANT 110W. Dimensions in Agriculture (3)
Prerequisite: satisfactory completion of the ENGL 1 graduation requirement. 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.

PLANT 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)

PLANT 134. Microclimatology (3)
(See GEOG 114.)

PLANT 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.

PLANT 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.

PLANT 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 ***RP*** grading.

PLANT 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

PLANT 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.

PLANT 196. Crop Projects (1; max total 4)
Prerequisite: MEAG 3, appropriate production course, UAL Tractor License, and permission of instructor. Knowledge gained from classroom instruction applied to field conditions. Students will participate in growing and marketing a crop using the University Agricultural Laboratory. Approved for ***RP*** grading.

Soil and Water (SW)

SW 1. Introduction to Irrigated Soils (3)
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.

SW 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)

SW 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.

SW 100L. Soils Lab (1)
Prerequisite: SW 100 (may be taken concurrently). Physical, chemical, and biological analysis. Interpretation of field and laboratory data. (3 lab hours) (Saturday field trip)

SW 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)

SW 104. Soil and Water Management (3)
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.

SW 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).

SW 111AG. Agricultural Irrigation Lab (1)
Prerequisite: SW 111 (may be taken concurrently). Field experience in planning, installing, and evaluating irrigation systems for agricultural applications. (3 lab hours)

SW 111OH. Ornamental Horticulture Irrigation Lab (1)
Prerequisite: SW 111 (may be taken concurrently). Field experience in planning, installing, and evaluating irrigation systems for landscape and other ornamental horticultural applications. (3 lab hours)

SW 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)

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)

AGRI 200. Biometrics in Agriculture (3)
Prerequisites: PLANT 99, AGEC 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.

AGRI 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)

AGRI 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 ***RP*** grading.

Plant Science (PLANT)

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.

PLANT 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)

PLANT 253. Soil-Water Relationships (3)
Prerequisite: SW 100. Soil and water relationships influencing agricultural production and environmental quality. Soil quality concept and the role of organic matter; management alternatives for salinity, drainage, and trace element problems; irrigation water quality and the use of wastewaters for irrigation. (2 lecture, 3 lab hours)

PLANT 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)

PLANT 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.

PLANT 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.

PLANT 258. Plant Disease Epidemiology and Control (3)
Prerequisite: PLTH 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)

PLANT 261. Advanced Pest Management (3)
Prerequisite: PLTH 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.

PLANT 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.

PLANT 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

PLANT 299. Thesis (3 or 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. Oral defense of thesis required. Approved for ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

Agriculture (AGRI)

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*
Helen Chrisman, *Administrative Support Coordinator*
Viticulture and Enology Research Center
2360 E. Barstow Ave, M/S VR89
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B.S. in Enology

B.S. in Viticulture

M.S. in Viticulture and Enology

Certificate of Special Study in Enology

The Department

It is the goal of the Department of Viticulture and Enology to be a world class center of excellence that can effectively meet the needs of students and the broader community. The department offers courses in viticulture and enology. Each degree 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.

Academic Excellence

Universities in California are recognized both nationally and internationally as the educational leaders in enology and viticulture. California State University, Fresno is one of only two universities in the country to offer a full program of study in enology. California State University, Fresno was also the first to establish a commercial winery 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 adviser.

Mandatory Advising

It is the policy of the department that every student see his/her assigned adviser at least once during the academic year.

Faculty

In their fields of specialization, faculty members hold advanced degrees from leading universities. 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, *Julio R. Gallo Chair*
Sayed A. Badr
Kenneth C. Fugelsang
Sanliang Gu
Roy J. Thornton

Bachelor of Science Degree Requirements

Viticulture Major — *Units*

Major requirements 36
VIT 101, 102, 103, 105, 106, 160, 165, 196 (2 units), 199 (1 unit); ENOL 15, 45 (2 units); PL TH 103, 105, 106

Additional requirements 49
BOT 10, 130; CHEM 3A, 8, 150; AGEC 1; PLANT 99, 105, 150; SW 2, 100, 100L, 101; MEAG 3
Select 6 units in consultation with faculty adviser from the following courses:
AGEC 31, 110N, 117, 120, 130; ENOL 135, 163, 175; HORT 114

General Education requirements 51
12 of these G.E. units are included in the *additional requirements*. These courses are 3 units of CHEM 3A [B1]; BOT 10 [B2]; AGEC 1 [D3]; and PLANT 105 [IB]. Therefore, 39 remaining General Education units are required.

Upper-division writing skills requirement 0
Upper-division Writing Exam
(See Advising Note 6.)

Total units 124*

* This total assumes that students will maximize the 12 units required for the major that also may be applied to fulfill General Education requirements as indicated above.

Bachelor of Science Degree Requirements

Enology Major — *Units*

Major requirements 43
ENOL 15, 45 (2 units), 105, 114, 116, 125, 135 (2 units), 151, 163 (2 units), 164 (6 units), 166 (2 units), 175, 199 (1 unit); VIT 101, 102, 106

Additional requirements 44
BOT 10, 130; CHEM 1A, 1B, 8, 105, 150; DS 71; AGEC 1; MICRO 140; PLANT 105; SW 100, 100L

General Education requirements 51
15 of these G.E. units are included in the *additional requirements*. These courses are 3 units of CHEM 1A [B1]; BOT 10 [B2]; DS 71 [B4]; AGEC 1 [D3]; and PLANT 105 [IB]. Therefore, 36 remaining General Education units are required.

Upper-division writing skills requirement 1
Upper-division Writing Exam (See Advising Note 6.)

Total units 124*

* This total assumes that students will maximize the 15 units required for the major that also may be applied to fulfill General Education requirements as indicated above.

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.
2. Students meet with their academic advisers 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 course) should not be attempted prior to the semester in which 60 units toward the degree have been completed.
6. If the upper-division writing skills requirement is not met by passing the university Upper-Division Writing Examination (0 units), then a 3- to 4-unit ***W*** course (e.g., PLANT 110W or ENGL 160W) must be passed with a grade of ***C*** or higher.
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 crop scientists/specialists should consult their faculty adviser for additional requirements for certification.

Certificate of Special Study

The Department of Viticulture and Enology offers a Certificate of Special Study in Enology. Normally, students admitted to this certificate program will have completed an undergraduate degree in a related field. This program is specifically designed for those who wish to pursue a career in winemaking. The certificate program emphasizes coursework in enology and viticulture, with requirements in other supporting sciences. Before enrolling in this certificate program, students must meet with an adviser in the Department of Viticulture and Enology to ensure that prerequisites have been met and to plan for their course of study.

The program consists of a minimum of 31 units in enology. If students have completed courses that qualify as part of the 31 units in enology, substitutions shall be made in consultation with an adviser to meet the 31-unit requirement. The Certificate of Special Study in Enology has additional requirements totaling up to 50 units that may be satisfied by previously completed coursework. Each student will meet with the certificate adviser to determine whether these requirements have been met by proper coursework or extensive experience in the field.

Required Qualifications:

1. Normally, a bachelor's degree from an accredited institution in the sciences or a related field

Preferred Qualifications:

1. One or more years of experience in the wine industry
2. Strong background in chemistry, microbiology, or food science
3. Academic training and experience in viticulture and soils

Students who have completed all of the prerequisites and additional requirements could possibly complete this course of study in a single year. Other students may take longer. The time limit for completing this certificate program is five years.

Certificate Program	*Units*
Required courses	**31**
ENOL 105, 114, 116, 125, 135, 151, 163, 164, 166, 175, 199; VIT 106	
Additional courses or their equivalents	**45**
BOT 10; CHEM 1A, 1B, 8, 105, 150; ENOL 15, 45 (2 units); MICRO 140; PLANT 105; SW 100, VIT 101, 102	

Master of Science Degree Program

The Master of Science in Viticulture and Enology is a 30-unit program designed to provide advanced studies and in-depth knowledge in the fundamentals of plant physiology, microbiology, and grape and wine chemistry, as well as technical writing and formal presentation of research reports.

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 Requirements. The Master of Science in Viticulture and Enology assumes preparation equivalent to a Bachelor of Science in Viticulture and/or Enology, Agricultural Chemistry, Food Science and Nutrition, Plant Science, or a related area from an accredited institution. 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 8, 150; ENOL 116, 125, 166; PLTH 103, 105, 106; SW 2, 100; VIT 101, 102.

Admission Materials. To be considered for admission to the graduate program, the candidate must submit the following materials: evidence of a baccalaureate degree in agricultural chemistry, enology, food science, nutrition, plant science, viticulture, or a related area from an accredited institution; official transcripts of all college work; official scores from the Graduate Record Exam (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 Application Filing Periods
Check *http://www.csufresno.edu/catoffice/current/admssns.html* or call the Graduate Admissions Office at 559.278.2261.

Enrollment Packet Submission Deadlines
Check *http://cast.csufresno.edu/ve*

Incomplete packets of materials will be returned to students for resubmission the following semester. Required application materials are available in the Department of Viticulture and Enology, VR 89, 559.278.2089, fax 559.278.4795. The department Web site is *http://cast.csufresno.edu/ve*.

Admission Criteria: Candidates for admissions will be evaluated using criteria including 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 Viticulture and Enology 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 grated to students who meet all of the admission criteria.

Conditional classified standing may be granted to applicants with 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 maximum of 10 units to be used toward the degree are completed.

Program Requirements for Viticulture and Enology

All students must complete a 14-unit common core. Students must also complete 12 units of approved electives and a 4-unit thesis (culminating experience) in consultation with a thesis adviser.

	Units
Core	**14**
AGRI 200, 220; VEN 210, 229, 280	
Approved Electives	**12**
BOT 137; CHEM 225; FN 209, 221T; IT 223, 282; PLANT 252, 254, 256, 257, 258; VEN 214*, 225*, 250T, 251*, 264*, 275*, 290	
Culminating Experience	**4**
VEN 299	
Total minimum requirements	**30**

*Development of VEN electives in progress.

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 Viticulture and Enology, interested students should call or write the department office. Upon acceptance into the Master of Science in Viticulture and Enology program, students should obtain the *Graduate Student Handbook* from the department office.
3. Upon acceptance into the Master of Science in Viticulture and Enology 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.
5. 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. pass the department qualifying examination,
   f. file for advancement to candidacy,
   g. complete the program requirements,
   h. file a master's thesis committee assignment form, and
   i. satisfactorily present and defend the thesis research results.
6. All students must successfully complete the department qualifying examination before being advanced to candidacy. The exam should be taken as soon as possible after completing AGRI 200, 220, and PLANT 257. Information on the department preliminary examination is included in the *Graduate Student Handbook*.
7. Advancement to candidacy requires the completion of 9 program units in residence, meeting the university graduate writing requirement, passing the Viticulture and Enology Department qualifying exam, and filing a Petition for Advancement to Candidacy a minimum of one semester prior to enrollment in thesis and within the deadline.
8. The Graduate Writing Requirement may be met by passing the writing component of AGRI 220. Please see the program coordinator for more information.

See *Division of Graduate Studies* in this catalog for university requirements.

COURSES

Enology (ENOL)

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.

ENOL 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 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)

ENOL 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)

ENOL 114. Analytical Methods for Wine I (2)
Corequisite: ENOL 164; prerequisite: CHEM 105 (may be taken concurrently) or permission of instructor. Fundamental principles and practices of methods of analysis for grape juice and wine during crush. Emphasis on practical laboratory procedures. (1 lecture, 3 lab hours) (Formerly ENOL 162T)

ENOL 116. Analytical Methods for Wine II (2)
Corequisite: ENOL 166; prerequisites: ENOL 114, 164, CHEM 105, or permission of instructor. Fundamental principles and practices of methods of analysis for wine and wine products during cellaring operations. Emphasis on practical laboratory procedures. (1 lecture, 3 lab hours) (Formerly ENOL 162T)

ENOL 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, 6 lab hours)

ENOL 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.

ENOL 140. Regulations: Wine and Brandy (2; max total 2)
Prerequisite: ENOL 15 or permission of instructor. Rules and regulations concerning wine and brandy licensing, record keeping, production, taxation, enological practices, rule making, and labeling. Interstate and international commerce. Export requirements. (Formerly ENOL 162T)

ENOL 145. Brandy Production (3)
Prerequisites: ENOL 164; CHEM 101 or 109 or IT 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)

ENOL 151. Winery Equipment (2)
Prerequisites: ENOL 15; 135 (may be taken concurrently). Evaluation, use, location, operation, and repair of winery equipment. Winery safety. Safety equipment required. (1 lecture, 3 lab hours)

ENOL 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.

ENOL 163. Fermentation Laboratory (2; max total 6)
Prerequisite: ENOL 15 (may be taken 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)

ENOL 164. Wine Analysis and Production (6; max total 12)
Corequisite: ENOL 114; 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 166. Cellar Operations (2; max total 4)
Corequisite: ENOL 116; prerequisites: ENOL 114, 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)

ENOL 168. Juice and Concentrate Production (2)
Prerequisites: ENOL 15; CHEM 1A or 3A. Principles and practice of modern fruit juice and concentrate production. (1 lecture, 3 lab hours; field trips)

ENOL 173. Wine Marketing (2)
Prerequisites: ENOL 45; AGEC 1. Marketing principles as applied to wine. Role of wholesalers, distributors, retailers, cooperatives. Advertising. Regulations. Interstate and international trade.

ENOL 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.

ENOL 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 ***RP*** grading.

ENOL 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

ENOL 193. Wine Marketing Internship (2-12; max total 12)
Prerequisites: approval of internship committee; ENOL 173; ENOL 105. AGEC 164 recommended. Emphasis on development of decision-making ability through marketing organization experience integrated with principles acquired in the classroom. ***CR/NC*** grading only.

ENOL 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.

ENOL 196. Enterprise Management (1-6; max total 6)
Prerequisites: ENOL 166, 175; FSC 178; VIT 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.

ENOL 199. Undergraduate Seminar (1; max total 2)
Oral presentations of topics of current interest in enology, wine grapes, and fermentation science.

Viticulture (VIT)

VIT 1. World Viticulture (3)
Origin and distribution of European (Old World) grapevines and their "New World" relatives. The use of grape and grape products in various regions of the world. Not open to viticulture or enology majors.

VIT 101. Principles of Viticulture (4)
Prerequisite: BOT 10 or BIOL 10. 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 grapevine nutrition. (3 lecture, 3 lab hours) (Formerly VTF 101)

VIT 102. Advanced Viticulture (3)
Prerequisite: VIT 101. Planning of new vineyards. Vine propagation, planting, training, and trellis systems. Recent developments in viticultural practices, with emphasis on raisin, table, and wine grape production. (2 lecture, 3 lab hours) (Formerly VTF 102)

VIT 103. Raisin Production and Processing (3)
Prerequisite: BOT 10 or BIOL 10 or VIT 102. Principles and practices of raisin production; sun drying, mechanical dehydration, on-the-vine drying; new raisin processes to produce new products. (2 lecture, 3 lab hours) (Formerly VTF 103)

VIT 105. Production and Marketing of Table Grapes (2)
Prerequisite: VIT 102. 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, VTF 105)

VIT 106. Winegrape Production (2)
Prerequisite: VIT 102. 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, VTF 106)

VIT 160. Mechanized Viticulture (3)
Prerequisite: MEAG 3 or equivalent (may be taken concurrently). Provides detailed description of the machinery used to establish vineyards, carry out cultural practices, and harvest grapes for production of wine grapes, raisins, and table grapes. Objective is to provide student with an understanding of machinery designed for grape production and the principles of machinery operation. (2 lecture, 3 lab hours) (Formerly VIT 162T)

VIT 162T. Topics in Viticulture (1-4; max total 4)
Prerequisite: junior standing. Oral presentations by invited speakers on topics of current interest to viticulture.

VIT 165. Grapes Varieties and Rootstocks (2)
Prerequisite: VIT 101. Taxonomy and ampelography of the grapevine with emphasis on genus, species, varieties, and clones. Identification, viticultural attributes, adaptation, and utilization of the leading rootstocks, raisin, table, and wine varieties grown in California and the United States. (1 lecture, 3 lab hours)

VIT 180. Undergraduate Research (1-4; max total 4)
Prerequisites: VIT 101 and 102 or permission of instructor. Open to juniors or seniors with permission of instructor. Exploratory work on a suitable agricultural problem in viticulture. Approved for ***RP*** grading.

VIT 190. Independent Study (1-3; max total 6)
See *Academic Placement—Independent Study.* Approved for ***RP*** grading.

VIT 194. Viticulture 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.

VIT 196. Viticulture Projects (1-4; max total 4)
Prerequisite: MEAG 3 or MEAG 5 and VIT 101 or equivalent. Knowledge gained from classroom instruction applied to vineyard conditions. Students will be assigned to a block in the university vineyard and participate in cultural practices and marketing the crop. This course must be taken twice to complete the project; a minimum of 2 units are required.

VIT 199. Undergraduate Seminar (1; max total 4)
Seminar format in which professionals in the grape and wine industry will make 30- to 40-minute presentations. Afterwards, there will be five to 10 minutes reserved for questions. The seminars are intended to elicit considerable interaction among participants. The setting is informal. (Formerly VIT 162T)

Viticulture and Enology (VEN)

VEN 210. Grape and Wine Chemistry (4)
Prerequisite: CHEM 150. Mechanistic basis for the chemistry and biochemistry of vines, grapes, yeast, and bacteria used in winemaking, wine spoilage, and health issues of alcohol and wine. Critical evaluation of the literature pertaining to the above subjects.

VEN 229. The Graduate Seminar (1; max total 2)
Prerequisite: permission of instructor. Oral presentations on topics of current interest in viticulture and enology. Develops skills in critical review and analysis of current literature and recent advances.

VEN 250T. Topics in Viticulture and Enology (1-3; max total 6 if no topic repeated)
Prerequisites: admission to a graduate program in the College of Agricultural Sciences and Technology and permission of the instructor. Advanced studies of current topics in viticulture and enology selected by instructor. Students will be required to prepare oral and written presentations demonstrating an in-depth understanding of the chosen topic(s). Participation in classroom discussion will be required as part of the grade.

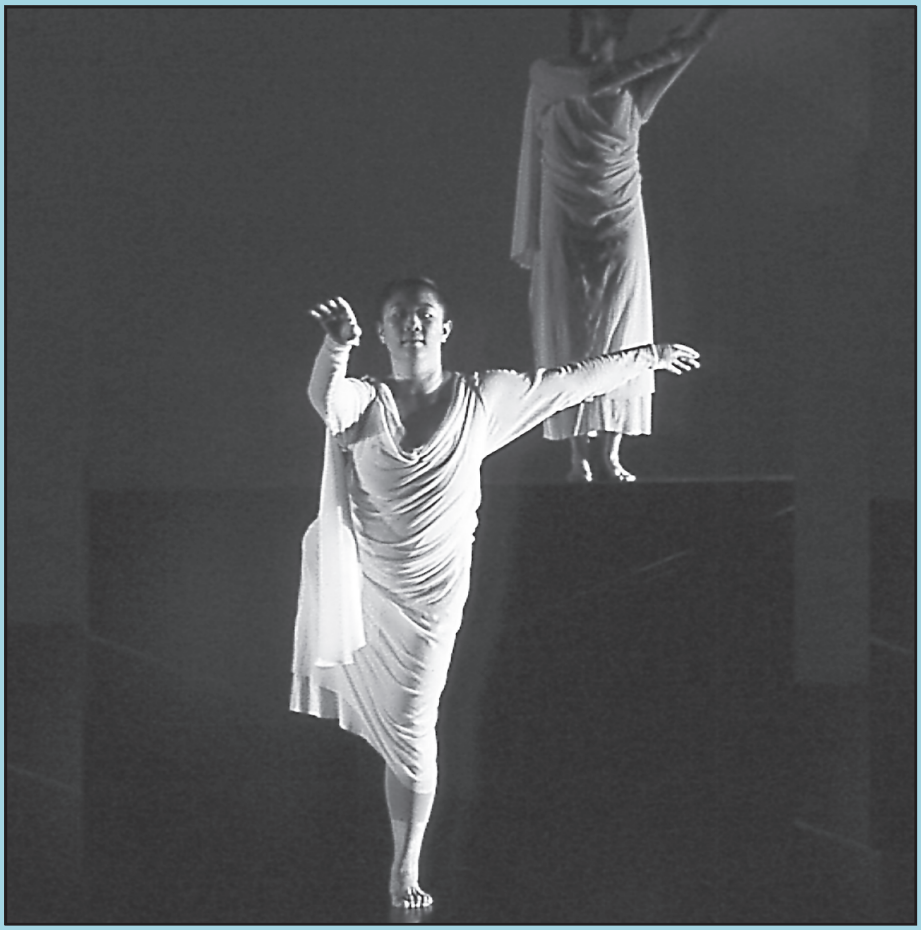
VEN 280. Research in Viticulture and Enology (2)
Prerequisites: AGRI 200 and 220. History, current trends, and modern methodology for research in viticulture and enology. Exposure to funding opportunities and dissemination of research results in the grape and wine industry. Involves critical evaluation of published literature on grape and wine research.

VEN 290. Independent Study (1-3; max total 3)
See Academic Placement — *Independent Study*. Approved for ***RP*** grading.

VEN 299. Thesis (4)
See *Criteria for Thesis and Project*. Prerequisite: advancement to candidacy. Preparation, completion, and submission of an acceptable thesis for the master's degree. Oral defense of thesis required. Approved for ***RP*** grading.

The College of Arts and Humanities

Music Building, Room 186
Vida Samiian, *Interim 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 modern 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 484.***

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

Upper-Division Honors Certificate

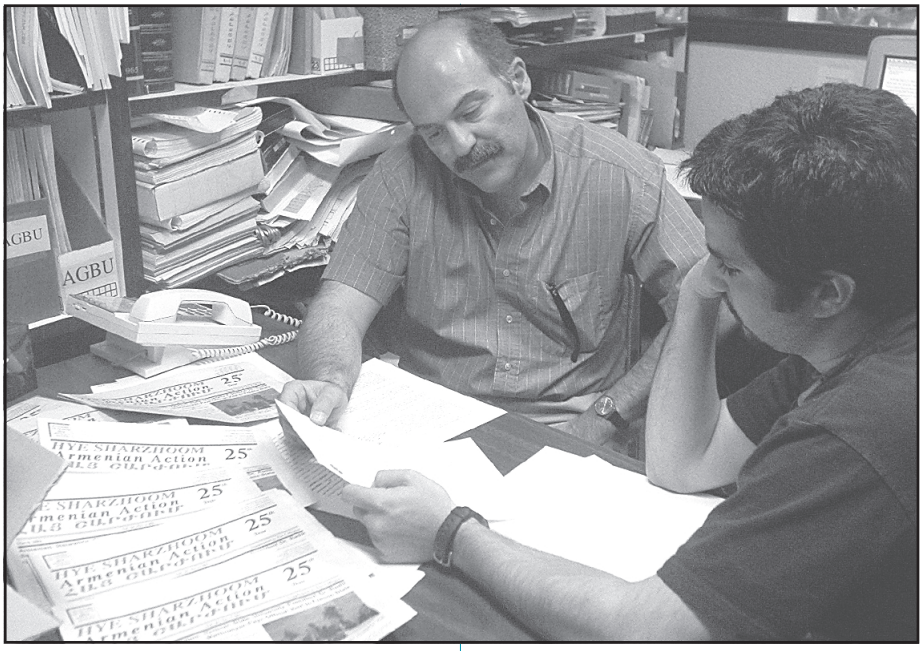
Armenian Studies

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 a major gift from 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 course 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 Victoria Kazan, the university has received a special endowment to support Armenian Studies Program activities and to provide financial resources for research, publications, and conferences related to Armenian studies.

Pete P. Peters Endowment. In 1998, Mr. Pete Peters, a long-time supporter of Armenian Studies, offered the university a substantial endowment exclusively for helping with the program's outreach activities. For the first few years, proceeds from the endowment will be used for student scholarships.

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.

The Norma and Bob Der Mugrdechian Armenian Studies Endowed Scholarship has been established to provide scholarships for students who are studying, or have declared a major, in the area of Armenian Studies.

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; the Koren and Alice Odian Kasparian Scholarship; Telfeyan Evangelical Fund, Inc. Scholarship; and the Kirkor and Mary Bedoian Memorial 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 Armenian Studies 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.

Faculty

Dickran Kouymjian, *Armenian Studies Program Coordinator, Haig and Isabel Berberian Professor of Armenian Studies*

Barlow Der Mugrdechian, *Lecturer*

Additional staff:
Henry S. Khanzadian Kazan Visiting Professor of Armenian Studies

Armenian Studies Minor

	Units
ARM 1A, 1B, 2A, 2B	**6-8***
ARMS 45 or ARM 148	**3**
ARMS 10 and 20	**6**
ARMS 121 or 123	**3**
ARMS/HIST 105 or 106 or ARMS 120T	**3**
ARMS/HIST 108A or 108B	**3**
Total	**24-26**

*Students must take two of these courses in consultation with the program coordinator. Students who can speak, read, and write Armenian may elect to challenge one or two of these classes CBE (see Credit by Examination).

Note: The Armenian Studies Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Upper-Division Honors Certificate

The Armenian Studies Upper-Division Honors Program provides the opportunity for highly qualified, advanced Armenian Studies Program students to pursue the Upper-Division Honors Certificate in Armenian Studies. Please see *http://www.csufresno.edu/catoffice/current/armscert.html*.

COURSES

Armenian (ARM)

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.

ARM 1B. Elementary Armenian (4)
Prerequisites: G.E. Foundation A2, 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.

ARM 2A. Intermediate Armenian (3)
Prerequisites: G.E. Foundation A2, ARM 1B or permission of instructor. Review of grammar and emphasis on conversation and reading. G.E. Breadth C2.

ARM 2B. Intermediate Armenian (3)
Prerequisites: G.E. Foundation A2, ARM 2A or permission of instructor. Advanced conversation, composition, and reading. G.E. Breadth C2.

ARM 148. Masterpieces of Armenian Culture (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

ARM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Armenian Studies (ARMS)

ARMS 10. Introduction to Armenian Studies (3)
Prerequisite: G.E. Foundation A2. 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.

ARMS 20. 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.

ARMS 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.

ARMS 50T. Studies in Armenian Literature (3)
Various masterpieces of Armenian literature: David of Sassoun, Saroyan, historical literature, modern literature, Armenian American authors.

ARMS 105. Armenian Genocide in Comparative Context (3)
(See HIST 105.) Review of theory and characteristics of genocide. Study of the 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.

ARMS 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.

ARMS 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.

ARMS 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.

ARMS 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.

ARMS 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.

ARMS 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 4th to the 17th centuries. All lectures are illustrated with slides.

ARMS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Armenian Studies Honors (ARMS)

190H. Honors Independent Study (3)
Designed for advanced undergraduate students who have successfully been admitted into the Armenian Studies Program's Honors Program. Students will work closely with assigned faculty to develop a research proposal and to complete an honors thesis ready for publication.

Art and Design

College of Arts and Humanities

Department of Art and Design
Richard L. McQuone, *Chair*
Conley Art Building, Room 105
559.278.2516
http://www.csufresno.edu/artanddesign/

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 many exciting and creative opportunities for students to nurture and expand their artistic and design senses. Entering the 21st century, the department provides a broad range of experiences that prepare its graduates for art and design related career opportunities and artistic endeavors. Students study and produce works that include state-of-the-art computer applications, conceptual art, graphic design, and interior design. The department has fine arts as its core and foundation, while offering areas of study which allow for occupational preparation in a variety of areas. The award-winning faculty is committed to the idea that a foundation in the crafts of art and design is an essential prerequisite to the production of works that show sophistication both conceptually and visually.

Studio Art. Students produce works which encompass a wide range of visual expression, from figurative, abstract, narrative, and mixed media, to leading edge conceptual and installation works. Experimentation is encouraged.

The history of art presents a platform for students to examine, identify, and appreciate the visual arts from prehistory to the present. Art history students acquire an understanding of great art works while developing critical thinking skills.

Graphic Design. Through a combination of traditional drawing and rendering techniques and state-of-the-art computer applications, the graphic design option prepares students for careers in the graphics and advertising fields, including graphic design, advertising, publishing, film, and the history of graphic design.

Courses explore the many aspects of design, typography, illustration, computer graphics, Internet design, the history of graphic design, and the professional practices commonplace in the field.

Interior Design. The B.A. in Interior Design allows students many unique opportunities in the field of design. The interior design major is accredited by the Foundation for Interior Design Research (FIDER). Students use advanced computer-aided-design (CAD) and animation programs as well as traditional methods in developing sophisticated design solutions for a variety of architectural projects. Interior design students gain an excellent foundation in subjects such as color theory, space planning, presentation techniques, rendering, drawing, building systems and codes, and material and design for special populations. (Internship opportunities are available.)

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, state-of-the-art computer labs, and support facilities, but also include an art gallery and a lecture hall in an award-winning 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:

- Art Education
- Art History
- CAD Design
- Computer Art
- Fine Arts
- Gallery Work
- Graphic Design
- Interior Architecture
- Interior Design
- Museum Work
- Studio Production

Prospective students should contact faculty in their area of interest to further explore specific career opportunities.

Students may also choose to pursue advanced degree work toward the M.A. in Art.

Faculty

Richard L. McQuone, *Chair*
Kyu-Ho Ahn
Lawrence L. Anderson
Nancy K. Brian
Paulette S. Fleming
Ed Gillum
Doug Hansen
Patricia L. Hennings
Thomas McDougall
Laura Meyer
Daniel G. Nadaner
Nicholas Potter
Raphael X. Reichert
Stephanie Ryan
Joan Sharma
Charles Shields
Gina Strumwasser
Martin Valencia

Bachelor of Arts Degree Requirements

Art Major *Units*

Major requirements (See *Note 1*) **51**
Art and Design Core ..... (18)
ARTH 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
ARTH 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
V. Art History (see *Advising Note 1*)
Art and Design upper-division
electives ..... (9)
General Education requirements 51
Electives and remaining
degree requirements 18-24*
(See *Degree Requirements*); may
be used toward a double major
or minor.
Total 120

*This total indicates that a maximum of two courses (6 units) in G.E. Breadth C1 and G.E. Breadth E1 also may be applied to the art major. These courses include ARTH 10, 11; ART 20, 40, 50 (G.E. C1); and/or ART 13 (G.E. E1). Consult the department chair or faculty adviser for additional details.

Advising Notes

1. Upper-division requirements for students emphasizing art history include ARTH 136, and at least 3 units from each of the following areas:
   - Primitive, Pre-Columbian
   - Renaissance, Baroque
   - Modern, Contemporary
2. *CR/NC* grading is only permitted in ART 198, Internship.
3. General Education and elective units may be used toward a double major or minor (see *Double Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4 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.

Bachelor of Arts Degree Requirements

Art Major
Graphic Design Option *Units*

Major requirements 66
Art and Design Core ..... (18)
ARTH 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 35, 40, 41, 42
Upper-division requirements ..... (36)
GD 135, 140, 141, 142, 143,
146, 147, 148, 149, 150;
ART 116; MCJ 142
General Education requirements 51
Electives and remaining
degree requirements 3*
(See *Degree Requirements*); may
be used toward a double major
or minor.
Total requirements 120

*This total indicates that a maximum of two courses (6 units) in G.E. Breadth C1 and G.E. Breadth E1 also may be applied to the graphic design major. These courses include ARTH 10, 11; ART 20, 40, 50 (G.E. C1); and/or ART 13 (G.E. E1). Consult the department chair or faculty adviser for additional details.

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.
5. 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.

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.

Credential Program
Core Courses *Units*

ARTH 10 and 11: The Ancient and Primitive World and The Modern World ..... (6)
ART 13: Design ..... (3)
ART 21: Figure Drawing ..... (3)
ART 24, 25, 26, 27, 109T, 126, or 127: Printmaking ..... (3)
ART 40: Painting ..... (3)
ART 50: Sculpture ..... (3)
ART 60: Beginning Ceramics ..... (3)
ART 70: Crafts or ART 127, 160, 175, and/or 166 ..... (3)
ART 30, 182, 183, 185, or 37, 107, 117: Photography or Computers (3)
ART 120: Drawing (advanced) ..... (3)
Core total 33

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.

Credential Program

Breadth Courses	*Units*
ARTH 136: Contemporary Art	(3)
ARTH 120, 122, 124, 126, or 109T: Renaissance, Baroque, or Heroines in Art	(3)
ARTH 160, 170, 173, or 175: Africa, Native North American, Pre-Columbian, or Pre-Columbian Andes	(3)
ART 101: Content and Form	(3)
ART 113, 171, or 175: Design (advanced), Crafts (advanced), Metal Design	(3)
ART 140: Intermediate Painting	(3)
ART 152, 155, or 160: Intermediate Sculpture, Sculpture: Foundry, Intermediate Ceramics	(3)
ART 179: Development of Artistic Expression	(3)
Breadth courses	**24**

Art Minor

The Art Minor consists of a minimum of 21 units of which 9 must be upper division. A maximum of six units of ***CR/NC*** grading will be accepted.

	Units
ARTH 10 and 11	**6**
ART 13 and 20	**6**
ARTH elective (upper division)	**3**
ARTH or studio electives (upper division)	**6**
Total	**21**

Note: The Art Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Graduate Program

The Master of Arts in Art provides the opportunity for highly motivated art and design 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 builds 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 requirement is satisfied by passing the designated writing component of either ART 230 or ART 260. Please see the Department of Art and Design's *Graduate Guide* for more detailed information. 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)

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.

ARTDS 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 (ARTH)

ART HISTORY SURVEYS

ARTH 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)

ARTH 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)

ARTH 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

ARTH 120. Italian Renaissance (3)
Artistic revival of classical antiquity in Italy between 1300-1550.

ARTH 122. Northern Renaissance (3)
Painting and sculpture from the Netherlands, France, and Germany between 1300-1550.

ARTH 124. Italian Baroque (3)
Baroque art from its conception in Rome to its dispersal throughout Italy from 1600-1750.

ARTH 126. Northern Baroque (3)
Diffusion of Italian Baroque art to the Netherlands, France, Spain, Germany, and Austria between 1600-1750.

ARTH 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.

ARTH 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.

ARTH 134. America (3)
Art from colonial times to 1945.

ARTH 136. Contemporary Art (3)
A comprehensive survey of contemporary art focusing on the issue of postmodernism from the mid-1950s onward.

PRIMITIVE ART SURVEYS

ARTH 160. Africa (3)
Sculpture, painting, architecture, festivals, and personal adornment of sub-Saharan Africa.

ART OF THE AMERICAS SURVEYS

ARTH 170. Native North American (3)
Arts of the indigenous North American cultures from the Arctic to the American Southwest.

ARTH 173. Pre-Columbian Mexico (3)
Art of the Olmec through the Aztec cultures.

ARTH 175. Pre-Columbian Andes (3)
Art of the Chavin through the Inca cultures.

ARTH 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Studio (ART)

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)

ART 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)

ART 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)

ART 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, $35)

ART 24. Printmaking (3)
Introduction to the printmaking processes of intaglio, lithography, and woodblock printing. (6 lecture-lab hours) (Course fee, $15) (CAN ART 20)

ART 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)

ART 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, $30)

ART 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, $30)

ART 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)

ART 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)

ART 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)

ART 45. Watercolor (3)
Introduction to techniques in watercolor painting with emphasis on transparencies. (6 lecture-lab hours)

ART 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)

ART 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)

ART 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)

ART 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.

ART 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.

ART 102. Ideas of Visual Culture: Art, Media, and the Computer (3)
Prerequisites: G.E. Foundation and Breadth Area C. Overview of ideas in visual culture and critical theory. Examines visual culture in the form of video, film, new works in visual art, the computer, and visual spectacles in contemporary culture. G.E. Integration IC. (3 lecture/lab hours)

ART 103. Guest Artists (3; max total 9)
Seminar with experienced guest artists.

ART 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, $220)

ART 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, $35)

ART 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)

ART 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)

ART 113. Design (3; max total 9)
Prerequisite: ART 13. Continuation of the exploration of two- and three-dimensional design problems. (6 lecture-lab hours)

ART 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)

ART 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, $35)

ART 120. Drawing (3; max total 9)
Prerequisite: ART 20. Investigation of advanced concepts through the techniques of the drawing medium. (6 lecture-lab hours)

ART 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, $35)

ART 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, $30)

ART 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, $30)

ART 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, $30)

ART 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)

ART 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)

ART 140. Intermediate Painting (3)
Prerequisite: ART 40. Individual investigation of advanced aesthetic concepts; continued search into personal direction. (6 lecture-lab hours)

ART 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)

ART 145. Watercolor (3; max total 9)
Prerequisite: ART 45. Painting with emphasis on transparencies. (6 lecture-lab hours)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 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)

ART 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading. (Course fee, $30)

ART 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 week per unit.)

GRADUATE COURSES

(See *Catalog Numbering System.*)

Art (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.

ART 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.

ART 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.

ART 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)

ART 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)

ART 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.

ART 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading. (Course fee, $30)

ART 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 ***RP*** grading. (Course fee, $30)

ART 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 ***RP*** grading.

IN-SERVICE COURSE

(See *Course Numbering Systems.*)

Art (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)

GD 35. Visual Communications Fundamentals (3)
Foundational visual and cognitive organizational processes for the practice of visual communication, presented through lectures and applied through studio exercises. Includes visual perception and organization, visual ideation, and visual problem-solving processes, techniques, and principles. (2 lecture, 2 lab hours)

GD 40. Graphic Design: Computer Imaging (3)
Prerequisites: ART 13. Introduction to computer 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)

GD 41. Typography (3)
Prerequisite: GD 40. Typographic principles, elements, and techniques. Type classification, selection, design, and layout. Computer projects. (6 lab hours) (Formerly GID 141, GID 165)

GD 42. Graphic Design (3)
Prerequisite: 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)

GD 135. History of Graphic Design (3)
Prerequisites: ARTH 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)

GD 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)

GD 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)

GD 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)

GD 143. Rendering (3)
Prerequisite: ID 43 or ART 20; ART 116. Assignments exploring limited and full color illustrations. Emphasis on development of professional presentation and skills. (6 lab hours) (Course fee, $5)

GD 146. Advanced Rendering (3; max total 6)
Prerequisite: GD 143. Advanced rendering for design and illustration. Includes limited and full color problems with emphasis on professional presentation. (6 lab hours)

GD 147. Advertising Illustration (3)
Prerequisite: GD 146. Illustration as it applies to graphic design and advertising situations. Composition and techniques designed for quick reading and ease of execution. Computer projects in black and white and color. (6 lab hours) (Course fee, $5)

GD 148. Advanced Advertising Design (3; max total 6)
Prerequisites: GD 142, GD 149. 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)

GD 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)

GD 150. Advanced Internet Design (3; max total 6)
Prerequisite: G D 140. Softwares (such as Flash) for designing Web sites with interactivity and motion. Emphasis on professionally designed, visually integrated sites using scalable vector graphics in standalone Web sites, or in combination with programming languages such as HTML.

GD 190. Independent Study in Graphic Design (3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GD 198. Internship in Graphic Design (1-6; max total 6)
Prerequisites: permission of instructor and supervising agency. Experience in graphic design related professions with a design studio, with an advertising agency, or for a publication under the supervision of graphic design faculty. Maximum credit toward a graphic design option is 6 units. ***CR/NC*** grading only. (Minimum of 3 field hours per unit.)

Bachelor of Arts Degree Requirements

Interior Design Major — *Units*

Major requirements 82
- Art and Design Core ..... (15)
  - ARTH 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 ..... (67)
  - ID 7, 70, 71, 77, 110, 111, 112, 113; ID 116 or IT 115; ID 120, 130, 131, 133, 134 or 145, 136, 137, 138, 149, 150, 152, 155

General Education requirements 51
(including 12 upper-division units, to be taken no sooner than the term in which 60 units of coursework are completed) Consult the *Class Schedule* for a current list of approved General Education courses.)

Total units 124*

*This total indicates that a maximum of three courses (9 units) in G.E. Breadth C1 and G.E. Breadth E1 also may be applied to the interior design major. These courses include ARTH 10 or 11; ART 20, 40, 50 (G.E. C1); and/or ART 13 (G.E. E1). Consult the department chair or faculty adviser for additional details. Also, the upper-division writing skills requirement is to be met by exam or by an additional W course.

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. 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.
4. A grade of ***C*** or higher in all interior design coursework is necessary for successful completion of the major. Any course required as a prerequisite must be completed with grade of ***C*** or better before registration in the subsequent course.
5. See also advising notes on page 151.

COURSES

Interior Design (ID)

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)

ID 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)

ID 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.

ID 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)

ID 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)

ID 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)

ID 111. Design Presentation Techniques (3)
Prerequisites: ID 7, 43, 70 and ART 13. Creative design presentation and technique, architectural and interior graphics, presentation boards, three dimensional model design problems, computer-aided design presentation techniques and software, and use of color media. (6 lab hours) (Course fee, $5)

ID 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)

ID 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, $220)

ID 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. (Course fee, $25) (Formerly GID 132T, ID 132T)

ID 120. History of Interiors and Architecture: Ancient to Modern (4)
Prerequisite: ART 10 or 11 or permission of instructor. Survey of stylistic characteristics common to each historical and modern period of architecture and furniture design. Approaches subject in relationship to the development of western design. Introduces international influences.

ID 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)

ID 131. Interior Design Materials and Specifications (4)
Prerequisites: ID 70, 111; 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)

ID 132T. Topics in Interior Design (1-4; max total 12 if no topic repeated)
Topics related to interior design. Some topics may have labs.

ID 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)

ID 134. Restoration and Preservation (3)
Prerequisites: ID 112 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)

ID 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 ID 136)

ID 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)

ID 138. Advanced Residential Interior Design (3)
Prerequisites: ID 111 (may be taken concurrently); 130, 131; IT 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, $25)

ID 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)

ID 149. Advanced Commercial Design I (4)
Prerequisites: ID 137, 138. A series of creative, advanced studio projects in commercial, hospitality, and institutional design. Preprofessional 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, $25)

ID 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)

ID 152. Interior Design Practicum (3; max total 6)
Prerequisites: senior standing; ID 131, 133, 149, or 155. Supervised professional practice in interior design related business or industry. Experience with diverse methods of job costing, profit and loss analysis, and project management. Participation in Senior Portfolio Review required.

ID 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)

ID 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Classical Studies - Interdisciplinary Minor

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's degree. (See *Degree Requirements — Special Major for the Bachelor's Degree.*) Second, the university offers a classical studies minor with three areas of interest.

Classical Studies Minor

The Classical Studies Minor is an interdisciplinary program 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.

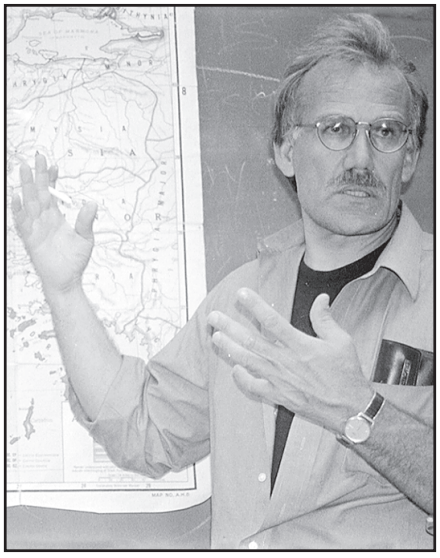
The minor allows for three areas of interest: Latin, Greek, and Classics (Greek and Latin).

Latin	*Units*
HIST 112 or HUM 110	3
LATIN 1A, 1B	6
LATIN 131T (2)	6
Approved electives	9
Total	**24**

Greek	*Units*
HIST 111 or HUM 108	3
GRK 1A, 1B	6
GRK 131T (2)	6
Approved 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
Approved electives	3
Total	**24**

Note: The Classical Studies Minor also requires a 2.0 GPA and 6 upper-division units in residence.



Approved Course Electives

The following list includes the elective courses most directly concerned. For further information, consult Honora H. Chapman or Bruce S. Thornton.

Art History:

ARTH 10	The Ancient and Primitive World (3)
ARTH 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:

PSCI 106	History and Philosophy of Physical Science (3)

Kinesiology:

KINES 111	The Olympic Games (3)

Political Science:

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

College of Arts and Humanities

Department of Foreign Languages and Literatures
Honora H. Chapman, Coordinator
Peters Building, Room 433
(559)278.4757

Victor D. Hanson, Emeritus

Bruce S. Thornton
Peters Building, Room 437
559.278.7037

Minor in Classical Studies

Communication

College of Arts and Humanities

Department of Communication
Katherine L. Adams, *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

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.

Youngsters demonstrate their communication skills at the annual Peach Blossom Oral Interpretaion Festival.

Faculty

Katherine L. Adams, *Chair*

Kevin Ayotte
Diane M. Blair
Hal W. Bochin
John A. Cagle
Connie J. Conlee
Douglas Fraleigh
Scott D. Moore
Shane Moreman
Robert G. Powell
Sally Tannenbaum
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, 161, 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 requirements	**51**
Electives and remaining degree requirements	**27-33***
Total	**120**

* See *Advising Note 1*.

Advising Notes

1. This total indicates that 6 units of COMM 3, 5, 7 and/or 8 also may be applied to fulfill General Education Foundation A1 and A3 requirements.
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 in the major are allowed only 3 units of COMM 190 and no more than 6 units toward the baccalaureate degree.
6. No General Education Multicultural/International course offered by the Communication Department may be used to satisfy the General Education requirements for majors in the department.

Teaching Credential Program Speech/English*

The following 62-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 (CI 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 56-62 depending on General Education courses.

** Since COMM 3, 5, 7 and/or 8 also may be applied to fulfill General Education Breadth A1 and A3 requirements, the number of elective units for the degree will vary.

See *Kremen 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**

Note: The Communication Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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: BA 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. In order to fulfill the university's Graduate Writing Skills Requirement, students are asked to submit an academic writing sample for evaluation prior to advancement to candidacy. Consult the department's *Graduate Handbook* or graduate coordinator for further details on the policy.
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 and the graduate coordinator.

COURSES

Communication (COMM)

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.

COMM 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)

COMM 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)

COMM 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)

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 114. Communication and Learning (3)
(Same as CI 158.) The nature of communication and its relationship to learning and instruction; management of oral communication strategies in the educational setting.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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 to the 18th, 19th, and 20th centuries.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 161. Family Communication (3)
Introduction to communication phenomena in the family setting. The overall goal is to help students understand how, through communication, we develop, maintain, enhance, or disturb family relations. Teaches verbal and nonverbal communication skills to promote healthy family relationships. (Formerly INTD 184)

COMM 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.

COMM 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.

COMM 164. Intercultural Communication (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

COMM 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.

COMM 166. Communication Research Methods (3)
Application of behavioral research principles to problems in quantification, design, and analysis of data in communication research.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 188T. Topics in Communication (1-3; max total 9)
Selected topics in communication.

COMM 189. Projects in Communication (1-3; max total 6)
Prerequisite: permission of instructor. Projects in communication. (4 hours activity)

COMM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSES

(See Catalog Numbering System.)

Communication (COMM)

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.

COMM 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.

COMM 215. Seminar in Communication Arts (3; max total 9)
Research and individually directed work within one area of specialization. Approved for ***RP*** grading.

COMM 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.

COMM 242M. Seminar in Contemporary Criticism (3)
Prerequisite: COMM 142, equivalent, or permission of instructor. The role of rhetorical criticism in contemporary society.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 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.

COMM 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

COMM 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 ***RP*** grading.

COMM 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 ***RP*** grading.

Note: Students must have earned at least a ***C*** in all courses considered as meeting the prerequisite requirements.

IN-SERVICE COURSE

(See Catalog Numbering System.)

Communication (COMM)

COMM 303. Topics in Communication (1-3; max total 12; repeatable with different topics)
Prerequisite: permission of instructor. Application of the theories in communication.

English

College of Arts and Humanities

Department of English
James E. Walton, *Chair*
Peters Business Building, Room 382
559.278.2553

B.A. in English

M.A. in English
Options:
- Composition Theory
- Literature

M.F.A. in Creative Writing

Minor in English

Credential Program

Certificate of Advanced Study in Composition

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.

Faculty

James E. Walton, *Chair*
Kathleen Godfrey, *Credential Coordinator*

Linnea M. Alexander
Steven Adisasmito-Smith
Craig Bernthal
John Beynon
Samantha Caughlan
Cheng Lok Chua
Lillian Faderman
Magdalena Gilewicz
Corrinne Hales
John R. Hales
Richard T. Hansen
Laurel Hendrix
Chris Henson
Ruth Y. Jenkins
J. Lyn Johnson
Anthony Michel
Martin T. Paul
Judith A. Rosenthal
Reuben M. Sanchez, Jr.
Tim Skeen
Michael G. Tate
Clare-Marie Wall
Lisa Weston
Liza Wieland
Toni Wein
Steve Yarbrough

Bachelor of Arts Degree Requirements

English Major	*Units*
Major requirements	**48**
Lower-division core	(8)
ENGL 31, 32	
Core Competencies	(8)
ENGL 105 and 189 (or approved topics course in Shakespeare)	
From the following three literature categories, select at least two courses before 1865.*	
British Literature	(8)
Select two: ENGL 146, 147, 150, 151, 152, 156, 184, 187	
American Literature	(4)
Select one: ENGL 153, 154, 155	
World Literature	(4)
Select one: ENGL 112, 113, 114, 167	
Literature of Diversity	(4)
Select one approved course: ENGL 168T, 179, 193T, 194T	
Approved upper-division electives in major	(12)
See adviser	
Note: *a course may fill the requirement in more than one of the above content categories but will not reduce the number of total units required for the major.*	

* Definition of a course before 1865: ENGL 112, 113, 116, 146, 147, 150, 151, 153, 184, 187.

General Education requirements 51
Electives and remaining degree requirements 21
(See *Degree Requirements*); may be used toward a double major or minor.
The English Department requires that students take at least one senior seminar (ENGL 193T or 194T) in their senior year. This may fulfill an upper-division requirement or an elective.
The English Department requires two college-level courses in a foreign language for the English major.
Total 120

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 double major or minor (see *Double 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**

Note: The English Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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, 179, 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, 179, 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**

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. The Single Subject Waiver Program in English constitutes a pathway toward the English major for those students who wish to teach in California schools.
3. ENGL 20 and ENGL 41, 43, or 44 are prerequisites for the program. A maximum of 6 units of these courses also may be applied to General Education Breadth C1 and/or C2 requirements.
4. Students must maintain a GPA of 3.0 to be eligible to enter the credential program after earning a bachelor's degree.
5. Credential candidates must take one unit of ENGL 182 concurrently with both EHD 155A and EHD 155B.
6. Students fulfilling the competency requirement by taking the SSAT and the PRAXIS exams should make an appointment with a credential adviser to obtain a list of additional requirements.

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. (Foreign students must also submit TOEFL scores.) In the Literature and Composition Theory options, the advanced GRE (Literature) is not required, but it is recommended for students intending to pursue a doctorate. In addition, all candidates must submit a writing sample to the graduate committee, whose approval is necessary for admission to the program. If the writing sample submitted with the application to the program is not approved by

the departmental graduate committee, the candidate may submit one additional revised or new writing sample for committee review. If the second writing sample is not approved, the candidate will not be admitted to the program.

Approval of the writing sample satisfied the M.A. program's Graduate Writing Skills Requirement — see English Department's Advising Booklet for more information.

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, 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.

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 270	**4**
ENGL 281	**4**
Approved electives in English or other fields	**7-8**
ENGL 299 (Thesis — writing theory or pedagogy)	**2**
ENGL 282	**1**
Total	**30-31**

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, 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, fiction, or creative nonfiction. 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; submission of GRE scores; (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 or twenty pages of prose) 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 or 265	**16**
ENGL 241, 243, or 245 (one course in the student's focus genre and one in either of the other two genres)	**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, a collection of poems, or creative nonfiction that works 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.

Graduate Writing Requirement. Before advancement to candidacy, the student must also satisfy the Graduate Writing Skills Requirement. This requirement is met by submission and approval of a sample of scholarly writing (this is distinct from the sample of creative work required for program admission.) See English Department's Advising Booklet for more information.

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 post-baccalaureate course of study in the theory and pedagogy of teaching writing. It is designed for Valley classroom teachers, those considering doctoral study in English, candidates for the M.A. in English, and community college teachers.

	Units
ENGL 270	4
ENGL 281	4
Electives (LING 237, 251, 244; COMM 214; ENGL 265 or other electives approved by graduate adviser. Some of the courses may have prerequisites)	6-8
Total	**14-16**

The student must earn a grade of ***B*** or better in all certificate of advanced study coursework. Students who fail to earn at least a ***B*** in a course may repeat it for an improved grade. Please note that grade substitution is not permitted at the graduate level and that a GPA of at least 3.0 must be accumulated for certificate of advanced study coursework.

COURSES

English (ENGL)

ENGL 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.

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, Stratford-upon-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.

Call 559.278.3056 or e-mail *carla_millar@csufresno.edu.*

ENGL 1. Introduction to College Writing (3)
Prerequisites: any one of the following test scores or successful performance in ENGL 1LA-C; CSU English Placement Test, T151 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 College Writing Workshop (ENGL 1LA, 1LB, or 1LC) may be required.

Study and practice of writing in various genres for academic and public audiences. Students draft and revise essays emphasizing inquiry and analysis, including one paper documenting sources collected through research of a selected topic. A grade of ***C*** or better is required to satisfy the university's English composition requirement. Approved for ***RP*** grading. G.E. Foundation A2. (CAN ENGL 2)

ENGL 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)

ENGL 1LA. College Writing Workshop (1)
Required for students scoring 136-151 (objective) ***and*** below 8 (essay) on CSU English Placement Test. Must be taken concurrently with ENGL 1. Supplemental workshop offering direct reading and writing instruction, guided practice in skills and strategies, and literacy development. ***CR/NC*** grading only. (2 hours) (Formerly ENGL 1LP)

ENGL 1LB. College Writing Workshop B (1)
Required for students scoring below 135 (objective) ***and*** below 8 (essay) on CSU English Placement Test. Must be taken concurrently with ENGL 1. Supplemental workshop offering direct reading and writing instruction, guided practice in skills and strategies, and literacy development. ***CR/NC*** grading only. (2 hours) (Formerly ENGL 1LP)

ENGL 1LC. College Writing Workshop C (1)
English language development section. Must be taken concurrently with ENGL 1. Supplemental workshop offering direct instruction guided practice in academic reading and writing. Small group discussion and critique of essays and writing strategies. ***CR/NC*** grading only. (2 hours) (Formerly ENGL 1LP)

ENGL 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.

ENGL 20. Introduction to Literature (4)
Prerequisites: G.E. Foundation A2 (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)

ENGL 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 falla-

cies, persuasive and expressive language, and language as culture.

ENGL 30. Masterpieces (4)
Prerequisites: G.E. Foundation A2 (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.

ENGL 31. Readings in British Literature (4)
Prerequisite: ENGL 1. Chronological survey of British literature from medieval to contemporary. Discussion and written analyses of influential poetry, drama, fiction, and nonfiction, including historical and cultural contexts. Required for English majors.

ENGL 32. Readings in American Literature (4)
Prerequisite: ENGL 1. Chronological survey of U.S. literature from Native American oral traditions to contemporary writings. Discussion and written analyses of influential poetry, drama, fiction, and nonfiction, including historical and cultural contexts. Required for English majors.

ENGL 41. Poetry Writing (4)
Beginning workshop in the writing of poetry; appropriate reading and analyses. G.E. Breadth C1.

ENGL 43. Fiction Writing (4)
Beginning workshop in the writing of fiction; appropriate reading and analyses. G.E. Breadth C1.

ENGL 44. Prose Writing (4)
Prerequisite: ENGL 1. Beginning workshop in forms of creative nonfiction prose writing; appropriate readings and analysis.

ENGL 50T. Studies in Literature (1-4; max total 8 if no topic repeated)
(Same as WS 50T, Women in Novels section.) 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.

ENGL 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.

ENGL 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.

ENGL 100W. Writing Skills (1)
Credit obtained only by passing the Upper-Division Writing Skills Examination and upon request. *CR/NC* grading only.

ENGL 101. Masterpieces of World Literature (4)
Prerequisites: G.E. Foundation and Breadth Area C. 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. G.E. Integration IC.

ENGL 102. Masterpieces of English Literature (4)
Prerequisites: G.E. Foundation and Breadth Area C. Discussion and written analyses of influential poetry, drama, fiction, and nonfiction 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. G.E. Integration IC.

ENGL 103. Masterpieces of American Literature (4)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

ENGL 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.

ENGL 105. Introduction to Literary Analysis (4)
Prerequisites: ENGL 31 and 32. 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.

ENGL 112. World Literature: Ancient (4)
Prerequisites: G.E. Foundation and Breadth Area C. Ancient world literature in translation. Discussion and written analyses of Babylonian, Greek, Chinese, Egyptian, Indian, and Latin epic, drama, and lyric, including historical, religious, and artistic contexts. Selections may include Gilgamesh, Homer, The Mahabharata, Chuang Chou, Greek drama, and Ovid. G.E. Integration IC.

ENGL 113. World Literature: Medieval and Renaissance (4)
Prerequisites: G.E. Foundation and Breadth Area C. Medieval and Renaissance literature from the eight to the seventeenth centuries. Discussion and written analyses of authors and works (in translation) from Europe, Asia, Latin America, and Africa, including historical and cultural contexts. Selections may include African oral narrative, Tu Fu, Murasaki, Dante, Cervantes, and Marie de France. G.E. Integration IC.

ENGL 114. World Literature: Modern (4)
Prerequisites: G.E. Foundation and Breadth Area C. World literature from the seventeenth century to the present. Discussion and written analyses of literary works (in translation), including historical and cultural contexts. Selections may include Voltaire, Goethe, Cao Xuegin, Dostoyevsky, Ibsen, Colette, Lu Xun, Mahfouz, Borges, Garcia Marques, Kawabata, and Achebe. G.E. Integration IC.

ENGL 115W. Literature of the New Testament (3)
(See PHIL 133W.) Meets the upper-division writing skills requirement for graduation.

ENGL 116. Literature of the Old Testament (4)
(See PHIL 134.)

ENGL 146. Medieval Literature (4)
Corequisite: ENGL 105. Analysis of British texts, c. 500-1500 A.D. Topics may include oral and manuscript cultures; religious, linguistic, and political conversion; and class, gender, and sexuality in the literatures of monastery, court, and marketplace.

ENGL 147. English Renaissance Literature (4)
Corequisite: ENGL 105. Analysis of British texts, 1500-1660 A.D. Topics may include Renaissance humanism, Reformation, Counter-Reformation, New World exploration, conflicting political and social cultures of court and city, the rise of print, the

advent of English theater, and the development of vernacular literary forms.

ENGL 150. Restoration and 18th Century Literature (4)
Corequisite: ENGL 105. Analysis of British texts, 1660-1800 A.D. Topics may include commerce and mercantilism, colonialism and global trade, crime and poverty, and an increased emphasis on feminine domesticity and masculine civic virtue.

ENGL 151. British Romantic Literature (4)
Corequisite: ENGL 105. Analysis of texts, 1789-1832 A.D., period of the French and Industrial Revolutions. Topics examine how expansions in the literary marketplace intersect with the growth of domestic ideology and the idea of "natural" rights to form national identity.

ENGL 152. Victorian Literature (4)
Corequisite: ENGL 105. Analysis of British texts, 1832-1901 A.D. Topics may include the condition of England, the spiritual crisis and science, empire and travel, cultural identity, and the "Woman Question."

ENGL 153. American Literature to 1865 (4)
Corequisite: ENGL 105. Analysis of texts, pre-contact to the Civil War. Topics may include American Indian creation stories and oral narratives, exploration, colonialism, Puritanism, frontier life, transcendentalism, and slavery.

ENGL 154. American Literature 1865 to World War I (4)
Corequisite: ENGL 105. Analysis of texts from Reconstruction to 1918. Topics may include the women's rights movement, realism and naturalism, urbanization and industrialization, and migration and immigration.

ENGL 155. Modern and Contemporary American Literature (4)
Corequisite: ENGL 105. Analysis of texts since World War I. Topics may include alienation and disillusionment, self-conscious experimentation, the impact of the media and technology, social movements and identity politics, globalization, and postmodernism.

ENGL 156. Modern and Contemporary British Literature (4)
Corequisite: ENGL 105. Analysis of texts since 1901. Topics may include the collapse of empire, exiles and immigrants, postcolonialism and the commonwealth, the effects of industrialization and urbanization, feminist and sexual liberation movements, and modernism and postmodernism.

ENGL 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.

ENGL 161. Advanced Writing of Poetry (4; max total 8)
Prerequisite: ENGL 41. Intensive workshop in the writing of poetry; appropriate readings and analyses.

ENGL 163. Advanced Writing of Fiction (4; max total 8)
Prerequisite: ENGL 43. Intensive workshop in the writing of fiction; appropriate readings and analyses.

ENGL 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.

ENGL 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.

ENGL 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.

ENGL 168T. Women and Literature (4; max total 8 if no topic repeated)
(Same as WS 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.

ENGL 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.

ENGL 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.

ENGL 174. Popular Fiction (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

ENGL 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.

ENGL 176T. Genre Film: Form and Function (1-4; max total 8 if no topic repeated)
(Same as WS 176T.) Discussion and close written analyses of selected topics, including such types as comedies, musicals, horror films, westerns, etc.

ENGL 177. Literature, Cinema, and the Liberal Arts (4)
Explores humanistic themes and motifs through comparative analysis of works of literature, drama, and contemporary cinema. Examines how film and the other arts shape and reflect American values. Two essay midterms. Final project/paper. Five thousand word writing requirement. (Formerly INTD 168)

ENGL 179. Multi-Ethnic American Literature (4)
Prerequisite: ENGL 1. Discussion and written analysis of selected poems, plays, fiction, and memoirs by authors from several American ethnic backgrounds, such as African American, American Indian, Latino/Hispanic American, and Asian American. (Formerly ENGL 169T)

ENGL 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.

ENGL 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.

ENGL 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.

ENGL 184. Chaucer (4)
Reading, discussion, and written analyses of the major works of Geoffrey Chaucer.

ENGL 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.

ENGL 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 ***RP*** grading. ***CR/NC*** grading only.

ENGL 187. Milton (4)
Reading, discussion, and written analyses of the major works of John Milton.

ENGL 189. Shakespeare (4)
(Same as DRAMA 194.) Reading and written analyses of the major works of Shakespeare.

ENGL 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

ENGL 191. Supervised Independent Reading (1-4; max total 4 if no topic repeated)
Prerequisite: permission of instructor. 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. (Formerly ENGL 191T)

ENGL 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. ***CR/NC*** grading only.

ENGL 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.

ENGL 194T. Seminar in Women and Literature (4; **max total 8 if no topic repeated**)
(Same as WS 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 *Catalog Numbering System*.)

English (ENGL)

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).

ENGL 242. Literary Editing and Publishing (4)
Prerequisite: normally limited to students enrolled in the graduate creative writing program; others admitted by permission of instructor. Seminar in evaluating literary manuscripts, including but not limited to poetry collections submitted for the annual Philip Levine Prize in Poetry. Issues of aesthetic, book manuscript development, literary contest administration, and poetry book production and marketing.

ENGL 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).

ENGL 245. Seminar in Form and Theory: Creative Nonfiction (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 and nontraditional essay forms, memoir, prose theory).

ENGL 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).

ENGL 261. Seminar: Writing Poetry (4; repeatable)
Prerequisite: permission of instructor. Advanced individual projects in the writing of poetry.

ENGL 263. Seminar: Writing Fiction (4; repeatable)
Prerequisite: permission of instructor. Advanced individual projects in the writing of fiction.

ENGL 265. Seminar: Writing Creative Nonfiction (4; repeatable)
Prerequisite: permission of instructor. Advanced individual projects in the writing of creative nonfiction.

ENGL 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.

ENGL 278T. Seminar in Composition Studies (4; max total 8)
Seminar exploring focused topics in composition studies, including but not limited to research methods in the field, literacy theory, rhetorical theory, stylistics, genre studies, writing assessment, teaching with technology, and the intersections of culture and writing.

ENGL 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).

ENGL 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.

ENGL 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.

ENGL 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

ENGL 291. Supervised Independent Reading (1-4; max total 4 if no topic repeated)
Prerequisite: permission of instructor. 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 ***RP*** grading. (Formerly ENGL 291T)

ENGL 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 ***RP*** grading.

ENGL 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 ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

English (ENGL)

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
Barbara Birch, *Chair*
Dianna Lewis, *Department Administrative Support Coordinator*
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

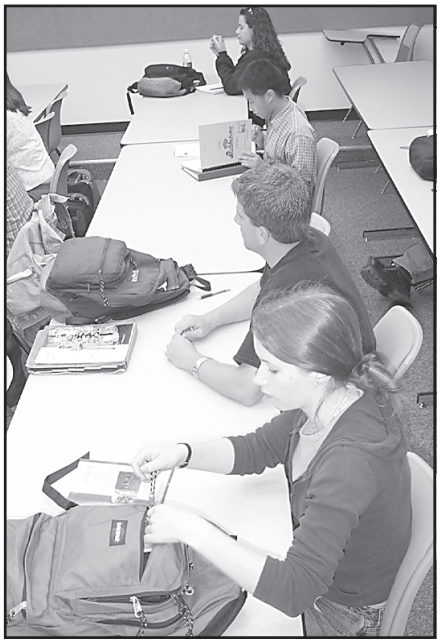
Minor in Spanish

Single Subject Teaching Credential in French 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.

Study Abroad Programs: Apply as a Sophomore

Sophomore students having a minimum GPA of 3.0 are eligible to apply for participation during their junior or senior years in one of the International Programs organized by the California State University System under agreements with universities in 18 countries, including France, Germany, Italy, Japan, Mexico, Spain, and Peru. Planning for study abroad in an International Program should begin in the freshman year or before, in high school, to allow sufficient time for the development of appropriate foreign language skills. See *International Programs (Overseas)*, pages 481-482. Students may find it useful to consult with a professor in the Department of Foreign Languages and Literatures.

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

Barbara Birch, *Chair*
Saul Jimenez-Sandoval, *Graduate Coordinator*

Jacinta R. Amaral (Spanish)
Debbie Avila (Spanish)
Ted Bergman (Spanish)
Honora H. Chapman (Classics, Humanities)
David G. Engle (German)
Maurice C. Gendron (French, Italian)
Victor D. Hanson (Classics, Humanities), Emeritus
Saul Jimenez-Sandoval (Spanish)
Rose Marie Kuhn (French)
Kerrie McKim (French)
David A. Ross (French)
Philip Schafer (Spanish)
Bruce S. Thornton (Classics, Humanities)
Cosme M. Zaragoza (Spanish)

Credit Allowance in Foreign Language

Students may begin a study of any language they desire to learn. However, if they want to continue study of a foreign language they recently studied in high school, they must adhere to the following guidelines:

A. Students who have had less than two years of that language in high school will enroll in either a 1A or 1B class in that language, depending on the quality of the high school language experience.
B. Students who have studied a foreign language for two years in high school will enroll in a 1B class in that language.
C. Students who have studied a foreign language for three years in high school will enroll in a 2A class in that language.
D. Students who have studied a foreign language for four years in high school will enroll in a 2B class in that language.
E. Students who have passed an AP test in a foreign language, or who have five or more years of language study, should consult a department adviser for appropriate placement.
F. Students who have taken Greek and Latin in high school should consult a department adviser for appropriate placement.
G. Spanish-speaking students who have appropriate oral language skills will enroll in Spanish 4A.
H. Students intending to enroll in Spanish 1A, 1B, 2A, or 2B are required to take the placement test prior to enrollment.

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 and courses taught in English: FREN 149, GERM 103T, LATIN 132, ARM 148.

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, 125, 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 (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 requirements 51
(see *Advising Notes 2* and *5*)
Electives 25-45*
including other lower- and upper-division French courses, and remaining degree requirements (see *Degree Requirements*) may be used toward a double major or a minor

Total 120

*This total indicates that a maximum of two courses (6 units) in G.E. Breadth C2 also may be applied to the French major: FREN 1B, 2A, and 2B. Consult a French major adviser for additional details.

Advising Notes

1. ***CR/NC*** grading is not permitted for courses in the French major.
2. Students must receive a minimum grade of ***C*** in each upper-division course used toward the French major.
3. 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 eligible 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. Waiver of required units for the major does not reduce the total number of units required for the awarding of the bachelor's degree.
4. Only 3 units of courses taught in English may be applied to the French major.
5. 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 double major (see *Double Major*), this limitation does not apply. Consult a faculty adviser for additional details.
6. Students majoring in French cannot count French courses for G.E. Integration IC.

Spanish Major	*Units*
Major requirements	**36-50**
(See *Advising Notes* 1, 2, and 3.)	
Lower-division courses	(14)
SPAN 1A, 1B, 2A, 2B, 3, 4A, 4B, 5 (see *Advising Note 3*)	
Upper-division courses	(36)
SPAN 118, 122, 140, 142, 143, 170)	(18)
Select from 145, 147 148T, 149, 150	(6)
Electives (exclude SPAN 110T)	(12)
General Education requirements	**51**
(See *Advising Note 2*.)	
Electives	**19-39***
remaining degree requirements and electives including units to be used toward a double major or a minor	
Total	**120**

*This total indicates that a maximum of two courses (6 units) in G.E. Breadth C2 also may be applied to the Spanish major: SPAN 1B, 2A, 2B, 3, 4A, and 4B. Consult a Spanish major adviser for additional details.

Advising Notes

1. ***CR/NC*** grading is not permitted for courses in the Spanish major except for those taken Credit by Examination.
2. Students must receive a minimum grade of ***C*** in each upper-division course used toward the Spanish major.
3. A maximum of two courses from one department may be used simultaneously to satisfy the General Education requirement and the major requirements. If the Spanish major is the secondary major in a double major (see *Double Major*), this limitation does not apply. Consult a faculty adviser for additional details.
4. 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 eligible 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. Waiver of required units for the major does not reduce the total number of units required for the awarding of the bachelor's degree.
5. Students majoring in Spanish cannot count Spanish courses for G.E. Integration IC.

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. The minors also require a 2.0 GPA and 6 upper-division units in residence. Consult a departmental adviser for planning your program.

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	
Select 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 Spanish consists of SPAN 118, 122, 123, 125 or 129, 130, 137, 140, 142, 143, 170; and 6 units selected from SPAN 145, 147, 148T, 149, 150.

Graduate Program

The Department of Foreign Languages and Literatures offers the Master of Arts degree in Spanish.

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	**3-6**
Electives (must see adviser)	**0-6**
Select 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**
Select 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*. For Armenian, see *Armenian Studies Program*.

Foreign Language (FL)

FL 131. Trends in Foreign Language Teaching (3)
Current trends and issues in foreign language teaching. Evaluation of recent teaching materials. May include on-campus practice in teaching beginning languages.

FL 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. *CR/NC* grading only.

FL 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

French (FREN)

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)

FREN 1B. Elementary French (4)
Prerequisite: G.E. Foundation A2; FREN 1A recommended 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)

FREN 2A. French for Communication (3)
Prerequisite: G.E. Foundation A2; FREN 1B or equivalent recommended. Second year course that emphasizes speaking and reading, and a review of basic French grammar. G.E. Breadth C2. (CAN FREN 8)

FREN 2B. French for Communication (3)
Prerequisite: G.E. Foundation A2; FREN 2A or equivalent recommended. Second year course that emphasizes speaking and reading skills. G.E. Breadth C2. (CAN FREN 10)

FREN 4. Reading and Writing (3)
FREN 2B or equivalent recommended. Opportunity to increase reading and writing skills in preparation for upper-division coursework in French.

FREN 5. Conversation (3; max total 6)
FREN 2A or equivalent recommended. 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

FREN 103. Advanced Grammar and Composition (3; max total 6)
Two semesters of Intermediate French recommended. 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)

FREN 120T. Topics in French Civilization (3; max total 6 if no topic repeated)
FREN 103 recommended 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.

FREN 132. French Phonology and Structural Analysis (3; max total 6)
Completion of one semester of FREN 103 recommended. 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.

FREN 150. Advanced Conversation (3)
Two semesters of Intermediate French recommended. Intensive practice in oral expression in French. Emphasis on current affairs in France.

AREA II. Literature

FREN 109. French Literature, Culture, and Society from the Middle Ages to Today (3)
Prerequisites: G.E. Foundation and Breadth Area C. Two semesters of intermediate French recommended. 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.

FREN 110. French Theater (3)
FREN 109 recommended. Drama in France from the Renaissance to the present, with emphasis on the 17th and 20th centuries. Reading and discussion of representative works.

FREN 111. The French Novel (3)
FREN 109 recommended. The novel as a reflection of French society. Analysis of major works from various periods.

FREN 112. French Prose: Essay and Short Story (3)
FREN 109 recommended. Analysis of prose works by such authors as Montaigne, Voltaire, Maupassant, Camus, Sartre.

FREN 113. French Poetry (3)
FREN 109 recommended. 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").

FREN 149. Voices of Africa (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

FREN 160T. Selected Topics in French Studies (1-3; max total 6 if no topic repeated)
FREN 103 recommended 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.

FREN 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

GRADUATE COURSE

(See *Catalog Numbering System.*)

French (FREN)

FREN 290. Independent Study (3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

COURSES

German (GERM)

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.

GERM 1B. Elementary German (4)
Prerequisite: G.E. Foundation A2; GERM 1A recommended 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.

GERM 2A. Intermediate German (3)
Prerequisite: G.E. Foundation A2; GERM 1B recommended 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.

GERM 2B. Intermediate German (3)
Prerequisite: G.E. Foundation A2; GERM 2A recommended 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.

GERM 8T. Selected Topics in German (1; max total 2)
GERM 1A recommended or permission of instructor. Language experience outside classroom stressed in oral topics. Problem vocabulary and grammar topics. *CR/NC* grading only.

GERM 50. Conversation (3; max total 6)
GERM 2B or concurrently recommended 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

GERM 101. Composition (3; max total 6)
GERM 2B recommended 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. May be taken twice. (Fall semester)

GERM 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.

GERM 150. Advanced Conversation (3; max total 6)
GERM 2B or concurrently recommended 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

GERM 112. German Literature to 1750 (3)
GERM 2B recommended 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.

GERM 114. German Literature through the Classical Age (3)
GERM 2B recommended 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.

GERM 116. Nineteenth Century Literature (3)
GERM 2B recommended 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.

GERM 118A. Modern Literature: 1890-1945 (3)
GERM 2B recommended 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.

GERM 118B. Contemporary Literature: 1945-Present (3)
GERM 2B recommended 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.

GERM 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.

GERM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSE

(See *Catalog Numbering System.*)

German (GERM)

GERM 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

COURSES

Greek (GRK)

GRK 1A. Elementary Greek (3)
Prerequisite: G.E. Foundation A2. 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.

GRK 1B. Elementary Greek (3)
Prerequisites: G.E. Foundation A2, 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.

GRK 10. The Rise of Rationalism: 5th Century 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.

GRK 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.

GRK 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Italian (ITAL)

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.

ITAL 1B. Elementary Italian (4)
Prerequisite: G.E. Foundation A2; ITAL 1A recommended 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.

ITAL 2A. Intermediate Italian (3)
Prerequisite: G.E. Foundation A2; ITAL 1B recommended or permission of instructor. Review of grammar and syntax; composition; oral practice, reading of short stories and plays. G.E. Breadth C2.

ITAL 2B. Intermediate Italian (3)
Prerequisite: G.E. Foundation A2; ITAL 2A recommended or permission of instructor. Oral and written composition; reading of short stories, novels, biographies. G.E. Breadth C2.

ITAL 5. Conversation (3; max total 6)
ITAL 1B recommended. 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.

ITAL 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.

ITAL 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Latin (LATIN)

LATIN 1A. Elementary Latin (3)
Prerequisite: G.E. Foundation A2. 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.

LATIN 1B. Elementary Latin (3)
Prerequisites: G.E. Foundation A2, 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.

LATIN 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.

LATIN 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.

LATIN 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Portuguese (PORT)

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.

PORT 1B. Elementary Portuguese (4)
Prerequisite: G.E. Foundation A2; PORT 1A recommended 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)

SPAN 1A. Elementary Spanish (4)
Placement test required prior to enrollment. Beginning course in conversational and written Spanish. Emphasis on reading, writing, listening, speaking, and culture of Spanish-speaking peoples. (CAN SPAN 2)

SPAN 1B. Elementary Spanish (4)
Placement test required prior to enrollment. Prerequisite: G.E. Foundation A2; SPAN 1A recommended or permission of instructor. Second semester course in conversational and written Spanish. G.E. Breadth C2. (CAN SPAN 4)

SPAN 2A. Spanish for Communication (3)
Placement test required prior to enrollment. Prerequisite: G.E. Foundation A2. Second year course that emphasizes speaking and reading skills. G.E. Breadth C2. (CAN SPAN 8)

SPAN 2B. Spanish for Communication (3)
Placement test required prior to enrollment. Prerequisite: G.E. Foundation A2. Second year course that emphasizes speaking and reading skills. G.E. Breadth C2. (CAN SPAN 10)

SPAN 3. Reading and Writing (3)
Prerequisite: G.E. Foundation A2; SPAN 2A or 2B recommended. Opportunity to increase reading and writing skills in preparation for upper-division coursework in Spanish. G.E. Breadth C2.

SPAN 4A. Spanish for the Bilingual Student (3)
Prerequisite: G.E. Foundation A2. 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.

SPAN 4B. Spanish for the Bilingual Student (3)
Prerequisite: G.E. Foundation A2. Recommended: 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.

SPAN 5. Spanish for Conversation (3)
SPAN 2A or 2B recommended. Emphasis on spoken Spanish; development of oral fluency through class discussion, conversation games, and vocabulary exercises.

SPAN 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.

SPAN 10. Spanish in Context (3 or 6; max total 6)
Two years of high school Spanish, SPAN 1B recommended 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

SPAN 106T. Children's Literature in Spanish (3)
SPAN 2A, 2B or 4A, 4B recommended. 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.

SPAN 134. Spanish in Bilingual Schools (3)
SPAN 118 and 122 recommended 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.

AREA II. Language and Translation

SPAN 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.

SPAN 112. Reader's Theater in Spanish (3)
SPAN 3 or 4B recommended. 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.

SPAN 113. Patterns of Spanish (3)
SPAN 3 or 4B recommended. 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.

SPAN 115. Basic Principles of Translation (3)
SPAN 3 or 4B recommended. 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.

SPAN 118. Composition (3)
SPAN 3 or 4B or successful performance on the entry level diagnostic tests recommended. Refinement of writing skills through vocabulary development, spelling exercises, and composition. Special emphasis on problems created by differences between the spoken and written language.

SPAN 122. Advanced Grammar (3)
SPAN 3 or 4B recommended. Special emphasis on grammar review and development of writing skills. Analysis of grammatical constructions.

SPAN 123. Advanced Conversation and Reading (3)
SPAN 3 or 4B recommended. Reading and discussion of current periodicals, newspapers, and magazines that reflect the cultural patterns of the Spanish-speaking countries.

SPAN 124. Oral and Written Expression (3)
SPAN 2B, 3, 4B, or 10 recommended. 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

SPAN 125. Hispanic Cultural Productions (3)
Prerequisites: G.E. Foundation and Breadth Area C. Recommended: SPAN 3 or 4B. Interdisciplinary approach to global examination of cultural productions of Spain and Latin America through readings, lectures, films, and other media. G.E. Integration IC.

SPAN 129. Mexican Culture (3)
Prerequisites: G.E. Foundation and Breadth Area C. Recommended: 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

SPAN 130. Introduction to Spanish Linguistics (3)
SPAN 122 recommended or permission of instructor. Basic principles of Spanish linguistics, including aspects of syntax, morphology, phonetics, dialectology, and historical linguistics.

SPAN 137. Applied Spanish Linguistics (3)
SPAN 130 recommended or permission of instructor. 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.

SPAN 139. Spanish of the Southwest (3)
SPAN 3 or 4B recommended. 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

SPAN 140. Hispanic Fiction and Poetry (3)
SPAN 3 or 4B recommended. Readings and appreciation of Hispanic literature to familiarize the student with fiction and poetry as art forms.

SPAN 142. Introduction to Spanish Literature (3)
SPAN 3 or 4B recommended. 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.

SPAN 143. Introduction to Spanish-American Literature (3)
SPAN 3 or 4B recommended. 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.

SPAN 145. Mexican Literature (3)
SPAN 3 or 4B recommended. Study of the works of such major Mexican literary figures as Sor Juana, Gutiérrez Nájera, Azuela, and Fuentes.

SPAN 147. Twentieth Century Spanish-American Literature (3)
SPAN 3 or 4B recommended. Intensive study of selected Spanish-American works including writings of Azuela, Fuentes, Carpenter, Vargas Llosa; outstanding poets such as Neruda, Vallejo, and Paz.

SPAN 148T. Major Figures in Hispanic Literature (3; max total 6 if no topic repeated)
SPAN 3 or 4B recommended. Reading and analysis of the works of one major Hispanic author such as Cervantes, Unamuno, Neruda.

SPAN 149. The Golden Age (3)
SPAN 3 or 4B recommended. 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.

SPAN 150. Twentieth Century Spanish Literature (3)
SPAN 3 or 4B recommended. 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.

SPAN 170. Senior Seminar in Spanish Studies (3)
Senior standing, 20 upper-division units of Spanish coursework recommended or permission of instructor. Culminating experience in the major that includes summative assessment of language, linguistic, cultural, and literary proficiency. Readings and research projects. Addresses individual needs of graduating majors. (Spring semester)

SPAN 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Spanish (SPAN)

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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 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.

SPAN 290. Independent Study (2-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

SPAN 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 ***RP*** grading.

SPAN 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 ***RP*** grading.

IN-SERVICE COURSES

(See *Catalog Numbering System*.)

Spanish (SPAN)

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.

SPAN 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, or 14	**3**
HUM 104, 108, 110, or AH 116	**6**
HUM 130	**3**
HUM 140 or 150	**3**
Approved Electives (select from remaining humanities courses or from other pertinent courses approved by the faculty adviser)	**6**
Total	**21**

Note: The Humanities Minor also requires a 2.0 GPA and 6 upper-division units in residence.

COURSES

Arts and Humanities (AH)

AH 116. Humanities in the Modern Era (3)
An examination of art, literature, philosophy, and music and their interrelationships in the Western world during the 19th and 20th centuries up to the present day. (Formerly INTD 116)

Humanities (HUM)

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.

HUM 10. Humanities from Antiquity to the Renaissance (3)
Prerequisite: G.E. Foundation A2. Interrelationships among art, literature, music, and philosophy, from Greece and Rome through the Renaissance. G.E. Breadth C2.

HUM 11. Humanities from the Baroque to the Modern (3)
Prerequisite: G.E. Foundation A2. Interrelationships among art, literature, music, and philosophy, from the 17th century Age of Reason to the present. G.E. Breadth C2.

HUM 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.

HUM 15. Classical Myth and World Humanities (3)
Prerequisite: G.E. Foundation A2. 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.

HUM 20. Introduction to Hispanic Literature (3)
Prerequisite: G.E. Foundation A2. 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.

HUM 21. Introduction to Literature of Portuguese-speaking Peoples (3)
Readings of fiction and poetry from Portuguese-speaking (Lusophone) countries with the goal of understanding the close relationship between Lusophone literature and culture. Instruction in techniques of literary criticism. Taught in English using translations of representative works of Lusophone literature.

HUM 104. Humanities in the Middle Ages and Renaissance (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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)

HUM 108. Humanities in Classical Athens (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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)

HUM 110. Humanities in Republican and Imperial Rome (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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)

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

HUM 118. Folklore in Contemporary Life (3)
Prerequisites: G.E. Foundation and Breadth Area C. Interdisciplinary study of the role of folklore in contemporary life, its power to communicate critical issues through expressive culture, e.g., jokes, legends, folk songs, graphic arts and festival; special focus on the intellectual currents influencing the study of folklore. G.E. Integration IC. (Formerly INTD 118)

HUM 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. (Formerly INTD 130)

HUM 140. Tradition and Change in China and Japan (3)
(See ANTH 125.)

HUM 150. Indic Cultures and Traditions (3)
(See 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.

HUM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Humanities (HUM)

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
Ellen Lipp, *Chair*
Denise Bissett, *Administrative Support Coordinator*
Peters Business Building, Room 383
559.278.2441

B.A. in Linguistics
Options:
- Teaching English as a Second Language
- General Linguistics
- Computational Linguistics

M.A. in Linguistics
Options:
- Teaching English as a Second Language
- Linguistics

Minor in Linguistics

Minor in Computational Linguistics

Minor in Cognitive Science
(See Special Programs, page 480)

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. 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.

Our undergraduate and graduate programs develop intellectual skills that are essential to professional careers or advanced degrees. Our courses provide 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.

The B.A. Option in Computational Linguistics is for those students interested in text processing, forensic linguistics, software design, machine translation, and other professions dealing with the interface between computers and humans. Please contact the department.

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. For more , see American English Institute in the *Special Programs* section of this catalog. Also associated with the Linguistics Department is the Forensic Linguistics Institute (FLI). The FLI provides 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 graduates find jobs teaching English overseas.

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. Students declaring a linguistics major will meet with the adviser and will be assigned faculty mentor.

Faculty

Ellen Lipp, *Chair*

Undergraduate Adviser: Ellen Lipp

Graduate Adviser: Shigeko Okamoto

Brian Agbayani
Barbara Birch
Chris Golston
Ritva Laury
Will Lewis
Ellen Lipp
Gerald R. McMenamin
George W. Raney
Vida Samiian
Terese Thonus
Xinchun (Jean) Wang
Jack B. Zeldis

Bachelor of Arts Degree Requirements

Linguistics Major

A B.A. degree with a major in linguistics requires 36-54 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 120 units required for a B.A. degree.

The B.A. program in Linguistics is diversified but integrated. Three options are available: (1) Teaching English as a Second Language, (2) General Linguistics, and (3) Computational Linguistics. In each option, students receive a basic grounding in the nature and structure of human language.

	Units
Major requirements	**36-54**
A. Core	18
LING 100, 142, 143, 144, 148, 165	
B. Options	18-36
I. *Teaching English as a Second Language*	*18*
LING 132, 141, 146, 155, 171	(15)
Elective: any upper-division course in linguistics	(3)
II. *General Linguistics*	*18*
LING 134, 139, 145, 149, 152	(15)
Elective: any upper-division course in linguistics	(3)
III. *Computational Linguistics*	*35-36*
Prerequisites: CSCI 40, 41, 60; MATH 75	(16)
LING 139, 149, 152	(9)
CSCI 117, 119	(7)
Elective: select from any upper-division course in linguistics or CSCI 115, 130, 164, 166, 186	(3-4)
General Education requirements	**51**
Electives and remaining degree requirements	**15-33**
Total	**120**

Advising Notes

1. No General Education Integration course offered by the Department of Linguistics may be used to satisfy the General Education requirements for linguistics majors.
2. *CR/NC* grading is not permitted in the linguistics major.
3. General Education and elective units can be used toward a double major or minor. (See *Double Major* or departmental minor.) Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4. See adviser for list of approved electives.

Minors

Each of the three minors also requires a 2.0 GPA and 6 upper-division units in residence.

Linguistics Minor

	Units
LING 10 or 100, 134 or 146	**6**
Approved electives	**15***
Total	**21**

Computational Linguistics Minor

	Units
LING 100, 149, 152	**9**
LING 139 and 142 or 143 and 144	**6**
Total	**15**

Advising Note

A strong background in computer science is necessary for the Computational Linguistics Minor. It is open to computer science majors or by consent of the Linguistics Department chair.

Japanese Minor

	Units
JAPN 1A, 1B, 2A, and 2B	**12**
Approved 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***
Total	**18**

*See *Advising Note 4* above.

General Education Linguistics Credit

The following courses will meet General Education requirements: CHIN 1A/B, HMONG 1B, JAPN 1A/B, LING 10

(Area C); LING 30 (Area E); LING 115, 130 (Integration IC); LING 147 (Multicultural/International).

Subject Matter Preparation Program

This program is for those who wish to become high school or middle school English as a Second Language teachers. This program is under revision. See adviser for changes.

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**

Graduate Program

The Department of Linguistics offers an M.A. in Linguistics and an M.A. in Linguistics with an option in Teaching English as a Second Language. At California State University, Fresno, students may also get a Master of Science in Interdisciplinary Studies with a focus on Computational Linguistics or Cognitive Science. Department faculty will assist students in planning such a program. 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 State University, Fresno requires that students have graduate level writing abilities before being advanced to candidacy for the M.A. Students demonstrate these abilities by completion of any 200-level linguistics course other than LING 244, all of which include a research paper of 10-15 pages written according to the stylesheets of the journal's Language (for courses in general linguistics) or Teaching English as a Second Language (for courses in TESOL). Should the student pass all components other than writing, the student would receive credit for the course but would have to revise and resubmit the paper to the department.

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

Master of Arts Degree Requirements

Students who do not already have a sufficient background in linguistics need to take 9-12 units of upper-division linguistics courses to obtain classified standing in the department. These include Ling 100, 142, 143 (all students); 141 and 171 (TESL students); and 144 and 148 (linguistics students.)

The graduate program consists of at least 30 units, 21 of which must be 200-level courses. Note the following requirements:

	Units
Linguistics	
Core (select three):	
LING 242, 243, 248, 251	12
Electives	18
TESL Option	
Core (select three):	
LING 242, 243, 248, 251	9
Required:	
LING 155, 237, 241, 244	12
Electives	9

Highly recommended electives for all students are LING 134 or 146 and LING 165. Highly recommended electives for TESL students are LING 144 and 148.

Upon examination of the student's record other courses will be specified to produce a coherent program.

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)

LING 10. Introduction to Language (3)
Prerequisite: G.E. Foundation A2. 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.

LING 11. Introduction to Language (3)
Open to liberal studies majors only. Prerequisite: G.E. Foundation A2. 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 structure and function of English.

LING 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.

LING 30. Language through the Lifespan (3)
Physiological, psychological, and social aspects of language development and use during infancy, childhood, adolescence, adulthood, and old age. First and second language acquisition, language and identity, and language and relationship. G.E. Breadth E1.

LING 40T. Topics in Linguistics (1-4; max total 12 if no topics repeated)
Topics to be offered at the discretion of the department.

LING 100. General Linguistics (3)
Linguistics methodology: phonology, morphology, syntax, and semantic analysis. Language history: variation and change.

LING 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.

LING 111W. Academic Writing Workshop (3)
Meets the upper-division writing skills requirement for graduation. Increases language awareness. Focuses on punctuation, usage, and the conventions of writing academic prose using style manuals. Does not apply to the linguistics major or minor.

LING 115. Language, Culture, and Society (3)
Prerequisites: G.E. Foundation and Breadth Area C. Studies the relationship between language, culture, and thought; cultural traditions and language arts; cultural norms and interactional styles; language and the development of ethnic and national identity; meanings of social variation in language; discourse styles; and social roles/relations. G.E. Integration IC.

LING 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)

LING 130. Language and Gender (3)
Prerequisites: G.E. Foundation and Breadth Area C. A critical examination of the relationship between language and gender; sexism in linguistic structure and oral and written discourse; gender-based variation in linguistic norms and practices in different cultures and social groups; and social, educational, and political implications. G.E. Integration IC.

LING 132. Linguistics and Reading (3)
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.

LING 133. English Language Learners in the Elementary School (3)
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.

LING 134. Structure of English (3)
An introductory survey of the structure of English: sounds, spelling, word formation, and grammar.

LING 137. Language Minority Students in the Secondary Classroom (3)
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.

LING 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.

LING 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)

LING 140T. Topics in Linguistics (1-4; max total 12 if no topic repeated)
Topics to be offered at the discretion of the department.

LING 141. Teaching English to Speakers of Other Languages (TESOL) (3)
Theories and methods of teaching English to speakers of other languages.

LING 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.

LING 143. Syntax (3)
Prerequisite: LING 100. Theory and practice in the description of grammatical systems. Comparison of approaches. Practical experience with data.

LING 144. Discourse Analysis (3)
Prerequisite: LING 100. Basic concepts in the study of discourse, including conversational structure; structure of narrative and expository texts; information flow; differences between spoken and written language; and implications for the study of grammar and for the teaching of language.

LING 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.

LING 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.

LING 147. Bilingualism (3)
Prerequisites: G.E. Foundation and Breadth Area D. Examines bilingualism as an individual and societal phenomenon. Looks at language and identity, bilingual language acquisition, and bilingual education. Survey of bilingual and multilingual situations and current issues associated with language diversity in the United States and elsewhere in the world. G.E. Multicultural/ International MI.

LING 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.

LING 149. Corpus Linguistics (3)
Prerequisite: LING 10 or 11 or 100. Covers the development and use of large language corpora as they are used in theoretical and empirical research in linguistics. Corpus linguistics is useful for students with an interest in ESL, syntax, semantics, computational linguistics, forensic linguistics, language variation, spelling, and reading.

LING 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.

LING 152. Computational Linguistics (3)
Overview of the field of computational linguistics, especially speech processing, text processing, machine translation, and the use of the Web as a linguistic resource. (Formerly LING 140T)

LING 155. Computer-Assisted Language Learning (3)
Current theory, research, and practice in computer-assisted language learning. Some minimal experience in using computers is assumed. (2 lecture, 2 lab hours)

LING 165. Language Acquisition (3)
An examination of the first and second language acquisition. Overview of current research in the field and implications for areas of applied linguistics, psychology, education, and sociology.

LING 171. Practicum in TESL (3)
Prerequisite: LING 141 (may be taken concurrently). Provides practice in teaching English as a Second Language listening, speaking, reading, and writing; includes class visitation, classroom demonstrations, and lesson planning. Introduces students to cross-cultural communication issues.

LING 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

FOREIGN LANGUAGE COURSES

Chinese (CHIN)

CHIN 1A. Elementary Chinese (3)
Prerequisite: G.E. Foundation A2. Beginning course in modern Mandarin Chinese, including basic communication skills, cultural traditions (literature, music, philosophy, and lifestyle) of the Chinese people, and appreciation/practice of the most important Chinese art form: calligraphy. G.E. Breadth C2.

CHIN 1B. Elementary Chinese (3)
Prerequisite: G.E. Foundation A2. Not open to students with previous training. Beginning course in spoken and written Mandarin Chinese including developing and understanding of the traditions and lifestyles of the speakers of the language. G.E. Breadth C2.

CHIN 2A-B. Intermediate Chinese (3-3)
Prerequisite: CHIN 1B. Intermediate grammar, speaking, reading, and writing.

Hebrew (HEBR)

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)

HMONG 1A-B. Basic Hmong (3-3)
Prerequisite: G.E. Foundation A2 for HMONG 1B. 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.

HMONG 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.

HMONG 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.

HMONG 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)

JAPN 1A. Elementary Japanese A (3)
Prerequisite: G.E. Foundation A2. Not open to native speakers of Japanese. First course in modern Japanese, including basic communication skills, cultural traditions of the Japanese people, and appreciation/practice of calligraphy. G.E. Breadth C2. (Formerly JAPN 1A-B)

JAPN 1B. Elementary Japanese B (3)
Prerequisites: G.E. Foundation A2; JAPN 1A. Not open to native speakers of Japanese. Second course in modern Japanese, including basic communication skills, cultural traditions of the Japanese people, and appreciation/practice of calligraphy. G.E. Breadth C2. (Formerly JAPN 1A-B)

JAPN 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.

JAPN 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)

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 (ESL)

Newly arrived international students are required to take the University English Exam (UEE) during their on campus orientation. They are exempted from or placed into an ESL course based on their performance on this test. (See *Special Programs* section for English courses for speakers of other languages offered through the Linguistics Department.)

GRADUATE COURSES

(See *Catalog Numbering System.*)

Linguistics (LING)

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.

LING 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.

LING 237. Teaching Reading and Writing to Speakers of Other Languages (3)
An overview of theory, research, and practice in the teaching and learning of vocabulary, reading, and writing in a second language.

LING 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.

LING 241. Seminar in Teaching English as a Second/Foreign Language (3)
Prerequisite: LING 141. Overview of research, theory, and pedagogy in the field; includes culture, second language acquisition, and professional issues.

LING 242. Seminar in Phonology (3)
Prerequisite: LING 142. Covers current theories of how to structure sounds and syllables; the relation of sound structure to other parts of the grammar (words, sentences) and to first and second language acquisition. Data from a wide variety of languages.

LING 243. Seminar in Syntax (3)
Prerequisite: LING 143. Current theories of how sentences are structured; the relation of sentence structure to other parts of the grammar (words, meaning) and to first and second language acquisition. Data from a wide variety of languages.

LING 244. Curriculum Design and Classroom Evaluation (3)
Covers techniques for designing language courses including assessment of needs, formulation of objectives, and evaluation of student learning; includes theory and methods of designing effective instruments for L2 classroom assessment.

LING 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.

LING 248. Seminar in Sociolinguistics (3)
Prerequisite: LING 148 or consent of instructor. A critical survey of current research in sociolinguistics; research methodologies; theoretical issues concerning the relationship between linguistic variation and social variables, such as social class, ethnicity, gender, and social relations; bilingualism, multilingualism, world Englishes, and language planning; implications for language teaching. (Formerly LING 231T)

LING 249. Field Methods (3; max total 6 if no topic repeated)
Prerequisite: LING 142 or 143 or consent of instructor. First-hand experience in collecting and analyzing linguistic data. Exact nature of data varies by semester and may include less well-known languages, children's language, interlanguage, classroom interaction, etc.

LING 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.

LING 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

Mass Communication and Journalism

College of Arts and Humanities

Department of Mass Communication and Journalism
Donald M. Priest, *Chair*
Sally A. Anshutz, *Department Administrative Assistant*
McKee Fisk Building, Room 236
559.278.2087
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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 and Journalism

Minor in Mass Communication and Journalism

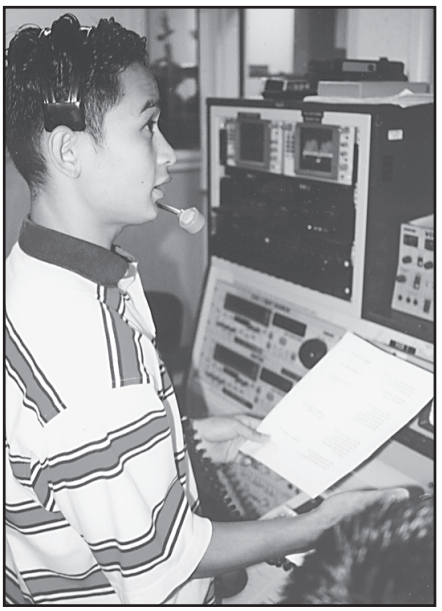
Certificate in Marketing

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's advertising students regularly finish high in regional and national competitions sponsored by the American



Advertising Federation. The students have drawn high praise from the participating corporations in these competitions.

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

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 Public Relations Student Society of America.

The department 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.

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 Collegian*, in both paper and on-line versions. The department also oversees a student-run campus radio station, KFSR-FM, and produces television programs and video projects through a student organization called B# Video.

Donald M. Priest, *Chair*
Tamyra Pierce, *Graduate Director*

Roberta R. Asahina
Rita A. Atwood
Candace L. Egan
Russell A. Hart
Betsy Hays
D. Gregory Lewis
Michael McCluskey
Tommy Miller
Gary H. Rice
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 120 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 120-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 requirements	51
Major requirements	33
Liberal Arts and Sciences block	15
Electives	21
Total	**120**

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 but after two unsuccessful attempts, they must take an approved language class.
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. MCJ majors are not permitted to apply MCJ 1 to General Education Breadth Area E requirements.
4. No General Education Integration or M/I course offered by the Department of Mass Communication and Journalism may be used to satisfy the General Education requirements for MCJ majors. Consult the *Class Schedule* for a current list of approved General Education courses.
5. Each option requires two MCJ electives numbered between 160 and 179, plus one additional MJC course selected with the approval of a faculty adviser.
6. 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

Units

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

Note: The Mass Communication Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Certificate in Marketing

Students majoring in MCJ may earn a certificate in marketing by taking the following courses:

	Units
MKTG 100 or 100S	4
Select two of the following: MKTG 101, 103, 110, 130, 132, 144	8
Total	**12**

MCJ students note: Marketing courses cannot be used in the liberal arts and sciences block, but can be used as electives.

Mass Communication and Journalism Graduate Study

The department offers a flexible, academically 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. Admission by the university does not imply acceptance to the master of arts in the Mass Communication program. A department graduate admissions committee reviews all files before admittance. To be considered for admission to the graduate program, the candidate must submit the following materials and meet the following criteria: evidence of a baccalaureate degree in mass communication, journalism, or related area from an accredited institution; official transcripts of all college work with a grade point average of 3.0 or better (last 60 semester units); scores from the GRE (450V or equivalent to the 44th percentile/450Q) as well as the TOEFL for international students (total score 580 paper-based or 237 computer-based; structure/writing section score 55 paper-based or 22 computer-based); a university application; three letters of reference from employers or from faculty at the university most recently attended; 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.

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.

Students without a bachelor's degree in mass communication and journalism or significant professional experience may be required to take up to 18 units of undergraduate courses in the department before beginning the graduate program.

Master of Arts Degree Requirements

Students take 30 units of coursework. Four core classes (MCJ 204, 205, 206, 207) are required for a total of 12 units. As a culminating experience, candidates must undertake either a thesis for 6 units or a professional project for 6 units. Students may select the remaining courses to meet their individual goals, including up to 6 units from other departments (minimum of 3 units at graduate level), depending on a student's area of interest. At least 24 of 30 units required must be in 200-level courses.

Writing Competency. California State University, Fresno requires that students have graduate-level writing ability before being advanced to candidacy for the master's degree. Mass Communication Theory, MCJ 205, 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 but fail to demonstrate adequate writing competence, the student may resubmit a similar writing assignment to the department's graduate committee for successful qualification. Students are allowed a maximum of three attempts to meet the department's graduate writing requirement, and all decisions on writing competency by the department's graduate committee are final.

	Units
Required core courses MCJ 204, 205, 206, 207	12
Selected courses in major interest area (may include up to 6 units in other departments)	12
Thesis or project	6
Total	**30**

At least 24 of the 30 units required must be in 200-level (graduate) courses.

COURSES

Mass Communication and Journalism (MCJ)

MCJ 1. Mass Communication and Society (3)
Prerequisite: G.E. Foundation A2. 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.

MCJ 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.

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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.

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 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)

MCJ 131. Online Media Design (3)
Prerequisites: MCJ 106, 115, 132 or permission of instructor. Fundamentals of online media design and practical experience designing and producing online media. Web authoring and media production tools will be used to design online media, including elements of style, navigation, text, graphics, images, video, music, and forms. (2 lecture, 2 lab hours)

MCJ 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)

MCJ 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)

MCJ 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.

MCJ 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.

MCJ 143. Newspaper Advertising Staff (3; max total 6)
Prerequisite: MCJ 142. Selling and servicing accounts and creating and producing advertisements for the university newspaper.

MCJ 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.

MCJ 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.

MCJ 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)

MCJ 152. Public Relations (3)
Development of public relations practice; principles and methods; application in business, education, and other fields.

MCJ 158. Public Relations Writing (3)
Prerequisites: MCJ 10, 102W, 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)

MCJ 159. Public Relations Cases and Campaigns (3)
Prerequisites: MCJ 10, 102W, 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.

MCJ 160. Investigating Media Issues (3)
Explores current issues in mass communication, emphasizing independent collection, analysis, and critical interpretation of available information. Papers required.

MCJ 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.

MCJ 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.

MCJ 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.

MCJ 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.

MCJ 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.

MCJ 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.

MCJ 174. History of Mass Media (3)
Historical background of American media from colonial to modern times.

MCJ 175. Multicultural Mass Communication and Media Stereotypes (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

MCJ 176. International Mass Communication (3)
Prerequisites: G.E. Foundation and Breadth Area D. Assesses complex international forces shaping global media, and ways mass media of North American 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. G.E. Multicultural/International MI.

MCJ 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.

MCJ 178. New Information Technologies (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

MCJ 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.

MCJ 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.

MCJ 188. Proseminar in Broadcast Media Management (3)
Prerequisites: BA 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.

MCJ 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

MCJ 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 and Journalism (MCJ)

MCJ 204. Introduction to Mass Communication Graduate Studies (3)
Introduces students to the field of mass communication. Discussion includes an overview of various research methods in the field, the process and production of research proposals, and the process of planning a program of study. Emphasizes a scholarly style of writing.

MCJ 205. Mass Communication Theory (3)
Examines the history and development of prominent mass communication theories and their application in the field of mass communication research.

MCJ 206. Quantitative Methods in Mass Communication (3)
Introduces quantitative research designs and statistical procedures. Areas of examination include various statistical tests used in mass communication research, criteria for evaluating scientific research, and computer-assisted (SPSS) statistical procedures. Students will design and complete a research project.

MCJ 207. Qualitative Methods in Mass Communication (3)
Examines various qualitative methods used in mass communication research, such as historical analysis, legal research, cultural analysis, content analysis, and participant/observer analysis. Students will design and complete a research project.

MCJ 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. (Formerly MCJ 214)

MCJ 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. (Formerly MCJ 215)

MCJ 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 MCJ 216)

MCJ 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. (Formerly MCJ 240T)

MCJ 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading. (Formerly MCJ 290)

MCJ 298. Project (6)
Prerequisites: 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 ***RP*** grading. One or two semesters, depending upon project complexity. (Formerly MCJ 298)

MCJ 299. Thesis (6)
Prerequisite: See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Presentation to the faculty is required. Approved for ***RP*** grading. (Formerly MCJ 299)

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 the following:

- 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
- 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
Benjamin Boone
Michael Caldwell
Matthew H. Darling
Gary P. Gilroy
Anna Hamre
Thomas N. Hiebert
Miles M. Ishigaki
Helene Joseph-Weil
Randolph Lacy
Wendy March
Lawrence R. Sutherland
Andreas Werz
Dieter Wulfhorst

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 120 units). Each music major must consult with a designated music faculty adviser each semester before they may enroll in music classes.

Please note: Entrance examinations in music theory and aural skills and auditions in the declared performing medium are required of all freshmen and transfer music majors. Admission to the B.A. in Music is contingent upon audition and availability. Detailed information regarding entrance and degree requirements is available in the Department of Music Undergraduate Student Handbook. No General Education Integration course offered by the Music Department may be used to satisfy the General Education requirements for majors in the department.

Music Major

	Units
Major requirements	**63-77**
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	**39-49**
I. Music as a Liberal Art	(39)
II. Music Education	(43-47)
III. Instrumental Performance	(47-49)
IV. Vocal Performance	(49)
V. Composition	(45-49)
Additional requirements (Option I only)	**6**
General Education requirements	**51***
	120-128

*No General Education Integration course offered by the Music Department may be used to satisfy the General Education requirements for majors in the department.

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
Select from MUSIC 140T, 141, 142, 148 (max 3), 150A (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)	5
Senior Project or Recital (to be developed in consultation with the adviser)	2
	39

Additional Requirements

Approved electives from outside the Music Department (consult adviser)	6

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 Kremen School of Education and Human Development regarding the 33 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
Select from MUSIC 43, 140T, 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
Select 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] [Keyboard students: MUSIC 14 and 114]	4-6
MUSIC 43 and 144	6
MUSIC 31/131 through MUSIC 3/138 (four semesters with advanced standing)[3]	8
Select from MUSIC 140T, 141, 142, 148, 150A, 160T, 170A, 170B, 171, 186, 187	6
Additional units in pedagogy, literature, or performance courses (not including MUSIC 31-38) [For keyboard students: 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
	47-49

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
Select from MUSIC 140T, 141, 142, 148, 150A, 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 47	2
MUSIC 48	4
MUSIC 148	5
MUSIC 31/131 through 39/139	4
MUSIC 141 or 142	3
MUSIC 183 and 184	6
Select from MUSIC 140T, 141, 142, 150A, 158A, 158B, 160T, 170A, 170B, 171, 186, 187	3
Four semesters in MUSIC 103 appropriate to declared performing medium (instrument or voice)	4

Elect from MUSIC 102, 117, 118 4
MUSIC 198 (Senior Recital) 2
45-49

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 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 before being permitted to continue their major.
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. Jury II must be passed for advanced standing for students enrolled in the Music Education, Vocal Performance, Instrumental Performance, and Composition options. Jury II is not required of students enrolled in the Music as a Liberal Art Option. Students are allowed two attempts, taken in consecutive semesters, to pass Jury II. Failure to pass a second attempt will result in the student being dropped from the Music Education, Vocal Performance, Instrumental Performance, and Composition options. These students may continue the major in the Music as a Liberal Art option.
7. 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.
8. 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.
9. Students in MUSIC 31 and 131 through 39 and 139 (private studio instruction) will perform in student recitals when assigned by their instructor.
10. 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.
11. Students must pass each course in the 24-unit music core and MUSIC 4A, B, and C with a grade of ***C*** or better or ***CR***.

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 20 units of music courses with 11 upper-division units in residence and a minimum 2.0 GPA. The program must be approved by the department adviser and the department chair. Required units include the following: MUSIC 40, 41, 74; 4 units of MUSIC 131 through 138 (voice minors: 4 units of MUSIC 110 or MUSIC 139, or a combination thereof, upon recommendation of voice faculty); 4 units of MUSIC 103; select from: MUSIC 160T, 161A, 161B, 170A, 170B, 171, or 187. Music minors must pass the Jury I examination in their declared area of concentration (instrument or voice). 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 600 to gain entrance to the program.

With permission of the studio teacher, students with TOEFL scores between 550 and 600 may be considered for admission.

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.

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1 MUSIC 4A, 4B, and 4C may be waived by passing the designated Piano Proficiency Exam. Pianists must substitute MUSIC 14 and 114 for MUSIC 4A, 4B, and 4C. Successful completion of MUSIC 14 and 114 satisfies piano proficiency requirement for piano students. (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.

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:

Courses in music, including at least 21 units in 200-series

Graduate Writing Skills Requirement

Before advancing to candidacy, students must pass the graduate writing requirement. The graduate writing requirement is a component of MUSIC 220. Students who pass all components of MUSIC 220 except the writing requirement will undertake a developmental writing program until the standards are met. The standards for the graduate writing requirement are included in the course materials for MUSIC 220.

	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.

MUSIC 102. Minor Ensembles (1; repeatable for credit)
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 AAIS 21/121.

MUSIC 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).

MUSIC 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).

MUSIC 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), opera production (OPR), percussion workshop (PW), and vocal workshop (VW).

Instrumental, Vocal, and Composition 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 in a declared performing medium until completion of senior recital. Concurrent enrollment in appropriate major ensemble required. Passing Jury II required to enroll in MUSIC 131 through 139. MUSIC 148 includes individual instruction in original composition in a variety of media, forms, and styles. All courses are repeatable for credit. (All courses require a $20 course fee.)

MUSIC 31/131. Brass (1; max total 16)

MUSIC 32/132. Percussion (1; max total 16)

MUSIC 33/133. Strings (1; max total 16)

MUSIC 34/134. Piano (1; max total 16)

MUSIC 35/135. Woodwinds (1; max total 16)

MUSIC 38/138. Organ (1; max total 16)

MUSIC 39/139. Voice (1; max total 16)

MUSIC 148. Composition (1; max total 10)
Prerequisite: two semesters of MUSIC 48 and successful completion of Jury I. Includes individual instruction in original composition in a variety of media, forms, and styles.

Other Music Courses

MUSIC 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. (Course fee, $15)

MUSIC 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. (Course fee, $15)

MUSIC 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)

MUSIC 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)

MUSIC 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. Letter grading only. (Course fee, $20)

MUSIC 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 with chordal accompaniments. Introduction to computer applications. (Course fee, $20 for piano sections only) G.E. Breadth C1.

MUSIC 11. Intermediate Guitar Technique (2)
Introduction to classical guitar, major, minor, and chromatic scales, chord progression, and beginning classical guitar selections.

MUSIC 12. Flamenco Interpretation (2)
Introduction to basic flamenco guitar techniques; rasgueados, picados, tremolos, basic rhythms, studies and interpretation of flamenco repertoire.

MUSIC 14. Accompanying I (2)
Prerequisite: Jury I. Designed to give the piano student accompanying experience that systematically develops proficiency in skills useful to the accompanist, chamber musician, or school music teacher. Skills include sight-reading, transposing, harmonizing, open-score reading, and "quick study." (Formerly MUSIC 130T)

MUSIC 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.

MUSIC 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)

MUSIC 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, seventh chords, and secondary function chords. Harmonization of melodies. Principles of form in Western art music. Analysis of representative musical literature. Use of music notation software.

MUSIC 42. Theory and Literature III (3)
Prerequisite: MUSIC 41. Continuation of figured bass and part writing, emphasizing chromaticism, altered chords, and extended tonality. More advanced musical forms. Study of representative musical examples. Use of music notation software.

MUSIC 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.

MUSIC 47. Introduction to Music Technology (2)
Principles, uses, techniques, and applications of music technology. Experience with current hardware and software for music notation, sequencing, and synthesis, as well as digital recording and editing.

MUSIC 48. Seminar in Composition (2; max total 6)
Prerequisite: MUSIC 47. 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.

MUSIC 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.

MUSIC 58. Basic Conducting (2)
Prerequisite: MUSIC 41. Fundamentals of conducting and score-reading; standard patterns and stick technique.

MUSIC 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.

MUSIC 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.

MUSIC 81. Basic Improvisation (2)
Prerequisites: MUSIC 4B, 41. Beginning course in improvisation. Using the student's principal instrument or voice and the keyboard, students improvise musical material beginning with I-IV-V-I progressions (up to three flats and three sharps) and in the basic 12-bar blues (in B flat, F, and C).

MUSIC 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)

MUSIC 111. Advanced Guitar Technique (2)
Advanced studies in classical guitar works, diatonic major and minor scales, chord progression, and interpretation of classical guitar repertoire.

MUSIC 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.

MUSIC 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.

MUSIC 114. Accompanying II (2)
Prerequisite: MUSIC 14. Student will perform regularly, accompanying one or more soloists or groups throughout the semester by assignment. In addition, there will be readings and exercises to further develop skills studied in MUSIC 14.

MUSIC 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.

MUSIC 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)

MUSIC 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.

MUSIC 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.

MUSIC 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 122)

MUSIC 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 124)

MUSIC 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)

MUSIC 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 127)

MUSIC 129. Reed Making (1)
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.

MUSIC 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.

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.

MUSIC 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.

MUSIC 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.

MUSIC 144. Form and Analysis (3)
Prerequisite: MUSIC 42. Principles of musical form and analysis as applied to musical repertoire. Includes an introduction to the Schenker method of music analysis and review of chromatic harmony as necessary.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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)

MUSIC 167. Keyboard Literature (2)
Piano majors only. A historical survey of the standard repertoire for the piano.

MUSIC 169. Instrumental Techniques and Materials (2)
Prerequisites: MUSIC 43, 158A or B, pass conducting proficiency, MUSIC 121-127A. 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.)

MUSIC 170A. Music of the Americas: Latin America (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

MUSIC 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.

MUSIC 171. Introduction to the World's Music (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.)

MUSIC 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.

MUSIC 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.

MUSIC 182. Basic Arranging (3)
Prerequisites: MUSIC 1B, 42. 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)

MUSIC 183. Advanced Choral Arranging (3; max total 6; repeatable for credit)
Prerequisite: 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)

MUSIC 184. Advanced Instrumental Arranging (3; max total 6; repeatable for credit)
Prerequisite: passed piano proficiency. 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)

MUSIC 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.

MUSIC 185B. Lyric Diction II (2)
Prerequisite: MUSIC 185A. For vocal performance majors or with permission of instructor. Singers' advanced diction studies of English, Italian, German, French, and Spanish, as well as other languages used in the standard Western art music vocal repertoire.

MUSIC 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.

MUSIC 187. Pop Music: Jazz and Rock (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

MUSIC 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

MUSIC 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 ***RP*** grading.

MUSIC 198. Senior Recital or Project (1 or 2)
Prerequisites: passed piano proficiency, senior standing, approval of major applied music instructor or adviser. Preparation and presentation of a satisfactory senior recital or project.

GRADUATE COURSES

(See Catalog Numbering System.)

Music (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.

MUSIC 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. 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 ***RP*** grading.

MUSIC 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.

MUSIC 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.

MUSIC 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.

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.

MUSIC 234. Studies in Composition (2; max total 6)
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 ***RP*** grading.

MUSIC 240T. Advanced Topics in Music Theory (3; repeatable for credit)
Prerequisite: MUSIC 204 and 220. Advanced analytical study of specific composers, genres, styles, and diverse interdisciplinary approaches to music theory. A final paper or project is a central component of this course.

MUSIC 257A. Seminar in Choral Conducting (3)
Prerequisite: MUSIC 158A or 158B or equivalent. Advanced study of conducting choral music in the Western tradition. Students will organize and complete projects that address the preparation, interpretation, rehearsing, and performance of choral music. (Formerly MUSIC 258T)

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 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.

MUSIC 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

MUSIC 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 ***RP*** grading.

MUSIC 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 ***RP*** grading.

MUSIC 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 ***RP*** grading.

IN-SERVICE COURSES

(See Catalog Numbering System.)

Music (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.

MUSIC 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., Student Philosophical Society, 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*
Pedro Amaral
Karen Bell
Ann E. Berliner
Donald N. Blakeley
Mary Domski
Warren L. Kessler
Barbara LaBossiere
Sarah Pessin
Terry R. Winant
Michael Wolf

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
Select one: PHIL 25 or 45 or 145 ... (3)
PHIL 101 and 103 ..... (6)
Select two: PHIL 105, 146, 150, 156, or 157 ..... (6)
Select one: PHIL 115 or 118 ..... (3)
Select at least two: PHIL 190 and/or 192 ..... (3)
PHIL 170T ..... (3)
Approved philosophy electives ..... (8)
General Education requirements 51
Upper-division writing skills requirement 0
Upper-Division Writing Exam (see Advising Note 6.)
Electives and remaining degree requirements 37-40*
(see *Degree Requirements*); may be used toward a double major or minor
Total 120

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)
Approved electives: ANTH 119; CRIM 20; AAIS 146; BA 18, 120; PLSI 110, 111, 170, 171; COMM 105, 149, 163, or other approved courses ..... (6)
General Education requirements 51
Upper-division writing skills requirement 0
Upper-Division Writing Exam (see Advising Note 6.)
Electives and remaining degree requirements 36-39*
(see *Degree Requirements*); may be used toward a double major or minor
Total 120

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 requirements 51
Electives and remaining degree requirements 37-40*
(see *Degree Requirements*); may be used toward a double major or minor
Total 120

*This total indicates that PHIL 25 or 45 (3 units) in G.E. Foundation A3 also may be applied to the philosophy major.

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 double major or minor (see *Double 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.
5. No General Education Integration or Multicultural/International course offered by the Philosophy Department may be used to satisfy the General Education requirements for majors in the department.
6. If the upper-division writing skills requirement is not met by passing the university Upper-Division Writing Examination (0 units), then a 3- to 4-unit *W* course must be passed with a grade of *C* or higher.

Philosophy Minor

The Minor in Philosophy consists of 15 units in philosophy, of which at least 9 units must be upper division.

Note: The Philosophy Minor also requires a 2.0 GPA and 6 upper-division units in residence.

COURSES

Philosophy (PHIL)

PHIL 1. Introduction to Philosophy (3)
Prerequisite: G.E. Foundation A2. 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)

PHIL 2. Exploring Religious Meaning (3)
Prerequisite: G.E. Foundation A2. 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.

PHIL 10. Self, Religion, and Society (3)
Prerequisite: G.E. Foundation A2. Conceptions of human nature; nature and varieties of religion; personal and social implications and values of religion. G.E. Breadth C2.

PHIL 20. Moral Questions (3)
Prerequisite: G.E. Foundation A2. 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 28. Critical Thinking in the Classroom (3)
Open to liberal studies majors only. Prerequisite or corequisite: EHD 50. Principles and methods of good reasoning, including identifying arguments, developing deductive/inductive reasoning skills, assessing observations/testimony reports; common fallacies; and applications to K-8 teaching. (Students completing PHIL 28 cannot receive credit for PHIL 25 or 45.) Meets G.E. A3 requirement only for liberal studies majors.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 120. Contemporary Conflicts of Morals (3)
(Same as AETH 100.) Prerequisites: G.E. Foundation and Breadth Area C. Exploration of moral issues through great works, such as philosophy, novels, dramas, or films. Looks at questions such as, "What is it to be moral? Why be moral? Why care about others? How should scarce resources be distributed? What is integrity?" G.E. Integration IC.

PHIL 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?

PHIL 122. Introduction to Professional Ethics (3)
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.

PHIL 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.

PHIL 127. Philosophy of Law (3)
Nature and functions of law; methods of justifying legal systems; logic of legal reasoning; analysis of fundamental legal concepts.

PHIL 129. Marxism (3)
Examination of basic ideas of Marx inherent in his writings and a consideration of later developments now called "Marxist."

PHIL 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.

PHIL 131. Comparative Religion (3)
Prerequisites: G.E. Foundation and Breadth Area D. A study of major religions of the world, their traditions, teachings, influential texts, methodological and comparative approaches. Emphasis on major Western and non-Western religions such as Hinduism, Buddhism, Confucianism, Daoism, Judaism, Christianity, and Islam. G.E. Multicultural/International MI.

PHIL 132. Religion and the Margin (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 136. Buddhism (3)
Introduction to Buddhism. Life and teachings of Gautama Siddhartha Buddha; development of Buddhism after death or mahanirvana of the Buddha.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 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.

PHIL 150. Foundations of Knowledge (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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, and psychological states. G.E. Integration IC.

PHIL 151. Cognitive Science: Mind (3)
Prerequisites: G.E. Foundation and Breadth Area C. 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.

PHIL 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.

PHIL 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.

PHIL 165T. Special Topics (1-3; max total 9 if no topic repeated)
Topics of current or interdisciplinary interest or requiring special background.

PHIL 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.

PHIL 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.

PHIL 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

PHIL 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.

PHIL 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. ***CR/NC*** grading only.

PHIL 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

Photo by Khaled Alkotob

Theatre Arts

The theatre arts major offers you the opportunity to develop your 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) focuses on drama of the African-American experience. Playwrights Theatre is dedicated to the exploration of original plays. Theatre for Young Audiences produces plays for young people and tours 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*
Kenneth R. Balint
Dan Carrion
Thomas Whit Ellis
Edward F. EmanuEl
Melissa D. Gibson
Ruth H. Griffin
Jeffrey C. Hunter
Terry C. Miller
Bradley J. Myers
Roxanne Schroeder-Arce

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, 182A .. (6)
DRAMA 181A or 134B ..... (3)
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 requirements 51
Electives and remaining degree requirements 16
(See *Degree Requirements*), may be used toward a double major or minor

Total 120

Note: Students must complete 8 approved production assignments. (See faculty adviser.)

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.
4. No General Education Integration or Multicultural/International course offered by the Theatre Arts Department may be used to satisfy the General Education requirements for majors in the department.

Theatre Arts Major (Dance Option) — *Units*

Option requirements 48
DRAMA 33, 34, 134B or 181B or 182A ..... (9)
DANCE 20, 70, 159, 160, 164, 166, 170, 171 ..... (23)
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)
General Education requirements 51
Electives and remaining degree requirements 21-24*
(See *Degree Requirements)*, may be used toward a double major or minor

Total 120

*This total indicates that a maximum of one course (3 units) in General Education Breadth also may be applied to the dance option. This course is DANCE 70 in G.E. Breadth E1. Consult the department chair or faculty adviser for additional details.

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, 118, 155, 158) may be credited toward the minimum B.A. graduation requirement of 120 units.
3. *CR/NC* grading is not permitted in the dance major.
4. No General Education Integration or Multicultural/International course offered by the Theatre Arts Department may be used to satisfy the General Education requirements for majors in the department.

Theatre Arts Minor (Drama)	*Units*
DRAMA 10, 32 or 33, 34, 163	**12**
DRAMA 15 and 115	**2**
Approved electives — 3 units must be upper division (*See adviser)*	**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**

Note: The minors also require a 2.0 GPA and 6 upper-division units in residence.

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)

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.

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.

DRAMA 22. Oral Interpretation of Literature (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.

DRAMA 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)

DRAMA 31. Fundamentals of Voice and Articulation (3)
Open to nonmajors only. Principles of voice and articulation with demonstration in various aspects of oral communication.

DRAMA 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.

DRAMA 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)

DRAMA 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.

DRAMA 35. Intermediate Acting (3)
Prerequisite: DRAMA 33. Intermediate studies in acting including text analysis, expansion of the actor's character range and audition techniques.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 83. Touring Theatre (1-3; max total 6)
(Same as DRAMA 183.) Prerequisite: permission of instructor. Experience in touring major productions for public performance.

DRAMA 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.

DRAMA 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.

DRAMA 115. Dramatic Arts Laboratory (1-2; max total 9)
(See DRAMA 15.) Not available for *CR/NC* grading.

DRAMA 130. Screenwriting (3; max total 9)
Principles and techniques in the preparation and marketing of film scripts.

DRAMA 131. Fundamentals of Playwriting (3; max total 9)
Exercises in plotting, characterization, exposition, and stage business, critical analysis, and revision of manuscripts.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 137. Creative Dramatics (3; max total 6)
(Same as CI 137.) Basic techniques for the use of dramatization in elementary education; sociodrama, dramatization of school subjects, creative dramatic play; simplified staging techniques.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 157. Theatre Graphics (3; max total 6)
Development of rendering technique and other graphic skills essential to design for the theatre.

DRAMA 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.

DRAMA 163. Dramatic Literature (3)
Prerequisites: G.E. Foundation and Breadth Area C. Critical analysis of various types and styles of plays with respect to their form, meaning, and theatricality. G.E. Integration IC.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 179. Playwrights' Theatre (1-2; max total 6)
Prerequisite: permission of instructor. Presentation and readings of original and classical plays.

DRAMA 180A-B. Scene Design for Theatre (3-3; 180B max total 6)
Prerequisite: DRAMA 34. (**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.

DRAMA 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.

DRAMA 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.

DRAMA 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.

DRAMA 183. Touring Theatre (1-3; max total 6)
(See DRAMA 83.)

DRAMA 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.

DRAMA 186. History of the Theatre and Drama II (3)
Prerequisite: DRAMA 163. From Ibsen to the present; analysis of representative examples.

DRAMA 187. African American Theatre Styles (3; max total 6)
(Same as AAIS 165.) Performance, scene development, and dramatic styles consistent with the African American experience. Exploration of cross-cultural aesthetics as they inform creative development. Development of self-written or published scenes and plays. (Formerly DRAMA 188T)

DRAMA 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)

DRAMA 189. Projects in Production (1-3; max total 9)
(See DRAMA 89.)

DRAMA 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

DRAMA 194. Shakespeare (4)
(See ENGL 189.)

IN-SERVICE COURSE

(See Catalog Numbering System.)

Theatre Arts (DRAMA)

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.

DANCE 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.

DANCE 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.

DANCE 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.

DANCE 115. University Dance Theatre (1; max total 9)
A student-organized course in which the experiential, experimental, and exploratory nature of dance can be accessed. Focuses on achieving excellence through the preparation, performance, and production needs of completed works that are performed at the end of the semester. Not available for *CR/NC* grading.

DANCE 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.

DANCE 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.

DANCE 117C. Modern Dance Technique (2; max total 6)
Intermediate level modern dance technique with emphasis on increasing skills in reading movement and expressing more complex patterns. Develops the core muscles to support greater ease in sequencing body flow from center practice to sweeping locomotor phrases.

DANCE 117D. Modern Dance Technique (2; max total 12)
Advanced level modern dance technique with elements of alignment, embodiment, flexibility, strength, and energy flow. Stresses individual mastery as well as ensemble performance. Integrates techniques of Hawkins, Limon, and Graham as well as developmental theories of Bartenieff, Pilates, and Bainbridge-Cohen.

DANCE 155A. Modern Jazz Dance (1)
An in-depth study of jazz dance using a modern dance foundation that emphasizes the fortification, stretching, and reshaping of mind and body to help produce a more accomplished dancer.

DANCE 155B. Modern Jazz Technique (1)
An in-depth intermediate/advanced level of study of jazz dance using a modern dance foundation that emphasizes the fortification, stretching, and reshaping of mind and body to help produce a more accomplished dancer.

DANCE 158A. Ballet Technique (1; max total 2)
Elementary ballet technique. Emphasizes alignment, control, and proper awareness of style and phrasing. Develops a foundation from which to build a dancer capable of a broad range of expression and demonstration to meet the demands placed on today's dancers.

DANCE 158B. Ballet Technique (1; max total 2)
Intermediate study of elementary ballet technique combined with a more broad-based understanding of ballet as an art form through traditional exercises, with proper awareness of conditioning, style, and phrasing.

DANCE 158C. Ballet Technique (2; max total 12)
An intermediate/advanced level ballet class with emphasis on technique, artistry, and conditioning. Builds well-placed dancers capable of a broad range of expression and demonstration with skills that can readily adapt to the demands placed on today's dancers.

DANCE 158D. Ballet Technique (2; max total 12)
Study of preprofessional advanced ballet technique with emphasis on performance preparation. Builds well-placed dancers capable of a broad range of expression and demonstration with impressive technical skills that can readily adapt to the demands placed on today's dancers.

DANCE 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.

DANCE 159. Music in Choreography (3)
Study of music theory as it relates to modern and postmodern choreography. Development of the dancer's percussive and vocal abilities through the study of world music and rhythmic analysis.

DANCE 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.

DANCE 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.

DANCE 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.

DANCE 164. Dance History (3)
The historical development of dance from its origins to contemporary forms including diverse cultural perspectives.

DANCE 166. Dance Choreography (2; max total 16)
Investigation and practice of contemporary styles of choreography. Application of basic choreographic principles with emphasis on improvisation, form, content, current media and technology, group structures, movement invention, and evaluative skills.

DANCE 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.

DANCE 170. Pilates Mat (3)
Study and practice of Pilates mat sequence incorporating principles of core strength and study of body musculature. Designed to give students an exercise program to supplement any type of physical activity. Emphasizes use of breath and leads to total body strengthening. (Formerly DANCE 174T)

DANCE 171. Philosophical Bases and Trends in Dance (3)
Prerequisites: G.E. Foundation and Breadth Area C. The elements and principles common to all arts and their relationship to dance. G.E. Integration IC.

DANCE 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.

DANCE 174T. Topics in Dance (1-3; max total 12)
Selected topics may include philosophy, psychology, art, theatre, and music as related to dance.

The Craig School of Business

Peters Building, Room 282, 559.278.2482
Garo Kalfayan, *Interim Dean;* Robert M. Harper, *Interim Associate Dean*
http://www.craig.csufresno.edu

The Craig School of Business includes the departments of Accountancy, Finance and Business Law, Information Systems and Decision Sciences, Management, Marketing and E-Business, Aerospace Studies, and Military Science. Degree programs are the Master of Business Administration, Master of Science in Accountancy, and the Bachelor of Science in Business Administration. Undergraduate students select one of 12 different areas of specialization, or options.

The Mission of the School

The mission of the Craig School of Business (CSB) is to prepare a diverse student population for careers in the regional, national, and global business environments, and to serve the Central California business community as a resource center.

Accreditation

The B.S. in Business Administration has been continuously accredited since 1959 by the premiere accrediting agency, the Association to Advance Collegiate Schools of Business, International (AACSB). The B.S. was the third accredited business program in California, following UC Berkeley and UCLA and is one of only 482 accredited business programs in the U.S. The Craig M.B.A. was accredited in 1974.

Advising

CSB operates an advising center, Undergraduate Student Services, located in Peters Building, Room 185. Flow charts are available at *http://www.craig.csufresno.edu/uss/* for each of the 12 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.

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 more than 100 scholarships for continuing and transfer students through the university's Scholarship Office, 559.278.6572. Consult *http://studentaffairs.csufresno.edu/scholarships*.

DEGREE PROGRAMS

Master of Business Administration (M.B.A.)
The Master of Business Administration 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 240-241).

Master of Science in Accountancy (M.S.)
The Master of Science in Accountancy prepares graduates for success in the professional field of accountancy. The program enhances preparation for professional certifications such as that for a Certified Public Accountant (CPA) or a Certified of Management Accountant (CMA). The M.S. in Accountancy also provides a high quality educational experience promoting the development of requisite skills and tools for success in the profession well after certification, enabling graduates to become leaders in the profession. (See page 242.)

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 12 different areas of specialization, called options. These options are as follows:

- Accountancy Option (Department of Accountancy) - see page 217.
- E-Business Option* (Department of Marketing and E-Business) - see pages 235.
- Entrepreneurship Option (Department of Management) - see page 231.
- Finance Option (Department of Finance and Business Law) - see page 222.
- Human Resource Management Option (Department of Management) - see page 231.
- Information Systems Option (Department of Information Systems and Decision Sciences) - see page 227.
- International Business Option (Department of Finance and Business Law) - see page 222.
- Legal Environment of Business Option* (Department of Finance and Business Law) - see page 223.
- Management Option (Department of Management) - see page 231.
- Marketing Option (Department of Marketing and E-Business) - see pages 235.
- Real Estate and Urban Land Economics Option (Department of Finance and Business Law) - see page 223.
- Special Option for the B.S. degree in Business Administration — contact Undergraduate Student Services Office, 559.278.4943 - see page 239.

The following information (up to "Additional Programs"*) pertains only to the B.S. degree.*

Grade Requirements
Business students must earn a grade of ***C*** or better in each course used to satisfy the requirements of their major. No course taken for the business major can be graded on a ***CR/NC*** basis except for courses with mandatory ***CR/NC*** grading.

Pre-Business Policy
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 do the following:

a. Complete IS 52 and 52L or equivalent course(s) with a grade of ***C*** or better or achieve a passing score on the CSB computer competency waiver examination. See "computer competency waiver exam" at *http://www.craig.csufresno.edu/Student_Info/USS/.*
b. Complete the following courses or their equivalents with a grade of ***C*** or better in each course: ACCT 4A, 4B; BA 18; DS 71, 73; ECON 40 (or AGEC 1) and ECON 50.
c. Have a cumulative grade point average of at least 2.0.
d. Submit a request to declare an option in business. Students may obtain this request form from the Craig School of Business Undergraduate Student Services Office, Peters Building, Room 185, or apply online at *http://www.craig.csufresno.edu/Student_Info/USS/.*
e. CSB 150 may be substituted for CSB 50 for catalog years prior to 2004-2005.

Declaration of Option
1. 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 must submit a complete set of transcripts (official or unofficial) or grade reports of all college-level study to the Undergraduate Student Services Office for evaluation. Transfer students from another region need to have a copy of the catalog(s) and course syllabi from the different colleges they attended. Notification of business course credit will then be sent by e-mail.
2. Students who are ready to enroll in 100-level upper-division business 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 BA 105W or ENGL 160W) is required in the first semester in which 100-level business courses are taken.

TOEFL
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.

Honors Program
Students with a GPA of 3.5 or higher are encouraged to 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 189. For course descriptions, see the next page.

*As of fall 2004, admissions to the E-Business Option and the Legal Environment of Business Option have been suspended, and students may no longer declare these options. Contact the respective department office for more details.

Internships and Placement

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 coordinator in Peters Building, Room 185.

Complete career development and placement services are available through Career Services, 559.278.2384.

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.

ADDITIONAL PROGRAMS

Business Minors*

General Business Minor	*Units*
ACCT 4A	**3**
Select from: BA 18; DS 73; FIN 120; IS 130; MGT 104, 106, 110; MKTG 100 or 100S	**6-8**
Select upper-division courses from not more than two fields: ACCT, BA, DS, ENTR, FIN, HRM, IS, MGT, MKTG	**11**
Total	**20-22**

Entrepreneurship Minor	*Units*
ENTR 81, 153; MGT 110	**12**
Select from: ENTR 155, 157; FIN 131; MKTG 134 or courses approved by the entrepreneurship coordinator	**6**
Total	**18**

Graduate Business Prep Minor	*Units*
ACCT 4A and IS 52, 52L	**6**
ECON 40 and 50	**6**
DS 71, 73, 123	**9**
FIN 120 and BA 174	**7**
MGT 104 and MGT 124	**7**
Total	**35**

* Students must earn a grade of at least *C* in each course.

The Graduate Business Preparation Minor is for students who wish to pursue the Craig M.B.A. after completing an undergraduate major outside the Craig School of Business. By completing the requirements of the minor, all Group 1 coursework (15 units) usually required of non-business majors for the Craig M.B.A. degree may normally be waived. See pages 240-241 for further information on admission requirements.

Advising Notes

1. All minors also require a 2.0 GPA and 6 upper-division units in residence.
2. No course taken for the business minors can be graded on a *CR/NC* basis except for courses with mandatory *CR/NC* grading. Courses in a major cannot be applied toward a minor unless designated as "additional requirements."

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 227
- Certificate in E-Business* (Department of Marketing and E-Business) - see page 235
- Certificate in Entrepreneurship (Department of Management) - pages 231-232
- Certificate in Finance (Department of Finance and Business Law) - page 223
- Certificate in Human Resource Management (Department of Management) - pages 231-232
- Certificate in Legal Environment* (Department of Finance) - page 223
- Certificate in Marketing (Department of Marketing and E-Business) - see page 235
- Certificate in Network Administration (Department of Information Systems and Decision Sciences) - page 227
- Certificate in Organizational Management (Department of Management) - pages 231-232

Also, students in the Marketing Option have an opportunity to earn a Certificate in Mass Communications and Journalism - see page 235.

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 262-264.

COURSES

Craig School of Business (CSB)

CSB 150. Strategies for Success (1)
Prerequisite: upper-division writing skills requirement (may be taken concurrently). Preparation for job placement including resumes, on-campus recruitment, business etiquette, and job offers. Presentations by faculty, recruiters, and alumni. May be used as a substitute for CSB 50 with prior written approval of the instructor. *CR/NC* grading only. (Formerly MGT 189T)

CSB 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)

CSB 185. Senior Honors Seminar I (2)
Prerequisite: CSB 184. 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)

CSB 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)

* As of fall 2004, admissions to the Certificate in E-Business and the Certificate in Legal Environment have been suspended, and students may no longer enter these programs. Contact the respective department office for more details.

Accountancy

The Department

The Department of Accountancy offers an option in accounting within the Bachelor of Science in the Business Administration and a Master of Science in Accountancy. The undergraduate qualifies students for, and the master's program further prepares students for, the Certified Public Accountant (CPA), Certificate in Management Accounting, or Certified Internal Auditor (CIA) exams.

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.

In conjunction with the department, the University Business Center (located within the school) offers a CPA Review course. This course is designed to meet the needs of the serious CPA candidate and covers thoroughly all exam areas.

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.

Benjamin Y. Tai, *Interim Chair*
Dennis M. Baker
Rosita S. Chen
Robert M. Harper
Patricia L. Huff
Garo Kalfayan
John P. Osborn
Sheng-Der Pan
Denise Patterson
Ali A. Peyvandi

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Craig School of Business who are working toward the Bachelor of Science in Business Administration must, in addition to the university's General Education requirements, demonstrate computer competency, complete a seven-course group of pre-business courses, six or seven courses of upper-division core, 22 to 24 units in an area of specialization or option, and an integrative course requirement.

Computer literacy and computer software competency are considered essential to success in the program, which is heavily oriented in the use of technology. The pre-business courses include material considered essential for further study in business. The upper-division core courses 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.

Demonstration of computer competency. Complete IS 52 and 52L or equivalent courses with a grade of *C* or better or achieve a passing score on the CSB computer competency waiver examination. See "computer competency waiver exam" at *http://www.craig.csufresno.edu/Student_Info/USS/*

	Units
Pre-Business requirements	**16***
ACCT 4A, 4B; BA 18; DS 71, 73; ECON 40 or AGEC 1; ECON 50; (See *Pre-Business Policy,* page 215.)	
Upper-division core requirements	**24**
DS 123; FIN 120; IS 130; MGT 110 or 104-106, MGT 124; MKTG 100 or 100S	
Accountancy Option	**24**
ACCT 120A, 120B, 132	(12)
Select three courses from the following: ACCT 144, 145, 146, 148, 162, 165, 189T	(12)
General Education requirements	**51**
Grade Requirement A grade of *C* or better must be earned for each course used to satisfy the requirements for the major.	
Upper-division writing skills requirement	**3-4**
Business majors must select either BA 105W or ENGL 160W (See *Writing Requirements*, page 215.) *Note:* the Upper-Division Writing Exam is not an option for business administration majors.	
Integrative course requirement	**3**
MGT 187	
Total	**121-122**

*This total indicates that 6 units for DS 71 and ECON 50 are being used to satisfy the General Education requirement of 51 units.

The Craig School of Business

Department of Accountancy

Benjamin Y. Tai, *Interim Chair*
Debbie L. Koehler, *Department Administrative Assistant*
Peters Business Building, Room 284
559.278.2852
FAX: (559)278.4911
http://www.craig.csufresno.edu/acct

B.S. in Business Administration

Option: Accountancy

M.S. in Accountancy

See pages 242

Accountancy (ACCT)

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.

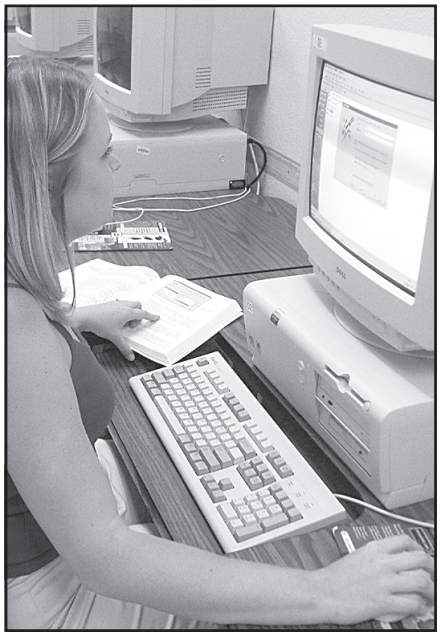
ACCT 4A. Financial Accounting Principles and Systems (3)
Not open to freshmen. Financial accounting; accounting statements, transaction analysis, and data accumulation; partnership and corporation accounting. (CAN BUS 2)

ACCT 4B. Managerial Accounting Principles and Systems (3)
Not open to freshmen. Prerequisite: grade of *C* or better in ACCT 4A. Basic coverage of managerial control and decision support tools, job order costing, activity based costing, standard costing, budgeting, relevant costing, and quality control. (CAN BUS 4)

ACCT 120A. Intermediate Accounting I (4)
Prerequisite: grade of *C* or better in 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 assets; theory of current liabilities; investments; revenue recognition; error correction and principle changes; and a review of applicable authoritative pronouncements.

ACCT 120B. Intermediate Accounting II (4)
Prerequisite: grade of *C* or better in 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; fixed and other noncurrent assets; income tax allocation; noncurrent liabilities, including pensions and leases; inflation accounting; and cash flow. Special attention is given to authoritative pronouncements.

ACCT 132. Cost Accounting (4)
Prerequisites: grades of *C* or better in ACCT 4A and 4B. DS 71 or equivalent and IS 52 recommended. Industrial and service industry cost accounting; intermediate level



coverage of job order and process costing and standard costing; master budgeting, activity based costing/management, decision support tools, support department joint cost allocations, and quality control issues.

ACCT 144. Tax Accounting and Planning (4)
Prerequisite: grades of *C* or better in ACCT 4A. Federal income taxation, research, and planning affecting individuals.

ACCT 145. Federal Income Taxation of Entities and the Federal Uniform Estate and Gift Tax (4)
Prerequisite: grade of *C* or better in ACCT 144. Federal income tax laws relating to entities. Primary emphasis placed on tax issues regarding C corporations, S corporations, and partnerships (including limited liability companies). Analysis of the Federal Uniform Estate and Gift tax. Entity tax accounting, return preparation, reporting, and tax research.

ACCT 146. Accounting Information Systems and Controls (4)
Prerequisites: grades of *C* or better in 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.

ACCT 148. Accounting for Governmental and Nonprofit Organizations (4)
Prerequisites: grades of *C* or better in ACCT 120A and 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.

ACCT 162. Auditing (4)
Prerequisites: grades of *C* or better in ACCT 120A and 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.

ACCT 165. International Accounting (4)
Prerequisites: grades of *C* or better in 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.

ACCT 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.

ACCT 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

ACCT 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.

ACCT 200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

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 between $250 and $400. Other scholarship programs are available to pay $250 and $350 per month and cost of tuition up to $9,000 per year, 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 $250-$400 subsistence each month during the school year. All two-year program cadets, regardless of scholarship status, receive $300-$400 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 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 of which 6 must be in residence) and a 2.0 GPA.

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.

The Craig School of Business

Department of Aerospace Studies
Col. Joseph J. Brozena Jr., *Chair*
Kathy Hirasuna, *Department Administrative Assistant*
North Gym, Room 158
559.278.2593, 559.278.7080
FAX: 559.278.5245
http://www.csufresno.edu/afrotc/

Air Force Reserve Officer Training Corps (AFROTC)

Minor in Aerospace Studies

In addition to the recurring need for pilots, the Air Force also needs personnel to work in navigation, space and missile operations, engineering, mathematics, physics, computer science, and in the support fields of personnel, administration, logistics, finance, education, security forces, 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

Col. Joseph J. Brozena Jr., *Chair*
Major Gary G. Foster
Captain S. Nathan Puwalowski
Advisers:
Technical Sgt. Alonzo Etheridge
Staff Sgt. Maria Caballero Avila

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 (34 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 (ASP)

ASP 1A, 1B. The Foundations of the United States Air Force (1, 1)
Corequisite: ASP 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.

ASP 2A, 2B. The Evolution of USAF Air and Space Power (1, 1)
Corequisite: ASP 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.

ASP 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.

ASP 5. Drill and Ceremony Fundamentals (1; max total 8)
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.

ASP 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.

ASP 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.

ASP 104A, 104B. Air Force Leadership Studies (3, 3)
Corequisite: ASP 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.

ASP 105A, 105B. National Security Affairs/Preparation for Active Duty (3, 3; max total 6)
ASP 105B is not open to students with credit in ASP 105BW. Corequisite: ASP 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 ASP 105AW-BW)

ASP 105AW/BW. National Security Affairs/Preparation for Active Duty (3)
Not open to students with credit in ASP 105A/B. Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement. Corequisite: ASP 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.)

ASP 113. Leadership Laboratory (1; max total 6)
Prerequisite: ASP 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 ASP 104A/B and ASP 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 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.

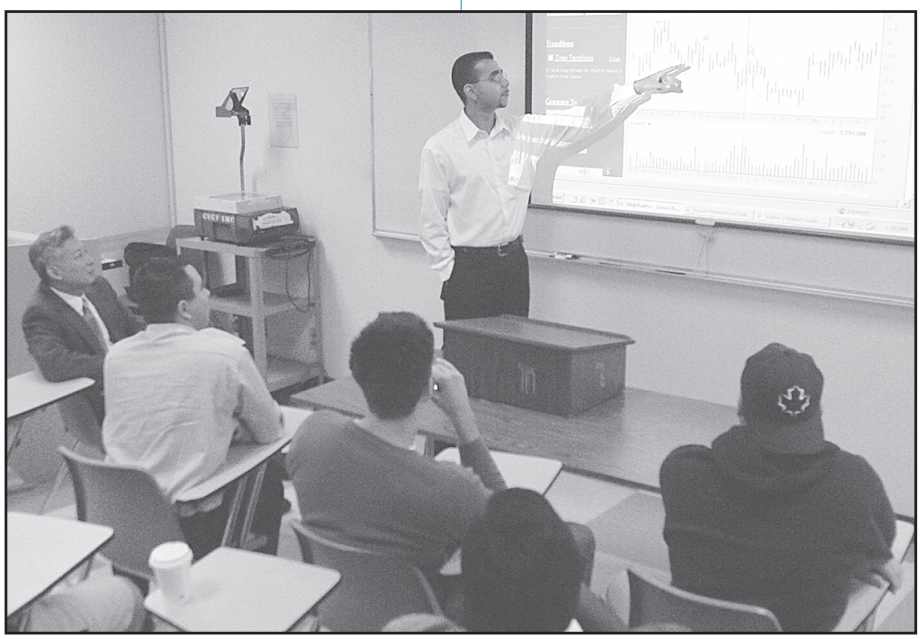
The *Financial Planning* track offers students the opportunity to broaden their knowledge and understanding of financial services so as to improve their ability to make effective decisions in financial planning and to facilitate career development in this area.

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.



The 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/Departments/FINANCE/

B.S. in Business Administration

Options:

- Finance
- International Business
- Legal Environment of Business
- Real Estate and Urban Land Economics

Certificate in Finance

Certificate in Legal Environment

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*
Donald L. Beringson
Tom Doyel
Lynn M. Forsythe
James M. Highsmith
Amir A. Jassim
Ida M. Jones
Deborah J. Kemp
Richard C. Lacy
Barry P. Laiss
Patricia A. LaRosa
Arlene A. Motz
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 Craig School of Business who are working toward the Bachelor of Science in Business Administration must, in addition to the university's General Education requirements, demonstrate computer competency, complete a seven-course group of pre-business courses, six or seven courses of upper-division core, 22 to 24 units in an area of specialization or option, and an integrative course requirement.

Computer literacy and computer software competency are considered essential to success in the program, which is heavily oriented in the use of technology. The pre-business courses include material considered essential for further study in business. The upper-division core courses 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.

Demonstration of computer competency. Complete IS 52 and 52L or equivalent courses with a grade of *C* or better or achieve a passing score on the CSB computer competency waiver examination. See "computer competency waiver exam" at *http://www.craig.csufresno.edu/Student_Info/USS/.*

	Units
Pre-Business requirements ACCT 4A, 4B; BA 18; DS 71, 73; ECON 40 or AGEC 1; ECON 50 (See *Pre-Business Policy,* page 215.)	**16***
Upper-division core requirements DS 123; FIN 120; IS 130; MGT 110 or 104-106, MGT 124; MKTG 100 or 100S	**24**
Option requirements The Department of Finance and Business Law offers four options. (See options in the copy that follows.)	**24-25**
General Education requirements	**51**
Grade Requirement A grade of *C* or better must be earned for each course used to satisfy the requirements for the major.	
Upper-division writing skills requirement Business majors must select either BA 105W or ENGL 160W (See Writing *Requirements*, page 215.) *Note:* the Upper-Division Writing Exam is not an option for business administration majors.	**3-4**
Integrative course requirement MGT 187	**3**
Total	**121-123**

*This total indicates that 6 units for DS 71 and ECON 50 are being used to satisfy the General Education requirement of 51 units.

Options

The four options available to students are outlined in the copy that follows. The completion of General Education requirements, pre-business requirements, upper-division business core, upper-division writing skills requirement, and the 24-25 units as required by the options total the 121-123 units required for the Bachelor of Science in Business Administration.

Finance Option	*Units*
Track (select one)	**24-25**
General Finance Track..... FIN 121, 122, 128, 139; BA 178 ..... Select three courses from the following: FIN 123, 129, 131, 133, 138, 154, 195; BA 100, 150	(24-25) (15) (9-10)
Financial Planning Track.. FIN 128*, 143* ..... Select six courses from the following: FIN 122**, 131, 133, 138**, 144**, 146**, 147**, 150**, 180, 195; BA 160**, 178; ACCT 144** ..	(24-25)* (6) (18-19)
Total	**24-25**

* As of fall 2004, admission to the Financial Planning Track has been suspended, and students may no longer declare this track. Contact the department office for more details.

** These courses have been accepted by the Certified Financial Planner Board of Standards for continuing education credits.

International Business Option	*Units*
BA 174, 175, 176	**9**
Select two courses from the following: ACCT 165; BA 177, 178; MKTG 140; and MGT 131	**6-7**
Select three upper-division courses outside the Craig School of Business that 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	**24-25**

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*
BA 150, 151, 155	**9**
Select two courses from the following: BA 101, 154, 156, 160, 163, 177; HRM 157	**6**
Select three upper-division courses within the Craig School of Business. These courses must be approved in advance by the department chair.	**9**
Total	**24**

*As of fall 2004, admission to the Legal Environment of Business Option has been suspended, and students may no longer declare this option. Contact the department office for more details.

Real Estate and Urban Land Economics Option	*Units*
BA 100, 154	**6**
FIN 122, 180, 181, 182, 183	**15**
Select one course from the following: FIN 123, 185, 195	**3-4**
Total	**24-25**

Requirements for Certificate Program

Before entering either of the programs, 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.

For successful completion of a certificate, the student must receive a grade of *C* or better in each course.

Certificate in Finance	*Units*
FIN 120, 128; BA 178	**10**
Elective courses	**9-10**
Select three courses from the following: FIN 121, 122, 123, 129, 131, 133, 138, 139, 154	
Total	**19-20**

*Certificate in Legal Environment**	*Units*
Completion of BA 18, or an approved equivalent, with a grade of *C* or better is a prerequisite to entry into the certificate program.	
BA 150, 151, 155	**9**
Elective courses	**6**
Select two courses from the following: BA 101 or 120; BA 154, 160, 163, 177; HRM 157 (upon approval); BA 189T (upon approval)	
Total	**15**

*As of fall 2004, admission to the Certificate in Legal Environment has been suspended, and students may no longer enter this program. Contact the department office for more details.

COURSES

Business Administration (BA)

BA 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.

BA 88. Public Law Environment of Business (1)
Required of students seeking transfer credit for a 3-unit business law course in lieu of BA 18. Not open to students who completed BA 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.

BA 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.

*With advance approval, business majors may use this course to meet some option electives, but not to meet G.E. requirements.

BA 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 AETH 102A.

BA 104. Global Business (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.*

BA 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. (Formerly IS 105W)

BA 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.

BA 150. Law and Business Activity (3)
Prerequisite: BA 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.

BA 151. Law of Business Organizations (3)
Prerequisite: BA 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.

BA 154. Real Estate Law (3)
Meets California statutory course requirement for real estate broker's license. Prerequisite: BA 18. Legal aspects of acquisition and ownership of real estate; conveyances, mortgages, evidences of title; planning and zoning.

BA 155. Government Regulation and Control of Business (3)
Prerequisite: BA 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.

BA 156. Labor Law (3)
Prerequisites: ECON 40, 50; BA 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.

BA 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.

BA 163. E-Legal: Technology Law (3)
Prerequisites: BA 18. Legal issues in managing technology; intellectual property law, including patent, copyright, trade secret, and trademark; consideration of world commerce, tort, privacy, contract, antitrust, and regulation; security and privacy issues in e-commerce.

BA 174. Introduction to International Business (3)
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.

BA 175. Tools and Techniques of International Business (3)
Prerequisite: grade of *C* or better in BA 174 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.

BA 176. The International Business Environment (3)
Prerequisite: grade of *C* or better in BA 174. 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.

BA 177. Legal Environment of World Commerce (3)
Prerequisites: BA 18; junior standing; BA 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.

BA 178. International Finance (3)
Prerequisite: grade of *C* or better in 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.

BA 189T. Topics in Business Administration (1-3; max total 9 if no topic repeated)
Studies in business administration.

BA 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

BA 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.

BA 200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Finance (FIN)

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.

FIN 120. Principles of Finance (4)
Prerequisites: ACCT 4A; DS 71; BA 105W or ENGL 160W (BA 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)

FIN 121. Intermediate Financial Management (3)
Prerequisite: grade of *C* or better in FIN 120. Modern theories of corporate finance; financial decision making under uncertainty; efficient allocation of financial resources; advanced financial planning and control strategies.

FIN 122. Financial Institutions and Financial Markets (3)
Prerequisite: grade of *C* or better in 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.

FIN 123. Business Forecasting (4)
Prerequisite: DS 123; grade of *C* or better in FIN 120. 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)

FIN 128. Security Analysis (3)
Prerequisite: grade of *C* or better in FIN 120. Analysis of securities markets; debt and equity instruments; options and futures; fundamental analysis; technical analysis.

FIN 129. Student Investment Fund (3)
Prerequisite: grade of *C* or better in FIN 128. Student-managed, privately donated funds; design of investment strategies; analysis of investment vehicles; fundamental and technical analyses; assessing market and portfolio risks; portfolio performance evaluation. (Formerly FIN 189T)

FIN 131. Entrepreneurial Finance (3)
Prerequisite: grade of *C* or better in 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.

FIN 133. Futures Markets (3)
Prerequisite: grade of *C* or better in 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.

FIN 138. Portfolio Management and Theory (3)
Prerequisite: grade of *C* or better in FIN 120 and 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.

FIN 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.

FIN 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.

FIN 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.

FIN 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.

FIN 147. Retirement Planning (3)
Fundamentals of retirement planning; qualified and nonqualified plans. Covers material required in preparing for the Certified Financial Planning designation. Topics include retirement needs and objectives, government regulations, various business and individual retirement plans, plan funding and investing, plan installation, administration, termination, and social security.

FIN 150. Financial Planning (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.

FIN 154. E-Finance (3)
Prerequisite: grade of *C* or better in FIN 120 or MKTG 90. Application of technology and the Internet to finance industry and financial education; impact on retail and institutional finance; issues in e-payment mediums, security, privacy, and taxation; e-banking, e-trading, e-capital sources for individuals and businesses. (Formerly FIN 189T)

FIN 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.

FIN 181. Real Estate Appraisal (3)
Prerequisite: grade of *C* or better in FIN 120 and 180. 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.

FIN 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.

FIN 183. Real Estate Finance (3)
Prerequisite: grade of *C* or better in FIN 120 and 180. 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.

FIN 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.

FIN 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.

FIN 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

FIN 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.

FIN 200 Series Courses
Graduate courses are listed under *Business — Graduate Program.*

Information Systems and Decision Sciences

The Craig School of Business

Department of Information Systems and Decision Sciences
Donald N. Stengel, *Chair*
Rosalie Avery, *Department Administrative Assistant*
Peters Business Building, Room 287
559.278.2823
FAX: 559.278.4911
http://www.craig.csufresno.edu/Departments/ISDS/index.htm

B.S. in Business Administration
Option: Information Systems

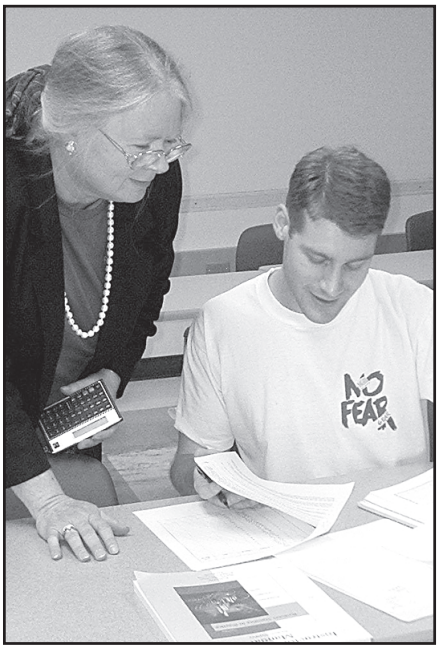
Certificate in Business Information Systems

Certificate in Network Administration

The Option

Computer and information systems are at the forefront of most courses offered in the department. Every course deals with the development and use of information technology (IT) by managers in support of their decision-making roles. Those interested in specializing in the Information Systems (IS) option can choose from a broad set of courses designed to prepare them for challenging, productive, and well-paying jobs in one of the fastest growing career paths. The IS graduate is qualified for literally hundreds of different jobs being performed by IT professionals. Graduates of this department have found successful employment at prestigious firms such as Andersen Consulting, Hewlett-Packard, Siemens, and Gallo.

The IS option provides students with the knowledge, skills, and modern tools in the area of IT. Students will learn about the strategic role of IS in business decision making. They will also learn how to design systems to solve management problems in all functional areas of business. Included in the curriculum are courses in data communication, network administration, database systems, geographic information systems, end-user computing, expert systems, Web page design, programming, and systems analysis and design.



Job titles fall into three categories: application development, technical development, and systems support.

Applications developers (e.g. **systems analysts**) are responsible for creating and maintaining the business software and systems a company needs. Systems analysts' jobs require strong interpersonal skills, as they spend much of their time with the users determining needs and processing functions. In addition, they must have thorough knowledge of business application systems. They often know as much about the company's work (for example, banking) as anyone in the company. Many of our IS graduates are hired in this category.

Technical developers (e.g. **database administrators**, **network specialists**) work with the operating, database, and network systems. Their jobs are generally concerned with managing the computer environment. Usually, working in teams, they are responsible for integrating the different hardware and software systems within the company.

Systems support personnel (e.g. **Web site managers**, **system administrators**) are responsible for the daily operation of all computer systems, both hardware and software. Support jobs differ with the computer environment. Support people often do not create, maintain, or develop software. They often move into technical development as they gain more on-the-job experience.

The **Certificate in Business Information Systems** is directed toward enhancing the knowledge of candidates for entry level IS-related positions. The program consists of five-course sequence involving the same IS core courses required for the IS option students. The details regarding this certificate are outlined on the next page.

The **Certificate in Network Administration** is designed to enhance the knowledge, practical experience, and employability of candidates who have had IS-related job experience and wish to expand their expertise. The details regarding this certificate are outlined on the next page.

Statistical and Computer Laboratories

Students who study in the Information Systems and Decision Sciences Department receive classroom instruction, listen to guest speakers, and enjoy field trips. They are also 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.

Faculty

The Department of Information Systems and Decision Sciences employs full-time and part-time faculty with extensive expertise in statistics, systems analysis and design, computer programing, networking, telecommunications, geographic information systems, business communication, database systems, expert systems and Web page design. These faculty come from all over the world and have Ph.D. degrees from major American and foreign universities.

Faculty

Donald N. Stengel, *Chair*

Randy J. Anderson
Priscilla M. Chaffe-Stengel
Myron Hatcher
James M. Henson
Jay Jung
Ojoung Kwon
Wallace C. Liu
William S. Mallios
Kathleen E. Moffitt
Sasan Rahmatian
Peter Simis
Rafael Solis
Tomasz R. Wielicki

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Craig School of Business who are working toward the Bachelor of Science in Business Administration must, in addition to the university's General Education requirements, demonstrate computer competency, complete a seven-course group of pre-business courses, six or seven courses of upper-division core, 21 to 24 units in an area of specialization or option, and an integrative course requirement.

Computer literacy and computer software competency are considered essential to success in the program, which is heavily oriented in the use of technology. The pre-business courses include material considered essential for further study in business. The upper-division core courses 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.

Demonstration of computer competency. Complete IS 52 and 52L or equivalent courses with a grade of *C* or better or achieve a passing score on the CSB computer competency waiver examination. See "computer competency waiver exam" at *http://www.craig.csufresno.edu/Student_Info/USS/.*

	Units
Pre-Business requirements	**16***
ACCT 4A, 4B; BA 18; DS 71, 73; ECON 40 or AGEC 1; ECON 50; (See *Pre-Business Policy,* page 215.)	
Upper-division core requirements	**24**
DS 123; FIN 120; IS 130; MGT 110 or 104-106, MGT 124; MKTG 100 or 100S	
Information Systems Option	**21**
IS 51, 158**, 162, 166** .. (12)	
Select 9 units from the following courses: IS 106, 140, 150, 151, 156T, 164, 168, 174, 181, 182, 183, 184, 189T, 190, 195; MGT 126 or any other approved upper-division IS courses .....(9)	
General Education requirements	**51**
Grade Requirement A grade of *C* or better must be earned for each course used to satisfy the requirements for the major.	
Upper-division writing skills requirement	**3-4**
Business majors must select either BA 105W or ENGL 160W (See *Writing Requirements*, page 215.) *Note:* the Upper-Division Writing Exam is not an option for business administration majors.	
Integrative course requirement	**3**
IS 187**	
Elective and remaining degree requirements	**1-2**
Total	**120**

* This total indicates that 6 units for DS 71 and ECON 50 are being used to satisfy the General Education requirement of 51 units.

** This is a three-semester sequence of classes that cannot be taken concurrently or out of order.

Requirements for Certificate Programs

Prior to entering either of these programs, applicants will need to demonstrate that they have completed at least 6 units of elementary accounting and are conversant in computer concepts (equivalent to IS 52 and 52L at a minimum.) Applicants must also fill out the appropriate form in the ISDS Department office prior to entering either certificate program. Approval of the certificate program coordinator or the department chair is required.

Eligibility. Applicants for either certificate will need to meet one of the following criteria:

- Have a bachelor's degree in any field from an accredited institution
- Have an associate of arts degree from a two-year accredited college and a minimum of two years of business experience
- Have a major in business (except IS) at an accredited four-year institution of higher education.

Note: Students majoring in IS (or an equivalent program) are ***not*** eligible for these certificates.

Certificate in Business Information Systems

	Units
Required Courses	**12**
IS 150, 158, 162, 166	
Elective Course	**3**
Select a minimum of 3 units from the following: IS 51, 106, 140, 151, 156T, 164, 168, 181, 182, 183, 184, 190, 195	

Certificate in Network Administration

Students must have a background in IS and a strong interest in computer network environment and be eligible to enroll into the Craig School of Business internship program.

	Units
Required Courses	**9**
IS 162, 181, 182	
Elective Courses	**6**
Select a minimum of 6 units from the following: IS 51, 106, 140, 151, 156T, 164, 168, 183, 184, 190	

COURSES

Decision Sciences (DS)

DS 71. Quantitative Analysis (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.

DS 71L. Quantitative Analysis Lab (1)
Prerequisite: concurrent enrollment in DS 71. DS 71L is not required for DS 71. Extends instruction in DS 71, providing three hours of additional support per week. One-on-one tutoring. Small group and technology-enhanced instruction relating to DS 71 curriculum. ***CR/NC*** grading only. (Does not apply to major.)

DS 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.

DS 73L. Statistical Analysis I Lab (1)
Prerequisite: concurrent enrollment in DS 73. DS 73L is not required for DS 73. Extends instruction in DS 73, providing three hours of additional support per week. One-on-one tutoring. Small group and technology-enhanced instruction relating to DS 73 curriculum. ***CR/NC*** grading only. (Does not apply to major.)

DS 123. Statistical Analysis II (3)
Prerequisites: DS 71, 73; IS 52, 52L. 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)

DS 123L. Statistical Analysis II Lab (1)
Prerequisite: concurrent enrollment in DS 123. DS 123L is not required for DS 123. Extends instruction in DS 123, providing three hours of additional support per week. One-on-one tutoring. Small group and technology-enhanced instruction relating to DS 123 curriculum. ***CR/NC*** grading only. (Does not apply to major.)

DS 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.

DS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

DS 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.

DS 200 Series Courses
Graduate courses are listed under *Business — Graduate Program.*

Information Systems (IS)

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)

IS 1B. Office Applications — Spreadsheet (1)
See IS 1A.

IS 1C. Office Applications — Database (1)
See IS 1A.

IS 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)

IS 51. Programming Fundamentals (3)
Prerequisite: IS 52 and 52L 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)

IS 52. Computer Concepts (2)
Introduction of computer hardware and software systems, impact of computers on society, ethical issues, and application of computer technology in many career fields. No credit if taken after IS 50. (Formerly IS 50)

IS 52L. Computer Concepts Lab (1)
Hands-on study of office productivity software to include elements of word processing, electronic spreadsheets, database, and presentation software. Modules may differ by major. Some sections use self-paced computer-based training. No credit if taken after IS 50. ***CR/NC*** grading only. (2 lab hours) (Formerly IS 50)

IS 106. Intermediate Web Site Design (3)
Prerequisites: IS 52 and 52L. Theory and practice of Web site design and authoring (HTML). Web page usability, graphic design optimization concepts, and the basics of CGI, Java, and Javascript; introduction to Internet architecture concepts and protocols. (2 lecture, 2 lab hours) (Formerly IS 156T)

IS 130. Management Information Systems (3)
Prerequisites: IS 52 and 52L or demonstration of computer literacy; upper-division standing; BA 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)

IS 140. Geographic Information Systems (GIS) for Business (3)
Prerequisites: solid computer skills. Application of geographic information systems to solution of business problems. Study of GIS concepts, software, management, ethical issues, and cases using local data and problems. (2 lecture, 2 lab hours) (Formerly IS 156T)

IS 150. End-User Computing (3)
Prerequisites: IS 51, 52, 52L. 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)

IS 151. Advanced Applications Software — Microcomputers (3)
Prerequisites: IS 51; either IS 150 or 158 is also a prerequisite and may be taken concurrently with IS 151. 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)

IS 156T. Topics in Emerging Information Technologies (3; max total 6 if no topic repeated)
Prerequisites: IS 52, 52L. 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)

IS 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)

IS 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.

IS 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.

IS 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) (Formerly IS 161 through Spring 1999)

IS 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.

IS 174. Decision, Knowledge, and Intelligent Systems (3)
Prerequisite: IS 130. Overview of the basic topics in decision support systems. Methodological foundation for integration of quantitative and expert knowledge with the computer for improving the decision-making process. Integrating databases, DSS models, business analysis, and systems. (2 lecture, 2 lab hours) (Formerly IS 188)

IS 181. Computer Networks Management (3)
Prerequisites: IS 52, 52L, 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)

IS 182. Advanced Network Design and Management (3)
Prerequisites: IS 181. Design and management of advanced business telecommunications network components and services. Conceptual foundations and direct hands-on experience in designing, installing, and managing the relevant equipment, software, and services. (2 lecture, 2 lab hours) (Formerly IS 156T)

IS 183. Advanced Web Site Design and Management (3)
Prerequisites: IS 106. Web site design and authoring. E-commerce implications and Web site management. Includes Internet and Intranet strategies significant to businesses with hands-on exploration of Web development, project management, user interface design, interactivity design, and information design. (2 lecture, 2 lab hours) (Formerly IS 156T)

IS 184. Advanced Database (3)
Prerequisites: IS 158, 166. Not open to pre-business or undeclared majors. Advanced study of database systems. Possible topics include advanced database theory, database administration, physical design and implementation, query processing and optimization, transaction management, recover, security, and other advanced topics. (2 lecture, 2 lab hours) (Formerly IS 156T)

IS 187. IS Practicum (3)
Prerequisites: IS 158, 166; senior standing. Integration and application of IS skills and knowledge across business functional areas. Students learn to deliver practical and strategic solutions in an integrative organizational environment. Students work in groups as consultants to solve real business problems. Course incorporates ethical considerations into decision-making. Students undergo competitive review and evaluation. (2 lecture, 2 lab hours) (Formerly IS 175)

IS 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.

IS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

IS 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.

IS 200 Series Courses
Graduate courses are listed under *Business — Graduate Program.*

Management

The Craig School of Business

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Nancy K. Tillman, *Department Administrative Assistant*
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http://www.craig.csufresno.edu/Departments/MGT/MGT.htm

B.S. in Business Administration
Options:
- Entrepreneurship
- Human Resource Management
- Management

Minor in Entrepreneurship
See page 216

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 comprises 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*
Timothy M. Stearns, *Coleman Foundation Chair in Entrepreneurial Studies*
Diana L. Gilbertson
Robert C. Hill
Dewey E. Johnson
Mark J. Keppler
Jahanguir M. Moghaddam
Julie B. Olson-Buchanan
Joseph J. Penbera
Rudolph J. Sanchez
James M. Schmidtke
Jia Wang

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Craig School of Business who are working toward the Bachelor of Science in Business Administration must, in addition to the university's General Education requirements, demonstrate computer competency, complete a seven-course group of pre-business courses, six or seven courses of upper-division core, 22 to 24 units in an area of specialization or option, and an integrative course requirement.

Computer literacy and computer software competency are considered essential to success in the program, which is heavily oriented in the use of technology. The pre-business courses include material considered essential for further study in business. The upper-division core courses 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.

Demonstration of computer competency. Complete IS 52 and 52L or equivalent courses with a grade of *C* or better or achieve a passing score on the CSB computer competency waiver examination. See "computer competency waiver exam" at *http://www.craig.csufresno.edu/Student_Info/USS/.*

	Units
Pre-Business requirements	**16***
ACCT 4A, 4B; BA 18; DS 71, 73; ECON 40 or AGEC 1; ECON 50; (See *Pre-Business Policy*, page 215.)	
Upper-division core requirements	**24**
DS 123; FIN 120; IS 130; MGT 110 or 104-106, MGT 124; MKTG 100 or 100S	
Option requirements	**23-27**
The department offers three options as part of the Business Administration major: Entrepreneurship, Human Resource Management, and Management.	
General Education requirements	**51**
Grade Requirement A grade of *C* or better must be earned for each course used to satisfy the requirements for the major.	
Upper-division writing skills requirement	**3-4**
Business majors must select either BA 105W or ENGL 160W (See *Writing Requirements*, page 215.) *Note:* the Upper-Division Writing Exam is not an option for business administration majors.	
Integrative course requirement	**3**
MGT 187	
Electives	**0**
See individual option requirements.	
Total	**120-125**

*This total indicates that 6 units for DS 71 and ECON 50 are being used to satisfy the General Education requirement of 51 units.

Options

The three options available to students are outlined in the copy that follows. The completion of General Education requirements, pre-business requirements, upper-division business core, upper-division writing skills requirement, and the 23-24 units as required by the options, total the 120-122 units required for the Bachelor of Science in Business Administration.

Entrepreneurship Option	*Units*
ENTR 81, 153, 155, 157	**12**
Select four upper-division courses approved by the option coordinator	**12**
Total	**24**

Human Resource Management Option	*Units*
HRM 150, 152, 153, 154, 157, 159	**18**
Select two courses from the following: AAIS 136, 144, 146; ANTH 120; BA 156; ECON 150, 152; HS 143, 145, 168B; IE 111; HRM 189T, 190, 195; MGT 60, 126, 127, 189T; PLSI 185 and PSYCH 144, 149, 156, and 176	**5-9**
Total	**23-27**

Management Option	*Units*
Select one of the following tracks:	
• *Organizational Leadership Track*	*(23-24)*
MGT 127, 180, 182S; HRM 150	(12)
and four courses selected from ENTR 81, 153, 155, 157; HRM 152, 153, 154, 157, 190; MGT 126, 127, 131, 133, 152, 158, 189T, 190, 195; MKTG 90; approved by the option coordinator	(11-12)
• *Production/Logistics Management Track*	*(22-24)*
MGT 126, 180, 195; MKTG 114	(13)
and three courses selected from MKTG 90, 126; MGT 152, 158; FIN 123; ACCT 132; HRM 150	(9-11)
• *Special Management Applications Track*	*(23-24)*
MGT 127, 180, 182S	(9)
and 8-9 units selected from ENTR 81, 153, 155, 157; HRM 152, 153, 154, 157, 190; MGT 126, 127, 131, 133, 152, 158, 189T, 190, 195; MKTG 90	(8-9)
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	**23-24**

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.

For successful completion of a certificate, you must receive a grade of *C* or better in each course.

Certificate in Entrepreneurship — *Units*

Required courses **12**
ENTR 81, 153; MGT 110

Elective courses **6**
ENTR 155, 157; MKTG 134; FIN 131 or courses approved by certificate program coordinator or department chair

Total **18**

Certificate in Organizational Management — *Units*

Required Courses **12**
MGT 110 (or MGT 104 and 106), 127, 182S

Elective courses **3-4**
ENTR 81; HRM 150; MGT 124, 126, 133, 180, 189T or courses approved by certificate program coordinator or department chair

Total **15-16**

Certificate in Human Resource Management — *Units*

Required Courses **12**
HRM 150, 153, 154, and 157

Elective courses **3**
HRM 152, 159; MGT 106 or courses approved by certificate program coordinator or department chair

Total **15**

COURSES

Entrepreneurship (ENTR)

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 81)

ENTR 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)

ENTR 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 155)

ENTR 157. New Venture Laboratory (3)
Prerequisite: ENTR 155. 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 157)

ENTR 189T. Topics in Entrepreneurship (1-3; max total 9 if no topic repeated)
Studies in entrepreneurship, business plan writing, and problems in small business management.

ENTR 190. Independent Study (1-3; max total 6 if no topic repeated)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

ENTR 195. Internship (3; max total 6)
Prerequisites: 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. Prior department approval is required for course substitutions. Only one internship may count toward option requirements. *CR/NC* grading only.

Human Resource Management (HRM)

HRM 150. Administration of Personnel (3)
Prerequisites: MGT 104 and 106 or 110, and BA 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.

HRM 152. Labor Relations and Collective Bargaining (3)
Prerequisites: HRM 150 and BA 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.

HRM 153. The Staffing of Organizations (3)
Prerequisites: HRM 150 and BA 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.

HRM 154. Compensation Administration (3)
Prerequisite: HRM 150 and BA 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.

HRM 157. Legal Aspects of Human Resource Management (3)
Prerequisites: HRM 150 and BA 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.

HRM 159. Seminar in Human Resource Management (3)
Prerequisites: last-semester senior status; HRM 150, BA 105W or ENGL 160W, and completion of at least three of the following classes: HRM 152, 153, 154, 157. Integration of human resource management knowledge. Case analysis and discussion. Students will be required to take the PHR certification exam and to independently pay a mandatory test fee.

HRM 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.

HRM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

HRM 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.

HRM 200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Management (MGT)

MGT 40T. Entrepreneurial Training Program (1)
Year-long workshops that allow students to study, evaluate, and create business plans. Completion of course requires culminat-

ing presentation of business plan before a panel of judges.

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)

MGT 104. Administrative Principles of Management (3)
Prerequisite: BA 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.

MGT 106. Behavioral Principles of Management (3)
Prerequisite: BA 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.

MGT 110. Administration and Organizational Behavior (6)
Prerequisite: BA 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.

MGT 124. Production/Operations Management (4)
Prerequisites: DS 123 (may be taken concurrently); BA 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.

MGT 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.

MGT 127. Contemporary Leadership (3)
Prerequisites: MGT 104 and 106 or 110 and BA 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.

MGT 131. International Management (3)
Prerequisites: MGT 104 and 106, or 110. 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.

MGT 133. Managing Nonprofit Organizations (3)
Prerequisites: MGT 104 and 106, or 110. 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.

MGT 152. E-Business Enabled Supply Chain Management (3)
Prerequisites: MGT 124 or MKTG 90. Supply chain dynamics, interrelationships, and evolution; e-sourcing and e-procurement; supply chain logistics management; intra/inter enterprise optimization; collaborative material and distribution requirements, planning, and control; global considerations; computer/Internet applications of supply chain management.

MGT 158. Project Management (3)
Phases of the project life-cycle; basic tools and techniques for planning, scheduling, and control of projects; project organizations; project roles; techniques for building effective project teams; risk management; information technology and e-business projects; computer/Internet applications of project management.

MGT 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.

MGT 180. Seminar in Management Theory and Organization Design (3)
Prerequisites: MGT 104 and 106 or 110 and BA 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.

MGT 182S. Seminar in Applied Management Techniques (3)
Prerequisites: MGT 104 and 106 or 110 and BA 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. Experiential exercises, personal reflection, case analyses, and a community service learning experience will be utilized to enhance the application of course theory. (Formerly MGT 182)

MGT 187. Seminar in Strategic Management (3)
Prerequisites: last-semester senior, completion of CSB core requirements and BA 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.

MGT 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.

MGT 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

MGT 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.

MGT 200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Marketing and E-Business

The Craig School of Business

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B.S. in Business Administration
Options:
- E-Business
- Marketing

Certificate in E-Business

Certificate in Mass Communication and Journalism

Certificate in Marketing

Marketing and E-Business

The Department of Marketing and E-Business offers two options within the Bachelor of Science in the Business Administration degree program: marketing and e-business. In addition, three certificates are offered: e-business, marketing, and mass communications and journalism. The mission of the department is to provide undergraduates and graduate students with the knowledge and professional skills to enable them to enter and succeed in a marketing career, and to make a positive contribution to both their profession and community. In addition, the department administers the interdisciplinary option in e-business utilizing courses in marketing, management, finance, business law, and information systems. Emphasis is on excellent teaching through practical application and the integration of current technology. The department is dedicated to providing students with opportunities for personal growth and professional development in a continually improving educational environment.

The Marketing Option

Marketing is the process by which organizations define and select target markets, design products and services, set prices, determine distribution channels, develop promotions, and design after-sale customer service. When all of these elements are correctly mixed, the firm is able to build long term relationships with its customers. Building on marketing theories and concepts, marketing students study the basics of marketing information systems. They also learn about exchanging relationships, personal communication, market segmentation, Internet marketing, and strategic planning. In addition, students can explore special interest areas such as promotion, retailing, international marketing, services marketing, sales management, distribution management, and buyer behavior. Particular emphasis is placed on marketing applications through service-learning experiences, hands-on projects with local companies, and semester long internships. Marketing is an exciting, fast-paced, dynamic field that offers career opportunities in e-marketing, marketing research, product design, retail and wholesale management, distribution, sales, sales management, purchasing, advertising and public relations, and marketing management. These exciting careers stimulate personal growth, challenge your creativity and imagination, and appeal to a variety of interests.

The E-Business Option

The widespread dissemination of information technology and the proliferation of electronic commerce among businesses and consumers coupled with the increasing use of the Internet have created a whole new way of doing business for organizations large and small. The Internet is transforming business relationships between customers and suppliers and changing the competitive dynamics of the marketplace. The overall purpose of this highly interdisciplinary option is to provide a cohesive educational program that emphasizes how information and technology are incorporated into almost every business process in an organization. The option facilitates students' understanding of the new ways of doing business in the digital economy. Applications in marketing, finance, supply chain management, law, and information systems are emphasized. This option is appropriate for those who plan to seek managerial positions with e-business enabled firms including retailers, manufacturers, high-tech firms, management consulting firms, financial markets, and service providers.

Faculty

The faculty of the Department of Marketing and E-Business bring together individuals who have studied and pursued business careers and teaching throughout the world. Case studies, experiential exercises, business and community service projects, guest speakers, seminar discussions, and internships are just a few of the ways in which instructors provide students with practical applications in business. The combination of faculty expertise, teaching skills, research activities, and applied experience assures the student of receiving a quality education in marketing.

Donald N. Stengel, *Chair*
Douglas A. Cords
Reza Motameni
Beng S. Ong
William E. Rice

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Craig School of Business who are working toward the Bachelor of Science in Business Administration must, in addition to the university's General Education requirements, demonstrate computer competency, complete a seven-course group of pre-business courses, six or seven courses of upper-division core, 22 to 24 units in an area of specialization or option, and an integrative course requirement.

Computer literacy and computer software competency are considered essential to success in the program, which is heavily oriented in the use of technology. The pre-business courses include material considered essential for further study in business. The upper-division core courses 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.

Demonstration of computer competency. Complete IS 52 and 52L or equivalent courses with a grade of ***C*** or better or achieve a passing score on the CSB computer competency waiver examination. See "computer competency waiver exam" at *http://www.craig.csufresno.edu/Student_Info/USS/.*

	Units
Pre-Business requirements	**16***
ACCT 4A, 4B; BA 18; DS 71, 73; ECON 40 or AGEC 1; ECON 50; (See *Pre-Business Policy,* page 215.)	

Upper-division core requirements 24
DS 123; FIN 120; IS 130; MGT 110 or 104-106, MGT 124; MKTG 100 or 100S

Option requirements 23-24
The department offers two options as part of the Business Administration major: Marketing and E-Business

General Education requirements..... 51

Grade Requirement
A grade of *C* or better must be earned for each course used to satisfy the requirements for the major.

Upper-division writing skills requirement.....3-4
Business majors must select either BA 105W or ENGL 160W (See *Writing Requirements*, page 215.)
Note: the Upper-Division Writing Exam is not an option for business administration majors.

Integrative course requirement 3-4
See individual option requirements

Total..... 120-123

*This total indicates that 6 units for DS 71 and ECON 50 are being used to satisfy the General Education requirement of 51 units.

Options

The two options available to students are outlined in the copy that follows. The completion of the 23-24 units as required by the option, the General Education requirements, special course requirements, and the electives (which may include a minor), total the 120-123 units required for the Bachelor of Science in Business Administration.

Units

Marketing Option
MKTG 101; MKTG 103 ..... (8)
Select 15-16 units from the following: MKTG 90, 110, 114, 126, 130, 132, 134, 136, 140, 144, 150, 153, 189T, 195. A marketing-related course outside the department approved by the department chair may count toward 3-4 units of this requirement. Completion of Certificate in Mass Communication and Journalism may count toward 12 units of this requirement ..... (15-16)
Total..... 23-24

Integrative course requirement 4
MKTG 188

E-Business Option*
MKTG 90; approved Independent Study (190) or Internship (195) ..... (6)
Select 6 courses of the following: IS 106, 158, 162; MKTG 153; FIN 154; BA 163; MGT 152, 158; or courses approved by option coordinator or department chair ..... (18)
Total..... 24

Integrative course requirement 3-4
MKTG 188 or IS 187

Requirement 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, or
2. have a bachelor's degree in any field from an accredited institution, or
3. have an associate of arts from a two-year accredited college and a minimum of two years of business experience.

Units

Certificate in Marketing
MKTG 100 or 100S, 103 8
Select 7-8 units from the following: MKTG 101, 110, 114, 130, 132, 140, 144, 150, 188, or approved 189T 7-8
Total..... 15-16

*Certificate in E-Business**
MKTG 90 3
Select four of the following: IS 106, 162; MGT 152, 158; MKTG 153; FIN 154; BA 163; approved Independent Study (190) or Internship (195); or courses approved by department chair 12
Total..... 15

Certificate in Mass Communication and Journalism (Marketing Option students only)
Select four of the following: MCJ 142, 144, 146, 148, 152, 158
Total..... 12

Certificate in Marketing (Mass Communication and Journalism Option students only)
MKTG 100 or 100S 4
Select two of the following: MKTG 101, 103, 110, 130, 132, 144, 150 8
Total..... 12

COURSES

Marketing (MKTG)

MKTG 90. Introduction to E-Business (3)
E-business foundations; information technology infrastructure; new marketing and business models; financial, legal, and global implications; supply chain and enterprise resource planning. (Formerly MKTG 189T)

MKTG 100 or 100S. Marketing Concepts (4)
Recommended for first semester juniors. Prerequisite or corequisite: BA 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. S sections include a service-learning requirement (*see page 45.*)

MKTG 101. Marketing Information Systems (4)
Recommended early in the Marketing Option. Prerequisite: MKTG 100 or 100S. Examination of the role of marketing research in management decision making, using the Internet as a source of information and as a marketing tool. Also covers the marketing research process, including questionnaire development, surveys, and how to understand and use statistical data analysis.

*As of fall 2004, admissions to the E-Business Option and the Certificate in E-Business have been suspended. Students may no longer declare the E-Business Option. Please contact the department office for more details.

MKTG 103. Personal Communication Tools in Marketing (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.

MKTG 110. Buyer Behavior (4)
Prerequisite: MKTG 100 or 100S. 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)

MKTG 114. Logistics and Marketing Channels (4)
Prerequisite: MKTG 100 or 100S. Analyzes how firms utilize distribution intermediaries to gain a competitive advantage. Examines the management of the physical flow of products and information throughout the entire supply chain, including warehousing, transportation, inventory control, and purchasing. Also considers how intermediaries (e.g. wholesalers, agents, and retailers) combine into alternative marketing channels to permit the firm to reach a variety of target markets.

MKTG 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.

MKTG 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.

MKTG 132. Promotion Practices and Principles (4)
Prerequisite: MKTG 100 or 100S. 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.

MKTG 134. Entrepreneurial Marketing (4)
Prerequisite: MKTG 100 or 100S. 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.

MKTG 136. Sales Force Management (4)
Prerequisite: MKTG 100 or 100S, 103. 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.

MKTG 140. Export and Global Marketing (3)
Prerequisite: MKTG 100 or 100S; (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.

MKTG 144. Services Marketing (4)
Prerequisite: MKTG 100 or 100S or permission of instructor. Service strategies in industries representing 75 percent of the national job market, including telecommunications, healthcare, financial services, fine arts, professional services, distribution, entertainment, and not-for-profit organizations. Emphasis is on the distinctive approach necessary for successful long-term marketing of services. (Formerly MKTG 189T)

MKTG 150. Sports Marketing (3)
Prerequisite: MKTG 100 or 100S. Development and application of marketing strategies in sports and sports-related industries. Focuses on research, segmentation, product development, pricing, sponsorships, consumer behavior, licensing, branding, and promotions in sports venues.

MKTG 153. E-Marketing (3)
Prerequisite: MKTG 100 or 100S or MKTG 90. Use of the Internet as a source of marketing information and as a marketing tool; Internet and database marketing; issues related to designing and promoting an e-business site and attracting customers.

MKTG 188. Strategic Planning in Marketing (4)
Prerequisites: MKTG 101, 103. Last semester senior standing. Integration of marketing with other functional areas of business. Focus is on strategic planning process and procedures leading to development of marketing plans, including financial analysis and budgeting. (Formerly MKTG 188A-B)

MKTG 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.

MKTG 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

MKTG 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. When completing more than one internship for credit, students are required to do so in different sectors (business, government or nonprofit.) Reflective journal, final report, and work station evaluation. ***CR/NC*** grading only.

MKTG 200 Series Courses
Graduate courses are listed under *Business — Graduate Program*.

Military Science

The Craig School of Business

Department of Military Science
LTC Joel B. Manning, *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 Military Science Program, also known as Reserve Officer Training Corps (ROTC), is one of the most dynamic leadership development programs in the world. Our program is a part of a national ROTC program that has historically produced leaders such as Colin Powell, Secretary of State; Earl Graves, Chairman and Publicist, Black Enterprise Magazine; and Henry Cisneros, former President and Chief Operating Officer, Univision Communications, Inc. Our program is founded in both theoretical instruction and practical application of leadership. Students learn a range of skills (such as decision making, time management, communications, and counseling) that prepare them to succeed in both military and civilian settings.

Students who are uncertain about what ROTC is all about and what it can offer may enroll in introductory courses for either one or two units. The courses acquaint the student with ROTC, the Army, and what opportunities are available. The emphasis in the introductory courses is on familiarization in the basics of ROTC and Army life, adventure training, success in college, and learning to be physically fit.

Those students who desire to continue in the program and pursue an opportunity to serve their country as a commissioned officer enroll in a structured curriculum from 12-21 units over a period of two years (see course listings, next page). The emphasis in these courses is on development of leadership skills, decision making skills, written and oral communications skills, time management, and continued physical fitness. Students who enroll in this curriculum are required to attend a nationally run leadership development course at Fort Lewis, Washington. This course is a thirty-two day leadership laboratory in which students apply leadership skills while leading peers through variety of exciting events. Students' travel and accommodations are paid for and students are paid to attend.

Career Opportunities

Upon completion of the military science requirements, you are commissioned as a second lieutenant in the United States Army with pay and benefits yielding about $40,000 a year. Newly assigned officers will serve in one of 18 different career fields such as aviation, engineering, medical service, communications, transportation, 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, the FBI, and the CIA actively seek out former military officers to fill management positions because of the great personal leadership and technical skills, 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 military science course must meet certain requirements. Information on these requirements can be obtained by telephoning or visiting the Army ROTC office on campus, 559.278.2887/278.4810, or in California, 800.660.ROTC.

Financial Assistance

All students who qualify and formally enroll in the Military Science Program earn at least $2,600 a year and can earn in excess of $10,000 during their college careers. Qualified students receive a stipend from $250 to $400 (tax free) each month depending on their academic status ($250 freshman, $300 sophomore, $350 junior, and $400 seniors) during the school year. In addition cadets attending our nationally run leadership development course can earn approximately $700. Students who qualify may elect to join a California National Army Guard or a United States Army Reserve unit as an officer trainee and be paid a minimum of $213 per weekend drill. The Army also has made available two-, three, and four-year scholarships — ***on a competitive basis*** — which pay all tuition, book, and fees in addition to a tax-free stipend each month.

Extracurricular Activities

The Military Science Program 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 leadership reaction courses, rappelling, orienteering, water survival training, marksmanship, map reading, helicopter insertions, and various individual confidence-building exercises. For those who seek additional training, the Military Science Program offers cadets the opportunity to attend a U.S. Army school such as Airborne, Air Assault, and Northern Warfare.

Faculty

LTC Joel B. Manning, *Chair*

Advisers:
Harold Cash
Stuart Jensen
Patrick Johnston
John Terrizzi
Tom Vaverka
Barry Whyte

The faculty members of the Department of Military Science are hand-selected by the Department of the Army based on their proven leadership abilities and record of superb performance. Each instructor has years of experience in teaching and counseling. In addition to post graduate degrees in a variety of disciplines and extensive military professional education, all faculty members bring a unique perspective and a wide range of life experiences to the program. Many have been a part of the making of our nation's recent history. All of the faculty and the staff in the Military Science Department are extremely committed to the welfare, education, and success of the student while at Fresno State and beyond.

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**
MS 50A, 50B, 131, 132, 141, 142, 150A, 150B; HIST 180; KAC 42	
Optional course	**3**
MS 192	
Total	**21-24**

Note: The Military Science Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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 (MS)

MS 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.

MS 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.

MS 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.

MS 11. General Leadership Skills (2)
Basic rope work to include knots and rappelling, basics of orienteering and land navigation, basic marksmanship and military briefings.

MS 12. Basic Leadership and Management (2)
Principles of leadership; principles of resource management; group goal attainment focusing on leader, group, and situational needs.

MS 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.

MS 50A. Freshman Leadership Laboratory (1; max total 2)
Open to freshman Army ROTC students. Practical work to augment classroom instruction. Weekly laboratories plus one field trip each semester. Attendance at all functions is voluntary.

MS 50B. Sophomore Leadership Laboratory (1; max total 2)
Open to sophomore Army ROTC students. Practical work to augment classroom instruction. Weekly laboratories plus one field trip each semester. Attendance at all functions is voluntary.

MS 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.

MS 132. Small Unit Leadership (3)
Prerequisite: MS 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.

MS 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.

MS 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.

MS 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.

MS 150A. Junior Leadership Laboratory (1; max total 2)
Open to junior Army ROTC students. Practical work to augment classroom instruction. Weekly 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.

MS 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.

MS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

MS 192. Directed Reading in Selected Military Topics (3)
Prerequisites: MS 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.

Special Option for Business Administration

Special Option for the Bachelor of Science in Business Administration

The special option for the Bachelor of Science degree in Business Administration provides an opportunity for students who are well grounded in the core areas of study required for the undergraduate degree in Business Administration to individualize a course of study not accommodated by any of the ten standard areas of specialization. The special option is offered for students who want to correlate studies in two or more areas of business and is not intended as a means of bypassing normal graduation requirements.

Students requesting a special option must obtain application forms from the Office of Undergraduate Student Services in the Craig School of Business. On these forms, the student must do the following:

1. Prepare a statement giving their reason for desiring a special option in terms of academic and professional goals and why these goals cannot be met through any of the standard options in business.
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 Undergraduate Student Services, as well as from a faculty adviser, all department chairs in the business areas from which the option courses are drawn.

Students must submit the foregoing material to the Office of the Dean of the Craig School of Business for final approval.

Bachelor of Science Degree Requirements

Business Administration Major

All students in the Craig School of Business who are working toward the Bachelor of Science in Business Administration must, in addition to the university's General Education requirements, demonstrate computer competency, complete a seven-course group of pre-business courses, six or seven courses of upper-division core, 22 to 24 units in an area of specialization or option, and an integrative course requirement.

Computer literacy and computer software competency are considered essential to success in the program, which is heavily oriented in the use of technology. The pre-business courses include material considered essential for further study in business. The upper-division core courses 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.

Demonstration of computer competency. Complete IS 52 and 52L or equivalent courses with a grade of *C* or better or achieve a passing score on the CSB computer competency waiver examination. See "computer competency waiver exam" at *http://www.craig.csufresno.edu/Student_Info/USS/*

The Craig School of Business

Garo Kalfayan, *Interim Dean*
Robert M. Harper,
Interim Associate Dean
Peters Building, Room 282
559.278.2482
http://www.craig.csufresno.edu

	Units
Pre-Business requirements ACCT 4A, 4B; BA 18; DS 71, 73; ECON 40 or AGEC 1; ECON 50; (See *Pre-Business Policy,* page 215.)	**16***
Upper-division core requirements DS 123; FIN 120; IS 130; MGT 110 or 104-106, MGT 124; MKTG 100 or 100S	**24**
Option requirements Coursework in the specialized area must be approved in advance by a faculty adviser, all department chairs in the business areas from which the option is drawn, and the Office of the Dean of the Craig School of Business.	**23**
General Education requirements	**51**
Grade Requirement A grade of *C* or better must be earned for each course used to satisfy the requirements for the major.	
Upper-division writing skills requirement Business majors must select either BA 105W or ENGL 160W (See *Writing Requirements*, page 215.) *Note:* the Upper-Division Writing Exam is not an option for business administration majors.	**3-4**
Integrative course requirement MGT 187	**3**
Total	**120-121**

*This total indicates that 6 units for DS 71 and ECON 50 are being used to satisfy the General Education requirement of 51 units.

Business — Graduate Programs

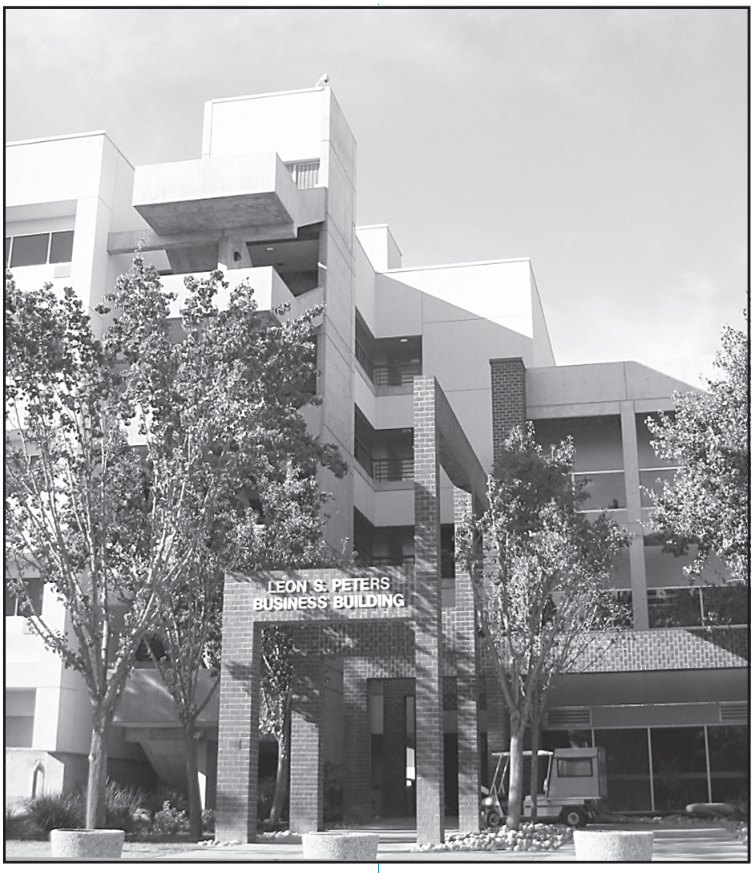
The Craig School of Business

Craig M.B.A. Program
Robert C. Hill, *Director*
Peters Business Building, Room 183
559.278.2107

Master of Business Administration (M.B.A.)

Master of Business Administration for Executives (M.B.A.)

Master of Science in Accountancy (M.S.)



Master of Business Administration

The Master of Business Administration (M.B.A.) degree program is designed to provide professional education for managers of business, agriculture, education, government, and nonprofit organizations. The M.B.A. program offers elective area courses in special areas of professional practice, such as agribusiness, entrepreneurship, finance, general management, human resource management, international business, management information systems, and marketing. We are committed to developing one of the top applied M.B.A. Programs in the nation. As a result, your studies will be complemented by numerous opportunities to solve real world business problems through internships and team consulting projects.

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 into the traditional M.B.A. program:

1. a completed California State University, Fresno Graduate Application form
2. a completed M.B.A. Program Application form
3. complete university or college transcripts
4. official record of the Graduate Management Admission Test (GMAT). The GMAT requirement may be waived based on a recommendation by the school's Graduate Committee to the graduate director that the candidate has substantial work experience (minimum of 10 years) and significant managerial or professional experience (minimum of three years) and has successfully completed and individual interview. The terms "managerial or professional experience" are defined as follows:
   - Managerial Experience: experience in work in which the primary duty includes overall responsibility for an enterprise, subdivision, department, or similar independent or quasi-independent organization. Duties typically includes such things as hiring and firing personnel, planning, discretion and judgment, and organizing and controlling work that substantially affects a major aspect of the organization's operations. Individuals with this level of responsibility usually have titles such as "manager," "director," "vice-present," "president," "Chief information officer," "chief financial officer," "chief operating officer," or "chief executive officer."
   - Professional Experience: experience in work that requires advanced knowledge acquired by a prolonged course of specialized study and involved work that is predominately intellectual and varied in character. Examples would include medical doctors, dentists, psychologists, lawyers, and certified public accountants.

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, business majors from non-Association to Advance Collegiate Schools of Business, International (AACSB) business schools, or students who graduated from an AACSB Program more than seven years ago: 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 18

These courses allow the student to integrate the knowledge from Group I and II and specialize in specific subject areas. Students will select one of the following areas consisting of required and elective courses including MBA 279 and a culminating experience: agribusiness, entrepreneurship, finance, general management, human resource management, international business, management information systems, and marketing.

Areas and Culminating Experience

Select one of the following areas

Agribusiness

Required (9 units): AGBS 210, 250, 279

Electives (3 units): Choose from AGBS 230, 240, or 260

Culminating experience (6 units): Choose MBA 298 (Project) and 3 units from Group III *or* MBA 299 (Thesis) and MBA 216

Entrepreneurship

Required (9 units): MBA 270, 274, 279

Culminating experience (9 units): Choose MBA 298 (Project) and MBA 272, and 273 *or* MBA 299 (Thesis), MBA 216, and MBA 272 or 273 as determined by the M.B.A. director or his/her designee

Finance

Required (6 units): MBA 230 and 279

Electives (6 units): Choose from MBA 231, 232, 233, 234, 289T (with permission from the M.B.A. director)

Culminating experience (6 units): Choose MBA 298 (Project) and 3 units from Group III *or* MBA 299 (Thesis) and MBA 216

General Management

Required (3 units): MBA 279

Electives (9 units): Choose from MBA 230, 240, 250, 260, 270, 289T (with permission from the M.B.A. director)

Culminating experience (6 units): Choose MBA 298 (Project) and 3 units from Group III *or* MBA 299 (Thesis) and MBA 216

Human Resource Management

Required (12 units): MBA 240, 242, 243, 279

Culminating experience (6 units): Choose MBA 298 (Project) and 3 units from MBA 244, 245, 246, 247 *or* MBA 299 (Thesis) and MBA 216

International Business

Required (3 units): MBA 279

Electives (9 units): Choose from AGBS 240; MBA 231, 251, 261, 289T (with permission from the M.B.A. director)

Culminating experience (6 units): Choose MBA 298 (Project) and 3 units from Group III *or* MBA 299 (Thesis) and MBA 216

Management Information Systems

Required (3 units): MBA 279

Electives (9 units): Choose from MBA 250, 251, 252, 253, 289T (with permission from the M.B.A. director)

Culminating experience (6 units): Choose MBA 298 (Project) and 3 units from Group III *or* MBA 299 (Thesis) and MBA 216

Marketing Management

Required (3 units): MBA 279

Electives (9 units): Choose MBA 260, 261, 262, 263, 264, 289T (with permission from the M.B.A. director)

Culminating experience (6 units): Choose MBA 298 (Project) and 3 units from Group III *or* MBA 299 (Thesis) and MBA 216

Total 36

Note: The university's graduate-level writing proficiency requirement is fulfilled by passing the writing component of MBA 210.

M.B.A. Program for Executives. The on-campus M.B.A. program for executives is administered by the Craig M.B.A. program in the Craig School of Business and is an alternative path for the Master's in Business Administration. The program is one of about 150 in the Untied States designed especially to meet the needs of mid-career executives and the only one in Central California that is accredited by the Association to Advance Collegiate Schools of Business (AACSB). Students in the program are required to have a minimum of ten years of work experience and three years of significant managerial or professional experience to ensure a wealth of practical knowledge is brought to the classrooms' discussions.

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master's degree as set forth by the university's Division of Graduate Studies, students must complete the 36-unit program by taking predetermined courses in a predetermined pattern over a 17-month period. **No transfer courses and no substitute classes are accepted.**

To be considered, candidates must have the following:

1. A minimum of 10 years of business experience, at least three years of which involves significant managerial or professional responsibility
2. A completed application form, with the applicant's sponsor's signature
3. A minimum GPA of 2.5 in the last 60 units of education
4. A bachelor's degree (official undergraduate transcripts)
5. A current resume and a cover letter stating why the applicant is interested in this program
6. A personal statement that includes a statement of job responsibilities
7. Two letters of recommendation (one from a senior member of the sponsoring organization)
8. Recommendation of leadership potential by a panel of distinguished faculty
9. A ***nonrefundable*** application fee of $55 made payable to California State University, Fresno.

Students accepted for the on-campus M.B.A. program for executives are fully matriculated in the university and meet all university requirements as established by the Division of Graduate Studies. (Please see the *Division of Graduate Studies* section of the university's *General Catalog* for detailed information on admissions, advancement, and graduation requirements.) For the convenience of students, however, courses are scheduled in a modular fashion on Fridays and Saturdays rather than the traditional semester time frame. The fee structure is also unique to the program and

unrelated to the usual California State University, Fresno fee schedule. Students should contact the Craig M.B.A. office or review the M.B.A. program Web site at *http://www.craig.csufresno.edu/mba* for a program description, admission requirements, courses, calendar/class schedules, and fee summary.

The official program for all students in any one cycle, or cohort, is identical. (All students are in the "General Management" elective area.) Advancement to candidacy requires passing the writing requirement component of MBA 210 and at least 9 units with at least a 3.0 grade point average.

Master of Science in Accountancy

The Master of Science program in Accountancy is designed to prepare graduates for success in the professional field of accountancy. Goals include the preparation and qualification of graduates for professional certification in the field, as well as preparation of graduates for success in their careers well after achieving certification, to enable graduates to become leaders in the profession. The program provides a curriculum that completes the coverage of the content material for the Uniform Certified Public Accountant (CPA) exam. Further, the program provides students with an opportunity to earn a Master of Science in Accountancy while meeting the additional educational requirements of 150 units for the preferred pathway of California's CPA licensure requirements. The M.S. in Accountancy program also enhances preparation for other professional certifications such as that for a Certified Management Accountant (CMA). The program provides a high quality educational experience promoting the development of requisite skills and tools for success in the profession well after certification.

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 accountants. Applicants must submit the following to be considered for admission:

1. a completed California State University Graduate Application Form, online through CSU Mentor (*www.csumentor.edu*),
2. a completed M.S. in Accountancy program application form,
3. complete university or college transcripts,
4. official record of the Graduate Management Admission Test (GMAT), and
5. a description of work experience.

Admission to the graduate program in accountancy is based upon the evaluation of a student's capacity to successfully complete master's level work. Multiple criteria are used to assess an applicant's qualifications including coursework completed, grades, test scores, and personal statement. While many applicants meet the minimum admission requirements for the university, a limited number of positions are available, and some applicants meeting minimum admission requirements may not be offered admission.

To attain classified standing at the time of admission, an applicant must have received within the last seven years a bachelor's degree with an emphasis in accounting from an Association to Advance Collegiate Schools of Business (AACSB) business school. Applicants who do not meet the requirements above may be admitted to conditionally classified standing in order to complete the following prerequisites :

Pre-M.S. in Accountancy Business Courses: The following five M.B.A. Group I courses are required of non-business majors, business majors from non-AACSB business schools, or students who graduated from an AACSB Program more than seven years ago: MBA 200, 201, 203, 204, and 205. Some or all of Group I requirements may be waived on the basis of evaluation of previous coursework or equivalent knowledge.

Pre-M.S. in Accountancy Accounting Courses: The following four accounting courses are required of nonaccountancy majors (i.e., students without a bachelor's degree with an emphasis in accounting), accountancy majors from non-AACSB business schools, or accountancy majors who graduated from an AACSB program more than seven years ago: ACCT 120A, 120B, 132, and 162. Some or all of these courses may be waived on the basis of evaluation of previous coursework or equivalent knowledge.

Approved coursework up to a maximum of 10 units of the 30 units required for the M.S. 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 and have earned a minimum grade point average of 3.0 in all coursework taken toward the M.S. in Accountancy.

Graduate Level Writing Competence California State University, Fresno requires that students have graduate level writing abilities before being advanced to candidacy for the M.S. in Accountancy. The Graduate Writing Skills requirement for the M.S. in Accountancy, program is met by passing a designated writing component from one of the four core MSA courses. Please see the program's Graduate Writing Requirement Policy for details on designating a writing component from a core MSA course and for more information.

(See also *Graduate Studies.*)

Master of Science Degree Requirements

Accountancy Major

The Master of Science requires a minimum of 30 units after the completion of the baccalaureate degree according to the criteria below. Undergraduate courses used toward fully classified status may not be used toward the master's degree.

	Units
Core MSA courses	**16**
MSA 220, 222, 224, 226	
Select MBA courses	**6**
Two courses from MBA Group II or III, excluding MBA 213 and MBA 215	
Approved electives	**8**
Culminating experience (Comprehensive Exam)	**0**
Total	**30**

GRADUATE COURSES

(See *Catalog Numbering System.*)

Master of Business Administration (MBA)

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.

MBA 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.

MBA 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)

MBA 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.

MBA 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.

MBA 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.

MBA 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.

MBA 211. Management Information Systems (3)
Prerequisites: MBA 200 and 201. Management and technical aspects of computer-based information systems. Emphasis is on issues for non-IS managers in the areas of inter- and intra-organizational systems; system development, acquisition, and implementation; software, hardware, and data resource management and control.

MBA 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.

MBA 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.

MBA 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.

MBA 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.

MBA 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.

MBA 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)

MBA 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.

MBA 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.

MBA 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.

MBA 232. Seminar in Investments and Portfolio Management (3)
Advancement analysis of equity and fixed-income securities and mutual funds; operation of financial markets and investment environments; contemporary theories and techniques of security selection and management available to the institutional portfolio manager; and portfolio performance evaluations. Lectures and cases.

MBA 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.

MBA 234. Seminar in Options, Futures, and Other Derivatives (3)
Introduction to the use and pricing of derivative assets such as options, futures, swaps, and option-like features embedded in corporate securities. It covers mathematical concepts underlying derivative markets and contracts and basic pricing models. The use of derivatives for speculative purposes, hedging purposes, and arbitrage will be discussed. Lecture and cases. (Formerly MBA 289T)

MBA 240. Managing Human Capital — Applications of Human Resource Management Theory to Practice (3)
Analysis of theories and application of the major human resource management functions that affect managerial decisions. Particular emphasis on strategy, program evaluation, legal issues, employee and labor relations, and managing human resources in a global environment. Lecture and cases.

MBA 242. Seminar in Human Resource Planning, Recruitment, and Selection (3)
Prerequisite: MBA 240. Analysis of theories/techniques for "getting the right people into the right jobs at the right time." Specifically, recruiting, selecting, and placing employees to meet strategic goals , while developing/maintaining a diverse workforce, addressing legal issues, and staffing in an evolving environment. Lecture and cases.

MBA 243. Seminar in Training, Compensation, and Performance Appraisal (3)
Prerequisite: MBA 240. Analysis of the behavioral, social, legal, and economic issues involved in designing, administering , and evaluating effective orientation and training programs, employee compensation programs, and employee performance management systems to maintain a qualified and motivated workforce. Lecture and cases.

MBA 244. Seminar in Applications of Technology in Human Resource Management (1-2; max total 3 if no topic repeated)
Analysis of the use and implications of technology in human resource management. Topics include human resource information systems, employee monitoring and telecommuting.

MBA 245. Seminar in Negotiation and Conflict Resolution Topics (1-2; max total 3 if no topic repeated)
Analysis of resolving conflicts in the workplace. Addresses the behavior of individuals, groups, and organizations in the context of organizational conflict. Topics include negotiation, dispute resolution systems in the workplace, and employee relations.

MBA 246. Seminar in Workforce Issues (1-2; max total 3 if no topic repeated)
Analysis of special topics as they relate to the current workforce such as empowered work teams, virtual teams, changing demographics, and the human resource professional acting as a change agent.

MBA 247. The Context of Human Resource Management (1-2; max total 3 if no topic repeated)
Analysis of current human resource management trends, including workplace safety, ergonomics/workplace design, and genetic testing.

MBA 250. Seminar in End User Computing (3)
Prerequisite or concurrent MBA 211. Use of database and geographic information systems in the analysis and solution of business problems; management of end-user computing; innovative application of cutting-edge technologies.

MBA 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.

MBA 252. Seminar in Information Systems Management (3)
Prerequisite: MBA 211. Study of information systems management from the viewpoint of the chief information officer. Study of the strategic and innovative use of technology and the managerial, political, legal, ethical, financial, and behavioral issues involved in managing the IS function.

MBA 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.

MBA 260. Seminar in Market Research and Analysis (3)
Prerequisite: MBA 214. Traditional as well as hi-tech research methodology. Research project management from conception of research ideas and design to data analyses and presentation of findings. Blending art and science of research, qualitative and statistical interpretations, and leveraging the information in decision-making. (Formerly BUS 240)

MBA 261. Seminar in Global Marketing and Logistics (3)
Prerequisite: MBA 214. Analysis of problems of product design, channel structure, promotion, and inter-organization cooperation and control in international marketing. Negotiation, bargaining, and contracting across national boundaries. Special emphasis on the importance of logistics in generating customer satisfaction in both domestic and international markets.

MBA 262. Strategic Market Planning (3)
Prerequisite: MBA 214 or permission of instructor. Strategic market planning and decision making in both start-up and existing businesses. Emphasis on detailed planning, clear strategy articulation, and good marketing plan preparation. Actual consulting projects and/or case analysis.

MBA 263. Seminar in "X" Marketing (3)
Prerequisites: MBA 214. With approval of instructor, students explore a current hot topic in marketing and prepare a major investigative paper and presentation for professional critique. Example topics include relationship marketing, e-marketing, societal marketing, green marketing, nonprofit marketing, and database marketing.

MBA 264. E-Marketing (3)
Prerequisite: MBA 214. Examines the impact of the Internet on marketing processes and the marketing mix. Emphasis on the Internet as a content, communication, and distribution resource. Role of customer service, fulfillment, and customer relationship management in achieving long run customer satisfaction.

MBA 270. Seminar in Business Ventures (3)
Overview of the entrepreneurial process beginning with the initial idea through start-up, growth, and harvesting the business. Using the business plan as a primary learning vehicle, students learn to manage all elements of a business in the entrepreneurial context. Course is team taught.

MBA 272. Seminar in New Venture Management (3)
Prerequisite: MBA 270 or permission of professor. Study of the management and growth of a new firm. Skill and knowledge building through case analysis, interaction with community entrepreneurs, and readings. Students are encouraged to do an internship with an entrepreneurial firm while enrolled in the course. Course is team taught.

MBA 273. New Venture Creation (3)
Prerequisite: MBA 270, MBA 272, or permission of instructor. Through team projects emphasizing real world experience, this course covers the process by which business ideas are developed, screened, and tested. Topics include business idea generation, techniques for screening ideas, the development of product and business concepts, prototype development, and feasibility analysis. This course is team taught.

MBA 274. New Venture Launch (3)
Prerequisite: MBA 270, 272, and 273, or permission of instructor. Through team projects emphasizing real world experience and hands-on instruction, this course provides an understanding of the process of starting-up, growing, and harvesting a new business. Case analysis, and a heavy emphasis on practical exercises. This course is team taught.

MBA 279. 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.

MBA 289T. Seminar in Business Topics (1-3; max total 3 if no topic repeated)
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.

MBA 290. Independent Study (1-3; max total 6)
Prerequisite: advanced to candidacy; permission of director and instructor. Approved for ***RP*** grading.

MBA 292. Readings in Business (2-3; max total 3; not repeatable for credit)
Prerequisite: Advanced to Candidacy; permission of director. Approved for ***RP*** grading.

MBA 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 ***RP*** grading.

MBA 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 **RP** grading.

Note: Group III AGBS prefix courses under the Agribusiness Specialization elective area are listed under *Graduate Courses* within the Department of Agricultural Economics.

Master of Science in Accountancy (MSA)

MSA 220. Advanced Cost/Managerial Accounting (4)
Covers advanced and emerging topics in cost/managerial accounting, including accounting for quality, performance evaluation, transfer pricing, advanced variance analysis, Just-in-Time, Backflush costing, cost accounting history, capital budgeting, and the measurement of the cost capacity. (Formerly ACCT189T)

MSA 222. Advanced Financial Accounting (4)
Covers advanced financial accounting topics with an in-depth study of principles, procedures, and reporting requirements of consolidated financial accounting and partnerships. (Formerly ACCT 167)

MSA 224. Professional and Legal Responsibilities (4)
Covers advanced legal concepts and topics relevant to professional accountants, including agency, contracts, debtor-creditor relationships, government regulation of business, uniform commercial code, and real property.

MSA 226. Professional Research and Accounting Theory (4)
Covers accounting theory and the components of authoritative sources for tax, accounting, and audit rules and regulations; examination of a variety of issues and topics focusing on the authoritative sources to determine and apply relevant codes, rules, and regulations.

MSA 290. Independent Study (1-4; max total 4)
Prerequisite: advanced to candidacy; permission of director and instructor. Approved for ***RP*** grading.

IN-SERVICE COURSES

(See *Catalog Numbering System.*)

Business (BUS)

BUS 367. CPA Review (2-4)

BUS 380T. Topics in Business (1-3; may be repeated if no topic repeated)

BUS 381. Instructional Procedures in Vocational Business Education (2-3)

BUS 385. Bridging the Gap (2-4)

BUS 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.

BUS 398. Business Internship (1-6; max total 6)
Designed for graduate students who need or desire supervised work experience. ***CR/NC*** grading only.

The Kremen School of Education and Human Development

Education Building, Room 210
Paul L. Beare, *Dean,* 559.278.0210

The Mission of the School

The Kremen School of Education and Human Development's mission is the recruitment and development of ethically informed leaders for classroom teaching, education administration, counseling, and higher education. This NCATE-accredited unit fosters the candidate dispositions of collaboration, valuing diversity, critical thinking, ethical judgments, reflection, and life-long learning. Our mission is realized through a framework of teaching, scholarship, and services that addresses regional, state, national, and international perspectives.

The Kremen School of Education and Human Development (KSOEHD) prepares highly competent educators and human development specialists, while providing professional support and leadership to the 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 includes clinical areas and computer and microteaching laboratories.

KSOEHD 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 KSOEHD theme, "Leadership for Diverse Communities," places considerable emphasis on an educator who can function effectively as a leader in a culturally and linguistically diverse society.

The Kremen School of Education and Human Development includes the departments of Counseling, Special Education, and Rehabilitation; Curriculum and Instruction; Educational Research and Administration; and Literacy and Early Education. The Liberal Studies Program, the Doctorate in Educational Leadership, the Center for Educational Research and Services, and the Instructional Technology and Resource Center are also integral parts of the school.

Education

Vision

The Kremen School of Education and Human Development is a center for academic excellence and collaboration in the fields of education and counseling. Graduates will be community leaders who advocate high standards and democratic values with attention to professional ethics and diversity. Integration of educational technology and performance assessment is essential to all programs.

Goals

The specific goals of the KSOEHD are as follows:

- to recruit qualified candidates who are representative of the diversity in our community into the fields of education and counseling, beginning with students in the public schools;
- to be at the cutting edge of the application of best practice models and educational technology;
- to prepare education professionals who have a command of content knowledge and pedagogy and who continuously strive to improve their practice;
- to be a national demonstration site for exemplary practices in education and counseling;
- to support the lifelong development of practicing professionals with services and programs, including the doctorate;
- to prepare professionals who are committed to leadership and service in diverse community settings;
- to integrate performance assessment as a key evaluation technique in each of our programs;
- to sustain a university work environment that is exemplary in its humanity, ethics, effectiveness, and intellectual vitality;
- to secure, through advancement efforts, the supplemental funding needed to provide the margin of excellence for programs and special initiatives; and
- to be the higher education partner of choice for the public schools and other relevant institutions of the five counties we serve in the Central Valley.

Kremen School of Education and Human Development

Paul L. Beare, *Dean*
Education Building, Room 210
559.278.0210

Colleen Torgerson,
Interim Associate Dean
Education Building, Room 205
559.278.0205

Sharon Brown-Welty, *CSU Director*
Phillip Young, *UC Director*
Joint Doctoral Program
in Educational Leadership
Education Building, Room 310
559.278.0427

Kremen School of Education
and Human Development

Paul L. Beare, *Dean*
Education Building, Room 210
559.278.0201
http://education.csufresno.edu/

Katie Zenovich, *Director of Advancement*
Education Building, Room 205
559.278.0373

Education Student Services Center:
Advising Center
Education Building, Room 100
559.278.0300

Education Student Services Center:
Credentialing and Graduate Programs
Education Building, Room 151
559.278.0299

Program Contacts

Liberal Studies Major
Robert Monke, *Coordinator*
559.278.0300

Multiple Subject Credential Program (Elementary Education)
Colleen Torgerson, *Coordinator*
559.278.0313

Single Subject Credential Program (Secondary Education)
Jolyne Daughtry, *Coordinator*
559.278.0300

Education Specialist Credential Program (Special Education)
Dana Caseau, *Coordinator*
559.278.0388

CalStateTEACH
Walter Ullrich, *Regional Director*
559.278.0234

Professional Field Experiences
Janine Quisenberry, *Director*
559.278.0257

Teacher Internship Program
Don Beauregard, *Director*
559.278.0232

Graduate Programs
Susan Tracz, *Coordinator*
559.278.0347

Early Childhood Education
Shareen Abramson, *Coordinator*
559.278.0225

Education Administration
Donald Wise, *Coordinator*
559.278.0350

Counselor Education
Christopher Lucey, *Coordinator*
559.278.0407

Pupil Personnel Credential
Sarah Lam, *Coordinator*
559.278.0355

Rehabilitation Counseling
Charles Arokiasamy, *Coordinator*
559.278.0340

Reading/Language Arts
Glenn DeVoogd, *Coordinator*
559.278.0279

Special Programs and Services

Advancement. In its effort to provide the highest quality programs and services to the educational community in the Central Valley, the KSOEHD 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 Katie Zenovich, director of advancement, in ED 205. For more information, call 559.278.0249.

The Bonner Center for Character Education and Citizenship promotes character education in the Central Valley by conducting and supporting related research, and by providing nationally recognized speakers for the Fresno area, forums on character education and professional ethics, materials and professional resources for review, and coordination for a variety of character award programs. For more information, call Jacques Benninga at 559.278.0253.

The mission of the **Central Valley Educational Leadership Institute (CVELI)** is to assist school districts throughout the Central Valley to create cultures of high achievement for students. CVELI will accomplish this mission through conferences, training, coaching, and consulting activities in collaboration with the 150 school districts served by the Kremen School of Education and Human Development (KSOEHD). For more information, call Walt Buster at 559.278.0350.

Fresno Family Counseling Center is a collaborative project with Fresno Unified School District providing superior training in marriage and family therapy. FFCC teaches time-tested therapeutic techniques and applies the most recent congruent innovative approaches. FUSD children and families benefit from this high quality, intensely supervised, low-cost professional counseling services. For more information, call Juan Garcia at 559.278.0287.

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 Joyce M. Huggins Early Childhood Education Center provides training, demonstration, and research in early learning and early childhood programs through supervised classroom experiences for children from low-income student families and others.
- The Clinic provides laboratory space in support of instruction in counseling, reading, and special education programs. Services include individual and group testing, special reading instruction, work skills assessment, and parenting instruction.

For more information, call Shareen Abramson at 559.278.0225.

The **Instructional Technology and Resource Center (INTERESC)** provides support to faculty in the utilization and integration of technology in the curriculum. INTERESC staff provide assistance in design of instructional materials such as slides, videotapes, multimedia, and other media formats; consult with students, faculty, and staff in selecting computer hardware, software, and audiovisual equipment; manage KSOEHD computerized classrooms and laboratories; and provides technical support for the Human Development Center. It houses the NASA Educator Resource Center (ERC) to help teachers learn about and use NASA's educational resources. For more information about INTERESC and the NASA ERC, contact Director Otto E. Benavides at 559.278.0379.

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. For more information, call the Interprofessional Collaboration Program office at 559.278.0246.

Mini Corps prepares migrant students to work in bilingual classrooms and to obtain teaching credentials. It provides counseling, advising, and financial support for migrant students interested in becoming teachers. For more information. contact Directors Lilly Lomeli or Jose Mejia at 559.278.0360.

Reading Recovery is an early intervention for first-grade children who struggle with learning to read. California State University, Fresno serves as a training center for Reading Recovery in central California and for the western United States. For more information, contact Judith Chibante Neal, Director, at 559.278.0224.

The **Teaching Fellows Scholarship** supports talented students committed to education as a long-term profession. Teaching Fellows work in schools throughout their college career, gaining an average of 3000 hours of pre-service, on the job experience. They attend professional development seminars monthly through the Saturday Academy, and have a variety of extracurricular activities to broaden their college experience, build leadership, and gain an understanding of education in a greater social context. For more information, call Anne Murphy at 559.278.0256.

Turning Points Academy brings 140 students from McLane High School in Fresno Unified School District to the University for one semester of full-time study. The purpose of the program is to encourage these students to complete a college preparatory curriculum and attend college. While attending the academy, students earn both high school and college credits. For more information, call Jolyne Daughtry at 559.278.0307.

Department of Counseling, Special Education, and Rehabilitation

Charles Arokiasamy, *Chair*
Education Building, Room 350
559.278.0340
http://education.csufresno.edu/cser/

Career Opportunities

- Counselor
- School Counselor
- Higher Education Counselor
- Rehabilitation Counselor
- Teacher – Special Education

M.S. in Counseling
Options:
- Marriage and Family Therapy
- Counseling and Student Services

M.S. in Rehabilitation Counseling

M.A. in Special Education

Pupil Personnel Services Credential

Education Specialist Credential

Criminal Justice Counseling Specialist Certificate of Advanced Study

Department Description

The Department of Counseling, Special Education, and Rehabilitation 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.

Faculty

Charles Arokiasamy, Department Chair and Coordinator of Rehabilitation Counseling, 559.278.0340

Christopher Lucey, Coordinator of Counselor Education, 559.278.0407

Sarah Lam, Coordinator of Pupil Personnel Services/Student Services, 559.278.0355

Dana Caseau, Coordinator of Special Education, 559.278.0288

Charles Degeneffe
Sari H. Dworkin
Deanna Evans
Juan C. Garcia
Ronald S. Kiyuna
Craig Miner
Robert H. Monke
Claire Sham Choy
Hong Shen
H. Dan Smith
Colleen Torgerson
Albert Valencia
Shari P. Willis

Department of Curriculum and Instruction

Joan C. Henderson-Sparks, *Chair*
Education Building, Room 250
559.278.0240
http://education.csufresno.edu/ci/

Career Opportunities

- Teacher – Elementary
- Teacher – Secondary

Basic Teaching Credentials
- Multiple Subject (Elementary Teacher)
- Multiple Subject, BCLAD
- Multiple Subject Internship Program
- CalStateTEACH
- Single Subject (Secondary Teacher)
- Single Subject Internship Program

M.A. in Education
Option: Curriculum and Instruction

Certificate in Advanced Study in Educational Technology

Department Description

The mission of the Department of Curriculum and Instruction 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.

Supervised field experiences along with instructional planning and evaluation techniques provide the foundation for productive and responsive teaching.

CalStateTEACH. See *Teaching – Elementary School – CalStateTEACH* for program description.

Faculty

Joan C. Henderson-Sparks, *Chair*

Bernard Arenz, *Coordinator*
of Curriculum and Instruction
Graduate Program and Pre-Teacher
Assessment Center, 559.278.0037

Jacques S. Benninga, *Director*
of Bonner Center for Character Education and Citizenship, 559.278.0253

Jody Daughtry, *Coordinator*
of Single Subject Credential Program,
559.278.0300

Colleen Torgerson, *Coordinator*
of Multiple Subject Credential Program,
559.278.0313

Janine Quisenberry, *Director*
of Professional Field Experience,
559.278.0257

Jane Moosoolian, *Coordinator*
of Option IV Postbaccalaureate Re-entry
Program, 559.278.0306

Donald Beauregard, *Coordinator*
Teacher Internship Program,
559.278.0232

Bernice A. Stone, *Coordinator*
of Block A/Elementary and Middle
School Program, 559.278.0265

Walter Ullrich, *Regional Director*
of CalStateTEACH,
559.278.0234 or 559.278.0258

Mario L.M. Baca
Jean L. Behrend
Otto E. Benavides
Kathryn Biacindo
Denise Blum
Carol F. Bohlin
Roy M. Bohlin
Robin T. Chiero
Susan B. Harris
Pamela Lane-Garon
Jose Lomeli
James E. Marshall
Susana C. Mata
Lisa M. Nyberg
Frank Padilla
Joe Parks
Vera Pettus
Kien T. Pham
David Tanner
Melanie R. Wenrick

Department of Educational Research and Administration

Donald Wise, *Chair*
Education Building, Room 350
559.278.0350
http://education.csufresno.edu/eraf/

Career Opportunities

- Principal
- Superintendent
- Higher Education Administration

M.A. in Education
Option: Administration and Supervision

Administrative Credentials
- Administrative Internship Credential
- Preliminary Administrative Services
- Professional Administrative Services

Department Description

The Department of Educational Research and Administration offers a master's degree and credentials for school administrators. It offers research courses in support of all graduate programs in the Kremen School of Education and Human Development.

Faculty

Donald Wise, *Chair*
and Coordinator of Education Administration Credential Programs

Sharon Brown-Welty
Walter Buster
Donald G. Coleman
Alfredo Cuellar
Richard Firpo
Susan M. Tracz
Ronald P. Unruh

Department of Literacy and Early Education

Judith Chibante Neal, *Chair*
Education Building, Room 250
559.278.0250
http://education.csufresno.edu/lee/

Career Opportunities

- Teacher – Reading Specialist
- Teacher – Bilingual
- Early Childhood Specialist
- Curriculum Specialist

Credentials
- Early Childhood Education
- Multiple Subject, BCLAD
- Early Childhood Specialist
- Reading/Language Arts Specialist

M.A. in Education
Options:
- Early Childhood Education
- Reading/Language Arts

Department Description

The 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 (K-3), bilingual/cross-cultural education (K-12), and reading/language arts (K-12) in both public and private educational settings.

Faculty

Judith Chibante Neal, *Chair*

Shareen Abramson, *Coordinator*
of Early Childhood Education Specialist
Credential and ECE Master's Programs,
559.278.0226

Susan Macy, *Coordinator*
of Early Childhood Education Emphasis
(Option II), 559.278.0267

Glenn DeVoogd, *Coordinator*
of Reading/Language Arts Specialist
Credential and Master's Programs,
559.278.0279

Laura Alamillo
Rosie Arenas
Armando Baltra
Imelda Basurto
Elaine Garan
Richard Osterberg
Marilyn R. Shelton
Terry Sylvester
Anthony Vang

LIBERAL STUDIES PROGRAM
Robert Monke, *Coordinator*
Janell Tatsumura, *Adviser*
Pat Christensen, *Adviser*
Jane Moosoolian, *Adviser*
Esther Rodriguez, *Adviser*
Education Building, Room 100
559.278.0300
http://education.csufresno.edu/liberal_studies/

Program Description

The 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, passing the appropriate sections of the California Basic Educational Skills Test (CBEST), and meeting other credential program requirements can proceed directly into the Multiple Subject Credential Program. 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.

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 100.

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 show that the area population and the number of school-aged children continue to grow. This pattern of growth, along with anticipated attrition from the teaching profession will require additional 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) or Education Specialist Credential (special education) must earn a high GPA and meet other prerequisite requirements as conditions for admission to a teacher education program. For additional information regarding admission to the credential programs, contact the Education Student Services Center in ED 100 or visit the KSOEHD Web site at *http://education.csufresno.edu*.

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 one of the following preliminary credential programs:

- Multiple Subject Credential
- Multiple Subject Credential with BCLAD emphasis
- Multiple Subject Credential - emphasis in Early Childhood Education
- Education Specialist Credential (Special Education)

Program Advisement

Liberal studies majors are expected to attend a group orientation describing the program before their first semester on campus. Dates for orientation sessions are posted at *http://www.FresnoStateDogDays.com*. 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 Education Student Services Center at 559.278.0300. 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 Report) will be completed 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 Blended Program

The Blended Program blends or integrates three elements — the General Education Program, the courses required in the Liberal Studies major, and the courses required for teacher preparation — which can result in a B.A. in Liberal Studies and a preliminary Multiple Subject Teaching Credential or Educational Specialist Credential. All liberal studies students complete the same program of 92-98 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 or Educational Specialist Credential, most of the credential courses may be included in a carefully planned four-year program.

Attention: The Liberal Studies Degree 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 Education Student Services Center of the Kremen School of Education and Human Development for current program requirements.

Those intending to complete the Bachelor's degree and not teach, should enroll only in the courses listed in the Major Requirements below. However, they will have units remaining for elective or double major work. Those intending to teach should enroll in both the Major Requirements and each of the courses listed under the credential requirements.

	Units
Major Requirements	**100-104**
General Education Areas	*53-54*
[A1] COMM 3, 7, or 8	(3)
[A2] ENGL 1	(3)
[A3] Any certified A3 course	(3)
[B1] NSCI 1A	(4)
[B2] BIOL 10	(3)
[B4] MATH 10A	(3)
[C1] ART 1; ARTH 10 and 11; MUSIC 9, 74; or DRAMA 62	(3)
[C2] LING 11	(3)
[C1 or C2] ENGL 20, 30; HUM 10, 11	(3-4)
[D1] HIST 11	(3)
[D2] PLSI 2	(3)
[D3] GEOG 4	(3)
[E] CFS 39	(3)
[IB] NSCI 115	(3)
[IC] ENGL 101W, 102W, 103W, or 104W	(4)
[ID] SSCI 110	(3)
[MI] SSCI 180	(3)
Other Major Requirements	*38*
CSCI 5, 7, or IS 52, 52L	(3)
KINES 152	(3)
HIST 20	(3)
MATH 10B	(3)
CFS 133S, PSYCH 169, SPED 120, or RLS 125	(3)
ART 179, MUSIC 153, DRAMA 136, 137, or DANCE 160	(3)
IAS 108	(2)
CI 100	(3)
COMM 114	(3)
ECON 165	(3)
LING 132	(3)
MATH 100	(3)
GEOL 9	(3)
Concentrations (select one)	*9-12*
Consult your adviser for a list of concentrations.	
Electives and remaining degree requirements	**20-24**
Electives may be used to satisfy Multiple Subject or Education Specialist Credential Program requirements as listed in the copy that follows.	
Total	**124**

Advising Note
Liberal studies majors are urged to fulfill the upper-division writing skills requirement during the first semester of their junior year. See *Degree Requirements.*

Multiple Subject Credential

Professional Preparation

- The California Subject Examinations for Teachers (CSET) – Multiple Subjects must be passed prior to final student teaching (EHD 170 or SPED 175/176).
- **Courses**
  CI 171, 175, 176; EHD 170, 174, 178; LEE 172, 173, 177; SPED 179

Total **34**

Note: Consult adviser for sequencing of courses.

Education Specialist Credential

Professional Preparation

- **Courses**
  CI 130, 150; EHD 110; LEE 146, 149; SPED 120, 125, 135, 145, 155, 175/176

Total **39**

For additional information regarding admission to the Multiple Subject or Education Specialist Credential programs, contact the Education Student Services Center in ED 100 or visit the KSOEHD Web site at *http://education.csufresno.edu.*

Liberal Studies majors who plan to obtain a credential should attend an orientation by signing up in the Education Student Services Center in ED 100 during the semester prior to entering the credential program.

TEACHING – Basic Teaching Credentials

A basic teaching credential may be earned in conjunction with a baccalaureate degree or following completion of a fifth-year course of study. The three basic teaching credentials are Multiple Subject Credential (Elementary School), Single Subject Credential (Secondary School), and Preliminary Level I Education Specialist Credential (Special Education).

Admission Information

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:

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 and letters of recommendation.

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.

Scholarship. The candidate shall have attained a grade point average of at least 2.67 in all baccalaureate and postbaccalaureate coursework or a grade point average of at least 2.75 in the last 60 semester units attempted.

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 apply for 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.

University Admissions

University deadlines for admission applications normally are set during the semester prior to anticipated program enrollment. (Deadlines for fall and spring enrollment must be monitored.) 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, call 559.278.2261, or look online at *http://www.csumentor.edu*.

TEACHING –
Elementary School

Preliminary Multiple Subject Credential (2042)

Colleen Torgerson, *Coordinator*
Pat Christensen, *Adviser*
Jane Moosoolian, *Adviser*
Esther Rodriguez, *Adviser*
Janell Tatsumura, *Adviser*

Education Building, Room 100

559.278.0300

http://education.csufresno.edu/ci/cims_cred.htm

Program Description

Holders of Multiple Subject Credentials are authorized to teach in self-contained classrooms commonly found in elementary schools. The Kremen School of Education and Human Development offers the Preliminary Multiple Subject Credential (2042). The cooperating departments are primarily responsible for developing subject matter competency and a baccalaureate degree in liberal studies. The Kremen School of Education and Human Development offers required coursework in professional education.

Career Opportunities

Teacher in an elementary setting (K-6) or self-contained (K-8) classroom.

A Preliminary Multiple Subject Credential (2042) provides authorization to teach in a self-contained classroom for a maximum time period of five years.

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. Complete an application to the credential program. Required application timelines and materials and forms are available online at http://education.csufresno.edu. All admission requirements (forms, documents, prerequisites) must be completed prior to enrollment in professional program courses.
4. Provide evidence of having taken all three sections of the California Basic Educational Skills Test (CBEST) and of having passed the reading and writing sections of the test by presenting a CBEST Permanent Verification card.
5. Provide evidence of having taken and passed all three sections of the California Subject Examinations for Teachers (CSET) – Multiple Subject (exception for Blended students.)
6. Verify application for admission to California State University, Fresno with a Receipt of Application or admission with a current enrollment transcript.
7. Provide a complete set of transcripts of all prior college/university coursework. Transcripts are used to verify cumulative GPA of 2.67 or 2.75 on the last 60 units.
8. Complete an Admission Interview Form and obtain an interview from a multiple subject credential faculty member. Sign up for interviews in ED 250.
9. Provide the signed Multiple Subject Program Advising Form obtained at orientation.
10. Obtain a medical clearance at the University Health Center or from a private physician.
11. Obtain two letters of recommendation written by instructors, supervisors, or other individuals in a position to recommend for admission into a teacher education program.
12. Obtain appropriate clearance to teach in a public school by presenting a valid California Teaching Credential or applying for a Character and Identification Clearance.

Program Completion Requirements

(University and State Credentialing)

1. Completion of a core of professional education courses and KSOEHD Teacher Performance Assessment (TPA).

Professional Preparation

The courses have been sequenced by phases to provide a cohesive program. Teacher candidates must complete all courses in a phase before moving to the next phase.

Phase 1	*Units*
CI 171	3
LEE 172	3
LEE 173	3
EHD 174	2
Phase 2	
CI 175	3
CI 176	3
LEE 177	3
EHD 178	2
Phase 3	
SPED 179	3
EHD 170	9
Total	**34**

Note: Teacher candidates must earn a GPA of 3.0 with a *C* or better, or a *CR* (Credit), on all professional preparation courses to be recommended for the credential.

2. Demonstration of subject matter competence by passing the California Subject Exam for Teachers (CSET) – Multiple Subjects. Passing scores on the CSET are valid for five (5) years. (All candidates, including Blended)
3. Complete a bachelor's degree from an accredited institution.
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.
5. Pass the Reading Instruction Competence Assessment (RICA).
6. Pass the California Basic Educational Skills Test (CBEST). (All sections)

Requirements for the Preliminary and Professional (clear) Credentials can change, and subject matter tests can be revised. For an update or other information, contact the Education Student Services Center in ED 100 at 559.278.0300.

Time Restrictions. Courses required for preliminary credentials must be completed no more than 10 years prior to credential application. A preliminary credential provides authorization to teach for a maximum of five years. Requirements for completing the Professional (Clear) Multiple Subject Credential will be provided by the employing school district.

Requirements for Admission to Student Teaching

Multiple Subject Credential candidates must qualify for admission to two distinct levels of student teaching: (1) Fieldwork A and B (EHD 174 and 178) and (2) Fieldwork C – Final Student Teaching (EHD 170A and B, or C).

Requirements for Admission to Field Study A (EHD 174)

1. Submit an application form for EHD 174 by the specified deadline.
2. Complete all admissions requirements and receive notification of initial admission to the program.
3. 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.

Requirements for Admission to Field Study C – Final Student Teaching (EHD 170 A, B, C, and D)

1. Submit an EHD 170 application form by deadline.
2. Successfully complete Phase 1 and 2.
3. Demonstrate subject matter competence by successfully passing all three sections of the California Subject Examinations for Teachers (CSET) – Multiple Subjects. (All candidates, including Blended)
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 receive permission to complete the EHD 170 assignment in two semesters must sign up for EHD 170A (5 units) and EHD 170B (5 units). Successful completion of EHD 170A and 170B must include a minimum of one week of full-time student teaching. Successful completion of EHD 170C 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 170 assignment.
7. Provide evidence of passing all sections of the California Basic Educational Skills Test (CBEST) by presenting a CBEST Permanent Verification card.

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.

Preliminary Multiple Subject Credential (2042) Program Options

The following program options offer teacher candidates a variety of routes to obtain a Preliminary Multiple Subject Credential.

General (Option I). Provides professional preparation required for teaching in self-contained educational settings (typically found in the elementary school).

Emphasis in Bilingual Cross-Cultural Language and Academic Development (BCLAD). Prepares teachers to work with English Learner students. BCLAD (Spanish and Hmong) will authorize teachers to provide academic instruction to English Learner students in their primary language. In addition to Liberal Studies concentration classes, the professional preparation courses for BCLAD are as follows:

Hmong	*Units*
• LEE 135	15
Spanish	
• LEE 136	15

For more information, see the BCLAD coordinator.

Emphasis in Early Childhood Education (Option II). Prepares elementary teachers with special expertise and experience in grades K-3. This nationally accredited Early Childhood cohort program emphasizes a developmental knowledge base, professional ethics, and integrated curriculum, and provides field experiences at the preschool, kindergarten, primary, and upper elementary levels. The ECE program is compatible with the Intern, BCLAD, and Blended/Integrated programs. For more information, see the ECE coordinator.

Communicative Disorders (Option III). Designed for students who wish to prepare for specialization in special education as educators of the deaf. For more information about Option III, see the requirements for the Deaf Education and the Special Education Specialist Credential in the Department of Communicative Disorders and Deaf Studies section.

Postbaccalaureate Re-entry Block Program (Option IV). Meets 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 as a cohort and are taught by a team of instructors. It is a daytime program that is based at Lincoln Elementary School (First and Alluvial). Candidates participate in student teaching placements in the Clovis/Fresno/Central Unified School districts. Students in the Option IV Reentry program begin in Summer and complete their preliminary credential in May. There may be changes in the Option IV program. For more information, see the Option IV coordinator.

Block A, Elementary and Middle School Block. Prepares 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). All coursework is offered on the Nelson School campus as a cohort and is taught by a team of four professors and supervisors of student teaching. This block enables students to move through the program as a cohort in

a 12-month period beginning in the summer.

For more information, see the Block A coordinator.

Dual Credential Program, Preliminary Level I Education Specialist Credential Program (Basic Program) and Preliminary Multiple Subject Credential (2042) Program. Teacher candidates may simultaneously work on a Multiple Subject and Education Specialist Credential. Some of the courses are required for both credentials and specialized dual student teaching placements may be used. Students must attend both a Multiple Subject and Special Education orientation. For more information see the Education Specialist Preliminary Level I credential.

CalStateTEACH. CalStateTEACH is an alternative path to a multiple subject teaching credential. CalStateTEACH is designed specifically to serve teachers who hold emergency permits and are either interns/pre-interns or who can volunteer to practice teach in an elementary school (grades K-6). The Kremen School of Education and Human Development houses one of the four regional centers in the state that administers this program.

TEACHING - High School and Middle School

Single Subject Credential (2042)

Jody Daughtry, *Coordinator*
Education Building, Room 100
559.278.0300
http://education.csufresno.edu/ci/ciss_cred.htm

Program Description

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 Kremen School of Education and Human Development offers the Preliminaray Single Subject Credential in cooperation with 18 academic departments. The cooperating departments are responsible for developing subject matter competency; the Kremen School of Education and Human Development is primarily responsible for developing professional education competency.

The Single Subject coordinator 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. Advisers may be contacted through the Kremen School of Education and Human Development's Advising Center.

Career Opportunities

Teacher in a secondary (6-12) or an adult education setting.

Single Subject Majors and Advisers

Agriculture: A. Parham/R. Vaughn
Art: D. Nadaner/P. Fleming
Business: R. Lacy
English: K. Godfrey/J. Hales
English (Theatre Arts): K. Morin
English (ESL): B. Birch
English (Speech): S. Tannenbaum
Foreign Languages (French): D. Ross/R. Kuhn
Foreign Languages (Spanish): J. Amaral
Home Economics: N. Dilbeck
Industrial Technology: D. Austin
Kinesiology: T. Minniear
Mathematics: A. Tuska/R. Amarasinghe
Music: W. March
Science: D. Andrews
Social Science (History): L. Clune

Types of Single Subject Credential (2042)

Students may earn two types of credentials through the Kremen School of Education and Human Development:

- Preliminary Single Subject Credential
- Internship 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. Requirements for completing the Professional (Clear) Single Subject Credential will be provided by the employing school district.

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 taking the California Basic Educational Skills Test (CBEST) and passing the reading and writing sections by presenting a CBEST Permanent Verification card.
4. Complete an application to the credential program. Required application materials and forms are available online at http://education.csufresno.edu. All admission requirements (forms, documents, prerequisites) must be completed prior to enrollment in professional program courses.
5. Verify application for admission to California State University, Fresno with a Receipt of Application or admission with a current enrollment transcript.
6. Provide a complete set of transcripts of all prior college/university coursework. Transcripts are used to verify a cumulative GPA of 2.67 or 2.75 on the last 60 units.
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 or from a private physician.
9. Obtain two recommendation letters 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.

Program Completion Requirements

(University and State Credentialing)

1. Complete a 33-unit core of professional education courses.

Requirements for a Preliminary Single Subject Credential

1. Complete a 33-unit core of professional education courses.

General Core	*Units*
CI 151	3
CI 152	3
CI 159	3
CI 161	3
LEE 154	5
SPED 121	2
EHD 155A	4
EHD 155B	10
Total	**33**

Note: Teacher candidates must earn a GPA of 3.0 with a *C* or better, or a *CR* (Credit), on all professional preparation courses to be recommended for the credential.

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.

b. Receive clearance from the academic adviser that subject matter competency has been met.

3. Complete a bachelor's degree from an accredited institution in a subject matter other than education.

4. Pass the California Basic Educational Skills Test (CBEST).

Requirements for the Preliminary and Professional (clear) Credentials can change, and subject matter tests can be revised. For an update or other information, contact the Education Student Services Center in ED 100 at 559.278.0300.

Time Restrictions. Education courses required for a preliminary credential 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.

Requirements for Admission to Student Teaching

Admission to Initial Student Teaching (EHD 155A). **Authorization to begin student teaching requires that the candidate do the following:**

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 program advising form and have it signed by the academic area adviser and the Single Subject coordinator or Single Subject adviser.
5. Have completed or be enrolled concurrently in CI 151 and CI 152. Be concurrently enrolled in SPED 121 and CI 159.

Requirement for Admission to Final Student Teaching (EHD 155B)

1. Submit an EHD 155B application form by deadline.
2. Demonstrate subject matter competence.
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. Have completed CI 151, CI 152, CI 159, SPED 121, and EHD 155A. Have completed or be concurrently enrolled in LEE 154. Have completed or be concurrently enrolled in CI 161 (depending on policy of the appropriate academic department.)

Note: Students who receive a "No Credit" grade in any student teaching course are required to petition the Admission 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.

TEACHING – Special Education

Preliminary Level I Education Specialist Credential

Options:

- Mild/Moderate Disabilities
- Moderate/Severe Disabilities

Dana Caseau, *Coordinator*
Education Building, Room 350
559.278.0288
http://education.csufresno.edu/cser/sped.html

Program Description

The Education Specialist Credential authorizes the holder to teach students with mild/moderate or moderate/severe disabilities (K-age 22) in public or private school programs, clinics, special schools, resource classrooms, educational programs, residential facilities, hospitals, and other agencies serving persons with special needs. This credential program prepares the teacher candidates through required coursework and fieldwork.

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 experience difficulties imposing structure on learning tasks. They may display delays in intellectual development, specific learning disabilities, and/or serious emotional disturbances. Their behavior may be characterized by underachievement, failure expectancy, and lack of social competence. They may be impulsive, distractible, and inattentive.
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.

3. **Dual Certification Program**. This program leads to the Multiple Subjects Credential and the Preliminary Level I Education Specialist Credential in Mild/Moderate or Moderate/Severe Disabilities. It is designed to prepare preservice multiple subjects and special education teachers to work cooperatively in serving the needs of an increasingly diverse student population. Special advising is required.

Career Opportunities

Teacher of students with disabilities in a variety of settings in collaboration with a variety of other professionals.

Requirements for Initial Admission

Applicants who already possess a Multiple Subject 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 some of the *Admission Requirements* below. Please see an adviser for further clarification.

Admission Requirements

1. Attend an Education Specialist Credential Program orientation meeting.
2. Provide evidence of successful completion of an appropriate pre-program field experience or EHD 50, Introduction to Teaching.
3. Complete an application to the credential program. Required application materials and forms are available online at http://education.csufresno.edu. All admission requirements (forms, documents, prerequisites) must be completed prior to enrollment in professional program courses.
4. Provide evidence of having taken all three sections of the California Basic Educational Skills Test (CBEST) and of having passed the reading and writing sections of the test by presenting a CBEST Permanent Verification card.
5. Provide evidence of having taken and passed all three sections of the California Subject Examinations for Teachers (CSET) – Multiple Subjects. (Exception for Blended students)
6. Verify application for admission to California State University, Fresno with a Receipt of Application or admission with a current enrollment transcript.
7. Provide a complete set of transcripts of all prior college/university coursework. Transcripts are used to verify cumulative GPA of 2.67 or 2.75 on the last 60 units.
8. Complete an Admission Interview Form and obtain an interview from a education specialist credential faculty member.
9. Provide the signed Education Specialist Credential Program Advising Form obtained at orientation.
10. Obtain a medical clearance at the University Health Center or from a private physician.
11. Obtain two Letters of Recommendation written by instructors, supervisors, or other individuals in a position to recommend for admission into a teacher education program.
12. Obtain appropriate clearance to teach in a public school by presenting a valid California Teaching Credential or applying for a Character and Identification Clearance.

Program Completion Requirements

(University and State Credentialing)

	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	
1. Early Childhood	(11)
CI 130ECE; EHD 114; LEE 146, 149	
2. Multiple Subjects	(15)
EHD 110, CI 130, 150, LEE 146, 149	
3. Single Subject	(17)
CI 152; EHD 155A, CI 159, LEE 146, 149	
Practicum	
Mild/Moderate Disabilities	(9)
SPED 175 *or*	
Moderate/Severe Disabilities	(9)
SPED 176	
Total	**32-38**

Dual Certification (TIES)

Program	*Units*
Multiple Subjects Core	**37**
CI 130, 140; CI 121, 125, 150; LEE 146, 149; EHD 110D, 160D	
Special Education Core	**12**
SPED 125, 135, 145, 155	
Total	**49**

Note: Teacher candidates must earn a GPA of 3.0 with a *C* or better, or a *CR* (Credit), on all professional preparation courses to be recommended for the credential.

2. Demonstrate subject matter competence by passing the California Subject Exam for Teachers (CSET) – Multiple Subjects. (All candidates)
3. Complete a bachelor's degree from an accredited institution.
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.
5. Pass the Reading Instruction Competence Assessment (RICA).
6. Pass the California Basic Educational Skills Test (CBEST). (All sections)

Requirements for the Preliminary and Professional (clear) Credentials can change, and subject matter tests can be revised. For an update or other information, contact the Education Student Services Center in ED 100 at 559.278.0300.

Time Restrictions. Courses required for preliminary credentials must be completed no more than 10 years prior to credential application.

Requirements for Admission to Student Teaching

(EHD 110)

1. Submit an application form for EHD 110 by the specified deadline.
2. Maintain a GPA of 3.0 on all professional preparation courses.

Requirements for Admission to Practicum

(SPED 175/176 or EHD 160D)

1. Submit an application form for SPED 175/176 or EHD 160D by the specified deadline.
2. Demonstrate subject matter competence by successfully passing all three sections of the California Subject Examinations for Teachers (CSET) – Multiple Subjects. (All candidates, including Blended)
3. 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.
4. If admitted as an exception with conditions, satisfy all conditions specified.
5. Provide evidence of passing all sections of the California Basic Educational Skills Test (CBEST) by presenting a CBEST Permanent Verification card.

Note: Individuals must complete practicum and fieldwork courses with a grade of *B* or better. Up to 9 units of Preliminary Level I coursework may be applied to the Master of Arts

TEACHING – Internships

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 Preliminary Teaching Credential. Students must possess a bachelor's degree from an accredited institution and meet all criteria for admission to a basic credential program. Candidates who have been successful long-term substitute teachers and holders of an emergency permit 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 Preliminary Teaching Credential.

For further information, please contact the Internship Office at 559.278.0232.

Admission Requirements

Applicants must complete the following:

1. Verify admission to California State University, Fresno with a Notice of Admission or a current enrollment transcript.
2. Verify admission to the Kremen School of Education and Human Development
3. Demonstrate subject matter competence.
4. Pass the California Basic Educational Skills Test (CBEST).
5. Complete a bachelor's degree from an accredited institution.
6. Obtain appropriate clearance to teach in a public school by presenting a valid California Teaching Credential or applying for a Character and Identification Clearance.
7. 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.

Applicants must also 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.

Multiple Subject Teacher in Preparation (TIP) Internship Program Requirements. Contact the Teacher Internship Office, 559.278.0232.

Single Subject Teacher in Preparation (TIP Internship Program Requirements.

Professional Preparation	*Units*
Prerequisites:*	
CI 151**	3
CI 152	3
CI 159	3
EHD 155A	4
SPED 121	2
Semester I: EHD 155B	5
CI 161	3
Semester II: EHD 155B	5
LEE 154	5
Total	**33**

* CI 159, CI 152, and EHD 155A are prerequisites for classroom teaching under an internship credential.

** CI 151 may be taken at any time during the program; however, it is suggested as a prerequisite.

Special Education Teacher in Preparation (TIP) Internship Program Requirements. Contact the Special Education Department Office, 559.278.0340.

Graduate Education Programs

Master's Degrees and Advanced Credentials

Susan Tracz, *Coordinator*
Education Building, Room 447
559.278.0347
http://education.csufresno.edu/

Graduate Education programs in the Kremen School of Education and Human Development are focused on providing leadership in central California's diverse society by preparing education leaders 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.

Master's Degree Programs

The KSOEHD offers four master's degree programs in separate areas of professional emphasis. These degree programs include the following:

1. M.A. in Education, Options:
   - Administration and Supervision.
   - Curriculum and Instruction.
   - Early Childhood Education.
   - Reading/Language Arts.
2. M.A. in Special Education
3. M.S. in Counseling, Options:
   - Marriage and Family Therapy.
   - Counseling and Student Services (specialization in K-12 or higher education).
4. M.S. 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 Education Student 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).

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, Education Specialist, and in some cases Administrative Services.

Specialist Credential Programs offered at California State University, Fresno include the following:

1. **Agriculture**. (See Department of Animal Sciences and Agricultural Education, Adviser for the Agriculture Specialist Credential.)
2. **Early Childhood Education**. (See Coordinator of Early Childhood Education.)
3. **Reading/Language Arts**. (See Coordinator of Reading/Language Arts.)
4. **Professional Level II Education Specialist Credential:**
   - Deaf and Hard of Hearing. (See Department of Communicative Disorders and Deaf Studies, Coordinator of Education Specialist Credential.)
   - Mild/Moderate Disabilities (See Coordinator of Education Specialist Credential.)
   - Moderate/Severe Disabilities (See Coordinator of Education Specialist Credential.)

Services Credential Programs offered at Fresno State include the following:

1. **Administrative**:
   - Preliminary Administrative Services
   - Professional Administrative Services
   - Administrative Services Internship

   (See Coordinator of Education Administration.)
2. **Clinical - Rehabilitative**. (See Department of Communicative Disorders and Deaf Studies, Coordinator of Clinical - Rehabilitative Program.)
3. **Health (School Nurse)**. (See Department of Nursing, Coordinator of School Nurse Services.)
4. **Pupil Personnel** - School Counseling. (See 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).

Graduate Education Program

Admission Requirements. Enrollment in a KSOEHD master's degree or advanced credential program requires that separate applications for admission be completed for the university and the KSOEHD.

Students may not enroll in 200-level courses until they have been admitted to the appropriate program.

University Admission Requirements. Applicants are required to complete the California State University Application for Graduate Admission. 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 online at *http://www.csumentor.edu*.

KSOEHD Admission Requirements

In addition to making application for admission to the university Admissions Office, consult the Education Student and Services Center in ED 15 and read information online at *http://education.csufresno.edu* for the following:

1. Program information.
2. KSOEHD graduate programs admission packet (available online at http://education.csufresno.edu).

All students applying for admission to a master's degree or advanced credential program in the KSOEHD 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 Education Student Services Center, ED 151, by the application closing date. A completed admissions packet will include the following:

1. Verification of application to California State University, Fresno.
2. An application to the KSOEHD 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 (Special Education Programs require a GPA of 3.0).
5. A statement of purpose.
6. Three letters of recommendation.
7. 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.
8. Evidence of receipt of a passing score on the Test of English as a Foreign Language (TOEFL) if an international student. The KSOEHD also retains the option to require international students to obtain additional preparation if English usage skills are judged to be inadequate.
9. 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. or obtaining a passing score on the CBEST.
10. Evidence of any additional requirements unique to each degree and program within the degree. Refer to the specific program information for details.

Advanced Credential Programs Only

11. 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.

Application Deadlines

University Admission Deadlines. University deadlines for graduate admission applications normally are set during the semester prior to anticipated program enrollment. For specific deadlines, applicants need to check online at *http://www.csumentor.edu*, or call 559.278.4073.

KSOEHD Admission Deadlines

All school admission materials required for full admission (classified standing) are to be submitted to the graduate technician in the Education Student Services Center, ED 151. For specific KSOEHD admission deadlines, contact the Education Student Services Center, ED 151, call 559.278.0299, or check the KSOEHD Web site at *http://education.csufresno.edu*. Students submitting all application material within these timelines will receive priority consideration for admission.

Applicants who have not completed all requirements for full admission (classified standing) by the University admission deadline must meet with their program coordinator. For master's degree candidates, no more than 9 units of transfer and/or California State University, Fresno Extension credit may be included in the 30-unit program, or no more than 18 units in the 60-unit program.

Applicants must complete all program application requirements prior to the first semester of enrollment in a specific credential or 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 graduate program reviews the application. 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. Appeals for master's degree applicants are reviewed by program faculty, and appeals for advanced specialist and services credential program applicants are reviewed by the KSOEHD Admissions and Standards Committee. 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. Information regarding this process is obtained from the admissions technician in the Education Student Services Center, ED 151.

Graduate Writing Requirement

In keeping with California State University, Fresno's Graduate Writing Requirement (GWR), all students enrolled in the various master's degree programs must demonstrate competence in graduate-level writing prior to being advanced to candidacy for a master's degree. The Graduate Writing Requirement is designed to determine students' ability to write clearly, logically, analytically, and knowledgeably. Each program designates specific course(s) to meet the Graduate Writing Requirement. Should the student receive a passing grade in the course content but fail to demonstrate adequate writing competence, there is an appeals process. Specific course information can be found in each program's requirements.

Advancement to Candidacy/ Completion of Master's Degree

For information regarding advancement to candidacy and procedures needed to complete a master's degree, contact the Education Services Center in ED 151 or check online at *http://www.csufresno.edu/gradstudies/handbook/forms.html*.

In order to ensure selection of courses that will be acceptable for a master's degree program, candidates should consult with the appropriate program coordinator.

ADVANCED CREDENTIALS

Administrative Services Credentials

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559.278.0350

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 Services Credential.

P-12 Administration. 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 a 9 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.

Grade Requirements. To 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 program academic probation. Upon the receipt of two *NC*s or letter grades of *C* or lower, at any point in the administrative credential program, the student will automatically be disqualified from the program.

Administrative Services Credential and Administrative Internship Credential (Preliminary)

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, Administrative Services Credential and Administrative Internship Credential program applicants must meet the following requirements:

1. Provide verification of advising.
2. Evidence of possession of a valid basic prerequisite credential (Multiple Subject, Single Subject, Education Specialist, or Pupil Personnel Services credentials).
3. Evidence of having passed the California Basic Educational Skills Test (CBEST).

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 CI 285; EAD 261, 262, 263, 267, 268, 269, and 272.
4. Receive a passing score on the California Basic Educational Skills Test (CBEST).
5. Pass the competency exit review.
6. Complete a master's degree.

Administrative Services Credential (Professional)

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 school 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 the following 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 six 2-unit university courses are highly recommended, although students may receive a proficiency waiver.)
   d. Electives to complete 9 units of university didactic courses.

3. Be in a position requiring the Preliminary Administrative Services Credential as verified by the school district.
4. Possess a master's degree.
5. Pass the competency exit review.

Early Childhood Education Specialist Credential

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http://education.csufresno.edu/lee/

Specialist credentials may be earned by holders of Multiple Subject, Single Subject, Education Specialist, or Pupil Personnel Services credentials. The specialist credential represents a year of postbaccalaureate study in an area of teaching specialization.

Admission Requirements. In addition to the admission requirements listed in the Graduate Education Programs section of this catalog, Early Childhood Education Specialist Credential program applicants must meet the following requirements:

1. Verification of advising.
2. Evidence of possession of a basic teaching credential (Multiple Subject, Single Subject, Education Specialist, or Pupil Personnel Services credentials).
3. Evidence of having passed the California Basic Educational Skills Test (CBEST).

Program Requirements

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

Program	*Units*
1. **Course Requirements** Select 15 units with approval of ECE coordinator: LEE 232, 233, 235, 241, 271	15
2. **Electives** are selected from fields including special education, education administration, bilingual education, and other fields as determined in consultation with the ECE faculty adviser	15
3. **Experience.** Two years of successful teaching experience in early childhood education.	
Total	**30**

Courses taken in the Early Childhood Education Specialist Credential Program may be used to satisfy part of the clear credential (fifth year) requirements provided prior approval is obtained from the early childhood education (ECE) 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.

Education Specialist Credential – Professional Level II (Special Education)

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http://education.csufresno.edu/cser/

In the 1990s, state regulations changed the credentialing process for special education teachers making it no longer necessary to first obtain a Single Subject or Multiple Subjects teaching credential before entering the field of special education. The teacher candidate must obtain the Preliminary Level I and within five years receive the Professional Level II Education Specialist Credential.

Career Opportunities

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.

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 with 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.

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. The selected specialization 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. 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 Master of Arts in Special Education.

Admission Requirements. Candidates may complete their application for admission to the Level II credential program toward the conclusion of their Level I credential program.

In addition to the admission requirements listed in the Graduate Education Programs section of this catalog, Professional Level II

Education Specialist Credential program applicants must meet the following requirements:

1. Receipt of the Level I Education Specialist 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.
5. Evidence of having passed the California Basic Educational Skills Test (CBEST).
6. Obtain and submit a current medical clearance at the University Health Center or from a private physician. (**Out-of-state students only**)
7. Submit a valid Certificate of Clearance to participate in public school field placement activities (**Out-of-state students only**)

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.

Program Requirements

Candidates 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. Ninety 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.

Clear courses 6
HS 120 *or* HS 121; CI 225

Total 30
Or equivalent.

Note: Teacher candidates must earn a GPA of 3.0 with a *C* or better, or a *CR* (Credit), on all professional preparation courses to be recommended for the credential.

Pupil Personnel Services (PPS) Credential - School Counseling

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559.278.0355

The Pupil Personnel Services Credential is required to function as a counselor in a public school setting, grades K-12.

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, Pupil Personnel Services Credential program applicants must meet the following requirements:

1. Complete the following prerequisite coursework or their equivalents, earning a letter grade of *C* or better: ERF 153 and COUN 174 or PSYCH 174. Students applying for the PPS Credential program only do not need to complete COUN 176 or PSYCH 166.
2. Provide evidence of having passed the California Basic Educational Skills Test (CBEST)
3. Obtain and submit a current medical clearance at the University Health Center or from a private physician.
4. Submit a valid Certificate of Clearance to participate in public school field placement activities

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 complete the following program requirements:

1. COUN 150, 200, 201, 202, 203, 206, 208, 220, 233, 240, 241, 242, 249 (8 units), CI 285.
2. Complete practicum (with a grade of B or better) and field practice.
3. Pass the competency exit review.

Reading/Language Arts Specialist Credential

Glenn DeVoogd, *Coordinator*
Education Building, Room 267
559.278.0279
http://education.csufresno.edu/lee/

Program Description. Reading and Language Arts graduate courses are designed to help teachers learn how to make curricular decisions about teaching reading and how to meet the needs of students with varying language communication backgrounds. Students pursuing a degree or credential in Reading and Language Arts also learn to inspire other teachers to upgrade the reading/language abilities of students through demonstrations of effective reading strategies. Graduates will be qualified to plan, organize, and develop reading programs for schools.

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, Reading/Language Arts Specialist Credential program applicants must meet the following requirements:

1. Verification of advising.
2. Evidence of possession of a basic teaching credential (Multiple Subject, Single Subject, Education Specialist, or Pupil Personnel Services credentials).
3. Evidence of having passed the California Basic Educational Skills Test (CBEST).

Program Requirements

Under the direction of the Reading Program Coordinator, each student prepares and submits an individually designed program within the following framework:

Program	*Units*
1. **Course Requirements**	
LEE 213, 214, 215, 224, 230, 234, 244, 254, 278	27
2. **Experience:** Completion of two semesters supervised field experience (LEE 230 and 254) and three years of successful teaching experience at any grade level (K-12).	
Total	**27**

CERTIFICATES

Reading/Language Arts Certificate

Glenn DeVoogd, *Coordinator*
Education Building, Room 267
559.278.0279
http://education.csufresno.edu/lee/

Admission Requirements. In addition to the admission requirements listed in the Graduate Education Programs section of this catalog, Reading/Language Arts Specialist Certificate program applicants must possess a basic teaching credential.

Program Requirements

Under the direction of the Reading Program Coordinator, each student prepares and submits an individually designed program within the following framework:

Program	*Units*
LEE 213, 215, 224, 230, 278	15

Certificate courses may also be used to meet part of the requirements for a master's degree.

Victim Services Certificate Program

Joan C. Henderson-Sparks, *Coordinator*
Education Building, Room 250
559.278.0240

The primary goal of the Victim Services Program is to provide experiences, knowledge, and educational 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. Emphasis is directed toward assisting the students in acquiring new perspectives and skills needed for working effectively with different types of victims.

Admission. For admission information, contact the Department of Criminology in McKee Fisk 244 559.278.2305.

Program Requirements

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

	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 (WS 116)	(1)
Rape (WS 108)	(1)
Incest (WS 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 (SWRK 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/WS 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.

Certificate of Advanced Study - Criminal Justice Counseling Specialist

Chris Lucey, *Coordinator*
Education Building, Room 437
559.278.0340

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 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 with approval of a faculty advisor.

Program Requirements

The required certificate courses include CRIM 130, 153, 201, 203, and 281. (***Note***: Counseling students must meet with a Criminology adviser a semester prior to enrolling in CRIM 281.)

Master of Science in Criminology students seeking the Certificate are required to take an equivalent number of counseling courses: COUN 176, 200, 208, 232, and 239 with COUN 174 as a prerequisite. (***Note***: Criminology students must meet with a Counseling adviser a semester prior to enrolling in COUN 239.)

Certificate of Advanced Study - Educational Technology

Roy Bohlin, *Program Adviser*
Education Building, Room 241
559.278.0245

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 do the following:

- 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 that correlate to curriculum objectives
- model the effective use of technology within educational settings
- demonstrate an understanding of the equitable and ethical use of technology
- plan, implement, and evaluate programs that exemplify the effective use of technology to attain curriculum objectives

Up to six units of coursework taken while working on this certificate may be counted as elective units toward a Master of Arts in Education with an option 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. *See the admission requirements listed in the* Graduate Education Programs *section of this catalog.*

Program Requirements

Under the direction of the program adviser, each student prepares and submits an individually designed program within the following framework:

Course Requirements	*Units*
CI 225, 227, and 230	9
Approved Electives	5-6
Total	**14-15**

MASTER'S DEGREE PROGRAMS

M.A. in Education

Option: Administration and Supervision

Donald Wise, *Coordinator*

Education Building, Room 350

559.278.0350

http://education.csufresno.edu/eraf/

Program Description

The Department of Educational Research and Administration offers a program leading to a Master of Arts degree in Education with an option in Administration and Supervision. 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.

Career Opportunities

The degree program provides preparation for several career opportunities, including P-12 administration*, higher education administration**, and other general administration career opportunities or professional positions.

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, M. A. in Education – Administration and Supervision program applicants must provide verification of advisement.

Program Requirements

Prepare and submit an individually designed program within the following framework:

Program Requirements

Core requirements	*Units*
1. Core requirements	**25**
ERF 220, CI 285 or ERF 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, 275, 277, 278T, 279, 281, 283, 284, 287, 288, 290; CI 274, 282, 284, 286, 287; ERF 260, 272, 277, 282, 288	15
2. Electives	**5**
5 units from the above or other approved electives	
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.

*** Students meet the Graduate Writing Requirement by passing the writing component of EAD 261 and 262.

Note: no more than 6 units of coursework taken for ***CR/NC*** only may be applied toward degree requirements.

M.A. in Education

Option: Curriculum and Instruction

Bernard Arenz, *Coordinator*
Education Building, Room 442
559.278.0037

Program Description

The Master of Arts in Education with an option 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. The program enables the student to elect and pursue in-depth study in areas of curriculum and instruction such as educational technology, mathematics education, science education, social science education, or other specializations related to elementary, middle school, and secondary education.

Career Opportunities

- Teacher on Special Assignment
- Mentor Teacher
- Content or Technology Specialist
- Curriculum Developer
- National Board Certified Teacher
- Education Specialist in Business or Community Service

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, program applicants must provide verification of advisement.

Program Requirements

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

	Units
1. Course Requirements	**16**
CI 250*, 275	6
ERF 220*, CI 285 or ERF 288	6
CI 298 or 299	4
2. Electives	**14**
Electives are selected in consultation with a curriculum and instruction faculty adviser. The electives may constitute a broad-based program in curriculum and instruction or represent an in-depth study in a specialty area within the context of curriculum and instruction	
Total	**30**

* CI 250 includes the graduate writing requirement as part of the course.

** ERF 153 or an approved equivalent is a prerequisite for ERF 220.

M.A. in Education

Option: Early Childhood Education

Shareen Abramson, *Coordinator*
Education Building, Room 25
559.278.0225
http://education.csufresno.edu/lee/

Program Description

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.

Career Opportunities

Early childhood education graduate courses are designed to address individual professional development and career goals including the following:

- Kindergarten-Primary Teacher-Leader
- Early Childhood Program Administrator
- Community College Instructor
- Infant/Toddler and Preschool Teacher-Leader
- Early Childhood Curriculum Specialist

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, M. A. in Education – Early Childhood Education program applicants must provide verification of advisement.

Program Requirements

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

	Units
1. Course Requirements	**25**
ERF 220; CI 285 or ERF 288; LEE 235, 241; LEE 298B or 299	16
Select 9 units with approval of ECE coordinator: LEE 171; LEE 232, 233, 271	9
2. Approved Electives	**5**
Total	**30**

* Students meet the Graduate Writing Requirement by passing the writing component of LEE 235. See graduate program coordinator for further information.

** ERF 153 or an approved equivalent is a prerequisite for ERF 220.

M.A. in Education

Option: Reading/Language Arts

Glenn DeVoogd, *Coordinator*

Education Building, Room 267

559.278.0279

http://education.csufresno.edu/lee/

Program Description

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.

Reading and Language Arts graduate courses are designed to help teachers learn how to make curricular decisions about teaching reading and how to meet the needs of students with varying language communication backgrounds. Students pursuing a degree or credential in Reading and Language Arts also learn to inspire other teachers to upgrade the reading/language abilities of students through demonstrations of effective reading strategies.

Career Opportunities

Graduates will be qualified to administer an array of formal and informal diagnostic tests and use a variety of correctional and remedial procedures. They also lead their staff in developing a creative and stimulating environment for growth in reading/language competency.

Reading and Language Arts graduate courses are designed to address individual professional development and career goals including:

- Classroom teachers
- Reading consultants
- Reading resource teachers
- Reading clinicians
- Informed administrators
- Reading coordinators

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, M. A. in Education – Reading/Language Arts program applicants must provide verification of advisement.

Program Requirements

Under the direction of the Reading Program Coordinator, each student prepares and submits an individually designed program within the following framework:

	Units
1. Course Requirements	**22**
ERF 220; CI 285 or ERF 288 and LEE 298A or 299	10
LEE 213, 215, 244, 278	12
2. Approved Electives (See adviser for suggested courses or groupings. The program offers special elective groupings in Integrated Language Arts, Teaching English Language Learners, Diagnostic/Clinic Experiences, and Reading Recovery.)	**8**
Total	**30**

* ERF 153 or an approved equivalent is a prerequisite for ERF 220.

** Students meet the Graduate Writing Requirement by passing the writing component of LEE 278. See graduate program coordinator for further information.

M.A. in Special Education

Dana Caseau, *Coordinator*

Education Building, Room 350

559.278.0340

http://education.csufresno.edu/cser/

Program Description

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.

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.

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 that 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) that 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.

Career Opportunities

Persons completing the Master of Arts in Special Education 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.

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, M. A. in Special Education program applicants must meet the following requirements:

1. Evidence of a minimum GPA of 3.0 on all postbaccalaureate coursework.
2. Complete prerequisite coursework for admission no later than the first semester of 200-level coursework and prior to taking ERF 220 or SPED 233. The following course or its equivalent is a prerequisite: ERF 153. Students must earn a letter grade of C or better. ***Exception***: Applicants who are only enrolled in the Professional Level II Credential program and not in the MA in Special Education are not required to take ERF 153.
3. An interview with the program coordinator and faculty review.

Program Requirements

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

	Units
Core requirements	**22**
9 units of approved postbaccalaureate coursework in special education from the Preliminary Level I Education Specialist Credential Program or equivalent	(9)
ERF 220 and SPED 298 or 299	(7)
SPED 219, 233	(6)
Area of specialization	**6**
Mild/Moderate Disabilities SPED 235 and 237 *Moderate/Severe Disabilities* 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	**33**

*Students meet the Graduate Writing Requirement by passing the writing component of SPED 233. Contact the coordinator of the Special Education Program for more information.

M.S. in Counseling

Options:

- **Marriage and Family Therapy**
- **Counseling and Student Services – Specialization: K-12, Higher Education**

Chris Lucey, *Coordinator*
Education Building, Room 437
559.278.0407

Program Description

The Master of Science in Counseling is a professional degree program designed for persons who desire to practice in the field of counseling. The Master of Science includes two program options: (1) the Option in Marriage and Family Therapy and (2) the Option in Counseling and Student Services.

Career Opportunities

Completion of the M.S. in Counseling with an option in marriage and family therapy (MFT) 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 MFT option 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), upon graduation MFT students are qualified to take the National Certified Counselor Exam, which is used in the professional counselor licensing process in more than 35 states.

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, M. S. in Counseling program applicants must meet the following requirements:

1. Complete the following prerequisite coursework or their equivalents, earning a letter grade of C or better: ERF 153, COUN 174 or PSYCH 174, and COUN 176 or PSYCH 166.
2. Attend an interview.

Option in 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. The degree 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. 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.

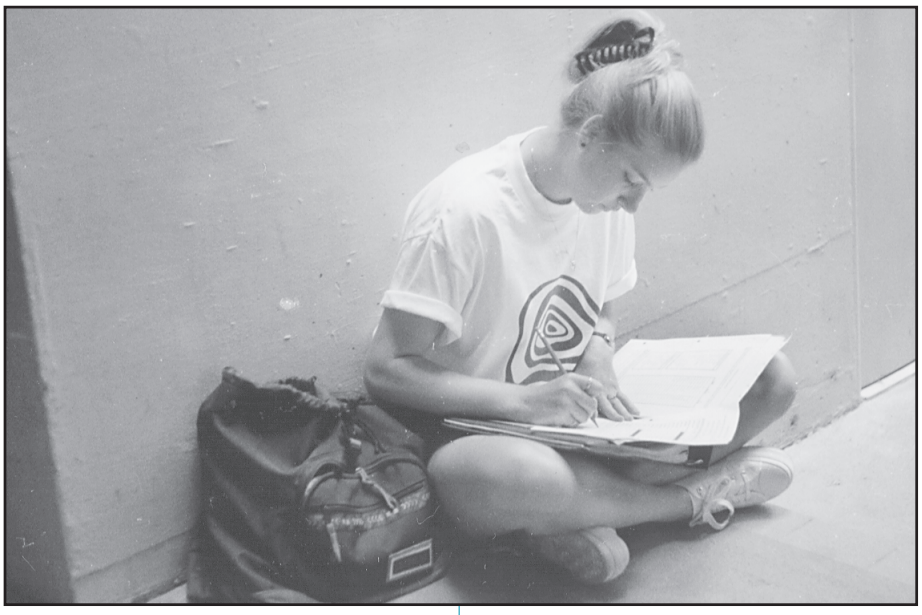
Students seeking licensure should contact the coordinator of counselor education for information regarding licensing. This degree program is designed to meet the requirements of Division 2, Chapter 13, Section 4980.37 of the California Business and Professions Code. The M.F.T. option is accredited by the Council for Accrediation of Counseling and Related Educational Programs (CACREP). Students are qualified to take the National Certified Counselor Exam upon graduation, which is used in the professional counselor licensing process in more than 35 states.

Program Requirements

Under the direction of a graduate adviser, each student develops and submits an individually designed program within the following framework:

	Units
Core requirements	**25**
COUN 200, 201, 202, 203, 206, 208, 220; ERF 220	
Marriage and Family Therapy Option	**28**
COUN 230, 231, 232, 233, 234A, B, C, D, E, 238 (4 units), 239 (6 units)	
Culminating experience	**7**
Choose between (a) 7 units of electives plus comprehensive exam, (b) COUN 298 Project [3 units] plus 4 units of electives, or (c) COUN 299 Thesis [3 units] plus 4 units of electives.	
Total	**60**

Note: (1) Practicum must be completed with a grade of B or better. During the semester that students are enrolled in COUN 208, the Clinical Review Committee of program faculty convenes to evaluate students. The criteria for this evaluation are based on skills and qualities considered appropriate for entry-level counselors. Students may be asked to leave the program if committee recommendations are not met. Students will not be allowed to advance to candidacy until they pass the clinical review. (2) Students meet the Graduate Writing Requirement by passing the writing component of COUN 220. Please refer to the specific counseling program's *Student Handbook* for additional information regarding the Graduate Writing Requirement and appeals process.



Option in Counseling and Student Services

The Option in Counseling and Student Services is a 48 unit program that is designed for individuals seeking advanced preparation for careers in educational settings.

There are two specialization areas in this option. The K-12 specialization is designed to complement the Pupil Personnel Services Credential (PPS) curriculum and is intended to enhance preparation of public school counselors. The PPS credential is required of those seeking employment as counselors in the K-12 public schools.

The Higher Education specialization is designed to prepare individuals for employment as student service professionals in four-year and community college settings. Graduates with this degree are prepared for employment in the multifaceted arena of higher education.

Program Requirements

Under the direction of a graduate adviser, each student develops and submits an individually designed program within the following framework:

	Units
Core requirements	**25**
COUN 200, 201, 202, 203, 206, 208, 220; ERF 220	
Counseling and Student Services Option	**16**
Higher Education Specialization COUN 214, 215, 219; CI 285 or ERF 288; EAD 261	
K-12 Specialization COUN 240, 241, 242, 249 (4 units); CI 285 or ERF 288	
Culminating experience	**7**
Choose between (a) 7 units of electives plus comprehensive exam, (b) COUN 298 Project [3 units] plus 4 units of electives, or (c) COUN 299 Thesis [3 units] plus 4 units of electives.	
Total	**48**

Note: (1) Practicum must be completed with a grade of B or better. (2) Students meet the Graduate Writing Requirement by passing the writing component of COUN 220. Please refer to the specific counseling program's *Student Handbook* for additional information regarding the Graduate Writing Requirement and appeals process.

M.S. in Rehabilitation Counseling

Charles Arokiasamy, *Coordinator*
Education Building, Room 350
559.278.0325

Program Description

The Master of Science in Rehabilitation Counseling is a 60-unit professional degree program designed to cover two years of full-time coursework, including a full semester of internship. The program combines classroom and practical field experiences, which integrates theory and practice of rehabilitation counseling. Upon graduation, all students are expected to be competent in individual and group counseling, case management, medical and psychological aspects of disability, ethics, assessment, independent living philosophy, and all other knowledge domain areas of the Commission on the Certification of Rehabilitation Counselors (CRCC).

The program is accredited by the Council on Rehabilitation Education (CORE). Students are eligible to take the national exam to become a Certified Rehabilitation Counselor (CRC) during the last semester of study.

It is ranked among the top 20 in the country by the U.S. News and World Report.

Career Opportunities

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 colleges and university disabled student programs, industrial alcohol/industrial accident/employee assistance programs, and insurance company rehabilitation programs. The M.S. in Rehabilitation Counseling qualifies students to take the national exam to become a Certified Rehabilitation Counselor (CRC).

Admission Requirements. In addition to the admission requirements listed in the *Graduate Education Programs* section of this catalog, M. S. in Rehabilitation Counseling program applicants must meet the following requirements:

1. Complete the following prerequisite coursework or their equivalents, earning a letter grade of ***C*** or better: ERF 153, COUN 174 or PSYCH 174, and COUN 176 or PSYCH 166.

Program prerequisites may not be counted toward the Master of Science in Rehabilitation Counseling. The prerequisites may be completed during the first semester of the program, but students may not complete more than 10 units of 200-level coursework before obtaining classified standing (full admission to the program).

Program Requirements

Under the direction of the graduate adviser, each student prepares and submits an individually designed program within the following framework:

	Units
Core requirements	**44**
COUN 250, 251A, 251B, 252, 253, 257, 258, 260, 263, 268A or B or C, 269	
Courses in supporting curriculum	**9**
Research methods: ERF 220	(3)
Individual and group counseling skills: COUN 200, 202	(6)
Elective	**1**
(Approved by adviser.)	
Culminating Experience	**6**
Choose between (a) 6 units of electives plus comprehensive exam, (b) COUN 298 Project [3 units] plus 3 units of electives, or (c) COUN 299 Thesis [6 units].	
Total	**60**

Note: (1) COUN 250, 251A, 251B, 257, and 258 must be completed with a grade of B or better. (2) Students meet the Graduate Writing Requirement by passing the writing component of COUN 257 or 258. Please refer to the program's Student Manual for additional information.

In order to graduate, the student must demonstrate proficiency by the satisfactory completion of a culminating experience, the graduate writing requirement, and two clinical reviews in addition to fulfillment of all other specified degree requirements.

Doctorate in Educational Leadership (Ed.D.)
Sharon Brown-Welty, *CSU Director*
I. Phillip Young, *UC Director*,
University of California, Davis
Education Building, Room 310
559.278.0427
http://jdpel.csufresno.edu

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, the 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 four universities, including California State University, Fresno and the University of California campuses at Davis, Los Angeles, and Santa Barbara. 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

Sharon Brown-Welty - Evaluation, Educational Leadership, Conflict Resolution, Policy Development, Labor Relations

Karen Carey - Ethnographic Research Methods, School Psychology

Donald Coleman - Program Development, Management, Leadership and Organization Development

Dewey Johnson - Strategic Leadership, Organizational Behavior

Joan C. Henderson-Sparks - School Curriculum Reform, Assessment, Science Education

Susan Tracz - Statistical Methodology, Educational Reform, Counseling

Ronald Unruh - Evaluation and Assessment, Bilingual Education

University of California

James Bruno (UC Los Angeles) - Quantitative Methods, Operations Research, Educational Policy and Planning, Evaluation and Assessment, Educational Leadership

Joseph Castro (UC Santa Barbara) - Organizational Learning, Leadership in Higher Education

James Catterall (UC Los Angeles) - Administration and Policy Analysis, Organization and Leadership

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

Sandra Murphy (UC Davis) - Teaching and Assessing Writing, Reading Comprehension

Jonathan Sandoval (UC Davis) - Psychological Tests and Measurement, Children's Classroom Learning, School-Linked Health and Human Services

Jon Wagner (UC Davis) - Educational Reform, Social Organization of Educational Research

Karen Watson-Gegeo (UC Davis) - Ethnographic Research Methods, Sociolinguistics, Bilingual Education, International Education

I. Phillip Young (UC Davis) - Human resource issues as related to recruitment, selection, and compensation of public school personnel.

Admission Requirements. Applicants must meet the general admission requirements for both California State University, Fresno and UC Davis. These include a master's degree 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.

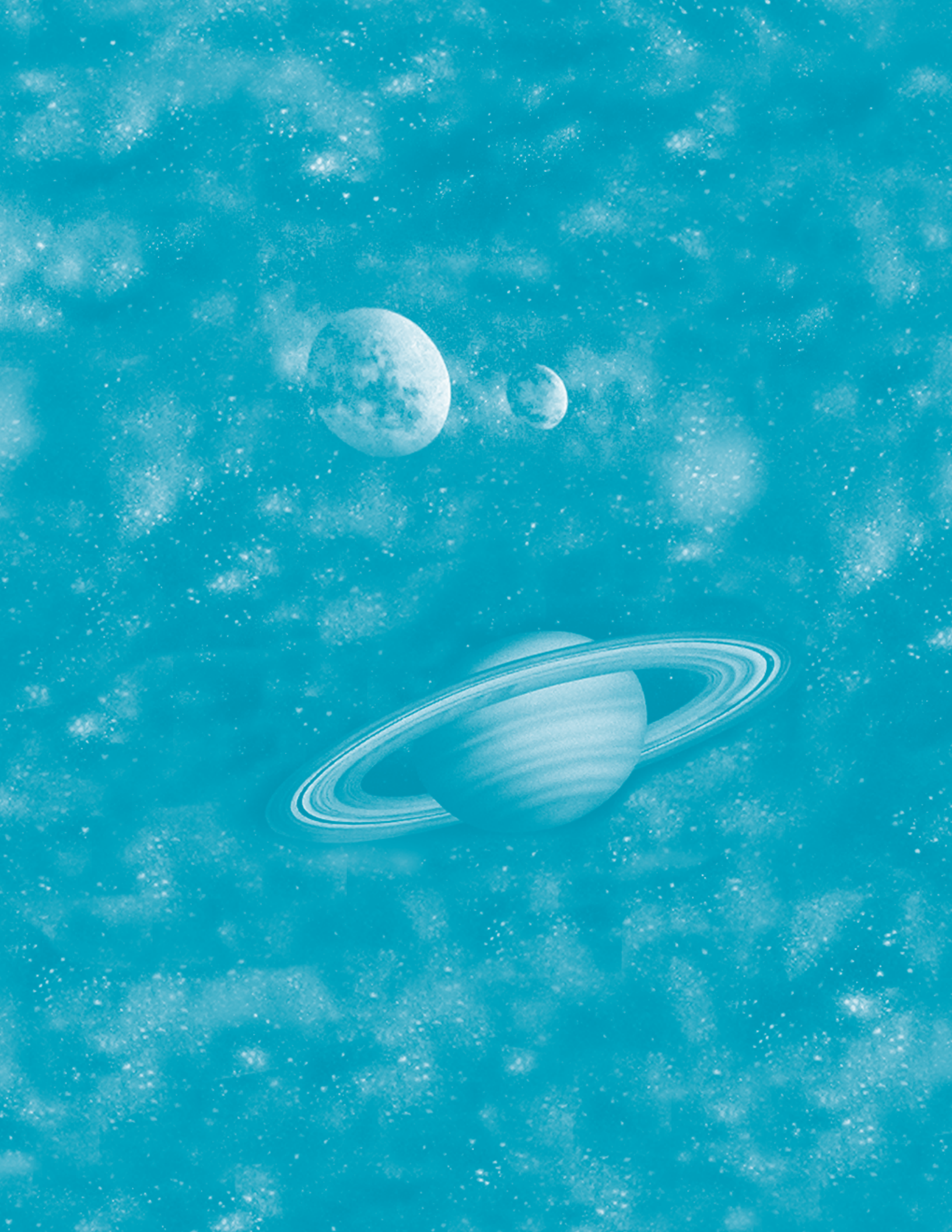
The deadline for application to the program is in February. Finalists are interviewed by the Joint Doctoral Program Admissions Committee.

Residency Requirements. Students must spend a minimum of one year in academic residence at each campus. To establish residence at UCD, doctoral students must be registered as full-time students three consecutive quarters.

Program Requirements

Students in the program move through three phases of study, comprising 60 units. Phase one comprises nine 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	**27**
EDL 201, 202, 203, 204, 206, 207, 208, 209, 211	
Phase 2 — Specialization	**21**
EDL 210, 280T, 290, EDU 292, 299, 299D	
Phase 3 — Dissertation	**12**
EDL 299	
Total	**60**



COURSES

Note: Students must provide their own transportation to off-campus sites for classes, observation, student teaching, practice and field activities, and defray any resulting personal expense.

UNDERGRADUATE COURSES

CalStateTEACH (CST)

CST 401. Multiple Subject Credential Module 1: Curriculum, Instruction, and Intern Teaching in the Elementary School (10)
Prerequisite: admission to CalStateTEACH program. Major emphasis on the foundations of education, teaching reading and mathematics, and assessment. ($350 course materials fee)

CST 401A. Beginning Curriculum, Instruction, and Supervised Teaching Fieldwork in the Elementary School (7)
Major emphasis on instructional planning and reading/language arts. Taken concurrently with CST 444: CSET Preparation. Offered fall semester only. ($350 course materials fee)

CST 401B. Curriculum, Instruction, and Supervised Teaching Fieldwork in the Elementary School (6)
Continuation of CST 401A. Major emphasis on foundations of education, instructional planning, and reading and mathematics instruction and assessment. Offered spring semester only. (No course materials fee)

CST 402. Multiple Subject Credential Module 2: Curriculum, Instruction, and Intern Teaching in the Elementary School (10)
Prerequisites: successful completion of CST 401 and subject matter competency (passage of CSET). Continued work in the foundations of education, teaching, reading, and mathematics. Major emphasis in teaching science, language arts, technology, and assessment. ($350 course materials fee)

CST 403. Multiple Subject Credential Module 3: Curriculum, Instruction, and Intern Teaching in the Elementary School (10)
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. ($350 course materials fee)

CST 404. Multiple Subject Credential Module 4: Curriculum, Instruction, and intern Teaching in the Elementary School (10)
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. ($350 course materials fee)

CST 444. CSET Preparation (3-6)
Prerequisite: admission to CalStateTEACH program. To be taken concurrently with 401A: CSET Track. Only for those students who have not passed the CSET. Designed to further basic skills in math, science, language arts, social studies, fine arts, and physical arts. ***CR/NC*** grading only.

UNDERGRADUATE COURSES

Counselor Education (COUN)

COUN 102. Rehabilitation Professions (3)
(See PHTH 102.)

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.

COUN 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.

COUN 176. Counseling and Mental Health (3)
Examination of the relationship between counseling and mental health with emphasis on current issues of adjustment in society.

COUN 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)

COUN 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Counselor Education (COUN)

COUN 200. Seminar in Counseling Techniques (3)
Prerequisite: COUN 174. Emphasis given to interviewing skills, philosophy, theory, and methodology as applied to counseling. Students must earn a grade of ***B*** or better to move on to COUN 208. (2 seminar, 2 lab hours)

COUN 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)

COUN 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)

COUN 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)

COUN 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.

COUN 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)

COUN 209. Advanced Practicum in Counselor Supervision (3)
Prerequisites: COUN 200 and permission of instructor. Content provides an introductory experience with the role of counselor supervisor. Focuses on the supervisory processes in terms of theoretical perspectives and practices of supervision. Enrollment is by faculty permission only. (Formerly COUN 280T)

COUN 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)

COUN 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.

COUN 215. Foundations of Student Services in Higher Education (3)
Overview of the philosophical and practical foundations of student services in higher education. Covers historical and current trends and issues facing the student services professional in higher education. Visit with representatives from student services. Discusses ethical, legal, and professional identity development.

COUN 219. 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 *RP* and *CR/NC* grading. (Formerly COUN 249C)

COUN 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)

COUN 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)

COUN 231. Seminar in Ethics and Professional Practices of Marriage and Family Therapy (3)
Prerequisites: COUN 200 or permission of instructor; COUN 230 taken concurrently or completed prior to enrollment. 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.

COUN 232. 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. (Formerly COUN 207)

COUN 233. Seminar in Therapeutic Methods with Children, Adolescents, and Their Families (3)
Prerequisites: COUN 206 and 230 recommended. 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. (Formerly COUN 213)

COUN 234A. Contemporary Issues in MFT: Sexuality in Human Relationships (1)
Course provides an overview of the role of sexuality in human relationships, including a review of sexual abuse, gay/lesbian/bisexual issues, sexual dysfunctions, and intimacy issues. Emphasis on treatment and interventions with couples. Course fulfills Board of Behavioral Sciences (BBS) requirement for human sexuality training.

COUN 234B. Contemporary Issues in MFT: Violence in Intimate Relationships (1)
Provides an overview of the sociological, systematic, clinical, and treatment aspects of violence in intimate relationships. Emphasis on assessment and intervention issues for individuals, couples, and families. Course meets BBS requirement for domestic violence training. (Formerly COUN 280T)

COUN 234C. Contemporary Issues in MFT: Substance Abuse Treatment (1)
Course provides overview of substance abuse counseling issues with an emphasis on treatment of the family system. Course meets BBS requirements for substance abuse training. (Formerly COUN 280T)

COUN 234D. Psychopharmacology (2)
Prerequisites: COUN 232 or 251A or 251B. Provides a general working knowledge of psychopharmacology for mental health professionals. Covers the biological bases of psychopharmacological treatment, principles of psychopharmacological treatment, and clinical psychopharmacology, which is the effect on client behavior of psychotropic medications in the treatment of mental and emotional disorders. (Formerly COUN 280T)

COUN 234E. Seminar in Consultation (1)
Prerequisites: COUN 174 and permission of instructor. Introduces students to the concepts, processes, and styles of consultation and highlights the role of counselors as consultants. Emphasis placed on comparing and contrasting consultation to other helping roles.

COUN 238. Practicum in Marriage and Family Therapy (4; max total 8)
Prerequisites: COUN 208, 230, 232, and permission of instructor; COUN 231 taken concurrently or completed prior to enrollment. Supervised clinical experiences with families, couples, and/or children. Training in family systems assessment and family communication techniques. Students must carry professional liability insurance. Course must be completed with a grade of *B* or better.

COUN 239. Field Placement in Marriage and Family Therapy (3-12; max total 12)
Prerequisites: COUN 231; 40 units in counseling program, including COUN 200, 208, 238, and permission of instructor prior to semester of enrollment. Supervised practice of marriage and family therapy. Settings may include community agencies, school therapy programs, and hospitals. Typically requires a one-year commitment with specific clock-hour requirements. Students must carry professional liability insurance. Approved for *RP* and *CR/NC* grading.

COUN 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)

COUN 241. Seminar in Organization of Counseling Services (3)
Prerequisite: COUN 200. Organization, administration, and evaluation of counseling programs. (2 seminar, 2 lab hours)

COUN 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)

COUN 249. Field Practice in School Counseling (4-8; max total 12)
Prerequisites: COUN 200, 208, and permission of instructor. Supervised counseling practice in school settings. Students must carry professional liability insurance. Required for the Pupil Services credential in school counseling. Approved for ***RP*** and ***CR/NC*** grading. (Formerly COUN 249A, COUN 249B)

COUN 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.

COUN 251A. Medical Aspects of Disability (3)
Seminar in the treatment of disabling conditions including etiology, functional limitations, and vocational implications. Student presentation of case studies. (Formerly COUN 251)

COUN 251B. Medical Aspects of Disability (3)
Seminar on strategies to facilitate the vocational rehabilitation of persons with severe disabilities, including etiology, function limitations, and vocational implication, principles of independent living, supported employment, client assistance programs, and rehabilitation engineering technology. Requires student presentation of case studies. (Formerly COUN 261)

COUN 252. Career Placement in the Rehabilitation Process (3)
A seminar concerning the attitudes, skills, and abilities necessary to provide effective vocational and career placement services to people with disabilities, including vocational diagnosis, career development, placement techniques, job analysis, affirmative action, and appropriate legislation.

COUN 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.

COUN 257. Case Practices in Rehabilitation Counseling (4)
Prerequisites: COUN 250, 251A or 251B. 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)

COUN 258. Rehabilitation Counseling Practicum (4; max total 8)
Prerequisites: COUN 200, 250, 251A or 251B, 252, 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)

COUN 260. Current Professional Issues in Rehabilitation Counseling (3)
Prerequisites: COUN 250. 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.

COUN 262. Assistive Technology (3)
Seminar on systems and procedures for the rehabilitation counselor in providing technology solutions for persons with disabilities. Includes assessment to determine need and fit, adjustment counseling, training in use and maintenance, funding procurement, and high and low technology resource development. (Formerly COUN 280T)

COUN 263. Work Evaluation Procedures (3)
Study of systems and procedures of work evaluation and assessment by public and private rehabilitation agencies to assess culturally diverse persons with disabilities. Includes principles of testing; test selection (situational assessments and work samples), administration, interpretation, and report generation. (Formerly COUN 280T)

COUN 264. Rehabilitation of the Industrially Injured Worker (3)
Seminar on multiple aspects of worker's compensation system, including policy, law, practice, case services, and strategies that affect industrially injured workers. Includes differences between public and private rehabilitation and related insurance programs. (Formerly COUN 280T)

COUN 265. Introduction to Substance Abuse Rehabilitation (3)
Introductory seminar in substance abuse covering patterns and extent of substance abuse, models of addiction, assessment and diagnosis, legal ramifications, physiological effects, drug characteristics, treatment approaches, prevention, and ethical issues. Includes readings, lectures, guest presentations, class discussions, and student activities. (Formerly COUN 280T)

COUN 268A. Advanced Career Placement: Job Retention (3)
Prerequisites: COUN 252. Supervised practical application of case management and job development, placement, retention, and advancement principles. Students work holistically with welfare department referrals to develop and implement individualized service plans with primary emphasis on vocational goals. Liability insurance required. (1 seminar, 2 lab hours) (Formerly COUN 280T, COUN 268)

COUN 268B. Advanced Career Placement: Workability IV (3)
Prerequisites: COUN 252. Supervised practical application of case management and job development, placement, retention, and advancement principles. Students work holistically with Department of Rehabilitation referrals to develop and implement individualized service plans with primary emphasis on vocational goals. Liability insurance required. (1 seminar, 2 lab hours) (Formerly COUN 280T, COUN 268)

COUN 268C. Advanced Career Placement: Ticket to Work (3)
Prerequisites: COUN 252. Supervised practical application of case management and job development, placement, retention, and advancement principles. Students work holistically with Social Security Administration referrals to develop and implement individualized service plans with primary emphasis on vocational goals. Liability insurance required. (1 seminar, 2 lab hours) (Formerly COUN 280T, COUN 268)

COUN 269. Internship in Rehabilitation Counseling (12)
Prerequisites: COUN 200, 250, 251A, 251B, 252, 253, 257, 258, 268A-B-C, or permission of instructor. Full-time, supervised field placement in one of a variety of settings including case responsibilities. *CR/NC* grading only.

COUN 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.

COUN 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

COUN 298. Project (3-4; max total 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 audio-visual materials or computer software for counselor education or service delivery. An approved proposal is required for enrollment. Approved for *RP* grading.

COUN 299. Thesis (3-4; max total 6)
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 Kremen School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *RP* grading.

IN-SERVICE COURSES

(See *Catalog Numbering System.*)

Counselor Education (COUN)

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.

COUN 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.

UNDERGRADUATE COURSES

Curriculum and Instruction (CI)

CI 2R. CBEST Math Development (3)
Designed to further the basic skills in math for applicants to teacher education credential programs. *CR/NC* grading only; not applicable toward baccalaureate degree requirements. (Formerly CTET 2R)

CI 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 99)

CI 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 CI 99 is required. Methods for using computers for teacher/student productivity, critical thinking, and grades K-8 curriculum objectives. (2 lecture, 2 lab hours) (Formerly CTET 100)

CI 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 CI 99 is required. Methods for using computers for teacher/student productivity, critical thinking, and grades 7-12 curriculum objectives. (2 lecture, 2 lab hours) (Formerly CTET 101)

CI 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) (Formerly CTET 121)

CI 122. Fieldwork in Outdoor Education (1-2; max total 2)
Prerequisites: CI 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. (Formerly CTET 122)

CI 123. Classroom Management (2)
Classroom organization, management, and mainstreaming including focus on the culturally, linguistically diverse student. (Formerly CTET 123)

CI 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 125)

CI 126. Social Studies in the Elementary School (3)
In-depth study of the strategies and techniques of social studies instruction. (Formerly CTET 126)

CI 130. Educational Psychology — Multiple Subject and Special Education (3)
Not open to students with credit in CI 130ECE. Prerequisites: admission to the Multiple Subject Credential Program; PSYCH 10. Psychological theories of teaching and learning, growth and development of children, motivation, classroom management, and student performance and assessment issues. (Formerly ERF 130)

CI 130ECE. Psychological Foundations of Education (3)
Prerequisite: admission to Multiple Subject Credential Program Option II. Concurrent enrollment with CI140ECE. Foundation for relating concepts, principles, and theories of psychology and development for the education of young children. Application of foundational concepts, principles, and theories through interagency collaborative field experiences. (Formerly ERF 130ECE)

CI 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. (Formerly CTET 136)

CI 137. Creative Dramatics (3)
(See DRAMA 137.) (Formerly CTET 137)

CI 140. Cultural Foundations of Education (3)
Not open to students with credit in CI 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. (Formerly ERF 140)

CI 140ECE. Cultural Foundations of Education (3)
Prerequisite: admission to Multiple Subjects Credential Program Option II. Concurrent enrollment with CI 130ECE. Functions of education in America's multicultural society. Foundation for understanding children and families in the ecological contexts of home, school, and community with focus on school collaboration with programs serving young children. (Formerly ERF 140ECE)

CI 150. Curriculum and Instruction in the Elementary School (3)
Prerequisites: admission to the Multiple Subject Credential Program. Also, EHD 110 and LEE 146 or 149 must be 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) (Formerly CTET 150)

CI 150ECE. Managing Early Learning Environments (1)
Appropriate for Early Childhood Emphasis, Multiple Subject Credential candidates in their second semester of the teacher education program. Introduces pre-service teachers to a variety of psychological approaches to managing early learning environments. ***CR/NC*** only. (Formerly EHD 111) (Formerly ERF 150ECE)

CI 151. Social Foundations of Education (3)
Not open to students with credit in CI 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. (Formerly ERF 151)

CI 152. Educational Psychology — Single Subject and Special Education (3)
Prerequisites: admission to Single Subject Credential Program; PSYCH 10. Psychological theories of teaching and learning, growth and development of adolescents, motivation, classroom management, and student performance and assessment issues. (Formerly ERF 152)

CI 158. Communication and Learning (3)
(See COMM 114.) No credit will be given if the student has taken COMM 114. (Formerly CTET 158)

CI 159. Curriculum and Instruction in Secondary Schools (3)
Prerequisites: admission to the Single Subject Credential Program and concurrent enrollment in EDH 155A. Instructional planning, methodologies of teaching and learning, evaluation techniques, motivation, classroom management, technology integration, and preparation and evaluation of materials. Lesson demonstration and analysis. (2 lecture, 2 lab hours) (Instructional materials fee, $5) (Formerly CTET 159)

CI 161. Methods and Materials in Secondary Teaching (3)
Prerequisites: CI 152 and CI 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) (Formerly CTET 161)

CI 171. Understanding the Learner, Instructional Design, and Assessment (3)
Prerequisites: admission to the Multiple Subject Credential Program. Students not concurrently enrolled in EHD 174 need to make special arrangements with instructor. Course focuses on applied psychology, developmental/learning theory, research, and assessment as it relates to the learner. Students examine the design of integrated curriculum in K-8 classrooms and investigate reforms, curricular theories, and instructional models. (2 lecture, 2 lab hours)

CI 175. Science Instruction and Applied Technology (3)
Prerequisites: CI 171, LEE 172, LEE 173, EHD 174. Students not concurrently enrolled in EHD 178 need to make special arrangements with instructor. Course is designed to prepare teacher candidates to effectively and equitably teach elementary school science and to use contemporary instructional technologies in culturally and linguistically diverse classrooms. (2 lecture, 2 lab hours) (Instructional materials fee, $5)

CI 176. Mathematics Instruction and Applied Assessment (3)
Prerequisites: CI 171, LEE 172, LEE 173, EHD 174. Students not concurrently enrolled in EHD 178 need to make special arrangements with instructor. Course is designed to prepare teacher candidates to plan instruction based on the assessment of students' mathematical understanding and to teach mathematics using multiple strategies and methods in culturally and linguistically diverse elementary classrooms. (2 lecture, 2 lab hours)

CI 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. (Formerly CTET 180T)

CI 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading. (Formerly CTET 190)

GRADUATE COURSES

(See *Catalog Numbering System.*)

Curriculum and Instruction (CI)

CI 210. Current Issues and Trends in Math Education (3)
Examination and analysis of state, national and international issues related to K-12 mathematics curriculum, instruction, and assessment with implications for teachers, educational leaders, and policy makers. Provides professional development resources for mathematics teachers at all instructional levels. (Formerly CTET 280T; CTET 210)

CI 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. (Formerly CTET 212)

CI 225. Integration of Technology across the Curriculum (3)
Prerequisite: CTC Level 1 technology requirements and completion of final student teaching, or admission to a graduate program, or permission of department chair. Appropriate use of advanced technologies to enhance teaching and learning: accessing and evaluating information, analyzing and solving problems, and communicating ideas. Meets CTC Level 2 technology requirements. (2 lecture, 2 lab hours) (Formerly CTET 225)

CI 227. Current Issues and Trends in Educational Technology (3)
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. (Formerly CTET 227)

CI 229. Designing Virtual Realities for Education (3)
Provides students with the skills and knowledge to design virtual reality representations of partner institutes in the region. Working in groups, students create educational products that will be posted on the Internet. (Formerly CTET 280T; CTET 229)

CI 230. Planning and Implementing Innovative Technology Programs (3)
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. (Formerly CTET 230)

CI 250. Advanced Curriculum Theory and Analysis (3)
Prerequisite: CI 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) (Formerly CTET 250)

CI 260. Reflective Teaching (3)
Students develop knowledge and skills to critically examine and improve planning, instructional decisions, assessment, and student learning. Students engage in systematic reflection of teaching practices; they become familiar with the National Board for Professional Teaching Standards (NBPTS) and the certification process. ***CR/NC*** grading only. (Formerly CTET 280T; CTET 260)

CI 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) (Formerly ERF 274)

CI 275. Advanced Instructional Theories and Strategies (3)
Study and application of contemporary research and theory in teaching and instruction. (Formerly CTET 275)

CI 280T. Advanced Topic (1-3; max total 9 if no topic repeated)
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. (Formerly CTET 280T)

CI 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. (Formerly ERF 282)

CI 284. Seminar in International Education (3)
Analysis of historical, social, and political forces which shape national education endeavors. Emerging international education efforts and organizations. (Formerly ERF 284)

CI 285. Seminar in Advanced Educational Psychology (3)
Prerequisite: minimum 3 units from the following: CI 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. (Formerly ERF 285)

CI 286. Social Issues in Education (3)
Prerequisites: CI 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. (Formerly ERF 286)

CI 287. Seminar in History of Educational Thought (3)
Prerequisites: CI 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. (Formerly ERF 287)

CI 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading. (Formerly CTET 290)

CI 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 ***RP*** grading. (Formerly CTET 298)

CI 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 Kremen School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for ***RP*** grading. (Formerly CTET 299)

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

Curriculum and Instruction (CI)

CI 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. (Formerly CTET 380)

GRADUATE COURSES

(See *Catalog Numbering System.*)

Education Administration (EAD)

EAD 259. Conflict Resolution in Organizations (1)
Highlights issues related to conflict resolution in organizations. Topics include defining and diagnosing conflict, communication, power as a variable of conflict, steps in resolving conflict, defining positions, interests and needs, negotiation, mediation, and arbitration. (Formerly EAD 278T)

EAD 261. Managing Educational Organizations (3)
Initial course in Education Administration sequence. Development of knowledge and skills central to managing educational organizations.

EAD 262. Educational 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.

EAD 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.

EAD 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.

EAD 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.

EAD 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)

EAD 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)

EAD 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)

EAD 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.

EAD 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)

EAD 272. Seminar in Advanced Curriculum Evaluation and Development (3)
Prerequisites: EAD 261 and CI 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.

EAD 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.

EAD 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 non-teaching staff members.

EAD 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)

EAD 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.

EAD 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)

EAD 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.

EAD 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.

EAD 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. *RP* or *CR/NC* grading only.

EAD 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.

EAD 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.

EAD 288. Internship II (3)
Prerequisites: employment in a position requiring an administrative services credential, completion of EAD 261, 262, 272, and CI 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.

EAD 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for *RP* grading.

EAD 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 *RP* grading.

EAD 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 Kremen School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *RP* grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

Education Administration (EAD)

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.

DOCTORAL GRADUATE COURSES

Educational Leadership (EDL)

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.

EDL 202. Change in Education (3)
Examines change in education settings in the context of organizational theory, structure, and culture; change processes; and change leadership strategies and styles. K-12 educational settings and higher education settings are used to test theories and change strategies.

EDL 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.

EDL 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.

EDL 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.

EDL 207. Qualitative Research Methods (3)
Prerequisite: admission to the program. Examines the purpose and nature of qualitative research including current applications in educational settings. Emphasis is directed toward critical analysis of current qualitative studies and will include field-based application.

EDL 208. Theories of Cross-Cultural Education (3)
Corequisites: admission to the program. 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.

EDL 209. Advanced Educational Research and Measurement (3)
Prerequisite: admission to the program. Review of approaches to designing and conducting educational research, including ethical issues. Emphasis on reading and evaluating research literature and designing research projects. Includes psychometric theory, validity and reliability of tests, professional testing standards, and hands-on experience with test evaluation. (Formerly EDL 280T)

EDL 210. Field-based Research Practicum in Organizational Settings (1-3; max total 3)
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.

EDL 211. Educational Evaluation, Assessment, and Planning (3)
Prerequisites: admission to the program. Examines assessment practices, planning strategies, and evaluation processes in K-12 and higher education settings. Addresses current issues and trends in the field of education related to school accountability. (Formerly EDL 280T)

EDL 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.

EDL 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.

EDL 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)

EDU 292. Special Topics in Education (2-4)
Prerequisite: completion of doctoral core courses in education or consent of instructor. Selected topics in education. Designed to facilitate preparation for the qualifying examination or dissertation. Students will critically analyze scholarly work including their own works in progress. May be repeated for credit.

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.

EDU 299D. Research (1-6; max total 30 quarter units)
Independent study, 3-18 hours. Research for individual graduate students. *Satisfactory/Unsatisfactory* grading only.

UNDERGRADUATE COURSES

Education and Human Development (EHD)

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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 110. Initial Student Teaching (1-3; max total 3)
Prerequisites: admission to Multiple Subject Program; CI 130; CI 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)

EHD 110D. Initial Student Teaching: Dual (4)
Prerequisites: admission to Multiple Subject Program; SPED 120, CI 130, CI 150 and LEE 146 or 149 must be taken concurrently. Supervised activities and teaching in public school classrooms including general and special education settings. *CR/NC* grading only. (Instructional materials fee, $7)

EHD 114. Initial Student Teaching — Curriculum and Reading (2)
Prerequisites: admission to Multiple Subject Credential Program (Option II); CI 130ECE, and CI 140ECE, concurrent enrollment with LEE 146 and LEE 148. Supervised reading and curriculum activities and teaching in elementary school classrooms. *CR/NC* grading only. (Formerly EHD 112, EHD 113)

EHD 115S. Liberal Studies Senior Project (3)
Prerequisite: senior standing and if planning to enter the Multiple Subject Credential Program, EHD 50 or equivalent. Seminars including mentoring/tutoring activities in the public schools and working with students identified as "at risk" of school failure. A journal, final paper, and other written and oral work are required. (Formerly EHD 115)

EHD 116. Initial Student Teaching — Reading, Grades K-6 (1)
Prerequisite: admission to the Multiple Subject Credential Program. Concurrent

enrollment with LEE 146 or 149. Supervised reading activities and teaching in elementary classroom, grades kindergarten through six. *CR/NC* grading only.

EHD 155A. Student Teaching in Secondary School (4)
Prerequisites: admission to the Single Subject Credential Program; CI 151, 152, and 159 must be taken prior to or concurrently with EHD 155A. Concurrent enrollment required in SPED 121. 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)

EHD 155B. Student Teaching in Secondary School (5 or 10; max total 10)
Prerequisites: admission to student teaching; EHD 155A; CI 161 (or concurrently, depending on major departmental policy); senior or postbaccalaureate standing; approval of major department including subject matter competency approval; completion of the subject matter preparation program or passing the subject matter examination(s) designated by the California Commission on Teacher Credentialing. Supervised teaching in a single subject classroom; assignment is for the full day; five days per week. *CR/NC* grading only.

EHD 160A. Student Teaching in Elementary School (5)
Prerequisites: admission to the Multiple Subject Credential Program; completion of all requirements for admission to student teaching; CI 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)

EHD 160B. Student Teaching in Elementary School (5)
Prerequisites: admission to the Multiple Subject Credential Program; completion of all requirements for admission to student teaching; CI 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)

EHD 160C. Student Teaching in Elementary School (10)
Prerequisites: admission to the Multiple Subject Credential Program; completion of all requirements for admission to student teaching; CI 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)

EHD 160D. Student Teaching in Elementary School: Dual (12)
Prerequisites: admission to the Multiple Subjects and Special Education programs; completion of all requirements for admission to student teaching/practicum; concurrent enrollment in SPED 155. Supervised teaching in public school classrooms and settings. Full day general education and special education experiences for the entire semester.

EHD 170. Field Study C (9)
Prerequisites: CI 175, CI 176, LEE 177, EHD 178. Concurrent enrollment in SPED 179. Supervised full-day, semester-long student teaching experience that culminates in assuming all classroom responsibilities for at least two weeks. Required hours are Monday through Friday from 1/2 hour before school starts until at least 1/2 hour after the school day ends (includes seminars). *CR/NC* grading only. (Instructional materials fee, $10)

EHD 174. Field Study A/Grades 4-8 (2)
Prerequisites: admission to the Multiple Subject Credential program. CI 171 and LEE 172 or concurrent enrollment. Concurrent enrollment in LEE 173. Supervised field experience in a 4-8 grade classroom. First in a sequence of three field placements preparing teacher candidates to teach in culturally and linguistically diverse classrooms. Requires a minimum of 6 hours a week over two afternoons, plus seminars. *CR/NC* grading only.

EHD 178. Field Study B/ Grades K-3 (2)
Prerequisites: CI 171, LEE 172, LEE 173, EHD 174. CI 175 and CI 176 must be taken prior to or concurrently with this course. Concurrent enrollment in LEE 177. Supervised field experience in a K-3 classroom. Second of three field placements preparing teacher candidates to teach in culturally and linguistically diverse classrooms. Requires a minimum of 12 hours a week (weekday mornings), plus seminars. *CR/NC* grading only. (Instructional materials fee, $7)

EHD 180T. Topics in Education and Human Development (1; max total 9)
Issues and topics in education and human development.

IN-SERVICE COURSES

(See *Catalog 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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 321. Curriculum Development and Evaluation (2)
Teacher candidates will prepare unit plan and lesson plans that include goals, objec-

tives, strategies, activities, and safety considerations, as well as materials and student assessment instruments that are well-defined and coordinated.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 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.

EHD 335. The Driving Privilege (2)
Introduces safe driving. Identifies motivational factors and risk tolerance. Explores psychological, neurological, physiological factors including permanent and temporary results of impaired driving. Explores interactions with roadway users. Identifies roles of school and parent in the novice driver learning process.

EHD 336. Sensory Input (3)
Offers techniques for effective visual and perceptual abilities for safe vehicle operation. Develops skills for detection, perception and evaluation of perceived driving hazards. Describes the effects of alcohol and drugs on driving. Explores performance of driving-related divided attention tasks.

EHD 337. Risk Management and Traffic Strategies (3)
Analyzes risk perception and reasoned decision making in driving situations. Explores differences in risk-management by novice and experienced drivers. Explains rationale of positive corrective actions and responses. Discusses utilization of appropriate technology for simulation of risk management.

EHD 338. Driver Education Organization and Management (1)
Provides knowledge needed to design, organize and manage a public high school driver education and training program. Explores various models including traditional and competency-based programs. Demonstrates fiscal, facility, equipment, and insurance needs.

EHD 339. Behind-the-Wheel (3)
Discusses roles of school, teacher, and parent in novice's behind-the-wheel learning. Studies transfer of classroom safety education to laboratory instruction. Describes effective instructional strategies and evaluation of behind-the-wheel performance. Participants experience behind-the-wheel vehicle operation.

EHD 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.

EHD 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.

EHD 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).

EHD 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)

EHD 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.

Educational Research, Foundations (ERF)

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 edu-

cation studies. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

ERF 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)

ERF 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.

ERF 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Educational Research, Foundations (ERF)

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)

ERF 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.

ERF 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.

ERF 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.

ERF 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)

ERF 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for *RP* grading.

ERF 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 *RP* grading.

ERF 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 Kremen School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for *RP* grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

Educational Research, Foundations (ERF)

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.

UNDERGRADUATE 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)

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.

LEE 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.

LEE 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.

LEE 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.

LEE 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)

LEE 135. Teaching Content n Hmong (3)
Prerequisites: Hmong language fluency or permission of instructor. L1 methods and materials used to teach content in bilingual classrooms. Designed for BCLAD candidates. Students will deliver lessons in

the Hmong language in bilingual classrooms in local schools under university supervisor. (Formerly LEE 139)

LEE 136. Teaching Content in Spanish (3)
Prerequisites: Spanish language fluency or permission of instructor. L1 methods and materials used to teach content in bilingual classrooms. Designed for BCLAD candidates. Students will deliver lessons in the Spanish language in bilingual classrooms in local schools under university supervisor. (Formerly LEE 139)

LEE 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.

LEE 144. Teaching English Learners: Foundations and Strategies (3)
Prerequisite: admission to the Multiple Subject Credential Program. Knowledge and skills to provide comprehensive instruction in the subjects of the core curriculum for English learners. Covers English Language Development strategies that support the development of academic language and comprehension for students in elementary school. (Formerly LEE 180T).

LEE 146. Teaching Reading in K-3 Classrooms (3)
Prerequisites: (1) admission to the Multiple Subject Credential Program or the Special Education Credential Program (2) CI 130 and 140, and CI 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.

LEE 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)

LEE 148. Integrated Curriculum (3)
Concurrent enrollment with LEE 146 and EHD 114. Integrated curriculum design, facilitation, and assessment in early childhood programs, including preschool, kindergarten, and grades 1-6. Lecture supported by curriculum development activities. (2 lecture, 2 activity hours)

LEE 149. Teaching Reading in 4-8 Classrooms (3)
Prerequisites: (1) admission to the Multiple Subject Credential Program or the Special Education Credential Program; (2) CI 130 and 140, and CI 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.

LEE 154. Content Area Language and Literacy Instruction (5)
Prerequisites: admission to the Single Subject Credential Program and prior or concurrent enrollment in EHD 155A or 155B. Educational issues, methodologies, and materials to improve students' listening, speaking, reading, and writing in content areas at the secondary level (7-12). Special emphasis on skills necessary to deliver comprehensive instruction to English learners. (Formerly LEE 180T)

LEE 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.

LEE 172. Cultural Language and Context of the Classroom (3)
Prerequisite: admission to the Multiple Subject Credential Program. CI 171 or concurrent enrollment. Students not concurrently enrolled in EHD 174 need to make special arrangements with instructor. The impact of culture on teaching and learning in the elementary school. Language acquisition theory and instructional strategies for English learners. Promoting student success, including achievement of state-adopted content and language-development standards. (2 lecture, 2 lab hours)

LEE 173. Teaching Reading and Social Studies in Grades 4-8 (3)
Prerequisite: admission to the Multiple Subject Credential Program. CI 171, LEE 172 (or concurrent enrollment). Concurrent enrollment in EHD 174. Teaching state-adopted English-Language Arts (4-8) and history-social science (K-8) content standards using research-based methods. Use of a variety of assessments to determine students' progress. Organizing, managing, and planning instruction for reading and social studies. Developmentally appropriate practices to make content accessible to all students. (2 lecture, 2 lab hours)

LEE 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.

LEE 177. Teaching Reading and the Arts in K-3 (3)
Prerequisites: CI 171, LEE 172, LEE 173, EHD 174, CI 175, CI 176 (or concurrent enrollment). Concurrent enrollment in EHD 178. Assessment and instructional approaches for the balanced teaching of reading/language arts in the primary grades: using developmentally appropriate practices, studying state standards for literacy development and component strands for visual and performing arts, and selecting techniques for culturally/linguistically diverse learners. (2 lecture, 2 lab hours)

LEE 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.

LEE 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Literacy and Early Education (LEE)

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.

LEE 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.

LEE 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.

LEE 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.

LEE 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.

LEE 230. Supervised Teaching in Reading/Language Arts (3)
The first of two supervised fieldwork courses required for the Reading Specialist Credential. Provides supervised practice in research-based methodologies and intervention approaches for beginning readers, English learners, and students with reading difficulties. A combination of practica and seminars required.

LEE 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.

LEE 233. Designing Curriculum and Assessment Strategies in Early Childhood Education (3)
Prerequisites: admission to program or permission of instructor. Design of appropriate curriculum and assessment for young children. Includes standards, planning, project approach, integration of play, and materials. Use of observation, rubrics, and portfolios to document development and learning. Organizing environments in early childhood settings, infants through grade three. (2 lecture, 2 lab hours)

LEE 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)

LEE 235. Concept Development in Early Childhood Education (3)
Prerequisite: admission to program 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)

LEE 241. Fieldwork in Early Childhood Education (3)
Prerequisite: admission to program or permission of instructor. 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)

LEE 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.

LEE 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.

LEE 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)

LEE 278. Literacy Processes and Practices (3)
Prerequisite: LEE 146 and 149 for Multiple Subject Credential holders; LEE 154 for Single Subject Credential holders; or permission of instructor. Understanding literacy processes through the investigation of current theories, issues, and practices.

LEE 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.

LEE 290. Independent Study (1-3; max total 6)
See Academic Placement — Independent Study. Approved for ***RP*** grading.

LEE 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. An approved proposal is required for enrollment. Approved for ***RP*** grading.

LEE 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. An approved proposal is required for enrollment. Approved for ***RP*** grading.

LEE 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. Approved for ***RP*** grading.

IN-SERVICE COURSES

(See *Catalog Numbering System.*)

Literacy and Early Education (LEE)

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.

LEE 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.

UNDERGRADUATE COURSES

Special Education (SPED)

SPED 120. Teaching Students with Special Needs in General Education Settings (3)
Prerequisites: EHD 50. 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.

SPED 121. Teaching Students with Special Needs in the Secondary General Education Setting (2)
Prerequisites: concurrent enrollment in EHD 155A. Provides basic knowledge, skills, and strategies in secondary education settings for teaching special populations, including students with disabilities, students on behavior plans, and students who are gifted and talented. (Formerly EHD 180T)

SPED 125. Positive Behavioral and Social Supports (3)
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.

SPED 135. Assessment and Instruction in the Special Education Academic Curriculum (3)
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)

SPED 145. Assessment and Instruction in Special Education Functional Curriculum (3)
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)

SPED 155. The Professional in Special Education (3)
Prerequisites: admission to special education program or permission of instructor. 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.

SPED 160F. Fieldwork in Special Education (1-3; max total 12)
Prerequisite: admission to special education internship program. Supervised observation and support of teacher interns in the areas of behavior, IEPs, instruction, assessment, and collaboration.

SPED 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. Prior completion of all practicum clearance requirements and prior or concurrent enrollment in all coursework for Level I Education Specialist Credential. 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.

SPED 176. Level I: Moderate/Severe Practicum (9)
Prior completion of all practicum clearance requirements and prior or concurrent enrollment in all coursework for Level I Education Specialist Credential. 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.

SPED 179. Differentiated Instruction and Classroom Management (3)
Prerequisites: CI 175, CI 176, LEE 177, EHD 178. If not concurrently enrolled in EHD 170, must make arrangements with the instructor. Through collaboration with others, for the purpose of establishing an inclusive community of learners, teacher candidates will adapt instruction and manage the learning environment to meet the needs of all learners, with focus on students with special needs. (2 lecture, 2 lab hours)

SPED 180T. Topics in Special Education (1-3; max total 12)
Prerequisite: permission of instructor. Topics may include special education legislation, parenting, transitional programming, parents as teachers, adolescents and adults with disabilities, current research, child abuse, and gifted and talented students.

SPED 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Special Education (SPED)

SPED 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)

SPED 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 em-

ployer school district representative/support provider. (Minimum of 45 hours per unit) (Formerly SPED 209)

SPED 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)

SPED 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)

SPED 219. Home/School/Community Collaboration: Policy, Research, and Practice (3; max total 6)
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)

SPED 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)

SPED 235. Assessment and Development of Social Affective Education Programs (3)
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)

SPED 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.

SPED 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.

SPED 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)

SPED 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.

SPED 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.

SPED 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

SPED 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 ***RP*** grading.

SPED 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 Kremen School of Education and Human Development's graduate programs coordinator for school thesis guidelines. Approved for ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Special Education (SPED)

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.

The College of Engineering

Engineering East, Room 124
Karl E. Longley, *Dean,* 559.278.2500
Walter Loscutoff, *Associate Dean*

The Mission of the College

The College of Engineering is the only publicly supported engineering college in the San Joaquin Valley. The mission of the college is to develop potential to the greatest extent possible, to provide a quality engineering education, and to serve students from groups that historically have not participated in a university engineering education.

The College of Engineering provides excellent scholarship support for students and maintains a computer system with 150 student workstations.

The Civil, Computer, 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 offers bachelor's degree programs in Civil, Computer, Electrical, Geomatics, and Mechanical Engineering, as well as in Construction Management. The college offers master's degree programs in Civil Engineering and in Engineering with options in Electrical and Mechanical Engineering. The college also offers an accelerated master's program that allows qualified undergraduate students to begin graduate studies at the start of the first semester of their senior year. For more details on the graduate programs, refer to the section on Engineering and Computer Science Graduate Programs on pages 316-317.

The College of Engineering includes the departments of Civil and Geomatics Engineering and Construction, Electrical and Computer Engineering, and Mechanical and Industrial Engineering.

Engineering (ENGR)

ENGR 1T. Topics in Engineering (1-4; max total 12 if no topic repeated)
Selected topics in engineering that serve as an introduction to the field of engineering and technology.

ENGR 11. Engineering Applications (3)
Open to qualified high school juniors and seniors only. Selected topics in engineering that serve as an introduction to the field of engineering and technology. (Formerly ENGR 1T)

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.

ENGR 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.

Civil and Geomatics Engineering and Construction Mechanical and Industrial Engineering

Faculty

Civil Engineering
Jesus S. Larralde-Muro
Karl E. Longley
William F. Wright
Mohamad A. Yousef

Construction Management
R. Louis Gysler
C. Dennis Spring
John C. Woolery

Geomatics Engineering
James Crossfield
Mushtaq Hussain
Riadh Munjy
Fareed W. Nader

Industrial Engineering
Hamo Lalehzarian
Prakash T. Mahajan
Masud Mansuri

Mechanical Engineering
Shahriar Jahanian
Walter Loscutoff
Satya D. Mahanty
Maria Sanchez
William W. Peng

The Departments Description

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.

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. The department also offers a Master of Science in Engineering with an option in Mechanical Engineering. For more information see Master of Science in Engineering program.

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 structures, testing of soils and construction materials, hydraulics testing, water quality analysis, aerial mapping, GIS and land surveying.

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.

College of Engineering

Departments of Civil and Geomatics Engineering and Construction *and* Mechanical and Industrial Engineering
James K. Crossfield, *Chair*
Engineering East Building, Room 178
559.278.2889
FAX: 559.278.7002
http://www.engr.csufresno.edu

B.S. in Civil Engineering

B.S. in Construction Management

B.S. in Geomatics Engineering

B.S. in Industrial Engineering*

B.S. in Mechanical Engineering

M.S. in Civil Engineering

M.S. in Engineering,
Mechanical Engineering Option

Minor in Construction Management

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. 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.

* Admissions to the B.S. in Industrial Engineering are currently suspended.

Electrical and Computer Engineering

College of Engineering

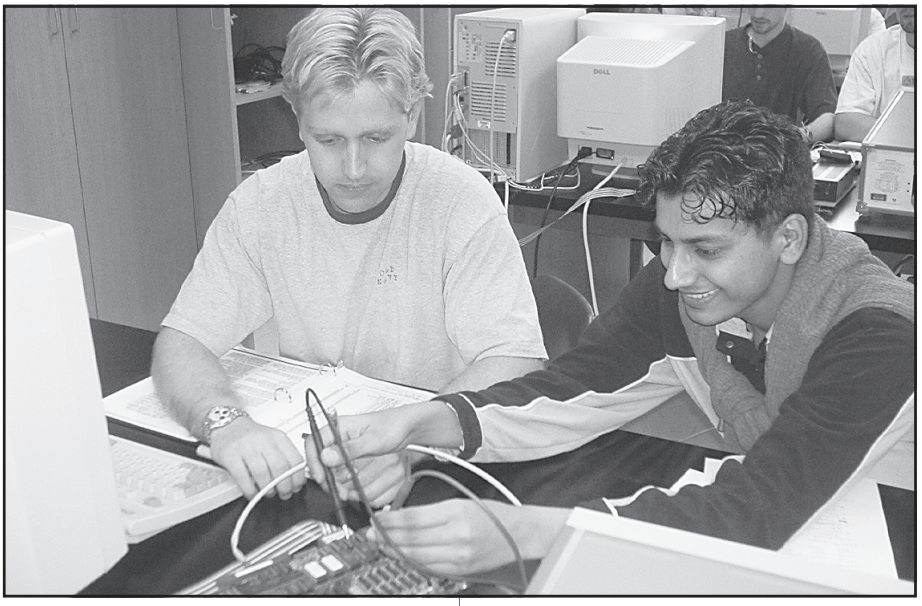
Department of Electrical and Computer Engineering
Tarek Alameldin, *Chair*
East Engineering Building, Room 254A
559.278.2726
http://www.engr.csufresno.edu

B.S. in Computer Engineering

B.S. in Electrical Engineering

M.S. in Engineering, Electrical Engineering Option

See pages 316-317



Faculty

Electrical and Computer Engineering
Nagy N. Bengiamin
Daniel C. Bukofzer
Kausik Chatterjee
Albert A. Heaney
Robert W. Hecht
Gregory R. Kriehn
Ramakrishna Nunna
Larry D. Owens

The Department Description

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. The department also offers a master's degree in engineering with emphasis in electrical engineering in cooperation with Edwards Air Force Base. For more information, see the Master of Engineering Program, page 316-317.

Electrical and Computer Engineering 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.

Mandatory Advising

It is the policy of the Electrical and Computer Engineering Department that every student see his/her assigned adviser at least once during the academic year.

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.

Administrative Academic Probation

A minimum GPA of 2.0 must be maintained in all courses taken in the College of Engineering. 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.

Civil Engineering
Jesus S. Larralde-Muro, *Coordinator*
Engineering East Building, Room 178
559.278.2889

Program Description

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. 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.

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.

Most civil engineering graduates have earned professional licenses as civil engineers within a few years of receiving their degrees.

Mission of Civil Engineering

The mission of the Civil Engineering Program is to provide the educational environment necessary for civil engineering students to develop their personal potential to the greatest extent possible and to enrich the students' lives in a culturally diverse environment. Civil engineering also provides the high quality education required for the students to fully develop their professional qualities and skills to serve society.

The Civil Engineering Program's Educational Objectives

- Offer a broadly based curriculum to civil engineering students, including general education as well as civil engineering education.
- Provide a civil engineering curriculum that includes an appropriate balance of engineering fundamentals and practical applications. Engineering fundamentals are covered mostly in the lower-division courses while the practical applications are strategically developed from the freshman through the senior levels.
- Provide the students with hands-on experience through laboratory courses, term projects, senior projects, and extra-curricular activities.
- Provide the students with the tools and skills required in professional practice and to make them aware of the necessity for a life-long learning approach in professional practice.
- Foster the development of sensitivity and awareness of the role of the professional civil engineer in society.
- Foster in the students the development of communication skills, responsibility, and dependability.
- Develop in the students the ability to effectively work in groups; multidisciplinary as well as multicultural groups.
- Develop in the students an understanding of the ethical, social, and political issues inherent in the civil engineering profession.

Bachelor of Science Degree Requirements

Civil Engineering Major — *Units*

Major requirements 61
CE 20, 85, 121L, 123, 123L, 128, 129, 130, 132, 142, 150, 180A, 180B ..... (31)
CE 124 or 142L ..... (1)
GME 15 ..... (3)
ECE 70 and 91 ..... (6)
IE 160 ..... (2)
ME 26, 112 ..... (6)

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: CE 140, 141, 143, 144
General Professional: CE 161, 190, 191T
Geotechnical: CE 125, 134
Structures: CE 131, 135, 136, 137, 138
Geomatics: GME 151, 173
Transportation: CE 151, 152, 153

Design Courses: at least 9 units of technical area courses must be selected from the following design courses: CE 125, 133, 134, 135, 136, 141, 143, 144, 151

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 89-92 for G. E. listings.)
The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 3A [B1], PHIL 1 or 10 [C2], CE 121 [IB], PHIL 120 [IC], PLSI 120 [M/I]
Additional requirements
GEOL 1; MATH 76, 77,81; PHYS 4A, 4AL, 4B

Total 124

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. The Upper-Division Writing Skills requirement can be met by passing the university examination or by completing IE 182W with a letter grade of ***C*** or better no sooner than the term in which 60 units of coursework are completed.
3. All civil engineering students must consult with their academic advisers at least once each year.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/engcivrec.html.*

Master of Science in Civil Engineering (MS-CE)

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

Mission. Located in California's Central Valley, the M.S. in Civil Engineering (MSCE) Program offers a graduate program of excellence that provides opportunities for advanced education and research in civil and geomatics engineering. The program's mission is to offer a curriculum that combines preparation for professional practice as well as preparation for research and further advanced studies.

Admission. The requirements for graduate admission to California State University, Fresno must be met. Also, 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 and 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; this satisfies both the university's graduate writing requirement and demonstrates 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 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 a total of three members, two of whom must be tenure/tenure track faculty. 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 but such change must be 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. 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 if the GPA drops below 3.0 (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 30 units following one of three programs of study.

See the catalog Web site for civil engineering and geomatics engineering technical area courses that may be applied to the program at *http://www.csufresno.edu/catoffice/current/engcivprog.html.*

Plan A (Thesis)	*Units*
a. 200-series CE courses[1]	**12-24**
b. 100-series CE or GME technical area courses[2]	**0-6**
c. Courses outside the department[3]	**0-6**
d. Thesis	**6**
Total	**30**

Plan B (Project)	*Units*
a. 200-series CE courses[1]	**15-27**
b. 100-series CE or GME technical area courses[2]	**0-6**
c. Courses outside the department[3]	**0-6**
d. Project	**3**
Total	**30**

Plan C (Comprehensive Exam)	*Units*
a. 200-series CE courses[1]	**18-30**
b. 100-series CE or GME technical area courses[2]	**0-6**
c. Courses outside the department[3]	**0-6**
Total	**30**

Advising Notes

1. Graduate courses in civil engineering — select from CE 205, 206, 220, 230, 232, 233, 234, 235, 237, 240, 242, 245, 246A, 246B, 247, 251, 261, 271, 275, 280, 281, 283, 285, 286, 290, and 291T.
2. 100-series technical area courses in civil and geomatics engineering — select from CE 125, 131, 134, 135, 136, 137, 138, 141, 143, 144, 151, 153, 191T; GME 125, 126, 135, 140, 145, 152, 153, 161, 174, 175, 177, 191T; and ME 144.
3. 100-series and 200-series courses outside civil and geomatics engineering are in disciplines best suited to the students graduate program as approved by the program adviser. This includes mathematics, statistics, management, business, geology, physics, chemistry, health science, and biology.

COURSES

Civil Engineering (CE)

CE 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)

CE 29. Engineering Mechanics (3)
(See ME 29.)

CE 85. Introduction to Civil Engineering (3)
The civil engineering profession and its role in society; creative thinking and criti-

cal thinking as integral parts of the engineering decision process; engineering methods of analysis; problem solving; computer drafting; career opportunities. (Field trips required)

CE 110. Computer Applications in Civil Engineering (3)
Prerequisites: CE 85. Use and modification of existing programs. Creation of new programs. Use of structured language, spreadsheets, and numerical solutions CAD. Term projects.

CE 121. Mechanics of Materials (3)
Prerequisite: CE 20; CE 85 or concurrently. Applications of principles of mechanics to find stresses and deformations in machine and structural members.

CE 121L. Mechanics of Materials Laboratory (1)
Prerequisite: CE 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)

CE 123. Soil Engineering (3)
Prerequisites: CE 121. 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.

CE 123L. Soil Engineering Laboratory (1)
Prerequisite: CE 121L, 123 or concurrently. Experiments to illustrate and amplify the principles of soil mechanics. (3 lab hours; field trips required)

CE 124. Concrete Laboratory (1)
Prerequisite: CE 121L. Proportioning of concrete mixes; admixtures; workability tests; compressive, flexural, and tensile strength tests; reinforced concrete. (3 lab hours; field trips required)

CE 125. Geotechnical Engineering Design (3)
Prerequisites: CE 123. 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)

CE 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.

CE 127L. Construction Soil Lab (1)
Not open to civil engineering majors. Corequisite: CE 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)

CE 128. Civil Engineering Hydraulics (3)
Prerequisite: CE 20 or concurrently and CE 85 or concurrently. Fundamentals of civil engineering hydraulics with application to hydraulic structures.

CE 129. Engineering Hydraulics Lab (1)
Prerequisite: CE 128 or concurrently. Experiments and demonstrations in fluid properties, flow management, pipe flow, open channel flow, pumps, and hydraulic scour. (3 lab hours)

CE 130. Theory of Structures (3)
Prerequisite: CE 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.

CE 131. Intermediate Theory of Structures (3)
Prerequisite: CE 130. Analysis of statically indeterminate beams, trusses, and frames; advanced topics in slope deflection and moment distribution; matrix methods.

CE 132. Reinforced Concrete Design (3)
Prerequisite: CE 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)

CE 133. Design of Steel Structures (3)
Prerequisite: CE 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)

CE 134. Foundation Design (3)
Prerequisites: CE 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)

CE 135. Reinforced and Prestressed Concrete Design (3)
Prerequisite: CE 132. Design of typical reinforced concrete and prestressed concrete structures. (2 lecture, 3 lab hours; field trips required)

CE 136. Design of Timber Structures (3)
Prerequisite: CE 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.

CE 137. Seismic Analysis of Building Structures (3)
Prerequisites: CE 130, ME 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)

CE 138. Structural Mechanics (3)
Prerequisite: CE 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.

CE 140. Hydrology (3)
Prerequisites: CE 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)

CE 141. Water Resources Engineering (3)
Prerequisites: CE 128, 142 (or concurrently). Hydraulic design of water distribution, sewerage, and drainage systems. Computer-assisted pipe network analysis. Pump applications. (2 lecture, 3 lab hours; field trips required)

CE 142. Environmental Engineering (3)
Prerequisites: CHEM 1A or 3A concurrently; CE 128 or concurrently. Introduc-

tion to the principles and practices of environmental quality management, including water and air quality, waste management, and the environmental effects of engineered systems.

CE 142L. Environmental Quality Laboratory (1)
Prerequisite: CE 142 or concurrently. Study and analysis of physical, chemical, and biological characteristics of air, water, and solid wastes. (Field trips required)

CE 143. Engineering Hydraulics (3)
Prerequisite: CE 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.

CE 144. Design of Water Quality Control Processes (3)
Prerequisite: CE 142 or permission of instructor. Analysis and design of selected physical, chemical, and biological facilities for water purification and wastewater treatment. (2 lecture, 2 lab hours) (Field trips required)

CE 150. Transportation Planning and Design (3)
Prerequisite: GME 15, upper-division standing. Geometric design of land transportation facilities, primarily road/street systems. Traffic theory and analysis, including statistical analysis of traffic parameters. Freeway and intersection capacity. Simple transportation demand forecast. (2 lecture, 3 lab hours)

CE 151. Pavement Design (3)
Prerequisite: CE 123 or concurrently. Analysis of pavement structures. Factors affecting pavement performance. Structural design of flexible and rigid highway and airfield pavements. Pavement rehabilitation and repair.

CE 152. Transportation Engineering Materials (3)
Prerequisite: CE 123. Properties and durability of Portland cement concrete. Properties and testing of aggregates for asphalts concrete. Asphalt cements and asphalt concrete performance. Traditional and SUPERPAVE mix design and specification of asphalt concrete.

CE 153. Traffic Operations and Control (3)
Prerequisite: CE 150. Transportation studies. Highway traffic characteristics. Highway system traffic analysis. Highway system capacity design. Traffic regulations and control.

CE 161. Construction Engineering I (3)
Prerequisite: CE 123. Basics of civil engineering contracting, organization of construction firms, legal structures, project funding, cash flow, equipment costs, labor relations, and safety.

CE 170. Pollution and Society (3)
Prerequisite: PLSI 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)

CE 180A. Project Design (2)
Prerequisites: senior standing in civil engineering; permission of instructor. Civil engineering practice, ethical issues, project analysis, and design. 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 CE 191T)

CE 180B. Senior Project (2)
Prerequisites: CE 180A; approved project proposal; IE 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 CE 180)

CE 185. Civil Engineering Practice (1)
Prerequisites: senior standing in civil engineering or permission of instructor; CE 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.

CE 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

CE 191T. Topics in Civil Engineering (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected civil engineering subjects not in current courses.

CE 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 *Catalog Numbering System.*)

Civil Engineering (CE)

CE 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.

CE 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.

CE 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.

CE 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.

CE 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)

CE 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; P effect. Analysis and design of continuous structures, braced and unbraced frames; stability of steel structures. Critical study of the AISC specifications.

CE 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.

CE 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.

CE 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.

CE 240. Engineering Hydrology (3)
Prerequisites: CE 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.

CE 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.

CE 246A. Advanced Water Quality (3)
Prerequisite: CE 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.

CE 246B. Advanced Water Quality (3)
Prerequisites: CE 142 or permission of instructor; CE 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.

CE 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.

CE 251. Advanced Boundary Law (3)
Prerequisite: GME 151 or equivalent. Land and water boundary legal issues, both historical and new. Case investigations.

CE 261. Geoprocessing (3)
Prerequisite: GME 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.

CE 271. Geodetic Systems Optimization (3)
Prerequisite: GME 108 or equivalent. National geodetic networks; planimetric and vertical control systems; geodetic control densification; network optimization criteria and methodology.

CE 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)

CE 280. Geomatics 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.

CE 283. Digital Remote Sensing (3)
Prerequisite: GME 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.

CE 285. Advanced Analytical Photogrammetry (3)
Prerequisite: GME 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.

CE 286. Geographic Information Systems Design (3)
Prerequisite: GME 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.

CE 290. Independent Study (1-3; max total 6)
Prerequisite: graduate status in engineering. See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

CE 291T. Topics in Engineering (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected engineering topics. May be offered with a lab.

CE 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 ***RP*** grading.

CE 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 ***RP*** grading.

IN-SERVICE COURSES

(See *Catalog Numbering System.*)

Civil Engineering (CE)

CE 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.

CE 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.

Construction Management
C. Dennis Spring, *Coordinator*
Engineering East Building, Room 178
559.278.2889

Program Description

The Management Technical Specialty 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.

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.

Career Opportunities

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.

Mission of Construction Management

The mission of the Construction Management Program is to prepare students for employment at the professional level in the discipline of construction and its related fields. The program places emphasis on the acquisition of both fundamental theoretical knowledge and the application of current practices in the industry.

The program strives to provide assistance to the student in the development of personal qualities including human sensitivity, disciplined reasoning, and communications.

Educational Objectives of the Instructional Program

- Provide students with the ability to recognize and independently diagnose construction related problems accurately, develop creative alternatives, and implement practical and effective solutions.
- The students will demonstrate the ability to plan, schedule and control work activities, motivate and provide accurate and timely constructive alternatives, and implement practical and effective solutions.
- Provide students with the ability to apply construction related techniques, skills, and tools to construction materials as necessary for a managed construction project.
- Provide students with the ability to understand technical issues related to the fields of architecture, engineering, business and construction accounting, and finance. Work effectively and efficiently with personnel from these disciplines to properly apply related fundamentals, techniques, and procedures.
- Provide students with the ability to apply basic construction related design theory within the areas of structural, mechanical, electrical, thermodynamics, civil, and soil mechanics.

Bachelor of Science Degree Requirements

Construction Management Major

	Units
Major requirements	**69**
Construction Core	(42)
CONST 1, 5, 10, 15, 43, 50, 105, 107, 116, 120, 122, 124, 162, 164	
CE 127; GME 11; 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	
Additional requirements	**4-15***
MATH 75; PHYS 2A; ECON 40 or 50	
Select one from CHEM 3A, GEOL 1, MATH 76, PHYS 2B	
General Education requirements	**51**
The following course satisfies G.E.: CONST 114 [IB]	
Total	**124***

*This total indicates that 9 units from MATH 75, PHYS 2A, and ECON 40 or ECON 50 in Additional Requirements are being used to satisfy the General Education requirement of 51 units.

Advising Notes

1. Courses in mathematics, the physical sciences, or construction (except CONST 193) taken ***CR/NC*** are not counted toward fulfillment of degree requirements in construction.
2. The upper-division writing skills requirement can be met by passing the university examination or by completing IE 182W with a letter grade of ***C*** or higher no sooner than the term in which 60 units of coursework are completed.
3. Other construction specialties may be developed under department advisement.
4. MATH 75 recommended. May be met with MATH 71 and 72.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/engconrec.html.*

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, 43, 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**

Note: The Construction Management Minor also requires a 2.0 GPA and 6 upper-division units in residence.

COURSES

Construction Management (CONST)

CONST 1. Construction Management Orientation (3)
Orientation to essential elements of professional practice in construction management. Construction-related regulatory require-

ments. Ethics, business, safety, and personnel practices. Management techniques and interaction with professional organizations and associations.

CONST 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)

CONST 10. Estimating and Bidding (3)
Prerequisites: CONST 5, 43. 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)

CONST 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)

CONST 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)

CONST 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)

CONST 43. Computer-Aided Construction Detailing (3)
Application of computers to planning and details for wood, concrete, masonry, and steel structures. (6 lab hours)

CONST 50. Basic Building Systems (3)
Exploration of theoretic principles relating to the various building systems. (2 lecture, 2 lab hours; field trips)

CONST 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)

CONST 107. Advanced Construction Structures (3)
Prerequisite: CONST 105. Analysis of construction materials in its application to different structural systems. (2 lecture, 2 lab hours)

CONST 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.

CONST 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)

CONST 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)

CONST 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.

CONST 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.

CONST 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)

CONST 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)

CONST 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)

CONST 144. Construction Site Planning and Development (3)
Prerequisite: CONST 10 and 43; senior standing. Analysis of land development; site investigation, grading, street piping systems, and landscaping. (2 lecture, 2 lab hours; field trips)

CONST 150. Heavy Construction (3)
Prerequisites: senior standing or permission of instructor; CONST 10, 105, 116, 120. 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)

CONST 151. Heavy Building Construction (3)
Prerequisites: senior standing or permission of instructor; CONST 10, 50, and 116. 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)

CONST 162. Mechanical Systems (3)
Prerequisites: CONST 1, 5, and 50. Mechanical systems for heating, ventilating, air conditioning, plumbing, storm drainage, and sewage disposal systems in commercial, industrial, residential construction; heat loss and gain, solar systems, mechanical system sizing, and life cycle cost analysis. Lectures, field trips, and guest speakers.

CONST 164. Building Electrical Systems (3)
Prerequisites: CONST 5 and 50. Electrical systems for power, light, heat, signals, and communications in commercial, industrial, and residential buildings. (2 lecture, 2 lab hours; field trips)

CONST 166. Advanced Mechanical Systems (3)
Prerequisite: CONST 5 and 50. Construction application of water systems, plumbing and storm drainage, and sewage disposal systems.

CONST 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

CONST 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)

CONST 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. ***CR/NC*** grading only.

Department of Electrical and Computer Engineering
Ramakrishna Nunna, *Coordinator*
Engineering East Building, Room 274
559.278.2726

Program Description

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. The Computer Engineering Program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). 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 the following:

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.

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.

Mission and Educational Objectives

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 while 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 in 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.

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, 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.

Bachelor of Science Degree Requirements[1]

Electrical Engineering Major *Units*

Major requirements 59

ECE 1, 71, 85, 85L, 90, 90L, 102, 118, 121, 124, 125, 126, 128, 128L, 134, 138, 138L, 155, 186A ..... (45)

Select two from ECE 119LA, 119LB, 120L, 121L, 136L ..... (2)

CE 29 or ME 29 or ME 136 ..... (3)

Technical Area Courses ..... (9)

Select three courses from the following: ECE 106, 107, 114, 115, 132,135, 136, 140, 146, 148, 151, 152, 162, 166, 168, 171, 172, 173, 174, 176

Other requirements 65

General Education

Select one course from each of the G.E. areas: Area A1, A2, C1, D1, D2. (See pages 89-92 for G. E. listings.)

The following courses are required to satisfy both G.E. and additional requirements: MATH 75 [B4], CHEM 3A [B1], PHIL 1 or 10 [C2], ECE 186B [IB], PHIL 120 [IC], PLSI 120 or BA 104 [M/I], ECON 40 or 50 [D3], BIOL 10 [B2]

Additional requirements

MATH 76, 77, 81

PHYS 4A; PHYS 4B, 4BL; PHYS 4C; choose one from ECE 191T, MATH 121, 123, 128, 152, 171, 181, 182 (see *Advising Notes*)

Total 124

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. All electrical engineering students must consult with their academic adviser at least once each year.
4. The Upper-Division Writing Skills requirements can be met by passing the university examination or by completing IE 182W with a letter grade of *C* or better no sooner than the term in which 60 units of coursework are completed. If IE 182W is taken, the total units completed for the program will be 127.
5. If ECE 191T is chosen, it must be the mathematical analysis in electrical engineering section of the course.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/engelrec.html*.

Prerequisites: Students violating any course prerequisites may be required to take an additional course (if they earned a *C*) or repeat a course (if they earned a *D* or less.) Repeated violations of prerequisites may trigger disciplinary action.

Bachelor of Science Degree Requirements[1]

Computer Engineering Major *Units*

Major requirements 54

ECE 1, 85, 85L, 90, 90L, 106, 107, 115, 118, 120L, 124, 125, 128, 128L, 148, 174, 176, and 186A ..... (42)

CSCI 150 ..... (3)

Technical Area ..... (9)

Select 3 courses from the following:

ECE 114, 132, 134, 135, 138, 138L, 140, 146, 155, 172, 173; CSCI 144, 156

Other requirements 70

General Education

Select one course from each of the G.E. areas: Area A1, A2, C1, D1, D2. (See pages 89-92 for G. E. listings.)

The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 3A [B1], PHIL 1 or 10 [C2], ECE 186B [IB], PHIL 120 [IC], PLSI 120 or BA 104[M/I], ECON 40 or 50 [D3], BIOL 10 [B2]

Additional requirements

MATH 76, 77, 81; PHYS 4A-C, 4BL; CSCI 40, 41 (see Advising Notes)

Total 124

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. All computer engineering students must consult with their academic adviser at least once each year.
4. The Upper-Division Writing Skills requirements can be met by passing the university examination or by completing IE 182W with a letter grade of *C* or better no sooner than the term in which 60 units of coursework are completed. If IE 182W is taken, the total units completed for the program will be 127.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/engelrec.html*.

Prerequisites: Students violating any course prerequisites may be required to take an additional course (if they earned a *C*) or repeat a course (if they earned a *D* or less.) Repeated violations of prerequisites may trigger disciplinary action.

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.

ECE 1. Introduction to Electrical and Computer Engineering (1)

The electrical and computer engineering professions, career opportunities and preparation, orientation to the department and college, exposure to computer productivity tools, laboratory safety, and hands-on projects.

ECE 70. Engineering Computations Using C and FORTRAN (3)
Prerequisite: students must pass the ELM exam or be exempt from it; 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.

ECE 71. Engineering Computations (3)
Prerequisite: students must pass the ELM exam or be exempt from it; 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.

ECE 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.

ECE 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)

ECE 90. Principles of Electrical Circuits (3)
Prerequisites: 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 12)

ECE 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)

ECE 91. Introduction to Electrical Engineering (3)
Prerequisites: 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.

ECE 91L. Introduction to Electrical Engineering Laboratory (1)
Prerequisites: ECE 91 or concurrently. Experiments on direct and alternating current, basic electronics, digital logic circuits, and electric machines.

ECE 102. Advanced Circuit Analysis (3)
Prerequisites: MATH 81, ECE 90. Transfer functions, 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, frequency response, analysis of active circuits.

ECE 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.

ECE 107. Digital Signal Processing (3)
Prerequisites: ECE 71 or CSCI 40; ECE 115 or 118, 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.

ECE 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.

ECE 115. Computer Organization (3)
Prerequisites: ECE 85 and either CSCI 40 or ECE 71. 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.

ECE 118. Microprocessor Architecture and Programming (3)
Prerequisite: ECE 85 and either CSCI 40 or ECE 71. Binary representation of data. Hardware architecture and programming models of a microprocessor. Assembly Language program specifications, development, testing, and documentation. Modular programming, parameter passing, macros.

ECE 119LA. Senior Laboratory A (1)
Prerequisite: senior standing and permission of instructor. Hands-on experience in topics in electrical and computer engineering. (3 lab hours) (Formerly ECE 119L)

ECE 119LB. Senior Laboratory B (1)
Prerequisite: ECE 71 or CSCI 40, ECE 118, senior standing, and permission of instructor. Hands-on experience in topics in micro-controllers and automation processes. (3 lab hours)

ECE 120L. Computer Systems Laboratory (1)
Prerequisite: ECE 118. Experiments on computer architecture and systems; logic analyzers; serial communications; hardware and software development. Design projects. (3 lab hours)

ECE 121. Electromechanical Systems and Energy Conversion (3)
Prerequisites: ECE 90 or ECE 91. Principles of direct- and alternating-current machinery and other energy-conversion devices and associated apparatus.

ECE 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)

ECE 124. Signal and Systems (3)
Prerequisites: ECE 90, MATH 81, ECE 71 or CSCI 40. Analysis of discrete and continuous linear circuits, systems, and signals. Fourier transforms, Fourier series. Difference equations, frequency response, Z-transform. Idealized sampling and aliasing. Stability analysis.

ECE 125. Random Signals and Stochastic System Analysis (3)
Prerequisites: 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.

ECE 126. Electromagnetic Theory and Applications I (3)
Prerequisite: MATH 81 or concurrently, ECE 90. Electrostatics; boundary value problems; magnetostatics; time-varying fields; Maxwell's equations. Transmission of electromagnetic energy.

ECE 128. Electronics I (3)
Prerequisite: ECE 90. 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.

ECE 128L. Electronics I Laboratory (1)
Prerequisite: ECE 90L and 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)

ECE 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.

ECE 134. Analog and Digital Communication Engineering (3)
Prerequisite: ECE 124. Mathematical modeling of signals and systems, linear and nonlinear modulation theory, demodulators, link analysis and design, phase-lock loops, sampling theory and signal reconstruction, digitization techniques, basic digital transmission methodologies, computer simulations.

ECE 135. Wireless Communications Systems (3)
Prerequisite: ECE 125, 134. Principles of digital signal transmission and reception; binary, M-ary, and hybrid digital modulation techniques; channel and receiver front-end noise effects; statistical performance receiver analysis; source coding; block and convolutional channel coding; block decoding; VDA, channel fading, and multipath; equalization; cellular systems; Spread Spectrum and CDMA; computer simulations.

ECE 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.

ECE 136L. Electromagnetic Theory and Applications Laboratory (1)
Prerequisite or corequisite: 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)

ECE 138. Electronics II (3)
Prerequisites: ECE 102, 124, 128. 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.

ECE 138L. Electronics II Laboratory (1)
Prerequisite: ECE 128L and 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)

ECE 140. VLSI System Design (3)
Prerequisites: ECE 118, 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.

ECE 146. Computer Networking and Distributed Processing (3)
Prerequisites: ECE 118 or CSCI 113 and ECE 125 or CSCI 60. 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.

ECE 148. Analysis and Design of Digital Circuits (3)
Prerequisites: ECE 85, 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.

ECE 151. Electrical Power Systems (3)
Prerequisites: ECE 90. Power system networks and equipment, power flow, symmetrical components, short circuits analysis, protection systems, and use of software in power system analysis.

ECE 152. Power Systems Analysis and Control (3)
Prerequisites: ECE 151, 155. Transmission and distribution systems, protection and coordination, stability analysis, voltage and frequency control, system modeling, and computer simulation.

ECE 155. Control Systems (3)
Prerequisites: ECE 124. Analysis, design, and synthesis of linear control systems; modeling, performance evaluation, frequency response, and stability.

ECE 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.

ECE 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.

ECE 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.

ECE 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.

ECE 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.

ECE 173. Robotics Fundamentals (3)
Prerequisites: MATH 81; ECE 118 and ECE 128 (may be taken concurrently). Introduction to industrial and mobile robots, forward and inverse kinematics, trajectory planning, sensors, micro controllers, and laboratory experiments.

ECE 174. Advanced Computer Architecture (3)
Prerequisites: ECE 115 or 118. Advanced computing architecture concepts: discrete math; 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.

ECE 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.

ECE 186A. Senior Design I (1)
Prerequisites: 30 units of ECE or permission of instructor; university writing requirement or concurrently. Design projects in electrical and computer engineering. (Formerly ECE 185A,B,C)

ECE 186B. Senior Design II (3)
Prerequisite: ECE 186A and university writing requirement. Design projects in electrical and computer engineering. Involves problem solving, critical thinking, and oral and written communication. (Formerly ECE 185A,B,C)

ECE 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

ECE 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.

ECE 193. Electrical and Computer Engineering Cooperative Internship (1-6; max 12)
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.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Electrical Engineering (EE)

EE 230. Nonlinear Control Systems (3)
Prerequisite: ECE 155 or permission of instructor. Dynamic systems modeling and analysis, stability, sliding mode control, fuzzy logic control, and introduction to relevant topics. (Formerly EE 291T)

EE 231. Digital Control Systems (3)
Prerequisite: ECE 155 or permission of instructor. Discrete Time Feedback systems modeling and analysis, stability, digital controller design, digital transformation of analog controllers, implementation techniques, and case studies. (Formerly EE 291T)

EE 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.

EE 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.

EE 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.

EE 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.

EE 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.

EE 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.

EE 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.

EE 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.

EE 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.

EE 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.

EE 290. Independent Study (1-3; max total 6)
Prerequisite: graduate status in engineering. See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

EE 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.

EE 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 special topics, as the culminating requirement of the master's degree. Abstract required. Approved for ***RP*** grading.

EE 299. Thesis (3-6; max total 6)
Prerequisite: see *Criteria for Thesis and Project.* Preparation, completion, and submission of an acceptable thesis for master's degree. Approved for ***RP*** grading.

Geomatics Engineering

James K. Crossfield, *Coordinator*
Engineering East Building, Room 178
559.278.4827

Program Description

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 (GME 66) first year; Route and Construction Surveying (GME 40) second year; Stereophotogrammetry (GME 123) and Digital Mapping (GME 126) third year; Subdivision Design (GME 159) and two upper-level technical design courses — Senior Project (GME 180) and Project Design (GME 181) — senior year.

Career Opportunities

The need 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 private consulting firms.

Mission of Geomatics Engineering

The mission of the Geomatics Engineering Program is to provide an educational experience that enriches the lives of students. The program teaches necessary discipline related knowledge and skills to prepare students for their profession. Students learn how to protect the health and welfare of the public while expanding their base of knowledge through research and scholarship.

Educational Objectives of the Instructional Program

- Provide a broad based curriculum in geomatics engineering that generates graduates having competency in boundary surveying, geographic information systems (GIS), photogrammetry, digital mapping, and geodesy (GPS).
- Provide graduates with the knowledge and skills necessary to pursue professional careers in the geomatics engineering arena.
- Provide graduates with the educational rigor necessary to prepare them for graduate educational experiences in geomatics education or related fields if desired.
- Provide students with leadership opportunities associated with geomatics engineering related student clubs (SAGE, ACSM, CLSA, ASPRS, etc.), the Annual Geomatics Engineering Conference, *The Foresight!* magazine and external professional forums.
- Provide students with hands on laboratory experiences associated with each of the competency areas outlined in the first bulleted item in this list.
- Provide students with meaningful design experiences associated with each of the curricular competency areas outlined in number one in this list.
- Provide students with multidisciplinary design team experiences while demonstrating effective communication skills and a knowledge of contemporary issues.
- Provide students with an understanding of professional and ethical responsibility.
- Provide students with a recognition of the need for, and the ability to engage in, lifelong learning.

- Provide students with the broad education necessary to understand the impact of engineering solutions in a global and social context.

Bachelor of Science Degree Requirements

Geomatics Engineering Major — *Units*

Major requirements 65

GME 1, 15, 15L, 16, 34, 40, 50, 61, 66, 102, 108, 123, 125, 126, 135, 143, 159, 173, 180, 181 ..... (54)

IE 160 ..... (2)

Technical Courses ..... (9)

Select mandatory technical courses from the following list subject to the *Design Courses* statement listed below: GME 73, 100, 101, 105, 109, 114, 129, 140, 145, 152, 153, 161, 174, 175, 177, 190, 191T; CE 121, 150, 161; CSCI 115, 124, 150, 172; CONST 114, 122, 124; BA 154; CRP 100; FIN 180, 181; MATH 101, 121; PHYS 110

Design Courses: At least 6 units of technical courses must be selected from the following design courses: GME 145, 153, 161, 175

Other requirements 59

General Education

Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 89-92 for G. E. listings.)

The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 3A [B1], PHIL 1 or 10 [C2], GME 151 [IB], PHIL 120 [IC], PLSI 120 [M/I]

Additional requirements

MATH 76, 77; PHYS 4A, 4AL, 4B, 4C

Total 124

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/enggeorec.html*.

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 upper-division writing skills requirement can be met by passing the university examination or by completing IE 182W with a letter grade of *C* or higher no sooner than the term in which 60 units of coursework are completed.

COURSES

Geomatics Engineering (GME)

GME 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.

GME 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.

GME 11. Construction Surveying (3)
Principles and field practice of construction surveying measurements including distances, angles, directions, elevations, reduction of surveying data, planimetric mapping, and construction layout applications. (2 lecture, 2 lab hours; field trips required)

GME 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.

GME 15L. Engineering Surveying Laboratory (1)
Prerequisite: GME 15 or concurrently. Field practice in geomatics measurement, construction stakeout, and curve alignment problems. (3 lab hours; field trips required)

GME 16. Municipal Surveying (2)
Prerequisites: GME 15. Instrumentation; automated electronic survey data collection; local plane control survey, land survey, GIS overlay mapping and astronomy for azimuth applications.

GME 23L. Optics and Waves (1)
Visual optics, prisms, lenses, and collimated light, electromagnetic spectrum and waves, wave properties and atmospheric interactions, optical and electromagnetic imaging systems. GPS, GIS, remote sensing, photogrammetric, and EDM applications. (3 lab hours; field trips required)

GME 34. Adjustment Computations (3)
Prerequisites: GME 15, 61, MATH 76. Error theory, adjustment of simple survey networks, and matrix methods; digital computer solutions of geomatics computation and adjustment problems.

GME 40. Route and Construction Surveying (3)
Prerequisites: GME 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)

GME 50. Land Surveying (3)
Prerequisite: GME 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)

GME 61. Microcomputers in Engineering (3)
Prerequisite: GME 15 or concurrently. Microcomputer operating systems; introduction to high level computer languages, file processing, program documentation, testing, and debugging.

GME 66. Computer-Aided Mapping (3)
Prerequisite: GME 15 (may be taken concurrently). Preparing transportation alignment, topographic, property boundary, environmental, cross section, structural, and GIS maps and plans. Descriptive geometry, multiple views, orthographic perspectives, and isometric perspectives. Civil and geomatics engineering and construction applications. Includes comprehensive computer mapping design experience.

GME 73. Geomatics (3)
Introduction to Geographic and Land Information Systems; software and hardware issues; practical exercises.

GME 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.

GME 101. Green Design/Creative Thinking (3)
Prerequisites: permission of instructor, G.E. A2 completed, trigonometry. Creative thinking about solar friendly Green Building. Styles of thinking. Obstacles to overcome. Divergent versus convergent thinking. Idea stimulation. Gaining acceptance for new ideas.

GME 102. Geodetic Surveying (3)
Prerequisites: GME 16, 34 or concurrently. 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)

GME 105. Futuristics (3)
Prerequisites: G.E. 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.

GME 108. Geodesy (3)
Prerequisites: MATH 77, PHYS 4A, 4AL, GME 34 or concurrently. 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.

GME 109. Geodetic Astronomy (3)
Prerequisite: GME 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)

GME 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)

GME 123. Stereo-Photogrammetry (3)
Prerequisites: GME 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)

GME 125. Analytical Photogrammetry (3)
Prerequisites: GME 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)

GME 126. Digital Mapping (3)
Prerequisites: GME 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. (Field trips required)

GME 129. Industrial Photogrammetry (3)
Prerequisites: GME 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)

GME 135. Advanced Adjustment Computations (3)
Prerequisites: GME 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.

GME 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.

GME 143. Satellite Geodesy (3)
Prerequisites: GME 102, 108, 135 or concurrently. 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)

GME 145. Geopositioning (3)
Prerequisites: GME 143. Design of planning, data collection, data processing and network adjustment applications; kinematic and real-time GPS applications; case studies. (Field trips required)

GME 151. Boundary Control and Legal Principles (3)
Prerequisite: GME 50 or permission of instructor. Legal principles that control the boundary location of real property.

GME 152. Real Property Descriptions (3)
Prerequisite: GME 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)

GME 153. Boundary Survey Design (3)
Prerequisite: GME 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)

GME 159. Subdivision Design (3)
Prerequisites: GME 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. (Field trips required)

GME 161. Data Interface Design (3)
Prerequisites: GME 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. (Field trips required)

GME 173. Introduction to GIS (3)
Prerequisites: GME 15 and 66 or ME 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)

GME 174. GIS Applications (3)
Prerequisite: GME 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. (Field trips required)

GME 175. GIS Design (3)
Prerequisite: GME 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. (Field trips required)

GME 177. GIS Database Design (3)
Prerequisites: GME 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

GME 180. Senior Project (2)
Prerequisites: GME 123, 135, 143, 151, 173; approved subject; IE 182W or Upper Division Writing Exam or concurrently; GME 181 or concurrently. Study of a problem under supervision of a faculty member; final typewritten report required. Individual project except by special permission. GME 180 and GME 181 satisfy the senior major requirement for the B.S. in Geomatics Engineering. (Field trips required)

GME 181. Project Design (3)
Prerequisite: GME 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. GME 180 and 181 satisfy the senior major requirement for the B.S. in Geomatics Engineering. (Field trips required)

GME 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

GME 191T. Topics in Geomatics Engineering (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected geomatics engineering subjects not in current courses.

GME 193. Internship in Geomatics Engineering (2-4)
Prerequisite: permission of adviser. Engineering practice in a consulting, industrial, professional, or government work setting. 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.

Department of Industrial Engineering

Masud Mansuri, *Coordinator*
East Engineering Building, Room 154B
559.278.2368

Industrial Engineering Admissions Suspended

As of fall 2004, admissions to the Industrial Engineering program have been suspended. Students with substantial coursework in this area should consult with the Department of Mechanical and Industrial Engineering.

Program Description

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 63
IE 75, 85, 90, 95, 110, 111, 113, 115, 127, 130, 160, 165, 180, 182W ..... (35)
CE 29 or ME 29 ..... (3)
ECE 70, 91, 91L ..... (7)
ME 26, 31, 136 ..... (9)
Select at least one course from each of the following groups ..... (9)
Group A (Quality Engineering Science): IE 112, 120, 170
Group B (Design): IE 145, 148, 155
Group C (Engineering Science): CE 142; ECE 121; ME 116; IE 190, 191T

Other requirements 57
General Education
Select one course from each of the G.E. areas: Area A1, A2, B2, C1, D1, D2, D3. (See pages 89-92 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], IE 114 [IB], PHIL 120 [IC], PLSI 120 [M/I]
Additional requirements
MATH 76, 77; PHYS 4A, 4AL, 4B

Total 120

Note: Engineering majors are exempt from G.E. Area A3, third course Area C, Area E, and Area ID.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/engindrec.html.*

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 $4\frac{1}{2}$ or more years to graduate rather than the traditional four years. Students not fully prepared in chemistry should consider taking CHEM 3A and 1A (lecture only) 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.

COURSES

Industrial Engineering (IE)

IE 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.

IE 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)

IE 85. Computer Methods Laboratory (1)
Prerequisite: MATH 75 (may be taken concurrently). Application of existing microcomputer software and the development of new programs to solve frequently encountered problems in engineering practice. Includes Excel, Access, and Visual Basic. (3 lab hours)

IE 90. Manufacturing Processes (3)
Prerequisites: ME 26, 31. Processing techniques, including casting, welding, forming, and machining; capabilities and limitations of these techniques. (2 lecture, 3 lab hours; field trips required)

IE 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.

IE 110. Statistical Analysis in Engineering (3)
Prerequisite: MATH 76. Fundamentals of probability and statistics. Applications of statistical methods to engineering problems.

IE 111. Work Measurement (3)
Prerequisite: IE 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)

IE 112. Statistical Design of Experiments (3)
Prerequisites: IE 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.

IE 113. Operations Analysis (3)
Prerequisites: IE 85, 110. Application of linear algebra, differential equations, and quantitative and numerical techniques for analysis and optimization of complex operational problems.

IE 114. Facilities Engineering (3)
Prerequisite: IE 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)

IE 115. Quality Control and Reliability Engineering (3)
Prerequisite: IE 110. Fundamentals of statistical quality control and reliability engineering. Sampling plans. Control charts. Reliability techniques.

IE 120. Systems Safety Engineering (3)
Prerequisite: IE 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.

IE 127. Human Factors Engineering Design Laboratory (1)
Prerequisites: IE 95, 182W (or concurrently). Expands principles developed in the introductory human factors course for use in engineering design. (3 lab hours)

IE 130. Production and Inventory Control (3)
Prerequisite: IE 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.

IE 145. Design of Automated Systems (3)
Prerequisite: IE 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)

IE 148. Simulation of Industrial Systems (3)
Prerequisite: IE 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.

IE 155. Design and Applications of Robotic Systems (3)
Prerequisites: IE 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)

IE 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.

IE 165. Computer-Integrated Manufacturing (3)
Prerequisite: IE 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)

IE 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.

IE 180. Senior Design Project and Seminar (3)
Prerequisites: senior standing in industrial engineering or permission of instructor; approved subject; IE 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.

IE 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.

IE 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for *RP* grading.

IE 191T. Topics in Industrial Engineering (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected industrial engineering subjects not in current courses.

IE 193. Industrial Engineering Cooperative Internship (1-6; max total 12)
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.

Mechanical Engineering

Satya D. Mahanty, *Coordinator*
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559.278.2368

Program Description

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.

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.

Co-op Program

The department participates in the Cooperative Education Program which allows the student to gain industrial experience and financial benefits through projects with local companies.

Academic Probation

A minimum GPA of 2.0 must be maintained in all courses taken in the College of Engineering. 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.

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.

Bachelor of Science Degree Requirements

Mechanical Engineering Major *Units*

Major requirements 65

ME 1, 26, 31, 32, 115, 116, 118, 134, 136, 140, 145, 154, 155, 156 ..... (34)
CE 20, 121 ..... (6)
ECE 70, 91, 91L ..... (7)
IE 90, 110, 160 ..... (8)
Design Applications ..... (4)
ME 159 and ME 164 or ME 166
Technical Area Courses ..... (6)
Take a minimum of 6 units in *Group A* (ME 137, 142, 144, 146, or 162.)
A maximum of 3 units in *Group B* (ME 180, 190, 191T; IE 145, 155, 165; ECE 121, 121L, 155) may be substituted for a course in *Group A* with faculty adviser's approval.

Other requirements 59

General Education 41
Select PHIL 20 for C2, PHIL 120 for IC, and PLSI 120 for M/I; select one course from each of the following G.E. areas: A1, A2, B2, C1, D1, D2, D3
The following courses are required to satisfy both G.E. and major requirements: MATH 75 [B4], CHEM 3A [B1], ME 112 [IB]
Additional requirements 18
MATH 76, 77, 81; PHYS 4A, 4AL, 4B

Total 124

Note: Engineering majors are exempt from G.E. areas A3, E, ID, and the third course in Area C.

See the catalog Web Site for recommended program at *http://www.csufresno.edu/catoffice/current/engmechrec.html*.

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. If needed, students also may go to the Learning Resource Center in Lab School, Room 137 and request tutorial assistance.
4. Advising is mandatory in the College of Engineering. Students must see their adviser at least once per academic year.
5. The Upper-Division Writing Skills requirement has to be completed no sooner than the term in which 60 units of coursework are completed or no later than the term in which 90 units are completed. This requirement can be met by passing the university examination or by completing IE 182W with letter grade of ***C*** or better.

COURSES

Mechanical Engineering (ME)

ME 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.

ME 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)

ME 29. Engineering Mechanics (3)
(Same as CE 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.

ME 31. Engineering Materials (3)
Prerequisites: CHEM 3A, 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)

ME 32. Engineering Materials Laboratory (1)
Prerequisite: ME 31. Application of experimental methods to engineering materials. Study of stress and strain in metals; fatigue; hardness; toughness. (3 lab hours)

ME 112. Engineering Mechanics: Dynamics (3)
Prerequisite: CE 20. Development of principles of kinematics and kinetics in engineering.

ME 115. Instrumentation and Measurement Lab (1)
Prerequisites: PHYS 4AL, ECE 70, ME 32 (or concurrently). Application of different measuring devices and techniques used in engineering systems. Examines calibration and response characteristics of instruments. Technical reports are required. (3 lab hours)

ME 116. Fluid Mechanics (3)
Prerequisites: CHEM 3A, ME 112 (or concurrently). Fundamentals of fluid mechanics as applied to engineering problems.

ME 118. Fluid Mechanics Laboratory (1)
Prerequisites: IE 182W or successful completion of writing exam, ME 115 (or concurrently); ME 116 (or concurrently). Applications of experimental methods used in engineering practice to ME fluid systems. (One 3-hour lab)

ME 134. Fundamentals of Machine Design (3)
Prerequisites: ME 26, 112; CE 121; MATH 81. Uncertainty in machinery design; static and dynamic failure theory. Analytical, graphical, and computer solutions applied to design problems in machinery, mechanisms, and gears. Use of software to design and simulate mechanical systems. Written reports required. (2 lecture, 3 lab hours)

ME 136. Thermodynamics (3)
Prerequisites: CHEM 3A, PHYS 4A, MATH 77, and upper-division standing. Fundamentals of thermodynamics and heat transfer as applied to engineering problems.

ME 137. Turbomachinery (3)
Prerequisites: ME 116 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.

ME 140. Advanced Engineering Analysis (3)
Prerequisites: MATH 81, ECE 70, ME 112 (or concurrently), ME 116 (or concurrently), ME 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.

ME 142. Mechanical Vibration (3)
Prerequisites: ME 112, CE 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.

ME 144. Advanced Mechanics of Materials (3)
Prerequisites: CE 121, ECE 70, MATH 81. Advanced topics in mechanics of materials.

ME 145. Heat and Mass Transfer (3)
Prerequisites: ECE 70, MATH 81, ME 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.

ME 146. Air Conditioning (3)
Prerequisites: ME 116, 136. Theory and practice in air conditioning including psychrometrics, load estimating, heating and cooling systems, fluid design and controls.

ME 154. Design of Machine Elements (3)
Prerequisites: IE 90, ME 134. 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)

ME 155. Elements of Systems Design (3)
Prerequisites: ME 154, 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.

ME 156. Advanced Thermodynamics — Fluid Mechanics (3)
Prerequisites: ME 116, 136. Advanced topics in thermodynamics and fluid mechanics including analysis of solar and nuclear systems as applied to engineering problems.

ME 159. Mechanical Engineering Laboratory (1)
Prerequisites: ME 115, 118, and senior standing. Advanced methods of measurements in the design of energy and mechanical design experiments. Group projects and technical reports are required.

ME 162. Computer-Aided Design (3)
Prerequisites: ME 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.

ME 164. Machine Design (3)
Prerequisites: ME 116, 136, 154; IE 160 (or concurrently), 182W or successful completion of writing exam. 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)

ME 166. Energy Systems Design (3)
Prerequisites: ME 145, 156; IE 160, 182W or successful completion of writing exam. 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.

ME 180. Special Projects (1-3; max total 3)
Prerequisites: senior standing in mechanical engineering, approved subject, IE 182W or successful completion of writing exam. Study of a problem under supervision of a faculty member; final typewritten report required. Individual project except by special permission.

ME 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

ME 191T. Topics in Mechanical Engineering (1-3; max total 6)
Prerequisite: permission of instructor. Investigation of selected mechanical engineering subjects not in current courses.

ME 193. Mechanical Engineering Cooperative Internship (1-6; max total 12)
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.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Mechanical Engineering (ME)

ME 211. Advanced Dynamics (3)
Prerequisite: ME 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.

ME 220. Compressible Fluids (3)
Prerequisite: ME 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.

ME 221. Incompressible Fluids (3)
Prerequisite: ME 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.

ME 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.

ME 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.

ME 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.

ME 227. Advanced Thermodynamics (3)
Prerequisite: ME 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.

ME 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.

ME 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.

ME 232. Advanced Aircraft Stability and Control (3)
Prerequisite: ME 230. Continuation of ME 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.

ME 241. Structural Analysis (3)
Prerequisite: ME 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.

ME 243. Structural Dynamics (3)
Prerequisite: ME 241 or permission of instructor. Continuation of ME 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.

ME 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.

ME 290. Independent Study (1-3; max total 6)
Prerequisite: graduate status in engineering. See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

ME 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.

ME 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 special topics, as the culminating requirement for the master's degree. Abstract required. Approved for ***RP*** grading.

ME 299. Thesis (3; max total 6)
Prerequisite: see *Criteria for Thesis and Project.* Preparation, completion, and submission of an acceptable thesis for master's degree. Approved for ***RP*** grading.

Engineering - Graduate Programs

College of Engineering

Campus advisers:

M.S. in Civil Engineering
Jesus Larralde-Muro
Engineering East Building, Room 133
559.278.2566
jesuslm@csufresno.edu

M.S. in Engineering
Electrical Engineering Option
Ramakrishna Nunna
Engineering East Building, Room 254
559.278.2726
rnunna@csufresno.edu

Mechanical Engineering Option
Satya D. Mahanty
Engineering East Building, Room 154
559.278.2368
satyam@csufresno.edu

M.S. in Engineering
Electrical Engineering Option
Mechanical Engineering Option
Edwards Air Force Base
James W. Smolka, *Coordinator*
California State University, Fresno
Room 117
140 Methusa Building 2453
Edwards, CA 93523
(661) 258-5936

Master of Science Programs

The College of Engineering offers a Master of Science in Civil Engineering and in Engineering (with options in Electrical and Mechanical Engineering). Students at Edwards Air Force Base (AFB) may enroll in the Master of Science in Engineering program through the Edwards AFB coordinator. It is not necessary for these students to visit the Fresno campus. To contact advisers for information on individual programs, see the list of advisers on this page.

Master of Science Programs

M.S. in Civil Engineering
See page 296

M.S. in Engineering
(Options in Electrical and Mechanical Engineering)

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: (1) to complete a minimum of 30 units of graduate coursework, including appropriate core courses, (2) to successfully demonstrate knowledge base in culminating experience, 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 the following:

A. Core Requirement
(3 courses required) **9**
ENGR 202, 205, 206, 210

B. Elective Courses **15**
Approved upper-division and graduate courses. Maximum of 6 upper-division units. See page 303-307 for courses in Electrical Engineering and page 313-315 for courses in Mechanical Engineering.

C. Culminating Experience **6**
Choose between
1. 6 units of electives plus comprehensive exam,
2. EE 298 or ME 298 Project (3) plus 3 units of electives, or
3. EE 299 or ME 299 Thesis (6)

Total **30**

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. The total undergraduate upper-division semester hours applied to this degree program cannot 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.) A GRE information booklet and application forms are available in the Edwards AFB resident coordinator's office or from the Division of Graduate Studies at California State University, Fresno.

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 from the Fresno campus 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 the Program. 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, (c) a minimum GRE quantitative score of 450 are eligible for classified (degree status) graduate standing, and (d) a letter of recommendation from and academic or an industrial source. Students who meet requirements (a) and (c) 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 (concurrently with regular students) for credit or audit. Prior approval is required.

See the catalog Web site for core courses that may be applied to the programs. Visit *http://www.csufresno.edu/catoffice/current/engcore.html.*

Accelerated Graduate Programs

The accelerated M.S. program will provide a path to students who are talented and want to acquire additional knowledge in specialized areas of interest, as a continuation of their B.S., within a short period of time. The benefits to the students that participate in the program are as follows:

- More efficient use of their fourth academic year leading to a baccalaureate degree
- Ability to focus more rigorously on their areas of professional practice, culminating in a master's degree
- Opportunity to receive both B.S. and M.S. in five years

Eligibility: A student who has completed 75 units of required and elective G.E., math, science, and engineering coursework required for his/her undergraduate program may apply to the accelerated graduate program.

Application Materials: To apply to the accelerated graduate program, a student must submit the following:

- Application form
- A detailed statement of the purpose
- Two letters of recommendation, at least one from a faculty member of the program

Timing of Application: Application may be made no sooner than at the beginning of the sixth semester of study of an undergraduate degree program. Students officially enter the program no earlier than the seventh semester of an eight-semester undergraduate program.

Requirements: The applicants must satisfy the following requirements:

- Overall GPA of 3.0 or greater at the time of application
- Satisfactory GRE scores (consult program advisers)
- Complete all the courses specified by the program by the end of the sixth semester with GPA of 3.0 or greater
- Complete no less than 30 units of coursework in residence by the end of the sixth semester
- Complete undergraduate writing requirement by the end of the sixth semester
- Complete all G.E. requirements prior to taking 200-level courses

Progress Toward Awarding of Degree: Students can take up to 10 units of courses that qualify for the M.S. program (but no more than 6 units of 200-level courses per semester) before completion of the B.S. program. Students shall not proceed with further graduate-level coursework until they have obtained the classified standing. The classified standing can be obtained by filing the appropriate form with the Office of Graduate Studies after the completion of the B.S.

Awarding of Degree: Students must meet all programmatic requirements for each degree. This implies that no coursework, project, independent study, etc., may be simultaneously applied toward meeting the requirements of the B.S. and M.S. Students must complete the requirement for the B.S. at least two semesters prior to completing the requirement for the M.S.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Engineering (ENGR)

ENGR 202. Applied Engineering Analysis (3)
Study of analytical tools used in the analysis and modeling of engineering systems. Emphasis is placed on solving problems in engineering disciplines.

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.

ENGR 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.

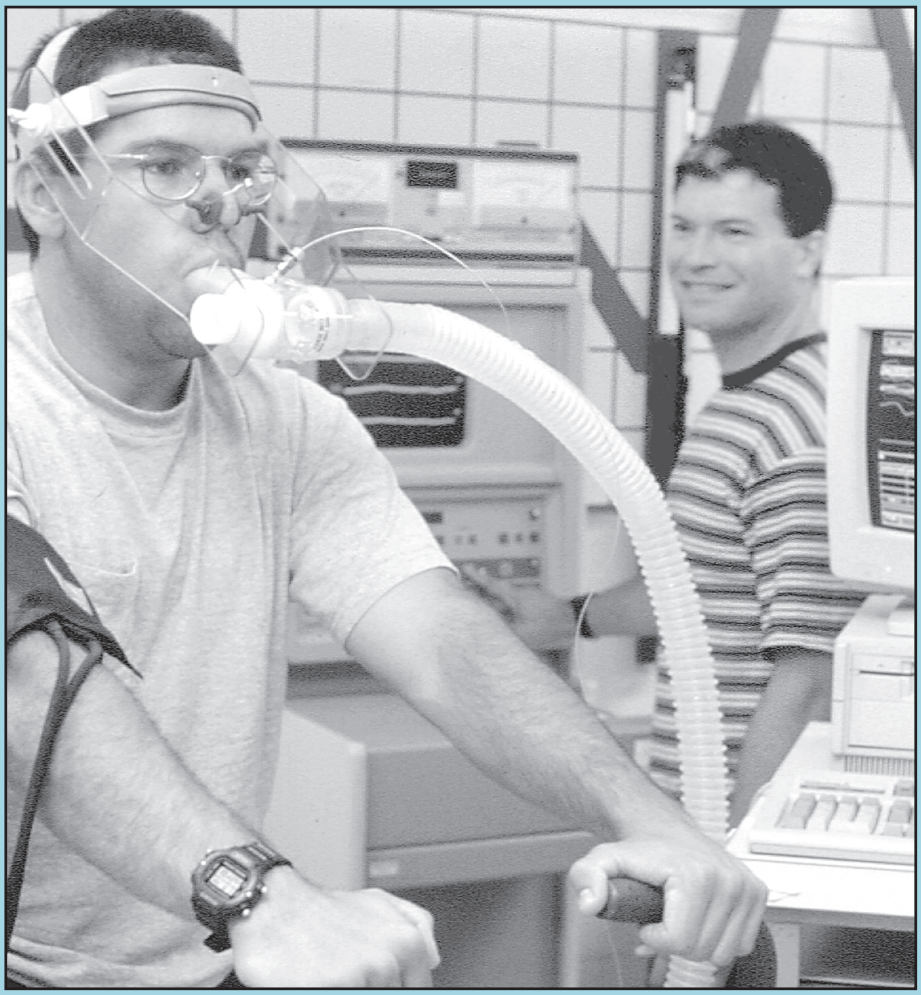
ENGR 210. Linear Control Systems (3)
A first-year graduate course covering the analysis, synthesis, and performance of linear control systems. Partial fraction expansion, Routh's criterion, the impulse function. Basic servo characteristics and types, block diagrams, transfer functions. A detailed treatment 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.

ENGR 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.

For a complete listing and descriptions of all graduate courses, see department pages.

The College of Health and Human Services

McLane Hall, Room 178
Benjamin Cuellar, *Dean,* 559.278.4004



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 disorders and deaf studies, 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.

The College of Health and Human Services includes the departments of Communicative Disorders and Deaf Studies, Health Science, Kinesiology, Nursing, Physical Therapy, and Social Work Education. Gerontology and Recreation Administration and Leisure Studies are integral programs of the college .

Communicative Disorders and Deaf Studies

Two students practice conversing in American Sign Language.

College of Health
and Human Services

Department of Communicative Disorders and Deaf Studies
Don B. Freed, *Chair*
Janice Rutherford, *Administrative Support Coordinator*
Laboratory School, Room 125
559.278.2423
TTY/TDD: 559.278.2856
http://www.csufresno.edu/csd/

B.A. in Communicative Disorders
Emphases:
- Audiology
- Deaf Education
- Interpreting
- Speech-Language Pathology

M.A. in Communicative Disorders
Options:
- Deaf Education
- Speech-Language Pathology

Minor in Communicative Disorders

Preliminary Level I and Professional Level II Special Education Specialist Credential: Deaf and Hard of Hearing

Clinical Rehabilitative Services Credential

Certificate in Conversational American Sign Language

Communicative Disorders and Deaf Studies

Audiology, speech-language pathology, deaf education and interpreting are concerned with the development, problems, and disorders found with people's speech, hearing, and language. Professionals in these fields 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 Council for Academic Accreditation in Audiology and Speech-Language Pathology (CAA).

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, Levels I and II Special Education Specialist Credential: Deaf and Hard of Hearing clinical rehabilitative services credential.

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 con-

tain 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.

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

Don B. Freed, *Chair*

Ron M. Parker, *Graduate Coordinator*
Ron M. Parker, *Audiology Adviser*
Deaf Studies/Deaf Education Advisers:
Paul W. Ogden, David H. Smith
Speech-Language Pathology Advisers:
Don B. Freed, M. N. Hegde, Steven L. Skelton, Steven D. Wadsworth

Michael I. Burns, *Clinic Director*

Don B. Freed
M. N. Hegde
Paul W. Ogden
Ron M. Parker
Kenneth G. Shipley
Steven L. Skelton
David H. Smith
Steven D. Wadsworth

Bachelor of Arts Degree Requirements

Communicative Disorders Major *Units*

Major requirements 41-47
Emphases
Select one:
Audiology
CSD 80, 91, 95, 101, 102, 103, 105, 107, 109, 110, 116, 128, 131, 141, 172 ..... (41)
Deaf Education
CSD 80, 93, 94S, 95, 102, 106, 114, 128, 131, 135, 136, 139, 141, 162, 163, 164 ..... (46)
Interpreting
CSD 80, 91, 92, 93, 94S, 95, 106, 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 requirements 51
Electives and remaining degree requirements 22-28*
Courses may be used to satisfy credential requirements or a minor in another field. See advising notes 4 and 5 for recommended electives.
Total 120

* CSD 92 in G.E. Breadth C2 also may be applied to the communicative disorders major for students in the deaf education and interpreting emphases.

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 double major or minor (see *Double 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.
6. No General Education Multicultural/International course offered by the Communicative Disorders and Deaf Studies Department may be used to satisfy the General Education requirements for majors in the department.

Certificate in Conversational American Sign Language

The Certificate in Conversational American Sign Language will be awarded to students who first complete the 9-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 required courses. Students must complete all the coursework with a *C* grade or better.

Units

Required 12
CSD 94S, 106, 136, 139

Note: No course substitutions may be made without the department's approval. CSD 91, 92, 93, and 94S are prerequisites for CSD 136.

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, 93, 139, 141 ..... **18**

Note: With permission of the department chair, substitutions can be made. The Communicative Disorders Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Graduate Program

The master's degree is considered essential for the professional training needed for effective 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 passing the writing component of CSD 200 and obtaining written clearance from the instructor. If GWR clearance is denied, students may appeal to the course instructor. Please see the CDDS *Graduate Handbook* for more information.

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*

Deaf Education Option

CSD 200, 201, 202, 255, 262, 263, 264, either 3 units in electives* and CSD 268 or 9 units in electives* **30**

Culminating Experience **6**

Thesis or project ..... (6)

Comprehensive Examination .... (6)

CI 225 and LEE 146 or LEE 149

Total **36**

Speech-Language Pathology Option

CSD 200, 202, 204, 207, 210, 213, 214, 215, 216, 220 ..... **30**

Culminating Experience **6**

Thesis or project ..... (6)

Comprehensive Examination .... (6)

CSD 201, 292

Total **36**

*Approved electives are as follows: CSD 290; CI 228, 230; LEE 144; LING 133, 244; SPED 219, 233, 235.

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 Disorders and Deaf Studies Department.

Clinical Training. All students are involved in supervised clinical practicum experience during their graduate training. At least 400 clinical hours are required prior to receiving the M.A. degree. A minimum of 300 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.)

Culminating Experience. A culminating experience is required of all California State University, Fresno students earning master's degrees. This requirement is accomplished by completing a thesis, project, or comprehensive written exam. Only a limited number of students may be permitted to undertake a thesis or project, depending on the availability of faculty or committee members. Selection of students for a thesis or project is determined by their consistent demonstration of academic superiority in coursework and evidence of outstanding writing skills and research papers. Up to 6 units of credit can be 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 their graduate program, so as to assure completion of the assignment prior to graduation. 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 must complete a comprehensive written examination. For this examination, students write detailed responses to questions about specific topics within the field. Further 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 Disorders and Deaf Studies. 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 Preliminary Level I and Professional Level II Education Specialist Credential: Deaf and Hard-of-Hearing with or without pursuing the M.A. degree. They are trained to teach deaf and hard-of-hearing classes in early childhood, elementary, and secondary settings, as certified by CED. Students pursuing these credentials must meet all admission requirements for the graduate program.

Individuals interested in teaching children and youth who are deaf or hard of hearing must obtain the Preliminary Level I Special Education Specialist: Deaf and Hard of Hearing (D/HH) Credential and within five years receive the Professional Level II Special Education Specialist: Deaf and Hard of Hearing Credential. For more detailed information, contact the Department of Communicative Disorders and Deaf Studies office.

Students are not eligible to take any Communicative Disorders and Deaf Studies (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.

Preliminary Level I Special 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 93, 94S, 135, 139, 141, 162, 163, 164, 202, 255, 262, 263, 264	**39**
Clinical core: CSD 260 (2 units); CSD 258 (6 units); CSD 268 (6 units) or CSD 258 (12 units)	**14**
Total	**72**

Professional Level II Special Education Specialist: Deaf and Hard of Hearing Credential

After candidates complete their Preliminary Level I Special Education Specialist Credential program, they must complete all coursework and obtain the Professional Level II Credential no later than five years after obtaining the Preliminary Level I Credential. After a minimum of two years of documented employment in a special education position requiring the Level I Credential authorization, the Level II Credential program can begin. The Professional Level II Credential is required as a condition for continued employment in special education in the state of California.

Information regarding admission to the Professional Level II Special Education Specialist: Deaf and Hard of Hearing Credential can be obtained from the Department of Communicative Disorders and Deaf Studies office, 278.2423, or by visiting the department's Web site at *www.csufresno.edu/csd.*

Level II Program

Prerequisite: Preliminary Level I Special Education Specialist: Deaf and Hard of Hearing Credential

	Units
Core: CSD 278 and 279	**6**
Generic Core CI 100; HS 120	**6**
Total	**12**

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	**100-110**

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)

CSD 80. Introduction to Human Communication and Disorders (3)
An overview of speech, language and hearing, and disorders of communication; interrelations between the causes of communication disorders and their psychological and sociological effects.

CSD 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.

CSD 92. American Sign Language II (3)
Prerequisites: G.E. Foundation A2; CSD 91 or permission of instructor. 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.

CSD 93. American Sign Language III (3)
Prerequisites: CSD 91, 92. Continued study of grammatical structure of the lexicon of American Sign Language related to its historical, artistic, and cultural influence in mainstream society with emphasis on receptive/expressive conversational and cultural skills for communication. (Formerly CSD 123)

CSD 94S. American Sign Language IV (3)
Prerequisites: CSD 91, 92, 93. Full development of receptive/expressive conversational skills in a culturally appropriate and participatory fashion, using American Sign Language to converse, narrate, and engage in conversations with deaf children and adults from diverse backgrounds. (Formerly CSD 94, 124)

CSD 95. Introduction to Speech and Language Development (3)
Study of normal verbal development; compilation of developmental milestones in speech and language acquisition.

CSD 98. Introduction to Hard of Hearing and Deaf People (3)
Prerequisite: G.E. Foundation A2. Introduces diversity among hard of hearing and deaf individuals, their backgrounds, their history, and their life experiences. Places emphasis on understanding their minority status and appreciating communications and cross-cultural skills for interaction. G.E. Breadth D3.

CSD 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)

CSD 102. Anatomy and Physiology of Speech and Hearing (3)
Anatomic and physiologic bases of the speech and hearing mechanisms.

CSD 103. Speech and Hearing Science (3)
Physiological acoustics, psychoacoustics, acoustic phonetics, and perception of speech. (2 lecture, 2 lab hours)

CSD 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)

CSD 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.

CSD 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.

CSD 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)

CSD 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)

CSD 114. Education of Exceptional Children (3)
Characteristics of exceptional children; diagnostic and instructional programs; legal and certification issues; observation. (2 lecture, 2 lab hours)

CSD 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.

CSD 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)

CSD 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.

CSD 128. Observation in Audiology (1-3; max total 3)
Prerequisites: CSD 80, 95, 102; or permission of instructor. Priority will be given to seniors. Corequisite: CSD 131. Observation of audiologic testing.

CSD 131. Principles of Audiology (3)
Prerequisite: CSD 80, 95,102; or permission of instructor. 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.

CSD 135. Sign Variations for Classroom Use (3)
Prerequisites: CSD 91, 92, 93. Focus on signing skills and different models/systems of communication used with deaf and hard-of-hearing students in a classroom.

CSD 136. Sign Language Vocabulary for Professionals (3)
Prerequisites: CSD 91, 92, 93, 94S. 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.

CSD 139. Deaf Culture (3)
Prerequisites: G.E. Foundation and Breadth Area D. Experiences faced by deaf people, and their varying degrees of participation in deaf culture/deaf community; social, emo-

tional, 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 HHS 139)

CSD 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.

CSD 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.

CSD 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.

CSD 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)

CSD 166. Introduction to Interpreting (3)
Prerequisites: CSD 95 or LING 150, CSD 139, 141; corequisites: CSD 92 and ENGL 1. 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.

CSD 168. Practical Experience in Interpreting (2)
Prerequisite: CSD 166. Development of practical interpreting skills in professional settings, such as artistic, educational, health, legal, medical, mental health, rehabilitation, and social services settings.

CSD 169. Sign Language Interpreting I: Voice to Sign (3)
Prerequisite: CSD 168. Corequisites: CSD 136 and 139. Emphasis on the development of the communication skills necessary for interpreting from spoken English to sign language in professional settings.

CSD 170. Sign Language Interpreting II: Sign to Voice (3)
Prerequisite: CSD 169. Emphasis on the development of the communication skills necessary for interpreting from sign language to spoken English in professional settings.

CSD 171. Professional Writing in Communicative Disorders and Deaf Studies (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.

CSD 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.

CSD 175. Internship in Interpreting (1-3; max total 6)
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.

CSD 188T. Topics in Communicative Disorders and Deaf Studies (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.

CSD 190. Independent Study (1-3; max total 6)
See *Academic Placement—Independent Study*.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Communicative Sciences and Disorders (CSD)

CSD 200. Graduate Studies and Research in Communicative Disorders and Deaf Studies (3)
Prerequisite: statistics (HS 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.

CSD 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.

CSD 202. Aural Rehabilitation (3)
Prerequisites: CSD 128, 131. Habilitative and rehabilitative procedures to assist the hearing impaired: amplification, speech-reading, auditory training, speech and language training; psycho-socio-educational issues. (Formerly C D 202)

CSD 204. Seminar in Stuttering (3)
Prerequisite: permission of instructor. Research on stuttering in children and adults; assessment and treatment procedures.

CSD 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.

CSD 209. Speech-Language-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.

CSD 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.

CSD 213. Seminar in Motor Speech Disorders (3)
Prerequisites: CSD 102, 172. Etiology and symptomatology of apraxia, and dysarthria; assessment and treatment.

CSD 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.

CSD 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.

CSD 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.

CSD 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.

CSD 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)

CSD 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)

CSD 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.

CSD 257. Student Teaching: Speech-Language Pathology (1-9; 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)

CSD 258. Student Teaching: Deaf and Hard-of-Hearing (6-12; max total 12)
Prerequisites: CSD 202, 255, 262, 263, 264; CSET must be taken and passed. 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)

CSD 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)

CSD 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)

CSD 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)

CSD 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.

CSD 267. Externship in Speech-Language Pathology (1-9; max total 9)
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.

CSD 268. Externship with Deaf Children and Youth (6)
Prerequisites: CSD 202, 255, 258, 262, 263, 264; CSET must be taken and passed. Supervised externship in a residential school for deaf children and youth. Full time in residence for 8 weeks. *CR/NC* grading only.

CSD 278. Application of Theory into Practice in Deaf Education (3)
Supervised field experience working with deaf and hard-of-hearing students with an emphasis on the integration of applied research and theory into practice. Development of an induction plan will include the candidate, university supervisor, and school district representative where the candidate is employed. *CR/NC* grading only.

CSD 279. Induction Plan-based Field Experience in Deaf Education (3)
Prerequisite: CSD 278. Final supervised field experience working with deaf and hard-of-hearing students with an emphasis on self-assessment, goal-setting, and other induction plan components. Support is provided through collaboration between university and school district personnel. *CR/NC* grading only.

CSD 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

CSD 292. Seminar in Advanced Clinical Methods in Communicative Disorders (3)
Prerequisites: completion of CSD 200 and two graduate seminars. Advanced review of clinical methods, research trends, and recent developments in assessment and treatment procedures with emphasis on language disorders in adolescent and young adults. Required for non-thesis/project SLP graduate students.

CSD 298. Individual Research Project (1-6; max total 6)
Prerequisite: consent of advisory committee. See *Criteria for Thesis and Project.* A written report on an individual research project for the master's degree. Approved for *RP* grading.

CSD 299. Thesis (2-6; max total 6)
Prerequisite: See *Criteria for Thesis and Project.* Preparation and submission of a thesis. Approved for *RP* grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.)*

Communicative Sciences and Disorders (CSD)

CSD 300T. Selected Topics in Communicative Disorders and Deaf Studies for Continuing Education (1-3; max total 6)

Gerontology

College of Health
and Human Services

Gerontology Program
To be announced, *Director*
Christi Smith,
Administrative Support Coordinator
McLane Hall, Room 184
559.278.8465
http://www.csufresno.edu/gerontology

Minor in Gerontology

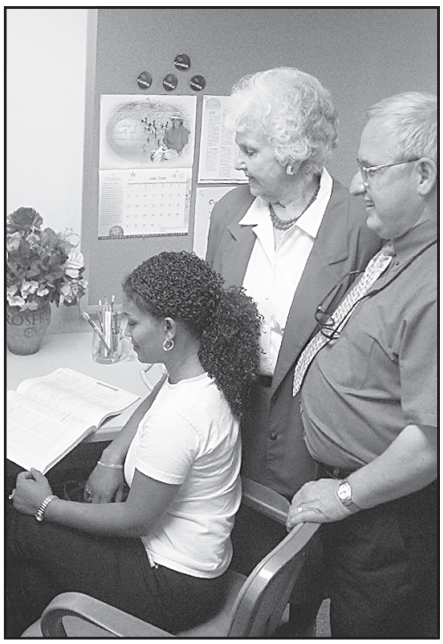
Gerontological Specialist Certificate

Gerontology

Gerontology is the study of aging. Our nation's steadily increasing older population is creating a unique demand for well educated individuals to serve as competent professionals in the field of aging.

The Gerontology Program offers a minor and a certificate in gerontology, both designed to prepare students to address unmet and urgent needs of elders. Special majors can also be arranged for the student. The Gerontology Program attracts undergraduate students from all academic areas, reentry students, graduate students within social science and health professions, service providers, and elders seeking greater understanding of this stage of life.

Courses are designed to present comprehensive biological, psychological, cultural and sociological theories related to the lifelong aging process. The influence of heritage, culture, and creativity are emphasized, as are services and resources; housing and environment; disabilities and rehabilitation; federal, state, and local agencies; and social polices and programs for elders. Students have the opportunity to develop empathy for older adults as they communicate and interact with elders through community service, internships, and service learning.



Program Partnerships

Programs that operate in partnership with the Gerontology Program include the California Geriatric Education Center (CGEC) San Joaquin Valley Program, Elderhostel Program, the Fresno Learning Activities in Retirement (FLAIR), Friendly Visitor Services, and the Gerontology Education and Resource Center.

The Gerontology Program cosponsors the S.A.G.E. (Student Association Gerontology Education) Club, and offers continuing education for health professionals in cooperation with the Division of Global and Continuing Education's Extension Programs.

Career Opportunities

The development of employment opportunities in the field of gerontology include federal, state, county, and city agencies; senior centers, adult day care centers; long term care facilities, intermediate care facilities, acute care hospitals, medical centers; and 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 businesses such as banks, travel agencies, large corporations, insurance companies, educational agencies, publishing and broadcasting agencies, and department stores.

Gerontology Minor

The 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 sciences; health science; nursing; kinesiology; physical therapy; psychology; therapeutic recreation; social work; and sociology.

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.

Gerontology Minor	*Units*
Required	**9**
GERON 10S and/or GERON 100; GERON 140, 161	
Electives	**6***
GERON 103, 111, 115, 117, 125, 130, 132, 134, 137 (1-3 units), 139, 148, 150	
Total	**15**

* Other gerontology courses may be approved as alternatives with permission of a gerontology adviser.

Note: The Gerontology Minor also requires a 2.0 GPA and 6 upper-division units in residence.

A Special Major for those interested in gerontology may be designed. The process for this is initiated through the Office of Advising Services, 559.278.1787, Joyal Administration, Room 224.

Gerontological Specialist Certificate

The certificate will be awarded to students who complete a program of study consisting of 21 units of courses in gerontology. 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 may 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, internship, and social services. Coursework must be completed with a ***C*** or better.

	Units
Required	**12**
GERON 100, 140, 161, 185	
Electives	**9***
Select 9 units from: GERON 103, 111, 115, 117, 125, 132, 137 (1-3 units), 139, 148, 150, 180T, 190	
Total	**21**

* Other gerontology courses may be approved as alternatives with permission of a gerontology adviser.

COURSES

Gerontology (GERON)

GERON 10S. The Journey of Adulthood: Planning a Meaningful Life (3)
(Same as RLS 10S.) An introduction to theories, concepts, perspectives, and the study of aging; psychological, physiological, cultural, and ethnic issues fundamental to planning a meaningful life during the journey of adulthood. Examines developing a healthy lifestyle and cultivating lifelong learning and satisfaction. Not available for ***CR/NC*** grading. G.E. Breadth E1. (Formerly GERON 10)

GERON 18. Women and Aging (3)
(See WS 18.) G.E. Breadth E1.

GERON 100. Images of Aging in Contemporary Society (3)
Prerequisites: G.E. Foundation and Breadth Area D. Explores aging theories; multicultural portrayals of aging through art, literature, and media; examines generational/societal perceptions of aging. Develops awareness of competence in recognizing different images, and examines the influence of these images on societal/emotional status, resources and other elder issues. G.E. Integration ID.

GERON 103. Psychology of Aging (3)
(See PSYCH 103.)

GERON 111. Heritage and Aging (3)
Aging is continual from birth to death. Events throughout a person's life coincide with dates of many different historical, cultural, and humanistic occurrences. Students explore the interrelationship of events to an elder's heritage, creativity, and potential for successful aging. G.E. Breadth E1.

GERON 115. Health Issues of Aging (3)
(See HS 115.)

GERON 117. Resource Management of Aging (3)
(See CSH 117.)

GERON 125. Social Services for the Aging (3)
(See SWRK 125.)

GERON 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.

GERON 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.

GERON 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.

GERON 137. Community Service in Gerontology (1-3; max total 3)
Prerequisite: permission of instructor. Service-oriented course designed to provide opportunities to observe, interact, and learn from elders in gerontological settings. Hour requirements are supported through writing and discussion of issues and solutions. ***CR/NC*** grading only. (Formerly GERON 180T)

GERON 139. Death and Dying (3)
Exploration of personal values and beliefs as well as diverse spiritual and cultural beliefs, groups regarding death, and its meaning for living. Practical matters surrounding death are also addressed. (Formerly GERON 180T)

GERON 140. Aging in America: Politics and Change (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.

GERON 148. Biophysical Aspects of Aging (3)
(See KINES 148.)

GERON 150. Communication and Aging (3)
(See COMM 150.) (Formerly SPCH 188T section)

GERON 161. Multiculture/Aging (3)
Prerequisite: G.E. Foundation and Area D. Explores diversity and commonality among older persons. 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. G.E. Multicultural/International MI.

GERON 166. Social Gerontology (3)
(See SOC 166.)

GERON 180T. Topics in Gerontology (1-3; max total 9)
Various topics in the field of aging such as health and wellness, death and dying, and activity courses. Content varies from semester to semester.

GERON 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.

GERON 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

Gerontology (GERON)

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
Sherman K. Sowby, *Chair*
Christi Smith, *Administrative Support Coordinator*
McLane Hall, Room 184
559.278.4014
http://www.csufresno.edu/hlthsci

B.S. in Health Science
Options:
- Community Health
- Environmental/Occupational Health and Safety
- Health Administration

Master of Public Health (MPH)
Options:
- Health Administration
- Health Promotion

Minor in Health Science

Minor in Public Health

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 based on principles of public health practices 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, and health administration.

Master's Program

The mission of the program is to prepare public health professionals for leadership roles in the fields of 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, 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, health care administration, registered environmental health specialist, university teaching, safety products sales, substance abuse, industrial hygienist, health promotion, environmental analyst, and disease control officer.

Faculty

Sherman K. Sowby, *Chair*
Community Health:
Gerald W. Davoli
Vicki D. Krenz
Miguel A. Perez
Helda L. Pinzon-Perez
Sherman K. Sowby, *Adviser*
Environmental Health Science/Industrial Hygiene: Sandra Donohue, *Adviser;*
Michael J. Waite, Ronald C. Schultz, Christopher J. Tennant
MPH Adviser: Gerald W. Davoli

Bachelor of Science in Health Science

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.

To complete the health science major for the B.S., students must complete General Education requirements (51 units), the health science core (15 units), one of three options (21-27 units), and any additional requirements to the option selected (11-33 units), the upper-division writing skills requirement, and additional electives. Students are encouraged to complete the additional requirements prior to the major courses as the courses may meet General Education requirements, and they provide a foundation for the courses in health science. Elective units also may be used toward earning a certificate.

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. All substitutions must be approved by the de-

partment chair. Classes offered in the Health Science Department may require field assignments.

Bachelor of Science Degree Requirements

Health Science Major	*Units*
Health Science Core	**15**
HS 92, 100, 109, 161, 163	
Options	**38-54**
Select one option from below.	
General Education requirements	**51**
Electives	**0-14**
Total	**120***

*This total indicates that 9 units for BIOSC 1A, CHEM 1A or PHYS 2A, and DS 71 are used to satisfy the G.E. requirement in the Environmental Health/Science Industrial Hygiene Option.

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 Option

Due to the increasing number of opportunities in the area of health, we have structured courses in epidemiology, community and environmental health to complement basic courses in health behavior, health education methods, contemporary health issues, 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	*Units*
Requirements	**27**
Option requirements: HS 90, 91, 110, 114, 131, 133, 135	(21)
Option elective requirements (select from): HS 48, 104, 105, 111, 112, 115, 126, 129, 130, 152T, 182; NUTR 53, 54	(6)
Additional requirements	**15**
BIOL 10 or 110; CHEM 3A, 3B; PHYAN 33	
Total for option	**42**

Environmental/Occupational Health and Safety Option

This degree program provides a balanced approach between the theoretical concepts and applied principles of environmental health, occupational health, and safety. The curriculum builds on a scientific base (biology, chemistry, physics) and includes core courses in health science, foundation courses in environmental and occupational health, and elective courses that allow for specialization. Students are academically prepared to make significant contributions to society by anticipating, evaluating, and controlling environmental and occupational health hazards. Career opportunities abound in government agencies, private industry, consulting, and research organizations. The program also provides preparation for graduate studies and acceptance into professional schools (medicine, dentistry, pharmacy, optometry, veterinary medicine, law).

The option is accredited by the National Environmental Health Science and Protection Accreditation Council and approved by the California Department of Health Services. Students in the major are eligible for the following:

1. paid internships with federal agencies such as the U.S. Public Health Service,
2. national and state scholarships, and
3. entrance to the Registered Environmental Health Specialist (REHS) exam immediately following graduation (without having to serve an 18-month traineeship).

Environmental/Occupational Health and Safety Option	*Units*
Requirements	**21**
Option requirements: HS 160, 143, 162A, 168A	(12)
Option elective requirements (select three courses): HS 105, 135, 141, 143, 145, 151, 162B, 166T, 168B, 170	(9)
Additional requirements	**33***
Basic Sciences: BIOSC 1A and 1B (or PHYAN 33 or 65); CHEM 1A, 1B, and CHEM 8 (or 128A); MATH 6 or 70 or 75 or DS 71, 71L; MICRO 20 (or 140); PHYS 2A, 2B	(29)*
Internship: HS 175	(4)
Total for option	**54***

*This total indicates that 9 units of BIOSC 1A and CHEM 1A or PHYS 2A are used to meet General Education requirements and MATH 75 or DS 71 and 71L.

Health Administration Option

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	*Units*
Requirements	**27**
Option requirements: HS 90, 151; HS 154 or PL SI 181 or MGT 104; ECON 162; MKTG 100 or 100S	(15)
Option elective requirements (select from): HS 104, 114, 115, 129, 143, 168A, 185F; HRM 150; MKTG 132; SOC 147	(12)
Additional requirements	**12**
ACCT 3; ECON 40 and 50; HS 182 or IS 52 and 52L; BA 105W or ENGL 160W	
Total for option	**39**

Occupational Safety and Health Option Suspended

As of fall 2004, the Occupational Safety and Health Option has been suspended and is no longer taking admissions. Students with substantial coursework in this area should consult with the Department of Health Science if they wish to pursue this option.

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.

Note: The Health Science Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Public Health Minor

The Public Health Minor allows science, nursing, and other majors to receive coursework that complements their major courses and prepares them for career opportunities in environmental and occupational health. In conjunction with a minimum of 30 units of basic science and math, the minor also prepares graduates to take the Registered Environmental Health Specialist (REHS) Exam.

	Units
Requirements	**15**
HS 92, 109, 160, 162A, 163	
Additional requirements	**9**
Select three: HS 105, 135, 141, 143, 145, 151, 162B, 166T, 168A, 168B, 170	
Total	**24**

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 page 367, *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 the following options: Environmental and Occupational Health*, Health Promotion, or Health Administration. Each option includes a field experience and a culminating experience.

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 passing PH 208 or 280 and completing the writing requirement(s) for those courses.

Culminating Experience. A culminating experience is required of all California State University, Fresno students earning master's degrees. This requirement is met by completing a thesis, project, or comprehensive exam. A limited number of students may be permitted to undertake a thesis or project, depending on the availability of faculty or committee members.

Students considering a thesis or project need to consult with the faculty very early in their graduate program to assure completion of the assignment prior to graduation. Selecting a thesis or project 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 must complete a comprehensive written examination. Further information about this options is available from the graduate program adviser.

The MPH program is designed around the following framework:

Thesis or Project	*Units*
Public Health Core	**18**
Option	**12**
Elective	**3**
Field Experience	**4**
Thesis or Project	**4**
Total	**41**

Comprehensive Examination	*Units*
Public Health Core	**18**
Option	**12**
Elective	**6**
Field Experience	**5**
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 (HS)

HS 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)

HS 90. Contemporary Health Issues (3)
Significance of basic health problems applicable to the young adult and to society. G.E. Breadth E1.

HS 91. Introduction to Human Sexuality (3)
Physiological, psychological, social, cultural, and developmental considerations for lifelong understanding related to sexuality. G.E. Breadth E1.

HS 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. (3 lecture hours)

*As of fall 2004, the Option in Environmental and Occupational Health is currently not accepting applications. Please contact the department office at 559.278.4014 for more information.

HS 100. Community Health (3)
Public health services as they affect the community; investigation and analysis of community health problems.

HS 104. Global and Cultural Issues in Health (3)
Prerequisite: G.E. Foundation and Area D. Prerequisite: HS 90. Influence of culture on health and disease; relevant health issues of cultural and ethnic groups; alternative healing and holistic health; role of international health organizations; health problems on a world scale. G.E. Multicultural/International MI.

HS 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.

HS 109. Epidemiology of Disease (3)
Prerequisite: HS 92. Modern concepts and principles of epidemiology; interaction of all agents, host, and environmental factors of communicable and noncommunicable diseases; problems of the aged.

HS 110. Drugs, Society, and Health (3)
Examination of physical, neurological, emotional, social, and political factors affecting the use, misuse, and abuse of illicit substances in contemporary American society. Applies models of addiction and compulsive behaviors to gambling, food consumption, and sexual behavior. G.E. Breadth E1.

HS 111. Alcohol and Alcoholism (3)
Physical, mental, and social factors related to the consumption of alcoholic beverages; the development of alcohol dependence.

HS 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.

HS 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.

HS 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.

HS 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.

HS 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.

HS 126. Female Sexuality (3)
(Same as WS 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.

HS 128. Holistic Health and Alternative Medicine (3)
Explores concepts related to holistic health and alternative medicine within a cross-cultural framework. Includes a description of the physical and psychosocial effects of alternative healing; addresses the benefits and risks associated with these therapies.

HS 129. Rural Health (3)
Health problems of rural areas including community medical services, medical facilities, federal, state, and local legislation and administrative problems.

HS 130. Women's Health (3)
(Same as WS 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.

HS 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.

HS 133. Health Education Methods (3)
It is strongly recommended that students complete HS 114 and HS 131 prior to enrollment in HS 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.

HS 135. Introduction to Human Disease (3)
Prerequisites: HS 90; PHYS 33. Concepts and principles of disease and dysfunction of the human body. Detection, diagnosis, treatment, etiology, pathogenesis, and prevention.

HS 141. Applied 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 HS 166T)

HS 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.

HS 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.

HS 148. Evaluation of the Occupational Environment II (3)
Prerequisite: HS 168B. 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)

HS 149. Control of the Industrial Environment (3)
Prerequisites: HS 168A, 168B. Concepts and principles of controlling physical and chemical compounds in the industrial environment. (2 lecture, 2 lab hours)

HS 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.

HS 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.

HS 154. Health Care Administration (3)
Organizational design and managerial principles as they apply to the private sector of health care.

HS 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.

HS 161. Environment and Human Health (3)
Prerequisites: G.E. Foundation and Breadth Area B. Focuses on prevention and control of disease and injury caused by chemicals, physical hazards and microbes in our environment. Topics include toxic chemicals, food protection, air/water quality radiation, hazardous waste, etcetera. G.E. Integration IB.

HS 162A. Environmental Health Concepts (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. (Formerly HS 162)

HS 162B. Environmental Health Application (3)
Prerequisites: HS 162A or concurrently. Problems of environmental health studied through field trips, observations, demonstrations, and seminars. (2 lecture, 2 lab hours) (Formerly HS 165)

HS 163. Public Health Administration (3)
Principles of public health administration, fundamentals of organization, and administration in public health.)

HS 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.

HS 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)

HS 168A. Occupational Health Concepts (3)
Prerequisite: HS 162A. 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. (Formerly HS 168)

HS 168B. Occupational Health Evaluation (3)
Prerequisite: HS 168A. 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) (Formerly HS 147)

HS 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.

HS 175. Environmental Internship (1-6; 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.

HS 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)

HS 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.

HS 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.

HS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** 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.)

HS 202. Advanced Public Health Statistics (3)
Prerequisite: HS 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.

HS 203. Seminar in Community Health Organization (3)
Prerequisite: HS 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.

HS 205. Risk Assessment Management (3)
Prerequisite HS 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.

HS 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.

HS 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.

HS 209. Advanced Concepts in Epidemiology (3)
Prerequisites: HS 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.

HS 210. Seminar in Health Services Administration (3)
Prerequisite: HS 163. Individual research, analysis, and evaluation of the organization, administration, and legal aspects of health programs. Field assignments are required.

HS 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.

HS 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.

HS 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.

HS 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.

HS 242T. Seminar in Occupational Safety and Health (1-3; max total 15)
Prerequisites: HS 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.

HS 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.

HS 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.

HS 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.

HS 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.

HS 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.

HS 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.

HS 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.

HS 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.

HS 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 *RP* grading. *CR/NC* grading only.

HS 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

HS 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 *RP* grading.

HS 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 *RP* grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Health Science (HS)

HS 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*
Deborah Russell, *Department Administrative Coordinator*
South Gym, Room 111
559.278.2016
http://www.csufresno.edu/kines/programs/

B.S. in Kinesiology
Options:
- Athletic Training
- Exercise Science
- General Kinesiology
- Physical Education

M.A. in Kinesiology
Options:
- Exercise Science
- Sport Psychology

Coaching Minor

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 in pedagogy designed for students with professional goals in teaching and coaching. Completion of this option 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, preventive, 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 Education Program Option is designed for students with professional goals in athletic training who are seeking certification by the NATA-BOC. This is an accredited program by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The program has high academic and performance standards, which include completion of a three-year proficiency-based clinical education program. Transfer students will be advised on an individual basis (see ATEP curriculum director.) The clinical 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 Education Program 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. All applicants must comply with the technical standards in athletic training for admission and retention in the program.

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 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.

Kenneth R. Aldrich, *Graduate Coordinator*

Timothy R. Anderson, *Coordinator of Exercise Science Option*

Scott Sailor, *Coordinator and Curriculum Director of Athletic Training Option*

Thomas C. Minniear, *Coordinator of Physical Education Option and Credential Adviser*

Kenneth A. Aldrich
Tim R. Anderson
O. Duane Ballard Jr.
Virgina F. Chadwick
Michael G. Coles
Jenelle N. Gilbert
Wade Gilbert
Felicia Greer
Catherine G.R. Jackson
Thomas C. Minniear
Jacobo O. Morales
Scott Sailor

Bachelor of Science Degree Requirements

Kinesiology Major — *Units*

Major requirements 41-80

(Combined core and option requirements.)

Core Program ..... (13)
(required of all options)
KINES 20, 33, 104, 116, 118

Options (select one) ..... (28-67)*

Athletic Training Option ..... (54)
KINES 38, 43, 135, 137, 138, 139, 140, 141, 142 (4 units); NUTR 147; KINES 143 (8 units), 163 or 165; HS 48; PHYAN 64, 65; PHTH 119

Exercise Science Option ..... (57-61)*
KINES 38, 119, 159 (or HS 92 or MATH 11), 163, 165, 167; NUTR 147; BIOSC 1A or BIOL 10; CHEM 1A or 3A; CHEM 3B or 8; PHYAN 64, 65; PHYS 2A

Select two from:
KAC 21, 24, 31, 39, 40, 42, 46, 54, 103, 120, 121; ATHL 100

Select 12 units from:
KINES 137, 138, 139, 140, 148, 199; HS 48, 109, 110, 111, 114, 141, 182; PSYCH 177; ACCT 3, BIOSC 1B, 140A, 140B; CHEM 1B, 125, 128A, 128B, 150; CSCI 1, 10, 101; IE 95; MATH 70; MGT 104, 106; MICRO 20; NURS 124; PHTH 105, 119, 125, 126; PHYAN 130, 140, 151, 158, 163, 165, 172; PHYS 2B; RLS 125; any one of COMM 3, 103, 116, or 170

General Kinesiology Option ..... (28-50)*
HS 48 (or equivalent); NUTR 53 or 147; KINES 35 or PHYAN 33 or 64/65; KINES 144 or 190 or 199

Select no less than 6 or more than 9 units from each of the following:
- KINES 30, 38, 134, 137, 138, 139, 148, 157, 163, 165
- KINES 32, 124, 125A, 125B, 125C, 125D, 126, 128, 130, 132
- KINES 109, 111, 113, 120, 122, 136, 140, 141, 152, 153, 159, 167

Select three KAC courses

Complete approved elective units. (See general option adviser.)

Physical Education Option ..... (55-62)*
KAC 31; KINES 30, 35 (or PHYAN 33), 109, 113, 120, 122, 124, 126, 128, 130, 132, 134, 144, 152, 153, 157, 159; NUTR 53 or 54 or 147; HS 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 requirements 51
Major requirements 41-80*
Electives 1-28*
Total 120*

* This total indicates that a maximum of 12 units in General Education also may be applied to the kinesiology major as follows: COMM 3 in GE A1; CSCI 1 in G.E. Foundation A3; 3 units of CHEM 1A or 3A or PHYS 2A in G.E. Breadth B1; 3 units of BIOSC 1A in G.E. Breadth B2; and IE 95 in G.E. Breadth E1. Consult the department chair or faculty adviser for additional details.

Advising Notes

1. 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, athletic training, teaching physical education, and professional applications in the exercise sciences and fitness-related industries.
2. Students majoring in kinesiology may count a maximum of 12 units of activity courses (ATHL, KAC, DANCE) toward the 120 units required for a bachelor's degree. Repeat credit towards the kinesiology major is not allowed in any of these activity courses.
3. *CR/NC* grading is not permitted in courses for the kinesiology major, except in those courses which are designated *CR/NC* grading only.
4. 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.
5. Students interested in the athletic training option should consult the department regarding criteria for selection into this program.
6. 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.
7. 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.
8. No General Education Integration and Multicultural/International course offered by the Kinesiology Department may be used to satisfy the General Education requirements for majors in the department.

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 subject matter competency process 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.

Coaching Minor Requirements

	Units
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**

Note: The Coaching Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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 pedagogy (M.A. in Kinesiology), exercise science (Exercise Science Option), and sport psychology (Sport Psychology Option.) These offerings prepare students for more advanced degrees, applied research, and/or careers in clinical settings, teaching, administration, coaching, or school or professional sport management.

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 plus a culminating experience are chosen.

Students who wish to pursue a specialization in sport administration should see the graduate coordinator in the Department of Kinesiology.

Under the direction of a graduate adviser, each student designs a coherent program within the following framework:

M.A. in Kinesiology	*Units*
Core — KINES 230, 231, and 261	**9**
Required coursework — Select three from: KINES 241, 242, 244, 262, 263, and 285	**9**
Electives — Any additional KINES 200-level courses or approved outside area courses	**12**
Culminating experience — KINES 299, 298, or comprehensive exam	**0-6**
Total	**30**

Exercise Science Option	*Units*
Core — KINES 230, 231, and 261	**9**
Required coursework — With advisement, select from: KINES 222, 233, 235, 237, 238, 265, and 285	**12-18**
Electives — Any KINES 200-level course or approved outside area course	**3**
Culminating experience — KINES 299 or comprehensive exam plus internship	**0-6**
Total	**30**

Sport Psychology Option	*Units*
Core — KINES 230, 231, and 261	**9**
Required coursework — KINES 263, 265, and 266	**9**
Electives within program — Any additional KINES 200-level course	**6-12**
Electives outside program — COUN 200, MBA 270, PSYCH 166	**0-6**
Culminating experience — KINES 298, 299, or comprehensive exam	**0-6**
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 pass a written qualifying exam before advancement to candidacy. The university graduate-level writing skills requirement is met by successful completion of this step. See the graduate coordinator for more information.
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)

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. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 101. Advanced Lifesaving (2)
Prerequisite: 500-yard swim in 10 minutes or less. (Course fee, $4)

KAC 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. (Course fee, $4)

Recreational Dance (KAC)

KAC 11. Partners Club Dancing (1)
Teaches dancing with a variety of partners in club settings. Covers analysis of rhythms associated with modern music and application of these rhythms to partner dance. (Course fee, $4) (Formerly KAC 80T)

KAC 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. (Course fee, $4)

KAC 13. Swing Dance (1)
Exploration of the many facets of swing dance for couples, including step patterns, rhythms, and configurations. (Course fee, $4) (Formerly KAC 80T)

KAC 14. Country Western (1)
Introduction to a variety of country western line, contra, circle, and partner dances. (Course fee, $4)

KAC 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. (Course fee, $4)

Individual Activities (KAC)

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. (Course fee, $4)

KAC 16. Adapted Physical Activity (1)
Individually designed activity for disabled students. (Course fee, $4)

KAC 17. Elementary Archery (1)
Instruction in archery skills, including care and construction of tackle. Emphasis on fundamental skills and shooting form. (Course fee, $4)

KAC 18. Backpacking (2)
Limited to novice backpackers. (Estimated cost to student approximately $50 for supplies, transportation.)

KAC 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. (Course fee, $4)

KAC 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. (Course fee, $16)

KAC 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. (Course fee, $4)

KAC 22. Elementary Bowling (1)
An introductory course which stresses fundamentals of the stance, approach and delivery, scoring, bowling terminology, etiquette, and league play. (Course fee, $25)

KAC 24. Elementary Conditioning Exercises and Aerobics (1)
A variety of floor and step activities to develop and improve strength, flexibility, and cardiovascular endurance. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 28. Beginning Billiards (1)
Basic concepts, techniques, skills, and strategies associated with billiards, pool, and similar games. (Course fee, $4) (Formerly KAC 80T)

KAC 30. Elementary Golf (1)
Beginning instruction on the techniques for putting, chipping, pitching, iron, and wood shots. Also includes rules and etiquette for golf. (Course fee, $4)

KAC 31. Elementary Gymnastics (1)
Basic skills for balancing, stunts, tumbling, trampolining and apparatus work. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 40. Elementary Karate (1)
Japanese style of Shotokan Karate. (Course fee, $4)

KAC 41. Judo (1)
Basic instruction in techniques for throwing, grappling skills, and limited self-defense. Students should achieve technical level of yellow belt. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 43. Taekwondo (1)
Korean martial art and Olympic event; emphasizes self-control, balance and coordination, flexibility, speed, self-defense, and Olympic-style sparring. (Course fee, $4) (Formerly KAC 80T)

KAC 44. Kendo (1)
The art of Japanese fencing; emphasizes self-discipline, physical training, competition, and swordsmanship. (Course fee, $4) (Formerly KAC 80T)

KAC 45. Basic Aikido (1)
Basic Aikido techniques, terminology, and Dojo etiquette. Facilitates the understanding and application of basic Aikido self-defense techniques, and prepares the student with basic skills necessary to comfortably train in any Aikido Dojo. (Course fee, $4) (Formerly KAC 80T)

KAC 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. (Course fee, $4)

KAC 47. Tai Chi (1)
Fundamentals of history, philosophy, and practice of Tai Chi. (Course fee, $4) (Formerly KAC 80T)

KAC 48. Cardiovascular Boot Camp (1)
An advanced physical conditioning course that provides students with a military style cardio-respiratory and strength training program which will promote lifetime fitness. (Course fee, $4) (Formerly KAC 80T)

KAC 50. Assault Avoidance Techniques (1)
Physical training and practice to facilitate the understanding and application of basic self-defense techniques and to raise awareness for personal safety and empowerment. Explores many creative self-defense strategies. (Course fee, $4) (Formerly KAC 80T)

KAC 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. (Course fee, $4) (Formerly PE AC 51)

KAC 53. Beginning Table Tennis (1)
Instruction in basic skills and techniques of table tennis for singles and doubles play. Emphasis upon footwork, strokes, different spins, and strategies. (Course fee, $4) (Formerly KAC 80T)

KAC 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. (Course fee, $4)

KAC 60. Yoga (1)
Instruction and practice in the basics of Hatha Yoga. Includes beginning breathing patterns, relaxation techniques, physical postures, and concentration exercises. (Course fee, $4)

KAC 117. Intermediate Archery (1)
Prerequisite: KAC 17 or equivalent. Refinements of basic shooting skills and shooting events at intermediate skill level. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 120. Cycling for Fitness (2)
Prerequisite: KAC 20 or equivalent. (Course fee, $16)

KAC 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). (Course fee, $4)

KAC 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. (Course fee, $25)

KAC 123. Advanced Bowling (2)
Development and refinement of bowling skills and strategies at a level equivalent to high-level competition. (Course fee, $25) (Formerly KAC 80T)

KAC 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. (Course fee, $4)

KAC 127. Intermediate Fencing (1)
Prerequisite: KAC 27 or equivalent. (Course fee, $4)

KAC 130. Intermediate Golf (2)
Prerequisite: KAC 30 or equivalent. (Course fee, $50)

KAC 131. Intermediate Gymnastics (1)
Prerequisite: KAC 31 or equivalent. Develop, practice, and refine intermediate tumbling and gymnastic skills. (Course fee, $4)

KAC 140. Intermediate Karate (1)
Prerequisite: KAC 40 or equivalent. Japanese style of Shotokan Karate. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 154. Intermediate Tennis (1)
Prerequisite: KAC 54 or equivalent. Review of beginning level skills and introduction of intermediate level tennis strokes and strategy. (Course fee, $4)

KAC 156. Triathlon (2)
Prerequisite: permission of instructor. Practice and development of swimming, cycling, and running skills to enhance performance in triathlon events. (Course fee, $4)

Team Activities (KAC)

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. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 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. (Course fee, $4)

KAC 171. Intermediate Volleyball (1)
Prerequisite: KAC 71 or equivalent. Review of basic skills and introduction of intermediate level skills and strategies. (Course fee, $4) (Formerly PE AC 171A)

Kinesiology (KINES)

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)

KINES 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.

KINES 32. Lifetime Fitness and Wellness (2)
Healthy lifestyle 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.

KINES 33. Foundations of Sport and Exercise Psychology (3)
The study and application of psychological principles and foundations to sport and exercise across the lifespan and across activity contexts. (Formerly KINES 80T)

KINES 35. Human Structure and Function: Applications to Physical Education (3)
An introductory study of principles, concepts, and interactions of human anatomy and physiology specifically related to physical activity and directed toward physical educators and/or coaches. Emphasis on the following systems: metabolic (bioenergetics), respiratory, cardiovascular, neuromuscular, and skeletal. (Formerly KINES 180T)

KINES 38. Introduction to Athletic Training (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)

KINES 43. Preliminary Athletic Training Laboratory (1; max total 2)
Prerequisite: HS 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.

KINES 75T. Topics in Kinesiology (1-3; max total 8)
Introductory topics in kinesiology not available through current curricula offerings.

KINES 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)

KINES 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)

KINES 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)

KINES 111. The Olympic Games (3)
Prerequisites: G.E. Foundation and Breadth Area D. History, development, and significance of the Olympic Games; Olympism as a microcosm of cross-cultural, political, economic, and gender relationships. G.E. Integration ID.

KINES 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)

KINES 113. Physical Growth and Development (3)
Prerequisite: KINES 20 (may be taken concurrently); PHYAN 33 (or PHYAN 64 and 65) (or PHYAN 64 and PHTH 119). Physical growth and development from prenatal period through old age with emphasis on motor development.

KINES 116. Fundamentals of Biomechanics (3)
Prerequisites: KINES 20 (may be taken concurrently); PHYAN 33 (or PHYAN 64 and 65) (or PHYAN 64 and PHTH 119). Study of structural and mechanical properties of musculoskeletal system, associated movement function of human body, and applied physics. (2 lecture, 2 lab hours)

KINES 118. Fundamentals of Exercise Physiology (3)
Prerequisites/concurrent: KINES 20; PHYAN 33 (or PHYAN 64 and 65) (or PHYAN 64 and PHTH 119). The study and application of physiological bases of movement, work, response, and adaptation to exercise. Environmental conditions, gender, and age considered.

KINES 119. ECG and Clinical Exercise Physiology (3)
Prerequisites: PHYAN 64 and 65; KINES 118. Foundational principles and concepts of electrocardiography and clinical applications of principles and concepts of exercise physiology.

KINES 120. Planning Strategies for Physical Education (3)
Prerequisites: KINES 20, 30. 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)

KINES 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)

KINES 124. Analysis and Application: Tumbling and Gymnastics (2)
Prerequisites: KINES 20; KINES 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)

KINES 125A. Coaching Football (3)
Principles underlying participation in competitive football. (Spring only)

KINES 125B. Coaching Basketball (3)
Principles underlying participation in competitive basketball. (Fall only)

KINES 125C. Coaching Track and Field (3)
Principles underlying participation in competitive track and field.

KINES 125D. Coaching Baseball (3)
Principles underlying participation in competitive baseball. (Fall only)

KINES 126. Analysis and Application: Aquatics (3)
Prerequisites: KINES 20; KINES 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)

KINES 128. Analysis and Application: Dance Heritage Survey (3)
Prerequisites: KINES 20; KINES 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)

KINES 130. Analysis and Application: Individual/Dual Lifetime Activities (3)
Prerequisites: KINES 20; KINES 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)

KINES 132. Analysis and Application: Team Sports (3)
Prerequisites: KINES 20; KINES 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)

KINES 134. Analysis and Application: Fitness (2)
Prerequisites: KINES 20; KINES 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)

KINES 135. Professional Issues in Athletic Training (3)
Prerequisite: KINES 38. The study and application of various professional issues relevant to the profession of athletic training including pharmacology, medical documentation, and development and imple-

mentation of drug testing and education programs. (Spring only)

KINES 136. Psychology in Athletic Training and Rehabilitation (3)
An examination of selected concepts in psychology as they relate to athletic training. Psychological applications are studied in the following domains of athletic training: prevention, recognition, immediate care, and rehabilitation.

KINES 137. Structural Biomechanics (3)
Prerequisites: KINES 20 (may be taken concurrently); PHYAN 64 or PHTH 119. Human movement: biological and mechanical bases, application of musculoskeletal considerations, and principles of mechanics to human movements. (Offered fall semester only.)

KINES 138. Evaluation in Athletic Training (3)
Prerequisites: KINES 20, 38, 137. Advanced study in athletic training including injury recognition and evaluation procedures. (2 lecture, 2 lab hours)

KINES 139. Therapeutic Modalities in Athletic Training (3)
Prerequisites: KINES 20, 38; PHYAN 64 or PHTH 119. The theory and application of various therapeutic modalities used in the treatment of athletic injuries. (2 lecture, 2 lab hours)

KINES 140. Rehabilitation in Athletic Training (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)

KINES 141. Organization and Administration in Athletic Training (3)
Prerequisites: KINES 20, 38, and senior status. Current issues in athletic training, organization, administration, and professional preparation.

KINES 142. Seminar in Athletic Training (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 athletic training. *CR/NC* grading only.

KINES 143 A-D. Practicum in Athletic Training (2; max total 8)
Prerequisites: KINES 20, 43; PHYAN 64 or PHTH 119; admission into Athletic Training Option. Practical experience in athletic training, involving all domains of athletic training: prevention, recognition, rehabilitation, administration, and professional development. 300 hours required. *CR/NC* grading only.

KINES 144. Field Experience in Teaching (2)
Prerequisites: KINES 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)

KINES 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)

KINES 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)

KINES 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.

157. Adapted and Inclusive KINES 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)

KINES 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. (2 lecture, 2 lab hours)

KINES 162. Coaching Concepts (3)
Current problems of coaches in the school setting; techniques of motivation, organization, and public relations. (Fall only)

KINES 163. Fitness and Wellness (3)
Prerequisite: KINES 118. Study, analysis, development, and practice of health related fitness and weight control programs for various populations. (2 lecture, 2 lab hours)

KINES 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)

KINES 167. Integrative Exercise Science (3)
Prerequisites: KINES 104, 116, 118. Integration of humanistic, physiological, and biomechanical aspects of exercise science through lectures, readings, discussions, and writing assignments. (Spring only)

KINES 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.

KINES 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

KINES 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.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Kinesiology (KINES)

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.

KINES 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)

KINES 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.

KINES 233. Advanced Exercise Physiology (3)
Prerequisites: KINES 118 or equivalent. Advanced concepts, mechanisms, and applications of exercise physiology. Systems physiology approach with emphasis on biophysical principles. Applications to response and adaptation to exercise, health and wellness, growth and development, and aging.

KINES 235. Exercise Physiology Instrumentation and Technology (3)
Prerequisites: KINES 118. Detailed analysis of the theory of operation, application, and operation procedures of laboratory instrumentation and technology commonly found in exercise physiology laboratories. Requires course presentations supported by extensive practical experiences in equipment operation, calibration, maintenance, and laboratory data management.

KINES 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.

KINES 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)

KINES 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.

KINES 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.

KINES 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.

KINES 250T. Topics in Kinesiology (3; max total 6 if no topic repeated)
Advanced studies in theoretical research in selected topics.

KINES 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.

KINES 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.

KINES 263. Psychology of Sport: Mental Training (3)
An examination of the concepts in sport psychology including mental states, cognitive behavioral techniques and strategies; and issues in sports psychology.

KINES 264. Psychology of Coaching: Talent Development (3)
Examination of psychological components of coaching and talent development. Explores coaching development and coaching models, as well as strategies for dealing with athletes and different coaching contexts. Discussion of talent development theories including influence of genetic and environmental factors. (Formerly KINES 250T)

KINES 265. Psychobiology of Sport and Exercise (3)
Investigation of the relationship between sport, exercise, physical activity and anxiety, arousal, burnout, causal attributions, cognitive function, exercise adherence, group cohesion, mood states, motivation, negative behavior, personality, public health, quality of life, self-confidence, and youth development. (Formerly KINES 250T)

KINES 266. Psychology of Injury in Sport and Physical Activity (3)
An examination of psychological theories and applied considerations related to injuries and the subsequent rehabilitation of the physically active. (Formerly KINES 250T)

KINES 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.

KINES 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

KINES 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 *RP* grading.

KINES 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 *RP* grading.

IN-SERVICE COURSES

(See *Catalog Numbering System*.)

Kinesiology (KINES)

KINES 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. (Formerly PE 310)

KINES 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. (Formerly PE 320)

Nursing

College of Health
and Human Services

Department of Nursing
Michael F. Russler, *Chair*
Shawn Manning, *Administrative Support Coordinator*
McLane Hall, Room 190
559.278.2041
http://www.csufresno.edu/nursing/

B.S. in Nursing

M.S. in Nursing
Options:
- Clinical Nurse Specialist/Nursing Education
- Primary Care/Nurse Practitioner

School Nurse Services Credential

Combined program:
Primary Care/Nurse Practitioner (M.S. Nursing) with School Nurse Services Credential

Post-Master's Nurse Practitioner Certificate

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 in Nursing, a postbaccalaureate School Nurse Services Credential Program with an option to pursue the master's degree in nursing, a graduate program leading to a Master of Science 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 licensed by the California Board of Registered Nursing and accredited by 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, Children's Hospital of Central California, Veteran's Administration Medical Center, University Medical Center, 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

Michael F. Russler, *Chair*

Mary Barakzai
F. Ndidi Griffin-Meadows
Angela Hudson
Mary R. Ivan
Kenn Kirksey
Mariamma K. Mathai
Sylvia Miller
Keitha Mountcastle
Patricia R. Nuttall
Christine Ortiz
Gozil M. Oxley
Michael F. Russler
Janine Spencer

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. For fall entry all prerequisites must be completed by June and for spring entry all prerequisites must be completed by the preceding fall semester. Applicants must meet all criteria for admission to the university and to the nursing major. Students not in the major may apply to the university as prenursing majors.

Specific health criteria must be met. Students with recurrent infections or physical limitations who cannot meet clinical course objectives may be unable to satisfactorily complete the requirements for a B.S. in Nursing. Contact the Nursing Department regarding specific requirements.

Eligibility to Apply to the Program

The following eight prerequisite courses must be completed prior to entry into the nursing program.

	Units
G.E. Area A1 (COMM 3, 7, or 8)	(3)
G.E. Area A2 (ENGL 1)	(3)
G.E. Area A3*	(3)
G.E. Area B4*	(3)
Anatomy (PHYAN 64)	(3)
Physiology (PHYAN 65)	(5)
Chemistry (CHEM 3A)	(4)
Microbiology (MICRO 20)	(4)
Total	**28**

* See G.E. list on pages 89-92 for approved courses.

- Each prerequisite must be completed with a minimum *C* grade — *CR/NC* grades are not acceptable.
- A minimum GPA of 3.0 is required in the eight prerequisite courses.

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 eight 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 eight 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. Additional information and applications can be obtained online at *www.csufresno.edu/nursing* or by calling the Department of Nursing at 559.278.2041.

The program application includes additional instructions and deadlines. The university application form can be obtained online at *www.csumentor.edu*.

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.

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.
6. Applicant Deadline:
   Fall Admission - October 1
   Spring Admission - July 1

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 57-59
Select one program:
Generic students ..... (57)
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 ..... (59)
NURS 134, 135, 136, 137, 141, 141L, 145, 150, 151, 153; 33 transfer units

Prerequisite requirements 28
(See prerequisites listed under *Eligibility to Apply to the Program.* [18 units may be applied to G.E.])

Additional course requirements 18
CFS 38; HS 92 or MATH 11 (if statistics not taken for G.E. Area B4); PHIL 20 or 120; PSYCH 10; SOC 1 or SOC 2 or ANTH 2; NUTR 53. [9 units may be applied to G.E.]

General Education requirements 51
(51 units minimum less 27 units counted above in prerequisite requirements and additional requirements to the major leaves 24 units)

Upper-Division Writing Skills 0-4

Total 127-129

Advising Notes

1. The following prerequisite and additional requirement courses to the nursing major also may be applied to fulfill a maximum of 27 units of General Education requirements: COMM 8 preferred (or COMM 3 or 7) in G.E. Foundation A1; ENGL 1 in G.E. Foundation A2; 3 units of CHEM 3A in G.E. Breadth B1; 3 units of MICRO 20 for G.E. Breadth B2 (for nursing majors only); PHIL 20 in G.E. Breadth C2; or PHIL 120 in G.E. Area IC; ANTH 2 or SOC 1 or SOC 2 or 3 units of PSYCH 10 for G.E. Breadth D3; and CFS 38 or NUTR 53 in G.E. Breadth E1. Critical Thinking course for G.E. Area A3, Quanititative Reasoning (Math) course for G.E. Area B4.
2. Students must complete CFS 38 and NUTR 53 no later than the first semester of the nursing major.
3. Introduction to Psychology (PSYCH 10) and SOC 1 or 2 or ANTH 2 must be completed no later than the second semester of the nursing major.
4. Students must complete the upper-division writing skills requirement and statistics requirement prior to enrollment in NURS 145 and prior to graduation.
5. Major courses must be taken for a letter grade; ***CR/NC*** grading is not permitted in the nursing major.
6. Students are strongly encouraged to seek academic advising every semester.
7. All practicum courses (with suffix "A" or "L") require a minimum of three hours of clinical work per unit of credit as a minimum to meet course objectives.

Please see Web site at *www.csufresno.edu/nursing* for specific G.E. classes designated for nursing.

School Nurse Services Credential Program

Postbaccalaureate Health Services (School Nurse) Credential

The School Nurse Services 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 Services 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. The core school nursing classes are offered online. For more information see the department's Web site at *www.csufresno.edu/nursing*.

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
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
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.

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 Services 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

*Courses only available through regular enrollment in the university following acceptance into the Credential Program.

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 online at *www.csufresno.edu/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 online at *www.csufresno.edu/nursing*).
6. Arrange appointment with School Nurse Services 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 School Nurse Services Credential. For further information, contact the CCTC Professional Practices Division at (916) 445-0234.

Time Restrictions. All requirements for a School Nurse Services Credential must be completed within five years of the date of issuance of the preliminary credential.

Articulation with the Graduate Program

School Nurse Services Credential students may pursue a master's degree in other areas of nursing. 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 Services Credential (see *Graduate Program*).

Graduate Program

The department offers an NLN accredited program that leads to a Master of Science degree in Nursing. The purpose of the program is to prepare nurses for advanced practice in the functional roles of primary care nurse practitioner and clinical nurse specialist/nursing educator. Each graduate of the master's in nursing program must demonstrate advanced knowledge and skill in physical diagnosis, psychological assessment, and management of health-illness needs in complex client and community systems. The program provides a foundation for doctoral study in nursing.

Clinical Options

Students select a functional role of either nurse practitioner or clinical nurse specialist/nursing educator. Any nursing class in the role specialization options area may be cancelled because of insufficient enrollment.

Clinical Nurse Specialist/ Nursing Education

The Clinical Nurse Specialist/Nursing Education 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 will demonstrate competence in the areas of expert clinical practice, educator, research, consultation, and clinical leadership.

Graduates meet the requirements for clinical nurse specialist certification by the California Board of Registered Nursing and are eligible for national certification examination.

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, as well as counseling, client education, and management of selected health problems. Practice in rural settings and with clients from diversified cultural backgrounds.

Graduates meet the requirements for recognition as pediatric, geriatric, or family nurse practitioners in California and may apply for national 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.

Policies and Procedures

1. Applications are available at the Department website *www.csufresno.edu/nursing,* or you can 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
   Department of Nursing
   2345 E. 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.

Admission Criteria

There are two pathways into the M.S.N. program for individuals with different educational backgrounds: the B.S.N. graduate and the R.N. with a non-nursing baccalaureate degree.

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

Policies and Procedures for M.S.N. Admission

Admission Procedures

1. Applications are available at the Department website *www.csufresno.edu/nursing,* or you can 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
   Department of Nursing
   2345 E. San Ramon Ave. M/S MH25
   Fresno, CA 93740-8031

Admission Criteria for 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 background comparable 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.

Post-Master's Nurse Practitioner Certificate (State-Issued)

The post-master's certificate at California State University, Fresno consists of 31 units. This certificate is issued by the California Board of Registered Nursing. Applicants may receive credit toward the NP certificate for graduate courses taken previously. Typically, the main courses that are requested for credit are the advanced theories and advanced issues courses. In order to request a course substitution, the applicant must submit a copy of the course description, objectives, and assignments for review by the graduate coordinator. At that time, the course of study will be determined with input from the student and graduate curriculum committee. Students seeking Post-Master's Nurse Practitioner certificates are exempt from some coursework and have a shorter program.

Master of Science Degree Requirements

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	**13**
NURS 211, 212, 221, 223, 225	
Role specialization courses	**21-22**
(See below.)	
Thesis (NURS 299) or	
Project (NURS 298)	**3**
or	
Comprehensive Exam	**0***
Minimum Total	**37-38**

Minimum total for Primary Care is 37 units

Minimum total for CNS/Nursing Education is 38 units

* Additional approved 3-unit elective required for students taking the Comprehensive Exam.

Role Specialization (Options)

Clinical Nurse Specialist/ Nursing Education
NURS 210, 229, 230, 240, 241, 242, 250, 251

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

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.

Graduate Writing Requirement

All students must meet the university's graduate writing proficiency requirement prior to being advanced to candidacy for the master's degree. Students fulfill the writing requirement by passing the writing component of NURS 221. Students can obtain additional information regarding the graduate writing requirement in the program's *Graduate Student Handbook.*

Advancement to Candidacy. Completion of 9 graduate units with a GPA of 3.0.

Graduate students are responsible for policies and regulations of the Division of Graduate Studies and those specified in the graduate nursing program brochure.

Thesis, Project, and Comprehensive Exam. The department offers students the option of writing a thesis, completing a project, or taking a written comprehensive exam. Information about the culminating experience is available from an adviser in nursing.

Note: All practicum courses require a minimum of three hours of clinical work per unit of credit to meet course objectives.

Nurse Practitioner Option combined with School Nurse Services Credential

Students concurrently enrolled in an articulated School Nurse Services 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 Services Credential Program coursework in addition to their graduate program of study for nurse practitioners. Additional courses required for the School Nurse Services Credential:

	Units
NURS 180T or CSD 188T Audiometry	3
NURS 184 Introduction to School Nursing	3
NURS 185 Seminar in School Nursing	3
NURS 186 School Nurse Practicum I (elementary)	3
NURS 187 School Nurse Practicum II (secondary)	3

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 Services 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 Services Credential Program and the Graduate Program in Nursing. Consult the Graduate Coordinator ***and*** the School Nurse coordinator for advising.

COURSES

Nursing (NURS)

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.

NURS 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.

NURS 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. (6 lab hours)

NURS 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. (3 clinical hours)

NURS 50. Cooperative Education in Nursing (1-3; max total 12; 45 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.

NURS 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.

NURS 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)

NURS 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)

NURS 111. Integrated Health Assessment (1)
Prerequisites: admission to the major. Corequisites: NURS 10, 10A, 10L, 112. 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.

NURS 112. Pathophysiology for Nurses (2)
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.

NURS 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.

NURS 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)

NURS 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.

NURS 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)

NURS 124. Pharmacology in Nursing (2)
Prerequisites: NURS 10, 10A, 10L, 111, 112; CFS 38. Corequisites: NURS 110, 110A, 110L. Pharmacological theory required for effective nursing practice. Principles of pharmacokinetics and pharmacodynamics.

NURS 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.

NURS 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)

NURS 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.

NURS 132L. Clinical Practice in Nursing of the Childbearing Family (2)
Prerequisites: NURS 121, 121L, 123, 123L, 124. 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)

NURS 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.

NURS 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.

NURS 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)

NURS 137. Teaching Strategies for the Health Care Client (3)
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)

NURS 140. Concepts of Complex Clinical Nursing (2)
Prerequisites: NURS 131, 131L, 132, 132L. Corequisites: 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.

NURS 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)

NURS 141. Concepts in Community Health and Home Health Nursing (3)
Prerequisites: completion of the Multicultural/International General Education requirement; PLSI 2 or 101; NURS 131, 131L, 132, 132L, 145. Corequisite: 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.

NURS 141L. Practicum in Community Health Nursing (2)
Prerequisites: NURS 131, 131L, 132, 132L. Corequisite: NURS 141. Application of primary, secondary, and tertiary prevention in the community with individuals, families, and groups. (9 clinical hours)

NURS 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.

NURS 145. Nursing Theories and Research (3)
Prerequisites: statistics, NURS 121, 121L, 123, 123L, and upper-division writing skills requirement. 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.

NURS 150. Leadership and Health Care Economics (3)
Prerequisites: NURS 140, 140L, 141, 141L, 142, 145. Corequisites: 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)

NURS 150L. Leadership and Clinical Management (2)
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)

NURS 151. Senior Project (1)
Prerequisites: senior standing or permission of instructor; NURS 140, 140L, 141, 141L, 142, 145. Corequisites: 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.

NURS 153. Bridging Constructs for Professional Nursing (3)
Introduces the registered nurse (RN) to theoretical and conceptual frameworks supporting academic foundation for baccalaureate preparation. Students strengthen skills in development of case studies, research, theory application, critical thinking, complex patient and family analysis, and dimensions of multicultural health. (Formerly NURS 180T)

NURS 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.

NURS 184. Introduction to School Nursing (3)
Prerequisites: admission to School Nurse Services Credential Program, NURS 136, 137; PSYCH 168 or SPED 120; COUN 174 or COUN 200. Corequisite: NURS 186. Role of the school nurse; parameters of school health practice, legal guidelines, professional accountability, coordinated health programs, health education, and health needs of complex multicultural school-aged population. (Available online.)

NURS 185. School Nurse Seminar (3)
Prerequisites: admission to School Nurse Services Credential Program, NURS 136, 137; PSYCH 168 or SPED 120; COUN 174 or COUN 200. Corequisite: NURS 187. Role of the school nurse; parameters of school health practice; emphasis on adolescent health issues, health education, legal parameters, interdisciplinary cooperation, legislative issues, research, and professional accountability. (Available online.)

NURS 186. School Nurse Practicum I (3)
Prerequisites: admission to School Nurse Services Credential Program, NURS 136, 137; PSYCH 168 or SPED 120; COUN 174 or COUN 200; NURS 183. Corequisite: NURS 184. Elementary level school nurse experience including special education. Direct supervision by a credentialed school nurse; scheduled preceptor/instructor conferences; class participation online. (9 clinical hours/week)

NURS 187. School Nurse Practicum II (3)
Prerequisites: admission to School Nurse Services Credential Program, NURS 136, 137; PSYCH 168 or SPED 120; COUN 174 or COUN 200; NURS 183, 184. Corequisite: NURS 185. Secondary level school nurse experience, including special and alternative education; direct supervision by credentialed school nurse required. Scheduled conferences with preceptor and faculty. (9 clinical hours/week)

NURS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Nursing (NURS)

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)

NURS 211. Advanced Pharmacology (3)
Prerequisite: admission to the graduate program in nursing. 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.

NURS 212. Advanced Pathophysiology (2)
Prerequisite: admission to the graduate program in nursing. 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.

NURS 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.

NURS 223. Advanced Research Methodology in Nursing (3)
Prerequisite: 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, application of research in the treatment regimen, and thesis/project proposal development are incorporated.

NURS 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.

NURS 229. Practicum in Advanced Clinical Nursing for the Clinical Specialist (3)
Prerequisites: NURS 210, 221. Corequisite: NURS 230. Applies conceptual models for health promotion, maintenance, and restoration in complex health care systems. Implements primary, secondary, and tertiary prevention strategies for use with diverse client populations in advanced practice settings.

NURS 230. Seminar in Advanced Practice Nursing for the Clinical Specialist (2)
Prerequisites: NURS 210, 221. Corequisite: NURS 229. Examines the evolution of the role the clinical nurse specialist from the historical perspective to the current health environment. Explores issues related to organizational development, educational strategies, and professional dynamics. (Formerly NURS 288T)

NURS 240. Curriculum Development in Nursing (3)
Theories and models of curriculum development incorporating educational needs assessment and design. Students present educational program using instructional design methodology including objectives, learning characteristics, teaching methods, learning resources, and evaluation methods. Teaching practicum with a master teacher required. (Formerly NURS 288T)

NURS 241. Instruction Methods in Nursing Education (3)
Instructional methods for nurse educators. Focuses on nursing and education theories, motivation, learning/teaching styles, designing measurable outcomes, reinforcement strategies, principles of evaluation, and effective feedback. Teaching practicum with a master teacher required. (Formerly NURS 288T)

NURS 242. Evaluation and Testing in Nursing Education (3)
Prerequisites: NURS 240, 241. Evaluation methods for nursing education in classroom and clinical settings. Students will examine alternative assessment strategies, design and write test items, analyze test results, and develop clinical evaluation strategies. Teaching practicum with a master teacher required. (Formerly NURS 288T)

NURS 250. Seminar in Clinical Specialization (2)
Prerequisites: NURS 210, 221, 229, 230. Corequisite: NURS 251. Theories and concepts of advanced practice are applied to complex patient/client populations to improve the quality of care and enhance pa-

tient outcomes. Examines and evaluates the multifaceted role of the clinical nurse specialist in selected practice settings.

NURS 251. Practicum in Clinical Specialization (3)
Prerequisites: NURS 210, 221, 229, 230. Corequisite: NURS 250. Analysis and implementation of all aspects of the clinical nurse specialist role in practice settings. Students work directly with assigned community preceptor to develop skills necessary for successful functioning in the clinical nurse specialist role.

NURS 264. Practicum in Advanced Clinical Nursing for the Nurse Practitioner (4)
Prerequisites: NURS 210, 221. Analysis of all aspects of the clinical specialist role in practice settings. Students work directly with assigned community preceptor to develop skills necessary for successful functioning in the clinical nurse specialist role.

NURS 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.

NURS 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.

NURS 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.)

NURS 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.)

NURS 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.

NURS 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.

NURS 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.)

NURS 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.

NURS 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.)

NURS 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.

NURS 282. Practicum in Tertiary Prevention, Geriatric Nurse Practitioner (4)
Prerequisites: 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.

NURS 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, gerontology, and rehabilitation nursing. Analysis and integration of research-based knowledge into the nursing process characterizing the specific practice domain are emphasized.

NURS 290. Independent Study (1-3; max total 3)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

NURS 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 ***RP*** grading.

NURS 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 ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System.*)

Nursing (NURS)

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. They are also 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 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.

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.

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.

Faculty

Peggy Trueblood, *Chair*
Annie Burke-Doe
Joanne M. Laslovich
Gary L. Lentell
Robert K. Martin
Marilyn Miller
Toni Tyner

Physical Therapy Education

The Department of Physical Therapy offers an undergraduate pre-physical therapy option and a Master of Physical Therapy program which meet pre-professional and professional education requirements to become a licensed physical therapist in all 50 states.

Interdisciplinary Pre-Health and Rehabilitation Professions Education

The B.S. degree in Interdisciplinary Health and Rehabilitation Sciences offers preprofessional options in Pre-Physical Therapy, Pre-Occupational Therapy and Pre-Rehabilitation Services. These degree options prepare students to meet the prerequisite requirements of graduate programs in Physical Therapy, Occupational Therapy, and Rehabilitation Counseling.

In addition to the major, a minor in Interdisciplinary Health and Rehabilitation Sciences is recommended for students pursuing career paths in other health and human service professions, such as nursing, communicative disorders, health science, dietetics, dentistry, chiropractic, medicine, optometry, clinical psychology and counseling.

College of Health
and Human Services

Department of Physical Therapy
Peggy Trueblood, *Chair*
Ora Murray, *Administrative Support Coordinator*
McLane Hall, Room 186A
(559)278.2625
http://www.csufresno.edu/physicaltherapy

B.S., Interdisciplinary Health and Rehabilitation Sciences
Options:

- Pre-Occupational Therapy
- Pre-Physical Therapy
- Pre-Rehabilitation Services

M.P.T., Master of Physical Therapy

Minor in Interdisciplinary Health and Rehabilitation Sciences

B.S. in Interdisciplinary Health and Rehabilitation Sciences

The major is designed to prepare undergraduate university students with prerequisite coursework, knowledge, attitudes and skills that will help them to gain admission to and succeed in graduate programs in the rehabilitation and health professions.

Rehabilitation professionals provide specialized services that enhance the function, self-care, mobility, vocational potential, communication or adaptive skills of persons with disabilities. Professional education for rehabilitation professions requires graduate education. Integrated service delivery models require training in collaborative processes that share goals for patients and clients. Such goals can be met through an interdisciplinary program.

Bachelor of Science Degree Requirements

Interdisciplinary Health and Rehabilitation Sciences Major

The IHRS major requires 30 units of core coursework from several disciplines. Core course content includes professional, developmental, health, ethical, psychosocial and behavioral issues related to aging, illness, and disability.

A major in Interdisciplinary Health and Rehabilitation Sciences requires a minimum of 60 units of study, which includes completion of the 30 unit core and one option (30-45 units). The General Education requirement, special course requirements, and electives complete a total of at least 121 units required for the B.S.

Note: Students may not fulfill option requirements with courses taken to fulfill core requirements.

Interdisciplinary Health and Rehabilitation Sciences — *Units*

Major requirements 60-75

Core Program (required of all options) 29-30

Lower-Division Requirement
HS 92 ..... (3)

Upper-Division Requirements
HHS 10 or PHTH 102 or COUN 102; GERON 115 or HS 115; HS 114; PSYCH 169 or RLS 125; PHTH 105, 106, 107, 127 ..... (23-24)

Select 3 units from the following:
CSD 91/92, 80; GERON/RLS 10S; GERON 125 or SWRK 125; HS 90, 131, 182, 190; KINES 118, 137; PHTH 190; RLS 101, 142; SWRK 135 ..... (3)

Select one of the following options 30-45

Pre-Occupational Therapy Option ..... (36-37)
ART 60 or 70; ANTH 2; COUN 174 or PSYCH 174; PHYAN 64 or PHTH 119; PHYAN 65; PHYS 2A; PSYCH 10; PSYCH 155 or CFS 38; PSYCH 166
Select a minimum of 6 units from the following: CHEM 153; COUN 174 or PSYCH 174; CSD 91 or 92, 80, 98, 158; ECON 162; EHD 108; GERON/RLS 10S; GERON 18 or WS 18; GERON 125 or SWRK 125; GERON 139, 161; GERON 148 or KINES 148; HS 90, 104, 109, 129, 130, 131, 141, 151, 163, 182, 190; ID 145; KINES 109, 116, 118, 137, 163; NSCI 131; NURS 124; PHTH 119; PHTH 126; PHTH 190; PHYAN 140, 163; PSYCH 103 or GERON 103; PSYCH 169; RLS 101, 142; SOC 147; SPAN 1A or 1B; SWRK 135, 137; WS 134

Pre-Physical Therapy Option ..... (44)
CHEM 3A, 3B; NURS 124; PHTH 119, 125, 126; PHYAN 65, 140; PHYS 2A, 2B; PSYCH 10
Select a minimum of 6 units from the following: CLS 158; CSD 91 or 92, 80, 98; ECON 162; EHD 108; GERON/RLS 10S; GERON 18 or WS 18; GERON 125 or SWRK 125; GERON 139, 161; GERON 148 or KINES 148; HS 90, 104, 109, 129, 130, 131, 141, 151, 163, 182, 190; ID 145; KINES 109, 116, 118, 137, 163; PHTH 190; PHYAN 163, 165; PSYCH 103 or GERON 103; RLS 142; SOC 147; SPAN 1A or 1B; SWRK 135, 137; WS 134

Pre-Rehabilitation Services Option ..... (29)
COUN 174 or PSYCH 174; COUN 176 or PSYCH 166; HS 110, 111; PHTH 119 or PHYAN 64; PHYAN 65; PSYCH 10
Select a minimum of 6 units from the following: CLS 158; CSD 91 or 92, 80, 98; ECON 162; EHD 108; GERON/RLS 10S; GERON 18 or WS 18; GERON 125 or SWRK 125; GERON 139, 161; GERON 148 or KINES 148; HS 90, 104, 109, 129, 130, 131, 141, 151, 163, 182, 190; KINES 109, 116, 118, 137; NURS 124; RLS 101, 142; PHTH 190; PSYCH 155 or CFS 38; PSYCH 103 or GERON 103; PSYCH 169; SOC 147; SPAN 1A or 1B; SWRK 135, 137; WS 134

General Education requirements 51

Electives and remaining degree requirements 1-16*
(See *Degree Requirements*); includes upper-division writing skills

Total 121

* This total indicates that 3 units of PSYCH 10 in G.E. Breadth D3 and one of the following G.E. courses are being applied to the IHRS major: CHEM 3A or PHYS 2A (B1); CSD 92 or SPAN 1B (C2); GERON 10S, CFS 38, or HS 90 (E1).

Students seeking admission to the bachelor of science degree program may apply at any point in their undergraduate program. Majors in Interdisciplinary Health and Rehabilitation Sciences (IHRS) must be in good standing with the university and must maintain an overall GPA of 2.5 after admission to the major. This is a minimum as the GPA requirements for admission to graduate programs in the rehabilitation professions may be considerably higher. To enroll in upper division courses, students must have already taken designated lower division courses. Students must meet course prerequisite requirements.

This curriculum is intended to prepare the student with an interdisciplinary perspective to enter graduate programs in physical therapy, occupational therapy and rehabilitation counseling. There may be additional requirements for admission to graduate programs.

Students are required to see an adviser in Interdisciplinary Health and Rehabilitation Sciences for assistance in planning the major.

Minor in Interdisciplinary Health and Rehabilitation Sciences

The minor introduces undergraduate university students to the concepts of rehabilitation and health care to augment a pre-professional program of study for students seeking careers in the health field.

Minor Requirements

The IHRS minor requires 24 units of core coursework from several disciplines. This coursework is intended to provide an interdisciplinary perspective for any health profession. Core course content includes professional, developmental, health, ethical, psychosocial and behavioral issues related to aging, illness, and disability.

CORE:

Lower-Division Requirement (3 units)
HS 92

Upper-Division Requirements (15 units)
HHS 10 or PHTH 102, GERON 115 or HS 115, PHTH 105, PHTH 106, PHTH 107

Elective Requirements (6 units)
Students must select electives from the following pool:
CSD 91/92, 80; CLS 101; GERON 10S; GERON 125 or SWRK 125; HS 90,

131, 182, 190; KINES 118, 137; PHTH 190; RLS 101, 142, SWRK 20, 135

Total required units 24

Students seeking admission to the minor in Interdisciplinary Health and Rehabilitation Sciences (IHRS) may apply at any point in their undergraduate program. Students who minor in Interdisciplinary Health and Rehabilitation Sciences (IHRS) must be in good standing with the university and must maintain an overall GPA of 2.50 after admission to the minor. Students must meet prerequisite requirements for individual courses.

Students are required to see an adviser in interdisciplinary health and rehabilitation sciences for assistance in planning the minor.

Note: The IHRS Minor also requires 6 upper-division units in residence.

Master of Physical Therapy

Physical therapy is a profession dedicated to the improvement of the quality of life. It serves humanity, is holistic in nature, and provides services to persons of all ages, gender, and cultures. In concert with the mission of the university and to meet the needs of the community, physical therapist professional education seeks to graduate competent, adaptable, and compassionate physical therapy practitioners of the highest quality. The best practitioners are committed to life-long learning, self-development, and critical inquiry; they are also prepared to function autonomously in current and future healthcare environments. The physical therapy professional education at California State University, Fresno seeks to stimulate scholarly inquiry and critical thinking while supporting and encouraging research and its dissemination. The program's mission is to develop outstanding, competent, professional practitioners and future leaders of the profession of physical therapy.

In concert with the American Physical Therapy Association 2020 Vision Statement, the program helps graduates develop the skills to examine, evaluate, and establish a diagnosis and prognosis within the scope of physical therapy practice. Graduates are prepared to implement and manage a physical therapy plan of care and to provide a sound rationale for evaluation and treatment procedures based on a theoretical framework for practice, including evidence-based practice.

Successful completion of the MPT program will prepare students with the following outcomes and abilities in physical therapy management and professional development:

1. Practice across all settings in a safe, legal, ethical and nondiscriminatory manner.
2. Screen individuals to determine the need for physical therapy evaluation or referral to other health professionals.
3. Accurately perform and interpret examination findings to establish a physical therapy diagnosis.
4. Choose and effectively perform appropriate examination procedures.
5. Develop and manage an appropriate physical therapy plan of care including patient education, prevention, enhancement, referral, and discharge planning.
6. Utilize, with safe client-handling skills and an awareness of indications and contraindications, cost-effective effacious patient management activities that address goals in the plan of care.
7. Re-evaluate/modify the physical therapy plan of care.
8. Provide sound rationale for evaluation and treatment procedures and plan of care development based on a theoretical framework for practice (including evidence-based practice).
9. Cognitively understand patient needs, limits, and capabilities. In conjunction with the theory and application of physical therapy practice, determine when a task or skill can be safely and effectively delegated to another care provider.
10. Provide effective patient/client-related instruction, education, and consultation.
11. Effectively communicate with cultural sensitivity orally, in writing, and nonverbally with clients, caregivers, colleagues, educators, and the public.
12. Participate in administrative/management and supervisory processes.
13. Participate in the community as an advocate for the practice of physical therapy.
14. Engage in critical inquiry.
15. Plan and implement strategies for continued self assessment and professional growth.

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.

Completion of a postgraduate internship is required to be eligible to seek a license to practice physical therapy in the state of California.

Admissions to Master of Physical Therapy Graduate Program

Students are only admitted in the fall semester. Students should apply to the program in the fall prior to anticipated entry into the Physical Therapy Program. Admission to the Master of Physical Therapy program requires two applications: (1) the California State University Graduate Application, which can be submitted online at *http://www.csumentor.edu*, and (2) the Physical Therapy Department application, which can be downloaded from the department web site at *http://www.csufresno.edu/physicaltherapy*. Review the *Graduate Studies* section in this catalog for graduate admissions information.

Postbaccalaureate students may apply to the university as "postbaccalaureate undeclared" to pursue prerequisite courses. For these postbaccalaureate applicants, only the CSU Graduate Application, indicating "Undeclared" as the major/objective, should be submitted.

Physical Therapy Applications are available: **July 1.**

Physical Therapy Application Filing Period: **October 1 through November 30.**

A complete application includes an information application, an official transcript from each institution attended including previous spring and summer terms, official GRE test scores, observation verification, and letters of reference. GRE scores are considered during program admissions; however, there is no minimum GRE requirement. Late transcripts or documentation will result in not being considered. Follow program application instructions.

Pre-Admission Requirements for Master of Physical Therapy Program

Lower-division

Anatomy and Physiology
Fresno State: PHTH 119, PHYAN 65
Transfer: Human anatomy with lab and human physiology with lab.

Chemistry
Fresno State: CHEM 1A or 3A , and CHEM 3B
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: HS 92
Transfer: Introduction to basic statistics

Upper-division

Psychology
Fresno State: PSYCH 169 or RLS 125
Transfer: Psychology of disability course

Biological Sciences
Fresno State: PHYAN 140
Transfer: Neurophysiology course

The screening committee reviews admission criteria. Prior to admission to the program, the applicant must meet the following requirements:

1. Hold or be eligible to receive a bachelor's degree by the end of the spring semester prior to admission to the program.
2. Have completed or be currently enrolled in the specified lower-division prerequisite 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.
3. Submit GRE test scores by the end of the fall semester prior to admission to the program. Students are encouraged to take the GRE early to avoid delays in acceptance for graduate work.
4. Enroll in upper-division prerequisite courses during the spring semester prior to admission to the program
5. Receive a grade of ***C*** or better in each prerequisite course and maintain a total prerequisite GPA of 3.0. An overall GPA of 2.5 on the last 60 units completed is required. The Department of Physical Therapy recommends an overall GPA of 3.0 on the last 60 units completed. ***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 graduate program.
6. 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 in-patient 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.
7. Submit three letters of recommendation, as specified in application instructions.
8. Participate in a personal interview.
9. Submit grades and final transcripts from institutions other than Fresno State as soon as grades are posted. Transcripts should be requested prior to the end of the term.

Meeting the foregoing criteria does not guarantee acceptance into the Master of Physical Therapy program. 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 program. An applicant must meet the above criteria to be considered for conditionally classified standing in the graduate program.

Classified Graduate Standing

In addition to meeting all admission requirements listed above, the following additional criteria must be met for the applicant to be considered for classified graduate standing:

1. Completion of all (58 units) of coursework listed below with a GPA of 3.0 each semester and overall, and a ***C*** or better in every course.
2. Be recommended by the physical therapy faculty.

An applicant admitted with conditionally classified standing may be granted classified standing upon meeting the above requirements.

Pre-Professional prerequisites for the Master of Physical Therapy Program

	Units
Natural Sciences Category CHEM 1A or CHEM 3A; CHEM 3B; HS 92; PHYS 2A, 2B	18-19
Biological Sciences Category PHYAN 65, 140; PHTH 119, 125, 126, 127	21
Behavioral Sciences Category PSYCH 10; PHTH 106; PSYCH 169 or RLS 125	10
Pre-Clinical Sciences Category NURS 124; PHTH 105, 107	8
Total	**57-58**

For department application or admission information, write to the following address and enclose a self-addressed, stamped, legal-size envelope:

Admissions Coordinator
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

The M.P.T. program is open to all college graduates with a bachelor's degree who have met upper- and lower-division prerequisite requirements and show intellectual promise and ability to perform at a satisfactory level during their graduate studies.

Criteria for Departmental Retention and Progression

The following are criteria for retention in the MPT program and progression to the next semester in the program:

1. Maintaining a minimum 3.0 GPA each semester in the program
2. Maintaining a minimum cumulative 3.0 GPA in M.P.T. degree requirements
3. Achieving a minimum grade of ***C*** (or ***CR***) in each PHTH course.*
4. Enrolling in and completing all required courses in sequence.

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 post-graduate clinical internship. Expenses include student fees, housing, meals, and travel.

*Any student receiving a grade less than ***C*** will not be able to continue in the program, regardless of semester or overall GPA. Please note that grade substitution is not permitted at the graduate level. A student must receive a grade of ***CR*** in all clinical education courses (PHTH 251-257; PHTH 275).

A student receiving a grade of *C* or *NC* in a PHTH course will have one opportunity to repeat the course. A second grade of less than a *C* or *NC* in a repeated PHTH course will result in disqualification from the program.

Requirements for the Master of Physical Therapy

	Units
Core Requirements	**63**
(see *Advising Note* 1)	
PHTH 206, 207, 208, 209, 217, 218, 219, 226, 227, 228, 229, 236, 237, 238, 239, 254, 255, 256, 257, 258, 259, 260, 291	
Electives	**6**
PHTH 240-249, 292A, 292B	
Comprehensive Examination	**0**
Total	**69**
Postgraduate Internship Certification requirements	**12**
PHTH 275 (see *Advising Note* 2)	

Advising Notes

1. PHTH 256 and 257 clinical experiences and PHTH 275 postgraduate internship are conducted in a variety of clinical facilities through out the state. Students must provide for all expenses including housing, meals, and travel. These are offered *CR/NC* only.
2. PHTH 275 must be completed to be eligible to take the state examination for licensure.

Advancement to Candidacy Requirements. Students usually advance to candidacy following the completion of two full-time semesters of graduate coursework in the Master of Physical Therapy program. Prior to advancement to candidacy, students must have the following:

1. Classified graduate student standing.
2. A minimum GPA of 3.0 (overall, program, and California State University, Fresno) on all coursework completed after the date of the first course to be included in the master's degree program, with no grade below *C*.
3. Demonstrated required competency in clinical coursework (PHTH 251-257) with grade of *CR*.
4. Demonstrated graduate level writing proficiency (assessment of a portfolio of writings is used). This requirement must be met within one semester of classified graduate standing. Contact the Department of Physical Therapy for detailed requirements.
5. Approval from the faculty to take the department's comprehensive written examination with an oral defense.

A culminating experience is required of all Fresno State master's degree candidates. Students in physical therapy satisfy the requirement through a comprehensive written examination with an oral defense.

COURSES
Physical Therapy (PHTH)

PHTH 102. Rehabilitation Professions (3)
(Same as COUN 102.) Overview of various rehabilitation professions, the development of an interdisciplinary rehabilitation service, and principles and philosophies of rehabilitation. Responsibilities, educational requirements, practice parameters, and job locations of rehabilitation professionals. Taught in the classroom in the fall semester and online in the spring semester.

PHTH 105. Medical Terminology for Health Professionals (3)
Study of word parts, definitions, spelling, analysis, synthesis, and use of medical vocabulary. This course is taught in classroom sections or may be taken entirely online.

PHTH 106. Patient Practitioner Interaction (3)
Prerequisites: PSYCH 169. Patient-practitioner interaction in health care, with an emphasis on the development of effective patient/therapist communication skills for a variety of health care situations, including patient education and chronic and terminal illness.

PHTH 107. Health Care Issues (3)
Analysis of the health care system and its influence on access to and delivery of health care services. Special focus on needs and mechanisms for integrated service delivery for prevention and care of acute and chronic illnesses and disabilities.

PHTH 119. Anatomy of the Appendicular Skeleton (3)
An in-depth study of the structure and function of the musculoskeletal system with a special emphasis on the joints of the upper and lower extremities. Includes a laboratory utilizing cadavers and prosected material to integrate muscle and tendon attachments with bony landmarks. Joint Structure and function will also be demonstrated. (2 lecture, 3 lab hours) (Instructional materials fee, $35)

PHTH 125. Anatomy of the Axial Skeleton (4)
Prerequisite: PHTH 119. Study of the structure, function and biomechanics of the neuromusculoskeletal systems with emphasis on spine, pelvis, thoracic/peritoneal, visceral and temporomandibular joint. Includes dissection lab and prosected material. (3 lecture, 3 dissection lab hours) (Instructional materials fee, $35)

PHTH 126. Applied Pathophysiology (3)
Prerequisite: PHYAN 65. Advanced study of physiology of body systems and responses to normal aging, environmental influences, and pathological dysfunction. (Fall semester only.)

PHTH 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. (Spring semester only.)

PHTH 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.

PHTH 190. Independent Study (1-3; max total 6)
See *Academic Placement—Independent Study*. Approved for *RP* grading.

GRADUATE COURSES
Physical Therapy (PHTH)

Graduate physical therapy students will engage in professional coursework which is based on the mission of the department, college, and university. The curriculum incorporates a combination of didactic, clinical, and research learning experiences that are reflective of contemporary physical therapy practice. It includes instruction in foundational sciences, clinical sciences, and learning experiences designed to produce competence physical therapy practitioners of the highest quality who are prepared to function autonomously in current and future healthcare environments.

Emphasis throughout the coursework is on preparing students to be the following:

- competent in academic, cognitive, interpersonal, and clinical skills

- compassionate
- effective communicators
- critical thinkers
- problem solvers
- professional
- autonomous practitioners
- researchers
- educators
- consultants
- reflective generalists

PHTH 206. Professional Foundations in Physical Therapy (3)
Professionalbehavior standards in relation to patient care interactions, relationships with colleagues and community. Introduction to current issues in physical therapy and the APTA. Legal and ethical responsibilities of the physical therapist in the delivery of health care services.

PHTH 207. Foundations of Patient Assessment in Physical Therapy (3)
Selected theory and clinical application of examination, history, system review, and specific tests and measures which make up the assessment process for the patient receiving physical therapy.

PHTH 208. Foundations of Clinical Management in Physical Therapy (4)
Selected theory and clinical application of essential treatment procedures and interventions utilized in physical therapy practice including physical agents, massage, therapeutic exercise, and transfer and mobility training.

PHTH 209. Clinical Pathokinesiology (3)
Normal and abnormal biomechanics of the human body will be investigated with an emphasis on analyzing and synthesizing the component motion of joints of the upper and lower extremities, spine, and pelvis.

PHTH 217. Orthopedic Management in Physical Therapy I (4)
Analysis of musculoskeletal disabilities with emphasis on physical assessment, methods of therapeutic intervention, clinical decision making and program planning. Selected lectures by medical practitioners on medical-surgical management of orthopedic conditions. Focus of course will be dysfunction involving the extremities.

PHTH 218. Orthopedic Management in Physical Therapy II (3)
Prerequisite: PHTH 217. Analysis of musculoskeletal disabilities with emphasis on physical assessment, methods of therapeutic intervention, clinical decision making and program planning. Selected lectures by medical practitioners on medical-surgical management of orthopedic conditions. Focus of course dysfunction involving the spine and pelvic girdle.

PHTH 219. Advanced Therapeutic Technology (3)
Study of work station and ergonomic analysis as related to posture and gait. The theory and application of prosthetic and orthotic devices as applied to standing, sitting, and walking.

PHTH 226. Electrophysiologic Approaches to Patient Care (3)
Prerequisites: PHTH 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)

PHTH 227. Applied Neurosciences in Physical Therapy (4)
Advanced study in normal structure and function of the peripheral and central nervous system as a basis for understanding the clinical manifestations seen in neurological disorders including how a physical therapist would manage these manifestations.

PHTH 228. Management of Neurological Disorders in Physical Therapy I (3)
Advanced evaluation and treatment approaches to neurological disabilities in adults with emphasis on therapeutic intervention, program planning, and outcome measurements for the patient with neurological problems such as balance disorders, stroke, and Parkinson's disease.

PHTH 229. Management of Neurological Disorders in Physical Therapy II (3)
Advanced evaluation and treatment approaches to neurological disabilities in adults with emphasis on therapeutic intervention, program planning, and outcome measurements for the patient with neurological problems such as spinal cord injury, multiple sclerosis, and traumatic head injury.

PHTH 236. Physical Therapy Management of Body Systems (3)
Evaluation and therapeutic intervention in the clinical management of normal and pathological conditions of the cardiovascular, pulmonary, endocrine, and integumentary systems. A focus on the development of advanced knowledge and skills in patient evaluation, program planning, and treatment procedures.

PHTH 237. Physical Therapy Management in Pediatrics (3)
Prerequisites: PHTH 207, 208. Advanced study of diagnosis and physical therapy problems found in pediatrics. Evaluation and intervention principles are used to discuss and explore clinical manifestations associated with diseases and functional impairments. Emphasis will be placed on therapeutic intervention and program planning.

PHTH 238. Physical Therapy Management in Geriatrics (2)
A synthesis of biology of aging with common orthopedic and neurological problems special to the older patient. This course emphasizes analysis of clinical problems and issues facing the physical therapist in utilizing functional testing and community resources with the elderly.

PHTH 239. Advanced Differential Diagnosis in Physical Therapy (3)
Study of functional profiles of clients with emphasis on signs and symptoms associated with musculoskeletal, cardiopulmonary, peripheral vascular, and neurological diagnosis. Emphasis on methods to determine the most appropriate intervention strategy for each patient or client through the diagnostic process.

PHTH 240. Advances in Orthopedic Physical Therapy I (2)
Prerequisite: PHTH 217, 218 or permission of instructor. Exploration of treatment of orthopedic problems.

PHTH 241. Advances in Physical Therapy II (2)
Prerequisite: PHTH 217, 218 or permission of instructor. A continuation of Advances in Orthopedic Physical Therapy I.

PHTH 242. Advanced Clinical Anatomy I (2)
Prerequisite: PHTH 115, 125 or permission of instructor. Exploration of clinical application of anatomical structures of joints.

PHTH 243. Advanced Clinical Anatomy II (2)
Prerequisite: PHTH 242 or permission of instructor. A continuation of Advanced Clinical Anatomy I.

PHTH 244. Advances in Management of the Aging Population (2)
Prerequisite: PHTH 127 or permission of instructor. Exploration of special approaches and considerations of intervention of conditions of aging.

PHTH 245. Advances in Management of the Neurological Patient (2)
Prerequisite: PHTH 227, 228 or permission of instructor. Exploration of advanced multisystem treatment approaches in neurorehabilitation.

PHTH 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.

PHTH 247. Sports Injuries (2)
Exploration in advances in management of sports injuries.

PHTH 248. Advances in Cardiac Rehabilitation (2)
Prerequisite: PHTH 236 or permission of instructor. Exploration of the components of implementing and maintaining multilevels of cardiac rehabilitation and the management of patients with cardiac disease.

PHTH 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.

PHTH 254. Clinical Learning I (1)
Prerequisite: Satisfactory completion of academic courses to date. This class is taught in an experimental model exposing students to clinical decision analysis by exposing them to the Gait, Balance, and Mobility Clinic. Students primarily observe evaluation and treatment of clients.

PHTH 255. Clinical Learning II (2)
Prerequisite: PHTH 254; satisfactory completion of academic courses to date. Using an experimental model for clinical decision analysis, this class requires the student to consider the appropriateness of various evaluation and treatment techniques by evaluating and treating clients enrolled in "Fall Prevention and Balance Disorder" class.

PHTH 256. Clinical Experience I (2)
Prerequisite: satisfactory completion of academic courses to date. The student will be guided in the application of academic knowledge to patient care during this clinic externship. Comprehensive examination, evaluation, and intervention will be used to manage the physical therapy client. Approved for *RP* grading and *CR/NC* grading only.

PHTH 257. Clinical Experience II (2)
Prerequisite: PHTH 256. This externship provides guidance to the student in applying academic knowledge in a clinical setting. Students will have the opportunity to complete a comprehensive examination, evaluation and treatment intervention, and implement complex decision making analysis in physical therapy patient management. Approved for *RP* grading and *CR/NC* grading only.

PHTH 258. Integrated Clinical Management I (2)
Prerequisite: PHTH 256; successful completion of the first year of the Master of Physical Therapy Program. Application of evidence-based practice principles in physical therapy. Integration of diagnostic findings, patient history and resource constraints to establish a physical therapy plan of care. Emphasis on appropriate communication and case management.

PHTH 259. Integrated Clinical Management II (2)
Prerequisite: PHTH 256, 258; successful completion of the first year of the Master of Physical Therapy Program. Integration of diagnostic findings, patient history, and resource constraints to establish a physical therapy plan of care. Emphasis on management of patients with multi-system involvement and justification of service delivery in regard to outcomes and resource limitations.

PHTH 260. Administration of Physical Therapy Services (2)
Prerequisite: PHTH 206. Application of administration and organization of a physical therapy service, including supervision issues, fiscal considerations, marketing and public relations, outcomes management, utilization and quality management.

PHTH 262. Cooperative Education in Physical Therapy (1-2; max total 6)
Prerequisite: student must have completed the first semester of the Professional Physical Therapy Program. Cooperative education students are given the opportunity to combine classroom theory with "on-the-job" training to work with professionals in their field of study. (Formerly PHTH 180T)

PHTH 275. Postgraduate Clinical Internship (12)
Prerequisite: PHTH 259. 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.

PHTH 290. Independent Study (1)
Supervised guidance for students who wish to do additional research. Approved for *RP* grading.

PHTH 291. Research Methods (3)
Promotes skills in application of research design and critical reading, based on principles of evidence-based practice. Emphasis will be placed on evaluation of published research and clinical applications. Descriptive, correlational, experimental and single subject designs will be discussed.

PHTH 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.

PHTH 292B. Advanced Physical Therapy Research: Data Collection and Analysis (3)
Prerequisite: PHTH 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 *Catalog Numbering System*.)

Physical Therapy (PHTH)

PHTH 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

College of Health
and Human Services

Recreation Administration and Leisure Studies Program
John Crossley, *Coordinator*
Juanita Jackson, *Administrative Support Coordinator*
Psychology and Human Services Bldg., Room 121
559.278.2838
FAX: 559.278.5267
http://www.csufresno.edu/recadmin/

B.S. in Recreation Administration
Emphasis:
- Leisure Services Management

Minor in Recreation Administration

Certificate in Adventure-Based Programming

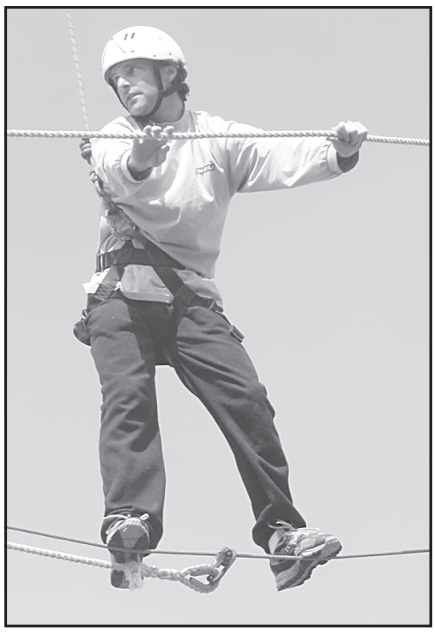
Certificate in Serving At-Risk Youth

Certificate in Special Event Planning

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. The major in Recreation Administration and Leisure Studies prepares students with the knowledge, understanding, ability, and skill necessary to successfully function in professional positions related to the major.

Faculty are committed to providing a high quality professional preparation program in recreation and leisure services, founded on a competency based curriculum. Our graduates acquire specific skills 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. In addition, students can choose between three specializations in leisure service management: (1) community recreation and youth services, (2) commercial recreation, (3) adventure recreation and tourism.



Curriculum

Accredited by the National Recreation and Park Association Council on Accreditation, the program offers a B.S. and a Minor in Recreation Administration. Preparation is provided within the major for the leisure services management emphasis area.

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, group dynamics, and leisure behavior. Courses also cover 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 skills in the areas of communication, human behavior, youth services, entrepreneurism, and adventure-based recreation and tourism, finance, business management, marketing, funding, resources, program planning and supervision, and facility management.

Under the guidance of a practitioner, students in recreation administration and leisure studies are encouraged to acquire 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 and tourism 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

Recreation and leisure comprise 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; as state and federal recreation specialists; and as managers of resorts, membership clubs, travel and tourism, hotel guest services, employee services, special events planning, and others.

Faculty

John Crossley, *Coordinator*
L. Jay Fine
Jody Hironaka-Juteau
Andrew E. Hoff

Bachelor of Science Degree Requirements

Recreation Administration Major

	Units
Major requirements	**65**
The following core program courses are required of all candidates for this degree. Additional required courses dependent upon the selected emphasis area and specialization are outlined following the core program requirements.	
• **Core Program** RLS 55, 73, 73L, 80, 101, 125, 128, 128L, 179, 180	26
• **Emphasis Area**	39
Leisure Services Management Emphasis Area RLS 133, 135, 139, 184	22
Select one of the specializations listed below	17
Specialization in Community Recreation and Youth Services Complete RLS 113, 117 and 146	(9)

Select from the following:
RLS 106, 108; CFS 39, 136; CRIM 120, 130; EHD 107, 109; GERON/RLS 10S, 103; HS 110; MCJ 106, 152; MGT 133; PLSI 163; PSYCH 102; SSCI 150T (150T repeatable up to 2 units); SWRK 128 ..... (6-7)
Select from the following:
ART 20, 30, 60; DRAMA 136, 138A; HS 48; KINES 32, 132, 152; MUSIC 153; RLS 74, 75, 192T (192T repeatable up to 3 units) ..... (1-3)

Specialization in Commercial Recreation

Complete RLS 117 and 131 ..... (6)
Select from the following:
ACCT 3; BA 18; COMM 103; ENTR 81, 153, 155; HS 48; MCJ 106, 142; MKT 130; RLS 74, 146, 192T (192T repeatable up to 3 units) ..... (11)

Specialization in Adventure Recreation and Tourism

Complete RLS 131 and 146 ..... (6)
Select from the following:
BIOL 100; COUN 174; ENTR 81; GEOG 135, 145T; GEOL 3; HS 48; KINES 122; RLS 74, 75, 80, 82, 84, 86, 88, 106, 108, 113, 192T (192T repeatable up to 2 units) .. (11)

Therapeutic Recreation Emphasis Area**

RLS 142, 144A, 144B, 148, 187; PHYAN 33; PSYCH 166; CFS 38 ..... (36)
Select from the following:
RLS 74, 75, 106, 108, 113, 117, 146, 192T (repeatable for up to 3 units); PSYCH 101, 102; COUN 174; CSD 91; CFS 131, 136; CRIM 100, 120, 130; SOC 143, 147, 168; GERON 103, 130, 132, 161; PHTH 105; IPC 201 (with permission) ..... (3)

General Education requirements 51
Electives and remaining degree requirements 4-10
Total 120*

* This total indicates that a maximum of 6 units in General Education also may be applied to 6 units of electives in the RLS major as follows: ART 20 in G.E. Breadth C1; RLS 80 or GERON 10S in G.E. Breadth E1. Consult the department chair or faculty adviser for additional details.

** As of fall 2004, the Therapeutic Recreation Emphasis has been suspended and is no longer taking admissions. Students with substantial coursework in this area should consult with the Department of Recreation Administration and Leisure Studies if they wish to pursue this emphasis area.

Advising Notes

1. *CR/NC* grading is not permitted in the recreation administration major with the exceptions of RLS 74, 75, 82, 84, 86, 88, 115, 184, 187, and 192T.
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 Upper-Division Writing Skills requirement are advised to take BA 105W.
4. Only a grade of *C* or higher in RLS 55, 73, 73L, 101, 125, 128, 128L, 131, 142, 179, and 180 will apply to the major in Recreation Administration.

Recreation Administration Minor

The Minor in Recreation Administration consists of 24 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 or 113, 133 or 146, 135 ..	**24**

Note: The Recreation Administration Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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.

	Units
Required courses	**6**
RLS 113	(3)*
RLS 115	(3)*
Elective courses	**6**
Select 6 units from the following:	
CRIM 120, PSYCH 102; CFS 133S, 136; EHD 107, 108; COUN 150; RLS 106, 108, 117	
Total	**12**

* RLS 115 must be taken concurrently with RLS 113.

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	**9**
RLS 115	(3)*
RLS 117	(3)*
RLS 135	(3)
Elective courses	**3**
Select one class from the following:	
MCJ 106	(3)
MCJ 142	(3)
MGT 133	(3)
Total	**12**

*RLS 115 and 117 must be taken concurrently.

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 115	(1-2)*
RLS 146	(3)*

*RLS 115 and 146 must be taken concurrently.

Elective courses	**5-6**
Select 5-6 units from the following:	
COUN 174	(3)
CI 122	(2)
KINES 122	(3)
MGT 106	(3)
RLS 108	(1)
RLS 113	(3)
Total	**12**

COURSES

Recreation and Leisure Studies (RLS)

RLS 10S. The Journey of Adulthood: Planning a Meaningful Life (3)
(See GERON 10S.)

RLS 55. Introduction to Recreation, Parks, and Tourism (3)
Philosophical, theoretical, and historical basis for recreation service in contemporary American society; exploration of the various facets of recreation, parks, and tourism including public, nonprofit, therapeutic, and commercial recreation. (CAN REC 2)

RLS 73. Recreation Leadership and Programming (3)
Theoretical, philosophical, and practical basis for leadership and programming. Dynamics of leading recreation activities, developing basic program planning skills, and procedures for facility utilization.

RLS 73L. Recreation Leadership and Programming Laboratory (1)
Concurrent enrollment with RLS 73. Practical leadership experience in classroom and supervised recreation settings.

RLS 74. Games for All Ages (1)
Planning, design, and leadership techniques for a variety of games appropriate for diverse populations and age groups. *CR/NC* grading only. (Formerly RLS 192T)

RLS 75. 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)

RLS 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. Dynamics of identifying personal interests and skills. Discovering resource-based learning opportunities in the leisure appropriate across the life stages. G.E. Breadth E1.

RLS 82. Wilderness Survival Skills (1)
Back country skills for preventing or responding to emergency situations in the wilderness, such as fire and shelter building, signaling, and land navigation. Explores interpersonal and intrapersonal reactions to crisis situations. *CR/NC* grading only. (Formerly RLS 192T)

RLS 84. Orienteering (1)
Fundamental skills and knowledge for travelling outdoors by map and compass, and by knowledge of natural features. *CR/NC* grading only. (Formerly RLS 192T)

RLS 86. Backpacking in the Sierra Mountains (1)
Fundamental skills and knowledge for backpacking, car camping, and hiking in the Sierra Mountains or similar settings. Includes skills for camping, hiking, basic navigation, trip planning, and outdoor cooking, plus safety and environmental issues. *CR/NC* grading only. (Formerly RLS 192T)

RLS 88. Rock Climbing (1)
Basic skills and knowledge of rock climbing including history, trends, equipment, climbing technique, top roping, knot tying, rappelling, training, safety, and environmental issues. *CR/NC* grading only. (Formerly RLS 192T)

RLS 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.)

RLS 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.

RLS 108. Advanced Challenge Course Facilitation (1)
Focuses on advanced debriefing and processing techniques, including frontloading and designing metaphors used in facility-based adventure programming such as ropes courses and portable initiative courses. Prior ropes course training or RLS 106 recommended. (Formerly RLS 192T)

RLS 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

RLS 115. Community Placements in Leisure Settings (1-3; max total 6)
Prerequisite: permission of instructor. Service oriented course designed to provide opportunities to observe, interact, and learn from community placements in leisure services. Hour requirements are supported through writing and discussion on issues and solutions. *CR/NC* grading only. (Formerly RLS 192T)

RLS 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.)

RLS 125. Understanding Special Populations in a Contemporary Society (3)
Introduction to diverse populations including terminology, etiology, legislation, facilities, trends, barriers, and relationship to leisure. Understanding alternative views of exceptionality and appreciating similarities and differences. Awareness of adaptations and other strategies to maximize opportunities for participation.

RLS 128. Legal and Financial Aspects of Recreation, Parks, and Tourism (3)
Prerequisite: RLS 55. Legal and financial aspects of recreation, parks, and tourism; budget analysis, legal terminology, and their role in recreation administration.

RLS 128L. Legal and Financial Aspects of Recreation, Parks, and Tourism Lab (2)
Prerequisites: RLS 55 and concurrent enrollment with RLS 128. The lab emphasizes the development of budgets and data analysis methods for park, recreation, and tourism agencies through the use of a variety of computer programs.

RLS 131. Foundations of Commercial Recreation and Tourism (3)
Prerequisite: RLS 55. Historical and philosophical foundations of leisure service provisions by commercial recreation and tourism agencies. Review of selected service providers including organization, assessment, service provision, legal base, funding profiles, and current trends analysis. (Field trips may be required.)

RLS 133. Recreation and Parks Facilities Planning and Operations (3)
Prerequisite: RLS 55. Emphasis will be on the planning, management, and operations of recreation and parks facilities. Facility layout for use in activity presentation, safety procedures, staffing, risk management, and maintenance. (Field trips may be required.)

RLS 135. Recreation, Parks, and Tourism Marketing (3)
Prerequisite: RLS 55. Analysis and development of marketing and promotion strategies for recreation, parks, and tourism programs and services, and an in-depth analysis of recreation feasibility plans.

RLS 139. Programming and Evaluation in Recreation, Parks, and Tourism (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, 2 lab hours)

RLS 142. Foundations of Therapeutic Recreation Service (3)
Prerequisites: RLS 55 and RLS 125 or permission of instructor. Historical review and future outlook of therapeutic recreation. Identification of interventions used for specific population groups. Review etiology characteristics, terminology and support systems. Facility design, use, and adaptation. Practical experience required.

RLS 144A. Methods in Therapeutic Recreation (3)
Prerequisite: RLS 142. Application of therapeutic recreation methods including assessment, program design, and evaluation.

RLS 144B. Facilitation Techniques in Therapeutic Recreation (3)
Prerequisites: RLS 142; RLS 144A. Practical experiences in applying therapeutic recreation intervention techniques.

RLS 146. Adventure Based Programming (3)
Adventure based programming skills will be explored through experiential activities on the Edge Ropes Course and other outdoor pursuits. (2 lecture, 2 lab hours) (Students will incur expenses related to required field trip.)

RLS 148. Programming and Evaluation in Therapeutic Recreation (4)
Prerequisites: senior standing or permission of instructor; RLS 144A, 144B. Planning therapeutic programs for special populations. Practical program experiences with disability groups required. (3 lecture, 2 lab hours)

RLS 179. Supervision and Administration in Recreation, Parks, and Tourism (3)
Prerequisite: RLS 73. Preparation for a supervisory role in recreation, parks, and tourism agencies. Recruitment, motivation, performance evaluation training and development, and other supervisory and management practices.

RLS 180. Senior Seminar (2)
Prerequisite: may only be taken one or two semesters prior to internship. Trends and issues, current research, professionalism, and internship search procedures in recreation, parks, and tourism.

RLS 184. Internship in Recreation, Parks, and Tourism (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.

RLS 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.

RLS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

RLS 192T. Topics in Recreation, Parks, and Tourism (1-3; max total 8; repeatable with different topics)
Investigation of selected topics related to administration, supervision and leadership in parks, recreation, leisure, and tourism settings. Workshops related to skills in leisure oriented activities.

IN-SERVICE COURSES

(See *Catalog Numbering System*.)

Recreation and Leisure Studies (RLS)

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.

RLS 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

College of Health
and Human Services

Department of
Social Work Education
E. Jane Middleton, *Chair*
Carol Dupras, *Administrative Support Coordinator*
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

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. These methods include client and systems policy advocacy, brokering, and consulting, as well as individual, family, and group counseling/psychotherapy. Other methods include mediation education, 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 in a broad range 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; Community Medical Centers of Central California; St. Agnes Hospital; Children's Hospital Central California; Veterans Administration Hospital; and Area Agency on Aging. Internship/practicum experiences are also available in the schools, and the mental health, probation, and social services departments in the counties of Fresno, Kings, Madera, and Tulare.

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 disabled, 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 additional responsibilities and engage in more advanced clinical, case management, training, administrative, program development or policy making/administrative practice 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 serving rural areas.

Faculty

E. Jane Middleton, *Chair*
Mitzi Lowe, *MSW Admissions*
Jane L. Yamaguchi, *Undergraduate Coordinator*

James E. Aldredge
Benjamin Cuellar
John B. Franz
Betty J. Garcia
Mekada J. Graham
Mark G. Hanna
Donna L. Hardina
Debra M. Harris
Virginia R. Hernandez
M. Lynn Jacobsson
Sudarshan Kapoor
Anne S. Petrovich
Richard O. Salsgiver
Rodger A. Simpson

The Bachelor of Arts Program

The bachelor's degree program prepares students to enter supervised professional social work practice and/or pursue admission to a range of graduate study programs and professional schools. This includes graduate study in social work leading to a master's in social work. Both the bachelor's and master's degree programs are accredited by the Council on Social Work Education.

Bachelor of Arts Degree Requirements

Social Work Major — *Units*

Major requirements 42

SWRK 20, 123, 130, 135, 136, 139, 140, 175, 176, 181 (6 units), 182 (6 units), 185

(A minimum grade of *C* in each major core course in the social work major is required [SWRK 20, 123, 130, 135, 136, 139, 140, 175, 176, 181, 182, 185].)

Note: Students must attain a minimum grade of *C* in each required course in the social work major. Students who receive a grade of less than *C* in any of the above courses must meet with their Department of Social Work Education academic adviser and develop a plan for repeating the course and continuing the major. Refer to the *Undergraduate Advising Booklet* for complete information on policies. See *Advising Notes.*

Additional requirements 18

May also count toward General Education

ECON 25, 40, or 50 ..... (3)

HS 90 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: SWRK 122T, 125, 128, 129, 137 ..... (3)

General Education requirements 51

Electives and remaining degree requirements 9-24*

(See *Degree Requirements*); may include a double major or minor.

Total 120

*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 and on the Web. 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 SWRK 181 and 182.
3. General Education, additional requirements, and elective units may be used toward a double major or minor (see *Double Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
4. No General Education Multicultural/International course offered by the Social Work Education Department may be used to satisfy the General Education requirements for majors in the department.
5. Senior year internships are arranged by the field coordinator. Applications must be filed. Also, interviews with the field coordinator and agency selection interviews must be completed the semester *prior* to entering the field.
6. Students who have prior knowledge of Spanish or Southeast Asian languages but lack fluency are encouraged to take additional coursework in the languages.
7. A booklet describing the program more fully is available in the department office and on the Web.

Certificate in Alcohol/Drug Studies

The Department of Social Work Education participates 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*, page 367, in this catalog.)

Certificate in Cross-Cultural Competency

The College of Health and Human Services and the Department of Social Work Education jointly offer a certificate of special study in cultural competency. Twelve units of selective study are required that include 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

SWRK 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; CI 140ECE; SPAN 125; GERON 111, 161; HUM 130; LING 110, 120, 130; PHIL 135, 138; PSYCH 178; COMM 120, 164

Health/Mental Health: AAIS 141; ANTH 117; CLS 158; HS 90, 100, 104; PSYCH 169; WS 134; RLS 125

Ethnicity: AAIS 56, 100, 101, 103, 135, 136, 142, 144, 148; ANTH 115, 116W, ASAM 110, 138, 140; CLS 126, 128, 141, 152, 154, 156; CRIM 174; AAIS 104W; SOC 111

Women: AAIS 137; CLS 162; GERON 18; HS 126, 130; HIST 101; SOC 132; WS 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.

COURSES

Social Work (SWRK)

SWRK 20. Introduction to Social Work (3)
Social, economic, political, historical, and philosophic components in development of social welfare and social work in western society.

SWRK 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.

SWRK 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.

SWRK 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.

SWRK 128. Child Welfare (3)
History, development, and provision of child welfare services in the United States.

SWRK 129. Treatment of Chemical Dependency (3)
Intervention and treatment of the chemically dependent and of family members; community resources; laboratory skills development.

SWRK 130. Seminar in Social Work Processes (3)
Introduction to social work intervention.

SWRK 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.

SWRK 136. Cultural Diversity and Oppression (3)
Prerequisites: G.E. Foundation and Breadth Area D. Cultural, economic, ethnic, social, and psychological considerations for helping members of groups who suffer oppressed status in heterogeneous society. Required for Cross-Cultural Competency Certificate. G.E. Multicultural/International MI (except for social work majors)

SWRK 137. Principles in Cross-Cultural Competence (3)
Prerequisite: SWRK 136. Theoretical framework for skill-based cultural competency in educational, business, and public/private human services settings. Problem formulation and interaction skills with diverse populations. Required for Cross-Cultural Competency Certificate.

SWRK 139. Seminar in Macro Practice (3)
Restricted to first semester internship students who must concurrently enroll in SWRK 181. Cannot be taken concurrently with SWRK 140. Must be taken concurrently with SWRK 181. Analysis of and interventive strategies in large groups, organizations, and the community. (Formerly SWRK 141)

SWRK 140. Seminar in Micro Practice (3)
Prerequisite: SWRK 139 and 181. Restricted to second semester internship students who must concurrently enroll in SWRK 182. Seminar emphasizing integration of human behavior and social environment theories with principles of beginning social work counseling techniques with individuals, families, and small groups.

SWRK 152. Introduction to Mediation and Conflict Resolution for Human Service Professionals (3)
Provides students with a knowledge base in mediation as a method of conflict resolution. Develops beginning level skills in mediating conflicts as part of social work practice. (Formerly SWRK 122T)

SWRK 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.

SWRK 176. Seminar in Data Analysis and Presentation (3)
Prerequisite: SWRK 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.

SWRK 181. Field Instruction A (6)
First semester field internship. Prerequisites: senior standing, minimum 2.0 GPA, completion of UDWS requirement, G.E. Foundation and Breadth, and SWRK 20, 123, 130, 135, and 136. Concurrent enrollment in SWRK 139 (formerly 141). Guided social work practice experience with individuals, groups, families, and organizations. Liability insurance required during internships. ***CR/NC*** grading only.

SWRK 182. Field Instruction B (6)
Second semester field internship. Prerequisites: senior standing, minimum 2.0 GPA, SWRK 181, and concurrent enrollment in SWRK 140. Guided social work practice experience with individuals, groups, families, and organizations. Liability insurance required. ***CR/NC*** grading only. (Formerly SWRK 181, second semester).

SWRK 185. Senior Capstone Seminar (3)
Concurrent enrollment in SWRK 181 or 182. Prerequisite: senior standing or permission of instructor. Culminating senior seminar integrating theory and practice of social work; current trends in the profession. Satisfies the senior major requirement for the B.A. (Formerly SWRK 181, second semester internship).

SWRK 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

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 practice. They will build cross-cultural awareness. Students will learn to use empowerment and social justice perspectives in intervention with client systems of 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 and contribute to 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 two internship experiences 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: SWRK 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 45 to 46 units. In consultation with their faculty advisers, students also enroll in either SWRK 226 or 244 (3 units). The remaining 11 to 12 units may be selected from electives in social work or from other departments, subject to approval. Contact the department office for a list of electives.

Master of Social Work Writing Requirement

The graduate writing requirement for the Master of Social Work is satisfied by passing a writing exam administered in SWRK 200 during the first semester of graduate coursework. The student must pass the writing exam as a prerequisite to advancement to candidacy. For more information about the writing requirement and the appeals process, refer to the *Graduate Handbook.* Students may obtain a copy of the *Graduate Handbook* from the Department of Social Work Education.

GRADUATE COURSES

Social Work (SWRK)

Note: Admission to the M.S.W. program is prerequisite to all graduate courses. Exceptions may be authorized by the department chair.

SWRK 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.

SWRK 203. Social Welfare Policy II (3)
Prerequisite: SWRK 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.

SWRK 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.

SWRK 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.

SWRK 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.

SWRK 220. Seminar in Foundations for Social Work Practice (3)
Concurrent enrollment in SWRK 250 required. Seminar about the development of social work practice, introducing the generalist approach to intervention with individuals, families, small groups, organizations and communities.

SWRK 224. Seminar in Advanced Clinical Social Work Practice with Individuals (3)
Prerequisites: SWRK 200, 220 and concurrent enrollment in SWRK 250. Analysis and application of the theories, principles and techniques of clinical social work practice with individuals.

SWRK 226. Seminar in Advanced Clinical Social Work Practice with Groups (3)
Prerequisites: SWRK 200, 220 and 224 and concurrent enrollment in SWRK 251. Analysis and application of the theories, principles and techniques of clinical social work practice with small groups.

SWRK 227. Seminar in Advanced Clinical Social Work Practice with Couples and Families (3)
Prerequisites: SWRK 200, 220 and 224 and concurrent enrollment in SWRK 251. Analysis and application of theories, principles and techniques of clinical social work practice with couples and families.

SWRK 244. Seminar in Social Work Practice with Small Groups (3)
Prerequisites: SWRK 200, 220 and concurrent enrollment in SWRK 251. The theory and practice of social work with small groups, including task, natural support, and self-help groups.

SWRK 246. Seminar in Social Work Practice with Formal Organizations (3)
Prerequisite: SWRK 200, 220, and concurrent enrollment in SWRK 250. Theory and practice of the administration of formal social service organizations.

SWRK 247. Seminar in Social Work Practice with Communities (3)
Prerequisite: SWRK 200, 220, 224, 246, and concurrent enrollment in SWRK 250 or 251. Theory and practice of social work intervention with communities.

SWRK 250. Field Instructed Practice (2-3; max total 5)
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 ***RP*** grading. ***CR/NC*** grading only.

SWRK 251. Field Instructed Practice (2-3; max total 5)
Prerequisite: SWRK 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 ***RP*** grading. ***CR/NC*** grading only.

SWRK 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.

SWRK 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.

SWRK 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.

SWRK 274. Advanced Social Work Practice in Schools (3)
Addresses the specific knowledge and skills required for advanced social work practice in school settings. Required for the Pupil Personnel Services credential in school social work and child welfare and attendance services. (Formerly SWRK 271T)

SWRK 275. Advanced Social Work Practice in Schools II (3)
Prerequisite: SWRK 274. Addresses specific target populations, strategies for intervention, and evaluation of advanced social work practice in school settings. Required for the Pupil Personnel Services credential in school social work and child welfare and attendance services. (Formerly SWRK 271T)

SWRK 276. Psychosocial Assessment and Treatment Planning for Clinical Social Work (3)
Develops competence in clinical assessment. Helps students identify a collaborative treatment plan and understand the part various mental, behavioral, and emotional problems play in assessment and treatment planning in clinical social work practice. (Formerly SWRK 271T)

SWRK 277. Advanced Seminar on Trauma and Abuse (3)
Prerequisite: SWRK 220. Analysis of the effects of trauma and abuse on victims. Historical context of trauma and post-traumatic stress reactions. Effects of trauma and abuse on child and adult development and on individuals and families across cultures and nations. (Formerly SWRK 271T)

SWRK 278. Advanced Child Welfare Practice (3)
Prerequisite: SWRK 128, if less than two years of experience in child welfare setting. Designed to assist students in development of practice skills (assessment, treatment, and intervention planning) in work with children and families involved within the child welfare system. Required for Title IV-E Child Welfare Program students. (Formerly SWRK 271T)

SWRK 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

SWRK 291. Advanced Social Work Research (3)
Prerequisite: prior statistics course. Strategies for advanced social work research methodology and analysis.

SWRK 292. Seminar in Thesis/Project (3)
Prerequisite: SWRK 291 and advancement to candidacy. Develops and implements thesis or project research that adds to social work practice and knowledge. (Formerly SWRK 272T)

SWRK 298. Project (2-4; max total 4)
Prerequisite: SWRK 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 ***RP*** grading.

SWRK 299. Thesis (3-6; max total 6)
Prerequisite: SWRK 291. See *Criteria for Thesis and Project*. Preparation, completion, and submission of an acceptable thesis for the master's degree. Approved for ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Social Work (SWRK)

SWRK 301. Seminar in Social Work Topics (1-3; max total 15)

Health and Human Services
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**
HS 110: Drugs, Society, and Health	
HS 111: Alcohol and Alcoholism	
SWRK 129: Treatment of Chemical Dependency	
Elective(s)	**3**
Select 3 units from the following listings:	
CRIM 141: Alcohol, Drugs, and Criminality	(3)
SWRK 122T: Counseling the Family of the Alcohol/ Drug Abuser	(3)
WS 150T: Women, Children, and Alcohol	(1)
WS 150T: Women and Alcohol	(1)
CRIM 190, HS 190, SWRK 190, or WS 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 178
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 Kremen 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.

COURSES

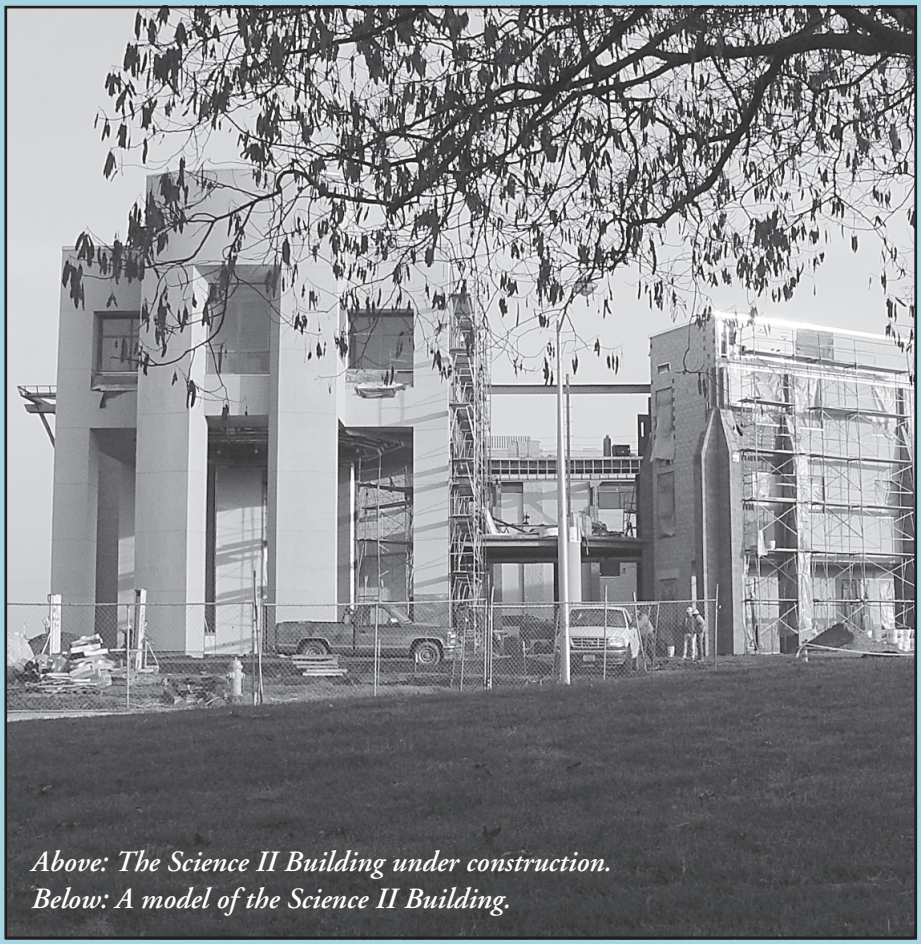
Health and Human Services (HHS)

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.

HHS 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.

The College of Science and Mathematics

Science II Building, Room 301
Kin-Ping Wong, *Dean,* 559.278.3936
http://www.csufresno.edu/csm



Above: The Science II Building under construction.
Below: A model of the Science II Building.

The College of Science and Mathematics includes the departments of Biology, Chemistry, Computer Science, Earth and Environmental Sciences, Mathematics, Physics, Psychology, and Marine Science at Moss Landing Marine Laboratories. Special programs and facilities include the Joint Bachelor of Science in Environmental Sciences with UC Riverside, the Harold S. Downing Planetarium, a Geo-Information Systems (GIS) Center, the Science Careers Opportunity Program (SCOP), the Certificate in Biotechnology, and proposed master's degree programs in forensic science and biotechnology.

The Mission of the College

The College of Science and Mathematics provides programs of study for students in the areas of biology, chemistry, computer science, earth and environmental sciences, mathematics, physics, and psychology. 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. Our primary 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 to provide continued study at the graduate level.

Furthermore, students and faculty members in the college conduct research and scholarly activities in their academic areas and in solving applied scientific problems of the region. These research activities are carried out by 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.

Biology

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 biology core 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 botany, zoology, or microbiology.
2. Molecular, Cellular, and Developmental Biology allows students to study biology on the cellular and molecular levels.
3. Physiology and Anatomy seeks to understand the structures and 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, veterinary medicine, optometry, doctoral programs, and many others.

The department offers a Master of Science in biology for qualified students who wish to explore some part of biology in greater depth. It can be integrated with a postbaccalaureate certificate in biotechnology.

Faculty and Facilities

Faculty expertise spans the range of biology from the molecular to the ecological, with a broad representation of taxonomic specialties. Laboratories in upper-division majors' courses are taught by faculty, and individualized student/faculty research participation through independent study is strongly encouraged.

Faculty members have garnered independent research funding from various agencies including the National Institutes of Health, National Science Foundation, U.S. Department of Agriculture, Environmental Protection Agency, and National Sea Grant. Faculty and students also participate in collaborative studies on, for example, medical and clinical topics with local physicians and hospitals; agricultural topics with Kearney Field Station and the USDA-Agricultural Research Service in Fresno/Parlier; ecological and environmental topics with California Department of Fish and Game, U.S. Forest Service and Endangered Species Recovery Project; and science educational topics with regional school districts and state and national credentialing agencies.

The department is housed in a well-equipped, modern science building. Among the specialized equipment and technologies available for students are DNA sequencers; Polmerase Chain Reaction (PCR) thermocyclers; apparati for conducting molecular and immunological analysis of nucleic acids and proteins; genetic recombination, including use of electroporation and gene guns; a bioinformatics computing laboratory; a proteomics work station; cell and tissue culture facilities; fermenters and bioreactors; fluorescence and Scanning Probe microscopes; ultracentrifugation; radioactive materials methodologies; and metabolic studies on all types of life forms. Excellent greenhouse and animal care facilities, as well as media/reagent production complexes, support the instructional and research programs.

Fresno's proximity to both the Sierra Nevada and the Pacific coast provides a natural laboratory with numerous field trip opportunities that are rarely equaled at other institutions. High Sierra, Mediterranean desert, foothill, coastal, and forest environments are all within a three-hour drive of the campus. The department maintains a fleet of vehicles and boats, as well as a wealth of field equipment, to observe and collect wild organisms. A self-contained pond ecosystem offers a unique, on-campus study resource. The department also maintains extensive collections of museum specimens of insects, vertebrates and a herbarium. The department is a member of a consortium that manages and operates the Moss Landing Marine Laboratory (MLML). Students can study and conduct research at MLML, located on the Monterey Bay.

College of Science and Mathematics

Department of Biology
Shirley Kovacs, *Chair*
Virgie Walmsley, *Administrative Support Coordinator*
Science Building, Room 106
559.278.2001
FAX: 559.278.3963
http://www.csufresno.edu/biology

B.S. in Biology
Options:
- Ecology and Evolutionary Biology
- Molecular, Cellular, and Developmental Biology
- Organismic and General Biology
- Physiology and Anatomy

B.A. in Natural Sciences Teaching Credential

M.S. in Biology

M.S. in Marine Science

Minor in Biology

Biotechnology Certificate of Advanced Studies

Preprofessional advising in
- Clinical Lab Science
- Dentistry
- Medicine
- Pharmacy
- Veterinary Medicine

Faculty

Shirley Kovacs, *Chair*

Paul Crosbie, *Graduate Coordinator*
Rick Zechman, *Marine Science Coordinator*
Gregor M. Cailliet, *Moss Landing Marine Laboratories Coordinator*
David M. Andrews, *Credential Adviser*
Fred Schreiber, *Undergraduate Coordinator*

Raymond H. Abhold
Steven C. Blumenshine
Alejandro Calderon-Urrea
David L. Chesemore
John Constable
Stephen Ervin
Ethelynda E. Harding
Madhusudan Katti
Ruth A. Kern
Thomas E. Mallory
James P. Prince
Mamta Rawat
Bert Tribbey
Brian Tsukimura
Vivian A. Vidoli
Alice D. Wright
Lenore Yousef

Bachelor of Science Degree Requirements

Biology Major

The Bachelor of Science in Biology is a 120-unit program. Of the total, 51 units are required to satisfy the university's General Education Program and 22 units are required by the Department of Biology to satisfy the biology core. The core curriculum is a sequence of courses required for all biology majors. The core curriculum builds the foundation upon which further learning in biology will be based. Additional requirements, varying from 21-38 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 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.

Students should meet with an adviser a minimum of once 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 372.)

Units

BIOSC 1A, 1B, 130, 140A-B, 140L, 180 22

In addition to the core, all majors must complete major and additional requirements in one of the four options described as follows:

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 questions 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 careers in governmental field research agencies, 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. Students must consult an adviser for help in selecting courses appropriate to their interests and career objectives.

Units

Major requirements 42
Biology Core ..... (22)
Option requirements ..... (20)

A. *Ecosystem Ecology*: Select one course from the following ..... (4)
ECOL 151, 152; MSCI 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 ..... (4)
BOT 130; 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; MSCI 124**, 131**

D. *Autecology and Population Ecology*: Select one course from the following ..... (3-4)
ECOL 162, 171, 172; ZOOL 152; MSCI 110**, 161**

E. Biological Science Electives ..... (4-6)
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; MSCI 142**, 143**; GEOL 1, 112; SW 100

General Education requirements 51
Electives and remaining degree requirements 14-15
(See *Degree Requirements*); may be used toward a double major or minor.

Total 120*

* See *Advising Note 1* on this page.

** MSCI courses are offered only at Moss Landing Marine Laboratory.

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 and the processes of organismal development. 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 provides a solid foundation for graduate and professional studies emphasizing cellular and molecular processes, including the postbaccalaureate Certificate of Advanced Studies in Biotechnology offered through this department. Students preparing for the biotechnology certificate program should select a general microbiology course with laboratory and a general biochemistry laboratory course among their elective courses.

Units

Major requirements 40-41
Biology Core ..... (22)
Option requirements ..... (18-19)
A. Molecular Biology and Bioinformatics ..... (5)
GENET 142 and 143
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, 181, 185; PHYAN 140, 160, 165; ZOOL 148
D. Molecular/Cellular Techniques ..... (2-4)
Select one from the following list: ECOL 174; GENET 171, 182; PHYAN 160L
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 requirements 51
Electives and remaining degree requirements 1
(See *Degree Requirements*); may be used toward a double major or minor.)
Total 120*

* See *Advising Note 1* on page 372.

Organismic and General Biology Option

This option is designed for students who wish to explore the breadth of modern biology. It is useful as preparation for a large variety of careers and for additional studies in graduate schools. By carefully selecting courses, students may use this option to obtain strong preparation for careers as botanists, zoologists, microbiologists; or they may select courses that produce a broadly based program that does not emphasize a particular taxonomic group. 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 ..... (16-21)
1. BOT 131, 132, 142, 144; MICRO 140, 181, 185; MSCI 131
2. ZOOL 120, 141, 148, 150, 171, 174, 177; MSCI 112, 113, 124
3. BOT 133, 137; ECOL 174; PHYAN 134, 135; MSCI 122; ZOOL 132
4. BOT 130; GENET 172; MICRO 161; PHYAN 151, 158, 160, 163
5. ECOL 151, 152; 162; MSCI 103
B. Biological Science Electives ..... (0-4)
Select Biology Department courses as needed 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 MSCI 104 ..... (4)
4. One course selected from PHYS 2A; MSCI 142, 143; GEOL 1; SW 100 ..... (4)
General Education requirements 51
Electives and remaining degree requirements 14
(See *Degree Requirements*); may be used toward a double major or minor.
Total 120*

* See *Advising Note 1* on page 372.

Physiology and Anatomy Option

This degree program is designed to help students understand cellular to whole organism function 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. This option offers excellent preprofessional preparation for medicine, dentistry, pharmacy, clinical lab science, 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. Students interested in the Clinical Laboratory Science Program are required to take MICRO 140, PHYAN 160, PHYAN 162, and MICRO 183. They must also take CHEM 105, which is not included in this option. It is recommended that they take MICRO 161 and the chemistry courses for chemistry majors (e.g. CHEM 1A-B rather than CHEM 3A.) Please consult an adviser.

Units

Major requirements 40
Biology Core ..... (22)
Option requirements ..... (18)
A. Select one course from each of these three lines ..... (10-13)
1. *Anatomy*: BOT 133; MICRO 140; PHYAN 130, 134, 135; ZOOL 132, 141
2. *Molecular and Cellular Biology*: BOT 137; GENET 172; PHYAN 160 and 160L; ZOOL 148

3. *Organismal Physiology*: BOT 130; MICRO 161; PHYAN 151

B. Select two additional courses from the following list or from other courses listed in category A ..... (5-8)
GENET 142, MICRO 183; PHYAN 64 or 65, 140, 158, 162, 163, 165, 172

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 requirements 51

Electives and remaining degree requirements 0-9
(See *Degree Requirements*); may be used toward a double major or minor.

Total 120*

* See *Advising Note 1* on page 372.

Advising Notes for All Options within the Bachelor of Science in Biology

1. The total of 120 units assumes biology majors in this option will maximize the 9 units of General Education requirements that also may be applied to major and additional required courses as follows: 3 units of CHEM 3A (Organismic and General Biology Option and Ecology and Evolutionary Biology Option) or CHEM 1A (Molecular, Cellular, and Developmental Biology Option and Physiology and Anatomy Option) in G.E. Breadth B1; 3 units of BIOSC 1A in G.E. Breadth B2; and 3 units of MATH 75 in G.E. Foundation B4. Consult your major academic adviser for details.
2. 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.
3. 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.
4. B.S. biology majors selecting options in Molecular, Cellular, and Developmental Biology or in Physiology and Anatomy can complete a Minor in Chemistry with the addition of CHEM 105. Consult the chemistry department chair for details (see *Chemistry Minor*).
5. No General Education Integration course offered by the Department of Biology may be used to satisfy the General Education requirements for biology majors.
6. *CR/NC* grading is not permitted in the biology major.
7. General Education, additional, and elective requirements may be used toward a double major or minor (see *Double 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. in four years. Students with extensive extracurricular obligations should make appropriate timing adjustments to avoid overloads. See your adviser for assistance.

A total of 120 units must be completed for all biology B.S. 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.

During the first two years, resident students should complete some 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. Students are advised to keep some General Education coursework for their junior and senior years. BIOSC 130, 140A-B, and statistics should be completed as early as possible 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, 140L, 180.

Note: The Biology Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Bachelor of Arts in Natural Sciences

Teaching Credential — Biology Option

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. Students should consult Dr. David Andrews, the science teaching adviser, at 559.278.5174, for full details. The program consists of two parts. The core requirements are courses required of all natural science students and the option provides training in biology, chemistry, earth science, or physics. Students may also complete the credential requirements while obtaining a B.S. in biology. The B.A. in Natural Sciences with the Biology Option is as follows:

Units

Core requirements 37
Biology[1] ..... (12)
BIOSC 1A, 1B, 130
Chemistry ..... (10)
CHEM 1A, 1B
Geology[1] ..... (8)
GEOL 1 and 3 (or 15), GEOL 168
Natural Science ..... (3)
NSCI 106
Physical Science ..... (4)
PSCI 21

Biology Option 42-44
CHEM 8 or 128A ..... (3)
PHYS 2A, 2B[2] ..... (8)
PSCI 168 or GEOL 155 ..... (3)
MATH 70 or 75 ..... (4)
MATH 101 or PSYCH 42 ..... (4)
BIOSC 140A, 140B, 140L, 180 ..... (10)
MICRO 140 ..... (4)
Select one course:
BOT 131, 132, 144; 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 requirements[3] 51

Electives and remaining degree requirements[3,4] 0-2

Total 120

Advising Notes for the Natural Sciences Major

1. GEOL 15 is 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 total assumes that students in this option will maximize the 12 units required for the major that also may be applied to fulfill General Education requirements as follows: CHEM 1A (3 units), BIOSC 1A (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 graduation requirements of 40 upper-division units and upper-division writing skills.

Graduate Programs

The Biology Department offers a research-intensive Master of Science in Biology with the opportunity for specialization in several areas of study. Among these areas are ecologically oriented field studies in aquatic, terrestrial, and marine environments; molecular, cellular, and developmental biology of plants, animals, and microbes; physiology of microbes, plants, and animals; entomology; microbiology; parasitology; botany; zoology; systematics; animal behavior. The program also prepares candidates for teaching biological science disciplines at the secondary and community college education levels. The master's program provides a strong foundation for those seeking advanced education at universities offering the research doctorate (Ph.D.) or other professional degrees. The Biology Department has further informational materials available on request.

Master of Science Degree Requirements

The Master of Science 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.

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 the graduate information.

There are five steps that must be completed for the Master of Science degree in Biology:

1. Admission to the university as a postbaccalaureate student
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 Graduate Admissions Office of California State University, Fresno. For admission as a postbaccalaureate student to the university, a student must have completed a four-year college program and hold an acceptable baccalaureate degree from an accredited institution with a minimum grade point average of 2.5 in the last 60 units.

To be considered for graduate classified standing in biology, the following additional steps are required of students planning to enter the biology graduate program.

1. Submit current scores (within the last five years) for the General Graduate Record Exam.
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 two 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.

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 will not have been admitted to the graduate program in biology and must remedy their deficiencies in order to be recommended for 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	**17**
Electives (May be 100- or 200-series)	**9**
Thesis (BIOL 299)	**4**
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. Before students may advance to candidacy, they must satisfactorily complete the Biology Department Graduate Student Writing Requirement. Students must submit a formal paper demonstrating writing skill at the graduate level. This graduate-level paper may be a research proposal, a literature review in their field, a paper from a graduate directed research project, or another paper. Detailed writing requirement regulations are available from the departmental graduate coordinator. 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 at least seven days prior to the end of the spring or fall semester of 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 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 in Marine Science Degree Requirements

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 graduate writing requirement will be fulfilled according to the regulations set by the host campus, and must be met prior to advancement to candidacy. Please contact the Biology Department graduate coordinator for details.

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: MSCI 103, MSCI 141, MSCI 142, MSCI 143, MSCI 144)	**12**
Courses in 200-series (including 2 units of MSCI 285T and 4 units of MSCI 299)	**15**
Electives (course[s] in the 100- and/or 200-series) approved by Thesis Committee	**3**
Total	**30**

Note: Quantitative Marine Science, MSCI 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 108), 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), microbiology with a laboratory (minimum 4 units), and immunology 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.

COURSES

Biology (BIOL)

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)

BIOL 15. An Ecological Approach to Life Science (5)
Concurrent enrollment in GEOL 15, NSCI 15, SSCI 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)

BIOL 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)

BIOL 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.

BIOL 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)

BIOL 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

Biological Science Core (BIOSC)

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)

BIOSC 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)*

BIOSC 130. General Ecology (3)
Prerequisites: BIOSC 1A and 1B; PSYCH 42 or MATH 101. 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)*

BIOSC 140A-B. Genetics and Cellular Biology (3-3)
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. BIOSC 140B taken prior to fall 2005 is equivalent to BIOSC 140B and 140L. No credit for BIOL 140B if taken previous to fall 2005.

BIOSC 140L. Genetics and Cellular Biology Lab (1)
Prerequisite: BIOSC 140A; BIOSC 140B is a prerequisite or corequisite. Must be taken a minimum four semesters of completing BIOSC 140B. Required of all biology majors. Basic techniques in molecular genetics and cell biology. No credit if BIOSC 140B taken prior to fall 2005. (3 lab hours) (Formerly BIOSC 140B lab component)

BIOSC 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)

BOT 10. Plant Biology (3)
Not open to students with credit in BIOSC 1B or BOT 10. Structure, function, and development of plants. G.E. Breadth B2. (2 lecture, 2 lab hours)

BOT 130. Plant Physiology (4)
Prerequisites: BIOSC 1A and 1B (or BOT 10); CHEM 1A or 3A; CHEM 3B or 8 or 128A; or permission of instructor. General metabolism (photosynthesis, water relations, respiration, nutrient use, etc.) of plants and functional integration with structure. (3 lecture, 3 lab hours)

BOT 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)

BOT 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)

BOT 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)

BOT 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)

BOT 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)*

BOT 144. Plant Taxonomy (3)
Prerequisites: BIOSC 1A and 1B or permission of instructor. Principles of plant classification; local flora. (1 lecture, 6 lab or field hours)*

Ecology (ECOL)

ECOL 135. Marine Biology (3)
Prerequisite: BIOSC 1B or ZOOL 10. 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)

ECOL 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)*

ECOL 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)*

ECOL 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)*

ECOL 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)*

ECOL 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)*

ECOL 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)

(See also *BOT, MICRO, ZOOL* courses.)

Genetics (GENET)

GENET 142. Molecular Biology (3)
Prerequisites: BIOSC 140A-B; CHEM 150 or 155. The study of genome structure and fluidity, prokaryotic and eukaryotic gene expression, and genomics. GENET 142 taken prior to fall 2005 is equivalent to GENET 142 and 143.

GENET 143. Bioinformatics (2)
Prerequisites: BIOSC 140A-B; CHEM 150 or 155. Practical use and application of computational tools for the analysis of nucleic acids and proteins. Genomic database searching, sequence alignment, molecular phylogenetic analysis, and secondary and tertiary

*Late afternoon, Saturday and/or overnight field trips may be required.

structure modeling of biological macromolecules. No credit if GENET 142 taken prior to fall 2005. (1 lecture, 3 lab hours) (Formerly GENET 142 lab component)

GENET 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)

GENET 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)

GENET 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)

GENET 182. Microbial Genetics (4)
Prerequisite: BIOSC 140A or BIOSC 140B or MICRO 140 or CHEM 150 or CHEM 155. Students not meeting the above prerequisite should not enroll in GENET 182. 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)

MICRO 20. Introductory Microbiology (4)
Not open to students with credit in MICRO 140. Prerequisites: CHEM 1A or 3A. Introduction to microbiology; principles and selected applications. (3 lecture, 3 lab hours)

MICRO 140. Microbiology (4)
Prerequisites: BIOSC 1A, 1B; CHEM 8 or 128A; or BOT 10 and CHEM 150. Emphasis on prokaryotes (bacteria); microbial physiology, genetics, ecology, classification, and identification; applications of microbiology. Prerequisite to most upper-division microbiology courses. (2 lecture, 6 lab hours)

MICRO 161. Microbial Physiology (4)
Prerequisite: MICRO 140. Structure, function, energy metabolism, growth, and regulatory mechanisms of microorganisms. (2 lecture, 6 lab hours)

MICRO 181. Bacteriology of Human Disease (5)
Prerequisite: MICRO 140; PHYAN 160 recommended. Bacterial, etiological agents of human disease. (3 lecture, 6 lab hours)

MICRO 183. Medical Microbiology (3)
Prerequisite: MICRO 140; PHYAN 160 recommended. The role of microorganisms in causing infection and disease; strategies for diagnosing and treating infections. (3 lecture hours) (Formerly BIOL 189T)

MICRO 185. Virology (4)
Prerequisite: MICRO 140; PHYAN 160 recommended. Inquiries into the unique nature of viruses; methods of analysis, structure, and replication. Virus-host interactions are described from bacterial, plant, and animal virus groups. Considerable emphasis is placed on diagnosis of viruses infecting humans including epidemiology and viropathology. (2 lecture, 6 lab hours)

(See also *BOT 142; ECOL 162; GENET 171; PHYAN 160; ZOOL 148*.)

Physiology/Anatomy/ Development (PHYAN)

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)

PHYAN 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)

PHYAN 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 adaptive systems at the molecular, cellular, and organ level. (4 lecture, 3 lab hours)

PHYAN 110. Human Reproductive Physiology, Aging, and Death (3)
Prerequisites: G.E. Foundation and Breadth Area B. 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.

PHYAN 130. Neuroanatomy (4)
Prerequisites: PHYAN 33 or 64 or 65. Macroscopic and microscopic study of the structure and functional relationships of the human nervous system. (3 lecture, 3 lab hours)

PHYAN 134. Histology (4)
Prerequisites: BIOSC 140A-B. Identification and study of vertebrate cells, tissues, and organs. (2 lecture, 6 lab hours)

PHYAN 135. Vertebrate Embryology (4)
Prerequisites: BIOSC 1A, 1B. Morphogenesis of vertebrates from gamete formation through organogenesis, including physiological and experimental aspects of development. Laboratory emphasis on frog, chick, and pig. (2 lecture, 6 lab hours)

PHYAN 140. Neurophysiology (3)
Prerequisites: PHYAN 33 or 64 or 65 or 151 or BIOSC 140B. Function of the human nervous system with emphasis on molecular mechanisms of electrical and chemical signaling.

PHYAN 151. Comparative Animal Physiology (4)
Prerequisite: BIOSC 140A-B. Evolution of physiological systems; functional adaptations to different environments; physiological principles as applied to animals. (3 lecture, 3 lab hours)

PHYAN 158. Biological Membranes: Structure and Function (3)
Prerequisite: BIOSC 140A-B or CHEM 150 or 155. A study of the myriad of functions membranes perform with an emphasis on transport. General structural properties of membranes, including fluidity and asymmetry, and modification of structural building blocks which lead to membrane diversity.

PHYAN 160. Immunology (3)
Prerequisites: BIOSC 140A and BIOSC 140B. CHEM 150 or 155 highly recommended. Principles of mammalian immune response, featuring the molecular and cellular interactions involved in both humoral and cell-mediated immunity. Regulatory controls and adverse clinical conditions involving immune functions are addressed. Experimental basis of inquiry is emphasized.

PHYAN 160L. Immunology Laboratory (2)
Prerequisites: PHYAN 160 and either BIOSC 140L or MICRO 140. Experimental illustration of immune response; classical and contemporary immunology techniques; interpretation and presentation of experimental outcomes. (6 lab hours)

PHYAN 162. Hematology (3)
Prerequisite: BIOSC 140B; PHYAN 65 and 160 recommended. Development, structure, identification, and quantification of cellular blood elements; qualitative and quantitative considerations of hemoglobin, coagulation, and immunohematology.

* Late afternoon, Saturday and/or overnight field trips may be required.

PHYAN 163. Advanced Human Physiology (3)
Prerequisites: BIOSC 140B and either PHYAN 65 or equivalent. Primarily for students in biology and in the health professions. Advanced study of the cardiovascular, respiratory, excretory, and digestive systems. Concepts explaining normal functioning will be emphasized, with presentation of supporting scientific data. Integration of function of organ systems will be illustrated through study of specific examples, such as exercise.

PHYAN 165. Endocrinology (3)
Prerequisite: BIOSC 140A-B. A systems approach to the study of hormone synthesis, secretion, function as intercellular signals, and their role in both controlling and integrating normal physiological processes.

PHYAN 172. Pathophysiology (3)
Prerequisite: PHYAN 65 or equivalent or PHYAN 163. An application of anatomic and physiologic principles in the study of those disturbances that underlie the etiology and pathogenesis of human diseases.

(See also *BOT 130, 133, 137; GENET 172; MICRO 161.)*

Zoology (ZOOL)

ZOOL 10. Animal Biology (3)
Not open to students with credit in BIOSC 1B. Structural and functional comparison of animals; principles and human implications of inheritance, evolution, and ecology; physiology as applied to man. G.E. Breadth B2. (2 lecture, 2 lab hours)

ZOOL 120. General Entomology (3)
Prerequisites: BIOSC 1A, 1B. Anatomy, physiology, life history, and classification of insects and other arthropods. (2 lecture, 3 lab or field hours)*

ZOOL 132. Comparative Vertebrate Morphology (4)
Prerequisites: BIOSC 1A, 1B. Comparative structure of vertebrate organ systems; laboratory study of representative vertebrates. (2 lecture, 6 lab hours)

ZOOL 141. Invertebrate Zoology (4)
Prerequisites: BIOSC 1A, 1B. Systematics and phylogeny (based primarily upon external and internal anatomy) and general ecology of free-living invertebrates (excluding insects). Includes field studies of marine and occasionally freshwater habitats. (2 lecture, 6 lab or field hours)*

ZOOL 148. Parasitology (4)
Prerequisites: BIOSC 1A, 1B and CHEM 1A or 3A. A study of the biology of parasitic organisms, including those of humans. Lecture topics: life history strategies, infectious processes, epidemiology, ecology, parasite evolution and phylogeny, diagnosis and treatment. Laboratory and field exercises: identification and sampling techniques, taxonomy, investigation of biological processes. (3 lecture, 3 lab hours*)

ZOOL 150. Natural History of Vertebrates (4)
Prerequisite: BIOSC 130. Systematics, distribution, morphology, behavior, and ecology of fish, amphibians, reptiles, birds, and mammals. Fieldwork includes capture and sampling techniques, species identification and habitat analysis, and may require weekend field trips to coastal, desert, and mountain environments. (3 lecture, 3 lab hours)*

ZOOL 152. Animal Behavior (3)
Prerequisite: BIOSC 130; one additional course in ecology or natural history recommended. Principles of ethology with emphasis on mechanisms of behavior. (2 lecture, 3 lab hours)*

ZOOL 171. Ichthyology (3)
Prerequisite: BIOSC 130. Ecology, evolution, and diversity of the fish of the world with emphasis on California fish, freshwater and marine. (2 lecture, 3 lab or field hours)*

ZOOL 174. Biology of Reptiles and Birds (4)
Not open to students with credit in ZOOL 137 or ZOOL 172. Prerequisite: BIOSC 130. Ecology, ethology, and evolution of the reptiles and birds of the world. Encompasses the traditional areas of herpetology and ornithology. (3 lecture, 3 lab or field hours)*

ZOOL 177. Mammalogy (3)
Prerequisite: BIOSC 130. Ecology, evolution, and diversity of the mammals of the world. (2 lecture, 3 lab or field hours)*

(See also *ECOL 171, 172* and *PHYAN* courses.)

GRADUATE COURSES

(See *Catalog Numbering System*.)

Biology (BIOL)

BIOL 204. Biology of Speciation (2)
Prerequisites: BIOSC 140A-B and 180. Evolution of the species as a unit of biological organization.

BIOL 208. Biological Field Studies (1-6; max total 6)
Prerequisite: permission of instructor. Integrated studies or specialized topics, including botanical, environmental, microbiological, or zoological field studies.* Approved for *RP* grading.

BIOL 225. Molecular Evolution (3)
Patterns and processes by which biological molecules evolve. Lecture topics include rates and modes of DNA sequence evolution, molecular phylogenetics, gene duplication, concerted evolution, genome organization, and application of computers to comparative molecular analysis. (3 lecture hours) (Formerly BIOL 189T)

BIOL 240. Systems Ecology (3)
Prerequisites: BIOSC 130, MATH 70. Quantitative approach to the analysis of whole ecosystems including data acquisition and statistical treatment, conceptual and mathematical ecosystem modeling, and computer simulations in FORTRAN or BASIC. No programming experience needed. (2 lecture, 3 lab hours)

BIOL 241A-B. Molecular Biology I-II (3-3)
(See CHEM 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.

BIOL 242. Techniques in Protein Purification and Analysis (3)
(Same as CHEM 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)

BIOL 243. Nucleic Acid Technology Lab (3)
(See CHEM 243.) Prerequisites: BIOL/CHEM 241A and 242. Corequisite: BIOL/CHEM 241B. A lecture/laboratory course focusing on the technologies used in nucleic acid chemistry, such as synthesis, translation, mutagenesis, and genetic engineering. (1 lecture, 6 lab hours)

BIOL 244. Cell Culture and Hybridoma (3)
(Same as CHEM 244.) Prerequisite: 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 pre-

*Late afternoon, Saturday and/or overnight field trips may be required.

sented relative to cultured cell biology and application to biotechnology. (1 lecture, 6 lab hours)

BIOL 248. Seminar in Molecular Biology and Biotechnology (1-2; max total 4)
(See CHEM 248.) Prerequisite: admission to the biology or chemistry graduate program. Preference will be given to students enrolled in the Biotechnology Certificate Program. Reviews and reports on current literature in various aspects of biotechnology and molecular biology.

BIOL 250. Scientific Research Reporting (2)
Prerequisite: permission of instructor. Techniques of scientific photography and writing, illustrating emphasized. (1 lecture, 3 lab hours)

BIOL 255T. Topics in Botany
(1-3; max total 8 if no topic repeated)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

BIOL 260T. Topics in Biology
(1-3; max total 8 if no topic repeated)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

BIOL 265T. Topics in Physiology
(1-3; max total 8 if no topic repeated)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

BIOL 270T. Topics in Zoology
(1-3; max total 8 if no topic repeated)
Prerequisite: permission of instructor. Investigation of new fields, areas not in current courses, or advanced studies in a given area. (Lecture and/or laboratory)

BIOL 274. Biometry (3)
Prerequisite: one statistics class, preferably MATH 101. Application of statistical techniques to biological problems with emphasis on sampling, analysis of variance, experimental design, and regression techniques. Emphasis on analysis of real biological data and interpretation of results.

BIOL 275. Biogeography (3)
Prerequisite: permission of instructor. Seminar in descriptive and ecological geography of animal and plant groups.

BIOL 281. Seminar in Biological Science
(1-2; max total 3)
Prerequisite: permission of instructor. Reviews and reports on current literature in the various phases of biology. (Formerly BIOL 281T)

BIOL 290. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

BIOL 295. Research (2-6; max total 6)
Prerequisite: permission of instructor. Independent research by the advanced graduate student.

BIOL 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 *RP* grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Biology (BIOL)

BIOL 302T. Topics in Biology
(3; max total 6)
Prerequisite: graduate standing or permission of instructor. Relation of man to his surroundings; review of concepts, cell, physics and chemistry of life, energetics, inheritance, evolution.

Moss Landing Marine Laboratories

The California State University began operation of the Moss Landing Marine Laboratories, Moss Landing, California, in the fall semester 1966. This facility functions as a seaside extension of the campuses of six cooperating state universities (Fresno, Hayward, Sacramento, San Francisco, San Jose, and Stanislaus). It offers full-time coursework in marine biology, oceanography, and other marine sciences for majors in either the biological or physical sciences whose objectives include further graduate study, teaching the sciences, or research in the marine sciences. Properly qualified upper-division and graduate students may enroll at the Fresno State campus for a term of instruction at Moss Landing and earn resident credit for such coursework. See *Earth and Environmental Science Department* for on-campus coursework in general oceanography and geology courses related to marine science.

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

COURSES

Note: The following courses are offered at the Moss Landing Marine Laboratories. MSCI 103 and 104 are usually recommended for first semesters of full-time students.

The Biology Department will accept only the following Moss Landing Marine Laboratories courses for major credit as indicated. Botany: MSCI 131, 144. Zoology: MSCI 112, 113, 122, 124, 125. Biology elective: MSCI 103, 104.

Marine Science (MSCI)

MSCI 103. Marine Ecology (4)
Prerequisites: ecology and statistics (or concurrent registration in MSCI 104) or permission of instructor. A field-oriented introduction to the interrelationships between marine and estuarine organisms and their environment with emphasis on quantitative data collection and analysis. (2 lecture, 6 lab or field hours)

MSCI 104. Quantitative Marine Science (4)
Prerequisite: college mathematics. The mathematical methods for analysis of biological, chemical, and physical data from the marine environment; experimental design, parametric and nonparametric statistics. (3 lecture, 3 lab or field hours)

MSCI 105. Marine Science Diving (3)
Prerequisites: upper-division science major; thorough physical examination; ability to pass swimming test. Skin and SCUBA diving course; pool-training culminates in 10 ocean dives. Topics include diving physics, physiology, diving environments, night diving, and research diving. Successful completion gives NAUI and MLML certification. (1 lecture, 6 lab or field hours)

MSCI 110. Introduction to Marine Behavior (4)
Prerequisite: MSCI 103 or permission of instructor. Basic theoretical concepts of animal behavior, stressing the causation, development, and evolution of behavior. Emphasis is on the marine environment. (3 lecture and 3 lab hours)

MSCI 112. Marine Birds and Mammals (4)
Prerequisite: upper-division vertebrate zoology; MSCI 103 recommended. Systematics, morphology, ecology, and general biology of marine birds and mammals. (2 lecture, 6 lab or field hours)

MSCI 113. Marine Ichthyology (4)
Prerequisite: college zoology or equivalent. Taxonomy, morphology, and ecology of

* Late afternoon, Saturday and/or overnight field trips may be required.

marine fishes. Both field and laboratory work concentrate on the structure, function, and habits of marine fishes and the ecological interactions of these fishes with their biotic and abiotic surroundings. (2 lecture, 6 lab or field hours)

MSCI 122. Marine Invertebrate Embryology (4)
Prerequisite: MSCI 124, cell biology or biochemistry strongly recommended or 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)

MSCI 124. Marine Invertebrate Zoology I (4)
Prerequisite: college zoology or permission of instructor; MSCI 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)

MSCI 125. Marine Invertebrate Zoology II (3)
Prerequisite: college zoology or permission of instructor; MSCI 103 and MSCI 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)

MSCI 131. Marine Botany (4)
Prerequisite: MSCI 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)

MSCI 135. Physiology of Marine Algae (4)
Prerequisites: MSCI 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)

MSCI 141. Geological Oceanography (4)
Prerequisite: MSCI 142 or 143 or concurrently. Structures, physiography, and sediments of the sea bottom and shoreline. (2 lecture, 6 lab or field hours)

MSCI 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)

MSCI 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)

MSCI 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)

MSCI 161. Marine Fisheries (4)
Prerequisite: college mathematics, MSCI 104, or permission of instructor; MSCI 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)

MSCI 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)

MSCI 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)

MSCI 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)

MSCI 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)

MSCI 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 *RP* grading.

GRADUATE COURSES

(See *Catalog Numbering System.*)

Marine Science (MSCI)

MSCI 201. Library Research Methods in Marine Science (1)
Prerequisites: graduate standing and permission of instructor. Provides framework for using and evaluating information sources in marine science. Strong emphasis will be placed on developing critical skills. Interweaving bibliographic tools in to the history of marine science will reinforce knowledge of the appropriate resource for each question.

MSCI 202. Oceanographic Instrumentation (4)
Prerequisites: MSCI 141, 142, and permission of instructor. Principles of instruments used in oceanographic research, introduction to electronics, and applications of instrument measurements. Emphasis will vary from CTD profilers, current meters, radiometry, and chemical measurements. Offered alternate spring semesters. (2 lecture, 6 lab or field hours)

MSCI 204. Sampling and Experimental Design (4)
Prerequisites: MSCI 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.

MSCI 206. Molecular Biological Techniques (4)
Prerequisites: graduate standing; college level genetics, molecular biology, or permission of instructor. Laboratory-based overview of concepts and techniques for the isolation, characterization, and analysis of DNA and RNA. Covers standard methods (amplification, cloning, and sequencing) and selected specialized techniques (analysis of gene expression) emphasizing marine science applications.

MSCI 208. Scientific Methods (4)
Prerequisites: graduate standing and permission of instructor. Information and skills for graduate students beginning their research careers. Includes the philosophy of science,

scientific writing, design of experiments and sampling programs, and using library and other resources.

MSCI 211. Ecology of Marine Birds and Mammals (4)
Prerequisites: MSCI 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)

MSCI 212T. Advanced Topics in Marine Vertebrates (1-4; max total 8 if no topic is repeated)
Prerequisites: MSCI 112 or 113 and permission of instructor. Advanced considerations of the ecology, physiology, and phylogeny of fishes, birds, reptiles, or mammals, emphasizing current literature and research. Topics and emphasis will vary with term and instructor. May be repeated once for credit if no topic is repeated. Likely to be offered alternate fall semesters. (Lecture and/or laboratory)

MSCI 221T. Advanced Topics in Marine Invertebrates (1-4)
Prerequisites: MSCI 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)

MSCI 233T. Advanced Topics in Marine Ecology (1-4)
Prerequisites: MSCI 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)

MSCI 234. Advanced Biological Oceanography (4)
Prerequisite: MSCI 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)

MSCI 246. Geology of the Monterey Bay Region (4)
Prerequisites: graduate standing and permission of instructor. Geology, tectonic, and active naturally occurring processes in the Monterey Bay region and in the Monterey Bay National Marine Sanctuary. The geologic and tectonic history of central California, plate tectonic processes, and representative stratigraphy and geomorphology of the Monterey Bay region.

MSCI 248. Marine Benthic Habitat Techniquest (4)
Prerequisites: graduate standing and permission of instructor. Collection and interpretation of geophysical data used to characterize marine benthic habitats. Principles of basic geophysics. Application of techniques to identify and characterize marine benthic habitats, including echosounders, multibeam bathymetry and backscatter, sidescan sonar, seismic profiling, and GIS.

MSCI 261. Ocean Circulation and Mixing (4)
Prerequisite: MSCI 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)

MSCI 262. Satellite Oceanography (4)
Prerequisites: MSCI 142, 144, or permission of instructor; MSCI 263 strongly recommended. Physical principles of remote sensing with applications to the ocean, including satellite image processing methods. Labs involve use of PC and Unix workstation. (2 lecture, 3 lab hours)

MSCI 263. Applications of Computers in Oceanography (4)
Prerequisites: college math, permission of instructor. Lecture, discussion, and technical programming with MATLAB for computation and visualization with applications in marine sciences. Use of existing program libraries for data I/O and analysis. Offered fall semesters. (2 lecture, 6 lab hours)

MSCI 271. Population Biology (3)
Prerequisites: MSCI 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)

MSCI 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)

MSCI 273. Marine Environmental Studyings of the Gulf of California (4)
Prerequisites: graduate standing and permission of instructor. An analysis of Gulf of California marine environments. Lectures, readings, intensive field work, and writing a scientific paper based on original research. Topics vary. Taught with Mexican faculty and students from La Paz, Mexico. Students must be able to participate in two weeks of field work in June. Offered spring semesters.

MSCI 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)

MSCI 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.

MSCI 285T. Seminar in Marine Science (2; max total 4)
Prerequisite: graduate standing and permission of instructor. Seminar will be held on topics that change each semester; each student will be required to give at least one seminar. May be repeated for credit. Offered spring and fall semesters.

MSCI 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 *RP* grading.

Chemistry

College of Science and Mathematics

Department of Chemistry
Ronald L. Marhenke, *Chair*
Rosalina Messer, *Administrative Support Coordinator*
Science Building, Room 380
559.278.2103
http://www.csufresno.edu/Chemistry

B.A. in Chemistry

B.A. in Natural Sciences Teaching Credential

B.S. in Chemistry

M.S. in Chemistry

Minor in Chemistry

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

Sixteen 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.

Faculty

Ronald L. Marhenke, *Chair*
Kin C. Ng,
Graduate Coordinator

Saeed Attar
Sulekha Coticone
David L. Frank
Joseph R. Gandler
Barry H. Gump
Alam S. Hasson
Barbara J. Mayer
Howard K. Ono
Stephen A. Rodemeyer
Jose Sy
Joe D. Toney
Jarrad R. Wagner
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 120 units including 38-39 units of chemistry. The Bachelor of Science degree with a major in chemistry consists of a total of 120 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 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 requirements	**38-39**
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	(5-6)
B. Additional requirements	**32-39**
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	**0-8**
(See *Degree Requirements*); may be used toward a double major or minor.	
Total	**120**

*Of the 51 required General Education units, 9 units will be satisfied by the following courses in the major and additional requirements: 3 units of CHEM 1A or PHYS 2A in G.E. Breadth B1; 3 units of BIOSC 1A in G.E. Breadth B2; and 3 units MATH 75 in G.E. Foundation B4. Consult the department chair or faculty adviser for additional details.

The following is an example of a four-year program for the B.A. in Chemistry.

First Semester — Fall	*Units*
CHEM 1A	5
MATH 75	4
ENGL 1	3
General Education	3
	15

Second Semester — Spring	
CHEM 1B	5
MATH 76	4
PHYS 2A or 4A, 4AL	4
General Education	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	3
	14

Sixth Semester — Spring	
***CHEM 156	3
BIOSC 140B or MICRO 140	4
Electives or General Education	6
	13

Seventh Semester — Fall	
Electives or General Education	15

Eighth Semester — Spring	
Electives or General Education	15
Total	**120**

*It is important to fulfill the upper-division writing skills requirement by exam or *W* class during the junior year.
**Offered fall semester only.
***Offered spring semester only.

Bachelor of Science Degree Requirements

The Bachelor of Science in Chemistry is intended for students who plan a career in chemistry. The B.S. 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. 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 requirements	**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 and remaining degree requirements	**6**

Recommended: CHEM 130, 140T, 142, 153, 156, 160, 190

Total 120

* Of the 51 required General Education units, 3 units will be satisfied by PHYS 4A and 4AL in G.E. Breadth B1, and 3 units of MATH 75 in G.E. Foundation B4. Consult the department chair or faculty adviser for details.

Advising Note for Chemistry Majors

1. No General Education Integration or Multicultural/International course with a CHEM designation may be used to satisfy the General Education requirements for majors in the department.

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 four-year 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**
General Education	**3**
	15

Second Semester — Spring	
CHEM 1B	**5**
MATH 76	**4**
PHYS 4A, 4AL	**4**
General Education	**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	**1**
General Education	**5**
	15

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**
General Education	**9**
	12

Total 120

* It is important to fulfill the upper-division writing skills requirement by exam or *W* class during the junior year.
**Offered fall semester only.
***Offered spring semester only.

Bachelor of Arts in Natural Sciences Degree Requirements

David M. Andrews
Program Coordinator
559.278.2412

Chemistry Option

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 Chemistry or a B.A. in Natural Sciences with a chemistry option (see specific course requirements in the copy that follows). For additional information, see the listing under *Science and Math — Interdisciplinary.*

	Units
Core requirements	**37**
Biology	(12)
BIOSC 1A, 1B, 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology[1]	(8)
GEOL 1 and 3 (or 15), 168	
Natural Science	(3)
NSCI 106	
Physical Science	(4)
PSCI 21	
Chemistry Option	**39**
PHYS 2A, 2B[2]	(8)
PSCI 168 or GEOL 155	(3)
MATH 75	(4)
MATH 76	(4)
CHEM 128A	(3)
CHEM 102, 108*, 128B, 129A, 155*	(17)
General Education requirements	**51**
Electives and remaining degree requirements[3,4]	**5**
Total[3]	**120**

* Offered fall semester only.

Advising Notes for the Natural Sciences Major

1. GEOL 15 is 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 total assumes that students in this option will maximize the 12 units required for the major that also may be applied to fulfill General Education requirements 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 graduation requirements of 40 upper-division units and upper-division writing skills.

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), 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.

Note: The Chemistry Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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

The completion of the following two components will satisfy the writing requirement:

1. successful completion of CHEM 260 with a grade of ***B*** or better, and
2. completion of a formal paper on the student's research to be submitted at the beginning of the fall semester of the second year. The paper should be of sufficient length (at least 2,000 words) to allow proper evaluation by a two-member review committee that includes the research director.

Master of Science Program Development

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 108), and Seminar in Molecular Biology/Biotechnology (BIOL/CHEM 248).

COURSES

Chemistry (CHEM)

CHEM 1A. General Chemistry 1A (5)
Prerequisites: high school chemistry or CHEM 15R; G.E. Foundation B4 (except for students with declared majors in the College of Science and Mathematics). CHEM 1A not open to students with credit in CHEM 1B. 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. (4 lecture, 3 lab hours)* (CAN CHEM 2)

CHEM 1B. General Chemistry 1B (5)
Prerequisite: CHEM 1A 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)

CHEM 3A. Introductory General Chemistry (4)
Prerequisite: G.E. Foundation B4 (except for students with declared majors in the College of Science and Mathematics). No credit for CHEM 3A after 1A. High school chemistry or CHEM 15R recommended. For applied science and 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)*

CHEM 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.

CHEM 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.

CHEM 10. Chemistry and Society (4)
Not open to students with credit in college chemistry; for nonscience majors. Prerequisite: G.E. Foundation B4 (except for students with declared majors in the College of Science and Mathematics). 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)

CHEM 15R. Preparation for Chemistry (2)
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)

CHEM 102. Quantitative Analytical Chemistry (5)
For chemistry majors; recommended for other science majors. Prerequisites: CHEM 1B (with a grade of *C* or better) and 128A. 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)*

CHEM 105. Quantitative Analysis Laboratory (4)
Not open to chemistry majors. Prerequisites: CHEM 1A or 3A. Laboratory study of principles and methods of applied quantitative analysis. (2 lecture, 6 lab hours)*

CHEM 106. Analytical Measurements Laboratory (4)
Prerequisites: CHEM 102 (with a grade of *C* or better), 108 or 110A, 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)*

CHEM 108. Introductory Physical Chemistry (4)
Prerequisites: MATH 76 (MATH 77 strongly recommended), CHEM 8 or 128A, and PHYS 2A and 2B or 4A, 4AL, 4B, 4BL, and 4C. Basic treatment of gas laws, thermodynamics, phase equilibria, properties of solutions, kinetics, and spectroscopy. (Fall semester)

CHEM 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)* (Spring semester)

CHEM 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)

CHEM 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; ultra-violet, infrared, and nuclear magnetic resonance spectroscopy; dipole moments, viscosity, calorimetry, kinetics, phase dia-

* In all lab courses, the wearing of approved safety glasses is mandatory.

grams, thermodynamic measurements, and report writing. (1 lecture, 6 lab hours) (Spring semester)*

CHEM 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)

CHEM 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)*

CHEM 125. Applied Analytical Techniques (3)
Prerequisites: CHEM 8 or 128A and CHEM 102 or 105. Analytical techniques and their applications in clinical, environmental, agricultural, forensic, and bioscience laboratories. (2 lecture, 3 lab hours)*

CHEM 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.

CHEM 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; 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.

CHEM 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)*

CHEM 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)*

CHEM 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.

CHEM 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.

CHEM 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.

CHEM 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.

CHEM 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)*

CHEM 153. Physiological Chemistry and Metabolism (3)
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. (Spring semester)

CHEM 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)

CHEM 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)*

CHEM 160. Research Techniques (3)
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)*

CHEM 170. Chemistry in the Marketplace (3)
Not open to chemistry majors. Prerequisites: G.E. Foundation and Breadth Area B. The impact of chemistry and chemicals on society and individual lives. G.E. Integration IB. (3 lecture hours)

CHEM 171. Fireworks, Gemstones, and Dyes: The Science of Color (3)
Primarily for non-science majors. Prerequisites: G.E. Foundation and Breadth Area B. 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)

CHEM 190. Independent Study (1-3; max total 6)
Prerequisite: permission of instructor. See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

* In all lab courses, the wearing of approved safety glasses is mandatory.

GRADUATE COURSES

(See *Catalog Numbering System.)*

Chemistry (CHEM)

CHEM 201. Chemistry Laboratory Teaching Techniques (1)
Laboratory safety, lab lecture techniques, equipment setups, grading, etc. Primarily for teaching assistants in chemistry.

CHEM 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.

CHEM 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.

CHEM 215. Quantum Chemistry (3)
Prerequisite: graduate standing. Seminar on recent advances in quantum mechanics; chemical bonding, and atomic and molecular spectroscopy.

CHEM 220. Theoretical Inorganic Chemistry (3)
Prerequisites: CHEM 110A, 110B, 123. 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.

CHEM 222. Advances in Inorganic Chemistry (3)
Prerequisites: CHEM 110A, 110B, 123, 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.

CHEM 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.

CHEM 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.

CHEM 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.

CHEM 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.

CHEM 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.

CHEM 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.

CHEM 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.

CHEM 242. Techniques in Protein Purification and Analysis (3)
(See 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)

CHEM 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)

CHEM 244. Cell Culture and Hybridoma (3)
(See 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)

CHEM 248. Seminar in Molecular Biology and Biotechnology (1-2; max total 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.

CHEM 260. Advanced Research Techniques (3)
Prerequisites: classified standing or permission of the instructor. Advanced concepts in experimental design. Development of practical research expertise and communication skills through the planning, completion, and presentation (both written and oral) of a short laboratory project. (1 lecture, 6 lab hours)

CHEM 280. Seminar in Chemistry (1; max total 3)
Approved for ***RP*** grading.

CHEM 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

CHEM 295. Research (2)
Prerequisite: permission of instructor. Independent investigations of an advanced character for the graduate student with adequate preparation. Approved for ***RP*** grading. (May include conferences, laboratory, library.)

CHEM 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 ***RP*** grading.

Computer Science

College of Science and Mathematics

Department of 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.

Program Description

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.

Career Opportunities

Computer use pervades our society, and the industry supporting that use has grown rapidly. Graduates from this program find job opportunities in such diverse fields as computer design, software engineering, 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 significant proportion of our graduates pursue 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, students receive academic credit and are employed in computer-related industries. This is an excellent opportunity for a student to obtain experience, a reasonable salary, and college credit in this field.

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 another 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, networking distributed systems, and parallel processing. The department also offers topics courses to keep students informed of current advances and methods 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 computing 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.

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.

Students and faculty have access to a networked environment of UNIX workstations (Sun Microsystems, Silicon Graphics, and Linux systems) and microcomputer laboratories of Macintosh and PCs. These systems are connected to campus and international networks.

The computer graphic and scientific visualization laboratory is equipped with Silicon graphics machines and the state-of-the-art Alias/Wavefront software.

Faculty

Tarek Alameldin
Brent J. Auernheimer
Lan Jin
Walter Read
Shigeko Seki
Jerome Smith
Prudence Tovey
Grace C. N. Wei
J. Todd Wilson

Bachelor of Science Degree Requirements

Computer Science Major *Units*

Major requirements 60-64
CSCI 40, 41, 60, 112, 113, 115, 117, 119, 144 ..... (36)
Select seven courses from the following, including one sequence ..... (21-24)
CSCI 124, 126, 130, 134, 136, 146, 148, 150, 152, 154, 156, 164, 166, 172, 173, 174, 176, 177, 186, 188, 191T (max total 6 units)
Approved Sequences:
CSCI 124-126
CSCI 134-136
CSCI 144-146
CSCI 144-148
CSCI 150-152
CSCI 156-ECE 146
CSCI 164-166
CSCI 172-173
CSCI 176-177
CSCI 186-188
CSCI 198 or complete an additional second course in one of the sequences above ..... (3-4)

Additional requirements 10*
MATH 75, 76; PHYS 2A and 2B or PHYS 4A, 4AL, 4B, 4BL

General Education requirements 51

Electives and remaining degree requirements 0-3

Total 124

* This total indicates that 6 units from MATH 75 and PHYS 2A or PHYS 4A are being used to satisfy the General Education requirement of 51 units.

Note: Pass the Upper-Division Writing Exam (recommended to satisfy the upper-division writing skills graduation requirement).

Computer Science Minor

The Computer Science Minor requires 20 units of computer science courses consisting of CSCI 40, CSCI 41, and 12 units from CSCI 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 CSCI 40, 41):

- Artificial Intelligence: CSCI 60, 112, 117, 164, 166
- Computer Architecture: CSCI 112, 113, 176, 177
- Computer Graphics: CSCI 112, 172, 173
- Computer Languages: CSCI 60, 112, 115, 117, 134
- Database Emphasis: CSCI 60, 115, 124, 126, 144
- Scientific Computation: CSCI 60, 112, 154*, 172*
- Secondary Teaching: CSCI 60, 112, 113, 115, 117
- Software Engineering: CSCI 60, 112, 115, 150, 152
- System Software: CSCI 112, 113, 144, (146 or 148)
- Theory of Computation: CSCI 60, 119, 174, 186, 188

* CSCI 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.

Note: The Computer Science Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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. 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.

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: CSCI 40, 41, 60, 112, 113, 115, 117, 119, 144, MATH 75, 76.

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 and have earned 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
CSCI 174 or 188, 200, 213, 217

Electives 9
Three of the following: CSCI 226, 230, 244, 246, 250, 252, 264, 272, 274, 282, 284

Approved electives 5-8

Culminating experience 3-6
CSCI 298 or 299

Total 30

In order to be eligible for advancement to candidacy in the M.S. in Computer Science program, all students must pass CSCI 200 with a grade of *B* or better. In addition, all students must demonstrate competence in graduate-level writing prior to being advanced to candidacy. Students may fulfill this requirement by passing the writing component of CSCI 200. Please see the graduate program coordinator for further information.

COURSES

Computer Science (CSCI)

CSCI 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.

CSCI 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)

CSCI 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)

CSCI 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.

CSCI 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.

CSCI 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)

CSCI 30. Introduction to the Internet (3)
Topics include e-mail, Web browsers, searching, evaluation of Web resources, HTML, Web-page design, encryption, and basic network communication. Special emphasis is placed on the underlying technologies. (2 lecture [1 traditional, 1 online], 2 lab hours)

CSCI 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)

CSCI 41. Introduction to Data Structures (4)
Prerequisite: CSCI 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)

CSCI 60. Foundations of Computer Science (4)
Prerequisites: CSCI 40 (may be taken concurrently.) Abstraction, iteration, induction, recursion, complexity of programs, data models, and logic. (3 lecture, 2 lab hours)

CSCI 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.

CSCI 101. Computational Foundations for Bioinformatics (3)
Prerequisite: C SCI 1, BIOSC 140A. Computational approaches to problems in molecular biology; Algorithms, heuristics, strings, and graphs. Sequence comparison and multiple alignment. Selected topics such as scripting, visual programming, laboratory workflow, databases, and queries. (2 lecture, 2 lab hours)

CSCI 105T. Workshop on Computer Languages (1-3; max total 6)
Prerequisite: CSCI 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.

CSCI 112. Introduction to Computer Systems (4)
Prerequisite: CSCI 41, 60. 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)

CSCI 113. Introduction to Computer Organization (4)
Prerequisite: CSCI 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)

CSCI 115. Algorithms and Data Structures (4)
Prerequisites: CSCI 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. (3 lecture, 2 lab hours)

CSCI 117. Structures of Programming Languages (4)
Prerequisites: CSCI 41, 60, and CSCI 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)

CSCI 119. Introduction to Finite Automata (4)
Prerequisites: CSCI 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. (3 lecture, 2 lab hours)

CSCI 124. Introduction to File Processing (3)
Prerequisite: CSCI 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.

CSCI 126. Database Systems (3)
Prerequisite: CSCI 124. Database concepts; hierarchical and relational network models; object-oriented data models. Data

normalization, data description languages, data manipulation languages, and query design.

CSCI 130. Web Programming (3)
Prerequisite: CSCI 115. Programming for the World Wide Web. Web servers and clients, Internet and Web protocols, and mark-up languages. Client-side scripting, including both gateway and filter-based approaches. (2 lecture, 3 lab hours) (Formerly CSCI 191T)

CSCI 134. Compiler Design (3)
Prerequisites: CSCI 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.

CSCI 136. Compiler Construction (3)
Prerequisite: CSCI 134. Advanced topics in compiler design. Type checking. Run-time storage management. Intermediate code generation. Interpreters. Error recovery techniques. Code generation and optimization.

CSCI 144. Introduction to Operating Systems (4)
Prerequisites: CSCI 41 and CSCI 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. (3 lecture, 2 lab hours)

CSCI 146. Systems Architecture (3)
Prerequisites: CSCI 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.

CSCI 148. Systems Programming (3)
Prerequisites: CSCI 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.

CSCI 150. Introduction to Software Engineering (3)
Prerequisite: CSCI 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)

CSCI 152. Software Engineering (4)
Prerequisite: CSCI 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)

CSCI 154. Simulation (3)
Prerequisites: CSCI 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.

CSCI 156. Internetworking Systems and Protocols (3)
Prerequisite: CSCI 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)

CSCI 164. Artificial Intelligence Programming (3)
Prerequisite: CSCI 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.

CSCI 166. Principles of Artificial Intelligence (3)
Prerequisite: CSCI 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.

CSCI 172. Computer Graphics (4)
Prerequisites: MATH 76, CSCI 41, and (CSCI 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)

CSCI 173. Advanced Computer Graphics (4)
Prerequisite: CSCI 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)

CSCI 174. Design and Analysis of Algorithms (3)
Prerequisites: CSCI 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.

CSCI 176. Parallel Processing (3)
Prerequisites: CSCI 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.

CSCI 177. Distributed Computer Systems (3)
Prerequisites: CSCI 113, 144. 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.

CSCI 186. Formal Languages and Automata (3)
Prerequisite: CSCI 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.

CSCI 188. Introduction to Computability (3)
Prerequisite: CSCI 119. Introduction to computability and complexity. Turing machines, recursive functions, reduction, undecidability, classes P and NP, and intractable problems.

CSCI 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

CSCI 191T. Proseminar
(1-3; max total 15)
Prerequisite: permission of instructor. Presentation of selected topics in computer science.

CSCI 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.

CSCI 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 *RP* grading.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Computer Science (CSCI)

CSCI 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.

CSCI 213. Computer Organization (3)
Prerequisites: CSCI 112 and 113 or permission of instructor. Organization of memory, I/O, and processors. Computer busses. Microprogramming and instruction execution. Interrupts. Data communications.

CSCI 217. Programming Language Principles (3)
Prerequisite: CSCI 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.

CSCI 226. Advanced Database Systems (3)
Prerequisites: CSCI 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.

CSCI 230. Advanced Web Application Development (3)
Prerequisite: CSCI 130 or permission of instructor. Application development for the World Wide Web. Three-tier architecture; authentication, capability, and session management; versioning and open-source development. Case studies and project work. (Formerly CSCI 291T)

CSCI 244. Operating Systems (3)
Prerequisite: CSCI 144. Operating system functions. Performance monitoring and fine-tuning. Network operating system design. Concurrency, analysis of deadlock. Selected topics from current research.

CSCI 246. Computer Architecture (3)
Prerequisite: CSCI 144. Examination and comparison of RISC and CISC architectures. Parallel processors, multiprocessors, dataflow machines. Database machines. Selected topics from current research.

CSCI 250. Advanced Software Engineering (3)
Prerequisite: CSCI 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.

CSCI 252. Software Development Environments (3)
Prerequisite: CSCI 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.

CSCI 264. Artificial Intelligence (3)
Prerequisite: CSCI 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.

CSCI 272. Computer Graphics (3)
Prerequisite: CSCI 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.

CSCI 274. Combinatorial Algorithms (3)
Prerequisite: CSCI 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.

CSCI 282. Theory of Computation (3)
Prerequisite: CSCI 188 or permission of instructor. General models of computation, recursive functions, undecidable problems, propositional calculus, predicate calculus, complexity classes, NP-complete problems.

CSCI 284. Automata Theory (3)
Prerequisite: CSCI 186 or permission of instructor. Formal languages, abstract machines, algebraic approach to automata, term rewriting systems, formal power series, cryptography, parallel computation.

CSCI 290. Independent Study
(1-3; max total 6)
Prerequisite: approval of department. See *Academic Placement — Independent Study*. Approved for *RP* grading.

CSCI 291T. Seminar (1-3; max total 9)
Prerequisite: approval of instructor. Special topics in computer science of current interest and importance.

CSCI 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 *RP* grading.

CSCI 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 *RP* grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Computer Science (CSCI)

CSCI 391T. Topics in Computer Science (1-6; repeatable for credit with different topics)

Earth and Environmental Sciences

College of Science and Mathematics

Department of Earth and Environmental Sciences
Frederika J.M. Harmsen, *Chair*
Evangelina "Vengie" Balli,
Administrative Support Coordinator
Science II Building, Room 114
559.278.3086
http://www.csufresno.edu/ees/

B.S. in Environmental Sciences
(Jointly offered with the University of California, Riverside)

B.S. in Geology

B.A. in Natural Sciences Teaching Credential
Option: Earth Science

M.S. in Geology

Minor in Geology

Earth and Environmental Sciences

The Department of Earth and Environmental Sciences 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.

Collaborating with the Department of Environmental Sciences at the University of California, Riverside, the department also offers a special program leading to the Bachelor of Science in Environmental Sciences. The degree is jointly conferred by California State University, Fresno and the University of California, Riverside.

Coursework and research emphasize field and laboratory investigations of geologic and environmental 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 outdoor 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 employment in geologic and environmental work while they complete their degrees.

The Bachelor of Science in geology 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 Earth and Environmental Sciences, and Biology departments. See *Moss Landing Marine Laboratories, Biology Department.*

Facilities and Support

Department equipment includes:

- X-ray fluorescence laboratory
- Microscope equipment for petrography study
- Rock preparation laboratory for preparing thin and polished sections
- Remote Sensing/Geo Information Systems (GIS)
- SUN engineering workstations for modeling and seismic data processing
- Electronic mapping lab
- Fully equipped distance learning instructional lab
- Water research analytical laboratory including mass spectrometer for isotope analysis
- Field geophysical instruments
- Microfossil processing equipment
- Field vehicles

Career Opportunities

Career pathways in earth and environmental sciences can lead to the following occupations:

- Professional geologist
- Earth science educator
- Environmental scientist/ecologist
- Environmental manager/planner
- Hydrogeologist/hydrologist
- Public administrator

Undergraduate Program

Geology Major. The bachelor's degree with a major in geology consists of 120 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

Frederika J.M. Harmsen, *Chair*
D. Keith Putirka,
Graduate Adviser
Arthur H. Barabas
Roland H. Brady
Stephen D. Lewis
P. Graham Mortyn
C. John Suen
Zhi (Luke) Wang
Robert G. Dundas, *Lecturer*

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 25-26
CHEM 1A, 1B; MATH 75; MATH 76 or GEOL 177; PHYS 2A, 2B

Remaining General Education requirements 45*

Electives and remaining degree requirements 4-6
Upper-division writing skills; (see *Degree Requirements*); may be used toward a minor

Total 120

*Of the 51 required General Education units, 6 units will be satisfied by the following two courses in additional requirements: 3 units of CHEM 1A in G.E. Breadth B1 and 3 units of MATH 75 in G.E. Foundation B4. Consult the department chair or 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 Earth and Environmental Sciences 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 double major or minor (see *Double Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.

Joint Bachelor of Science Degree Requirements in Environmental Sciences

This special interdisciplinary program leads to a B. S. in Environmental Sciences jointly conferred by California State University, Fresno and the University of California at Riverside. Qualified students admitted into this program are concurrently registered at both universities and both universities have minimum residence requirements. 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.

Student plans of study require approval by an assigned faculty adviser.

The program offers three degree options: (1) Earth Science (ES) option, (2) Life Science (LS) option, (3) Behavioral, Policy, and Health Sciences (BPHS) option. Environmental Policy, Environmental Study, and Socio-Behavioral Analysis are three emphases within the BPHS option.

Environmental Sciences Major *Units*

Lower-division core requirements 45-46
Biology ..... (9)
BIOSC 1A or BIOL 15, 1B
Chemistry ..... (10)
For ES and BS options, CHEM 1A, 1B
For BPHS option, CHEM 3A, 8, 150
Earth and Environmental Sciences . (8)
GEOL 1 or 15; UCR ENSC 1, 2
Mathematics ..... (4)
For ES option, MATH 75
For LS and BPHS options, MATH 75 or 70
Physics ..... (8)
For ES option, PHYS 4A, 4AL, 4B, 4BL
For LS and BPHS options, PHYS 2A, 2B
Statistics ..... (3-4)
MATH 11 or PSYCH 42
Social Science ..... (3)
One of ECON 40, ANTH 2, or UCR ENSC 174

Upper-division core requirements all options 11
PHIL 120 or PLSI 157; ENSC 100A*, 100B*;

Environmental Sciences Options 31-46

Option in Earth Science (ES) .... (38-41)
MATH 76, 77; CHEM 8, GEOL 117 ..... (14)
Three courses from the following two groups, at least one from the first group ..... (9-12)
(1) CHEM 105, 108; MATH 81, PSYCH 144, 145; (2) MICRO 140, HS 160; GEOG 107, 108, 111; ECON 117; UCR ENSC 155, 172, 190*
Select one of the three emphases ..... (15)
(1) For Engineering Emphasis, UCR ENSC 127 and two other courses from Group A; one course from Group B; one course from Group C. (2) For Geology Emphasis, one course from Group A; three courses from Group B; one course from Group C. (3) For Soils Emphasis, UCR ENSC 127; two courses from Group B; two courses from Group C.
Group A: CE 140, 170, 191T; HS 166T; UCR ENSC 127
Group B: GEOL 114, 124, 105, 116
Group C: UCR ENSC/SWSC 104, UCR ENSC/SWSC 107

Option in Life Science (LS) ..... (39-46)
(Emphases under this degree option are directed by advisers.)
Optional internship: ENSC 190* ..... (0-6)
ECOL 151, 152; CHEM 128A, 128B; UCR ENSC 172, 174; UCR BPSC 165 ..... (24)

Two courses from each of the following two groups ..... (15-16)
(1) BOT 144; ECOL 162, 171, 172; ZOOL 150, 141.
(2) PSYCH 143, 144, 145; GEOG 105, 106, 107, 108

Option in Behavioral, Policy, and Health Sciences (BPHS) ..... (31)

There are three available emphases that prepare students for careers in environmental law, environmental policy, environmental health, environmental analysis, urban-planning, or socio-environmental research. A minimum of 31 upper-division semester units is required, including internship and required courses.

Optional internship: ENSC 190* or HS 175 ..... (0-6)

Emphasis in Environmental Policy

Required courses PHIL 118 or 127; PLSI 157 (if not taken as core requirement); one of: ECON 119, 161, or 174; one approved course in Business Administration/ Law ..... (12)

Electives: PHIL 118, 127, 157, PLSI 156T (approved topics only), 181; ECON 119, 161, 174; CRP 135; GEOG 135; UCR ENSC/ECON 143A, 143B; UCR ENSC 170, 174 ..... (13-19)

Emphasis in Environmental Health

Required courses: HS 109, 160, 161, 162A, 167, 168A, 168B ..... (21)

Electives: HS 148, 151, 162B, 170, 182; PLTH 102; PLANT 105; ECON 162; UCR ENSC/ENVE 144; UCR ENSC 155, 172; UCR ENSC/SWSC 176 ..... (10)

Emphasis in Socio-behavioral Analysis

Required courses: PSYCH 143, 144, 145, 173 ..... (15-16)

Electives: PLSI 156T (Approved topics only), BIOL 151, 152; GEOG 105, 106, 107, 108; SOC 163; ANTH 108; ECON 161; UCR ENSC/ENVE 144; UCR ENSC 155, 170, 172; UCR ENSC/SWSC 176; UCR ENSC/ECON 143A, 143B ..... (15-16)

General Education requirements ... 51**

Total 130-149**

* Course approval pending. See adviser for course alternatives.

** Of the 51 units required for General Education, up to 19 units may be satisfied by G.E. courses found in the lower-and upper-division core requirements. Please see your faculty adviser to assist you in developing a plan of study.

Geology Minor

The minor consists of 20 units of coursework approved by a departmental faculty member and must include 6 upper-division units in residence. Minimum GPA is 2.0.

Bachelor of Arts in Natural Sciences

Earth Science Option

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 Earth and Environmental Sciences 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. For more information, please contact David Andrews, B.A. Natural Science Degree Coordinator and Science Credential Adviser at 559.278.2412. The B.A. in Natural Sciences with the Earth Science Emphasis is as follows:

	Units
Core requirements	**37**
Biology	(12)
BIOSC 1A, 1B, 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology	(8)
GEOL 1 and 3 (or 15)[1], 168	
Natural Science	(3)
N SCI 106	
Physical Science	(4)
PSCI 21	
Earth Science Option	**44**
CHEM 8 or PSCI 168	(3)
PHYS 2A, 2B[2]	(8)
MATH 70 or 75	(4)
GEOL 12, 30, 100, 101, 102, 105, 112, 155	(23)
Select two courses: GEOL 110, 114, 117, 124; GEOG 111	(6)
General Education requirements	**51**
Total[3,4]	**120**

Advising Notes for the Natural Sciences Major

1. GEOL 15 is 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 total assumes that students in this option will maximize the 12 units required for the major that also may be applied to fulfill General Education requirements 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 graduation requirements of 40 upper-division units and upper-division writing skills.

Graduate Program in Geology

The Department of Earth and Environmental Sciences 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.

Students are required to pass the writing component of GEOL 201. Please see the graduate program coordinator for more information.

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

Environmental Science (ENSC)

ENSC 1. Environmental Science (4)
Prerequisite G.E. Foundation B4. Introduction to environmental science, focusing on environmental principles and processes. Topics include human population and consumption, ecosystems and biodiversity, resource management and conservation, energy sources and technology use, dynamics, ecosystems, pollution and wastes, environmental economics and ethics, global changes, and tomorrow's world. (3 lecture, 2 lab hours)

Geology (GEOL)

GEOL 1. Natural Disasters and Earth Resources (4)
Prerequisite: G.E. Foundation B4 (except for those with declared major in the College of Science and Mathematics). Recommended: MATH 4R or second-year high school algebra. Processes and materials that 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)

GEOL 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. (Weekend field trips required; field trip fee, $60)

GEOL 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)

GEOL 13. Crystallography (1)
GEOL 12 concurrent in the geology major. Prerequisite: MATH 5 or 72 or 75. Symmetry, structure, standard nomenclature, reference systems of crystals. (3 lab hours)

GEOL 15. The Earth and Its History (5)
Prerequisite: G.E. Foundation B4 (except for those with declared majors in the College of Science and Mathematics). 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)

GEOL 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.)

GEOL 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)

GEOL 100. Optical Mineralogy (2)
Prerequisites: GEOL 12, 13 (may be taken concurrently). Optical properties of minerals; identification of minerals by optical methods. Theory and use of petrographic microscope. (1 lecture, 3 lab hours)

GEOL 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)

GEOL 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)

GEOL 104. Scientific Writing (2)
Prerequisite: A passing grade on the Upper-Division Writing Exam, or completion of an upper-division writing course with a ***C*** or higher (may be taken concurrently). Organizing and writing the scientific report. Critical evaluation of literature. Presentation of maps, charts, and illustrations. Peer reviews. Oral presentation and term paper required. (1 lecture, 3 lab hours)

GEOL 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)

GEOL 106. Structural Geology (3)
Prerequisites: GEOL 30, MATH 5, PHYS 2A (or concurrently); GEOL 104 (concurrently). Recognition, representation, and interpretation of structural features of the earth's crust. Includes theoretical and mechanical principles. Study of regional tectonics and major structural provinces. Field trips required. (2 lecture, 3 lab hours)

GEOL 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)

GEOL 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 ***RP*** grading.

GEOL 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 ***RP*** grading. (1 lecture hour)

GEOL 110. Invertebrate Paleontology (3)
Prerequisites: GEOL 1 or BIOL 1A and 1B. Invertebrate structures and development of prehistoric animals; introduction to stratigraphic importance of fossils. Field trips may be required. (2 lecture, 3 lab hours)

GEOL 112. Planet Earth through Time (3)
Credit not allowed after completion of GEOL 2. Prerequisites: G.E. Foundation and Breadth Area B. 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. *Does not satisfy Division 1 pre-1999 G.E. curriculum.*

GEOL 113. Stream Habitat Restoration (3)
Prerequisites: GEOL 1 or BIOL 10 or BIOSC 1A or instructor's consent. Investigation of stream geology, hydrology, and biology relevant to restoring stream habitat. Includes collecting and interpreting lab and field data. Field trips required. (2 lecture, 3 lab hours) (Formerly GEOL 150T)

GEOL 114. Engineering Geology (3)
Prerequisites: GEOL 1 and MATH 5 or 72 or 75. 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)

GEOL 115. Ore Deposits (3)
Prerequisites: GEOL 101, 106, CHEM 1A. 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)

GEOL 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)

GEOL 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)

GEOL 122. Stratigraphy (3)
Prerequisites: GEOL 30, 102 (may be taken concurrently). Stratigraphic principles and recognition of stratigraphic units. Emphasis on tectonostratigraphic concepts. (2 lecture, 3 lab/field hours)

GEOL 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)

GEOL 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.

GEOL 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.

GEOL 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 include 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)

GEOL 155. Discovering Earth Science (3)
Not applicable to the B.S. in Geology. Prerequisites: GEOL 1, 15, or 112, or instructor's permission. 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 include energy in the earth system, geochemical cycles, dynamic interactions between the lithosphere, atmosphere, and hydrosphere, and origin/evolution of the earth. (2 lecture, 2 lab hours, 1 hour arranged)

GEOL 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.

GEOL 167. Oceans, Atmosphere, and Climate Change (3)
Prerequisites: G.E. Foundation and Breadth Area B. Integrated introduction to oceans, atmosphere, and climate change: 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.

GEOL 168. California's Earth System (3)
Prerequisites: G.E. Foundation and Breadth Area B. 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.

GEOL 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)

GEOL 177. Quantitative Methods for Earth Science (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)

GEOL 180. Computer Applications in Geology (3)
Use of computers in geology, focusing on such applications as multi-dimensional graphics, desktop mapping, communications, on-line resources, modeling. (2 lecture, 3 lab hours) (Formerly GEOL 130T section)

GEOL 185. Remote Sensing for the Natural Sciences (3)
Prerequisite: G.E. 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)

GEOL 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)

GEOL 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Geology (GEOL)

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)

GEOL 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)

GEOL 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)

GEOL 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)

GEOL 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)

GEOL 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)

GEOL 231. Depositional Systems (3)
Prerequisites: GEOL 102 and 105. Investigation of modern and ancient depositional systems. Field trip required. (2 lecture, 3 lab hours)

GEOL 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.

GEOL 250T. Topics in Geology (1-3; may be taken more than once if no topic is repeated)
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.

GEOL 251T. Topics in Engineering Geology (1-3; may be taken more than once if no topic is repeated)
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.

GEOL 271. Volcanology (3)
Prerequisite: GEOL 101. A study of volcanic activity, including classification, characteristics, products of eruptions, human interactions with volcanoes and related phenomena. Field trips required. (1 lecture, 6 lab hours)

GEOL 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GEOL 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 ***RP*** 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.

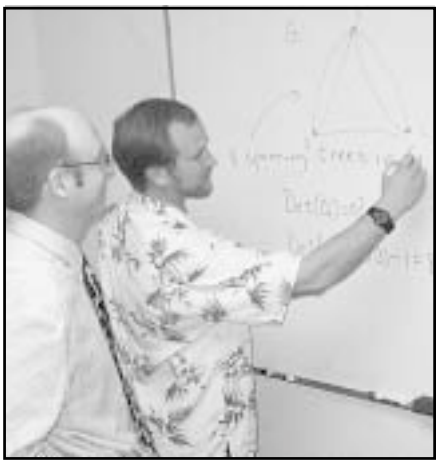
Because there are so many different areas in which a trained mathematician can find employment or continue studies, the department offers a large number of electives within the mathematics major. By selecting appropriate courses, students have considerable flexibility to accommodate their individual 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 [or MATH 75A and 75B], 76, and 77) are essential for the first two Actuarial Examinations offered by the Society of Actuaries.



Faculty

Larry W. Cusick, *Chair*

Ernesto Franco, *Graduate Coordinator*
Undergraduate Advisers:
All full-time faculty
Credential Advisers: Agnes Tuska, T. Rajee Amarasinghe

Robert F. Arnold
Katherine Byler Kelm
Stefaan Delcroix
Doreen De Leon
Della C. Duncan
Michael J. Fisher
Noal C. Harbertson
Merrilee K. Helmers
Maria Nogin
Hussain Sayid Nur
Hugo S. Sun
Peter Tannenbaum
Ronald L. Wagoner
Norman T. Woo
Ke Wu

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: 120 units. See *Baccalaureate Degree Requirements* for complete details on general degree requirements. A minimum of 40 units must be upper division, including those required for the major, General Education, and upper-division writing skills.

College of Science and Mathematics

Department of Mathematics
Larry W. Cusick, *Chair*
Cindy Douglas, *Administrative Analyst/ Specialist*
Peters Business Building, Room 381
559.278.2992
http://www.csufresno.edu/math/

B.A. in Mathematics

M.A. in Mathematics
Option: Teaching

Minor in Mathematics

Single Subject Teaching Credential

	Units
Major requirements	**42-48**
Core curriculum	(30-31)
MATH 75 (or 75A and B), 76, 77	(12)
MATH 111	(3)
MATH 151, 152	(8)
MATH 171	(4)
MATH 128 or 165 or 172	(3-4)
Elective curriculum	(12-17)
Four mathematics courses, upper-division or MATH 81, excluding MATH 100, 133, 134, 137, 138	
Additional requirements	**7**
CSCI 40	(4)
PHYS 4A[1]	(3)
General Education requirements	**51[2]**
Electives and remaining degree requirements	**14-20**
Total	**120**

Major Advising Notes

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. Three units of MATH 75 (or MATH 75A and B) also will satisfy the G.E. Foundation B4 requirement. It also satisfies the requirement within General Education Core courses, for students under 1998-1999 or earlier catalogs.
3. See Mathematics Road Map at *http://www.csufresno.edu/degreeroadmap/site_index.htm.*

Mathematics Minor

The minor requires 20 units in mathematics, MATH 75 or above, 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.
2. The Mathematics Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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 (or 75A and B)
MATH 6	MATH 71 or 75 (or 75A and B)
MATH 70	MATH 72 or 75 (or 75A and B)
MATH 75 (or 75A and B)	MATH 76
MATH 76	MATH 77
MATH 77	MATH 81
MATH 101	MATH 108

Single Subject Credential Program Subject Matter Competency in Mathematics*

	Units
MATH 75 (or 75A and B), 76, 77; MATH 151, 152; MATH 171; MATH 128 or 165 or 172; MATH 101, 111, 116, 143, 145, 161; PHYS 4A; CSCI 40	
Total	**55-56**

See the description of the Single Subject Credential Program under *Curriculum, Teaching, and Educational Technology* in this catalog. Completion of this program also fulfills the mathematics major requirement.

*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.)*

Master of Arts Degree Program

The Department of Mathematics offers a Master of Arts (M.A.) in Mathematics. Within this degree program, students may choose to complete the traditional track or the teaching option. The admission requirement of all prospective students for this degree program is the completion of undergraduate preparation equivalent to California State University, Fresno majors in mathematics. Candidates are also required to submit current GRE scores. (See *Division of Graduate Studies* admission requirements.)

The M.A. in mathematics is designed for students who wish to study mathematics at an advanced level. The traditional track best satisfies the needs of students who wish to work in industry, teach at community college, or go on to pursue a Ph.D. in mathematics. The teaching option is designed especially for students who wish to enhance their high school mathematics teaching and/or assume a leadership role in high school mathematics education and beyond.

Course Requirements:

Master's Degree in Mathematics (M.A.) Traditional Track

	Units
Core curriculum (MATH 251, 271)[2]	**6**
Elective curriculum (A combination of approved courses)[1]	**21**
Project (MATH 298)	**3**
Total	**30**

Master's Degree in Mathematics (M.A.) with a Teaching Option

	Units
Core curriculum (CI 250[3], MATH 250, 260, 270[2])	**12**
Mathematics elective curriculum (A combination of approved courses)[1]	**12**
Education elective curriculum (CI 275 or an approved CI 280T course)	**3**
Project (MATH 298)	**3**
Total	**30**

Additional Requirements:

- M.A. - Two department qualifying exams: one in analysis and one in algebra. (The exams are offered each semester and may be retaken once. The exams will also be used to satisfy the *University Graduate Writing Skills* requirement.)
- M.A. with a Teaching Option - Passing score in the two Praxis Exams: 63 and 64. (The exams will also be used to satisfy the *University Graduate Writing Skills* requirement.)

Graduate Advising Notes

1. Under the direction of the department graduate adviser, each candidate should prepare and submit for approval a program of courses as early as possible.
2. All graduate students should obtain a copy of the *Mathematics Graduate Advising Booklet* for more detailed information on the program requirements.
3. CI 250 has a prerequisite of CI 150 or 159.

COURSES

Mathematics (MATH)

MATH 1RA. Developmental Mathematics I (3)
The first semester in a two semester sequence preparing students for college level mathematics. See the online *Class Schedule* for restrictions on enrollment based on the Entry Level Math test. Properties of ordinary arithmetic, integers, rational numbers and linear equations. *CR/NC* grading only; not applicable towards baccalaureate degree requirements.

MATH 1RB. Developmental Mathematics II (3)
Prerequisite: MATH 1RA. The second semester in a two semester sequence preparing students for college level mathematics. Systems of linear equations, exponents, rational expressions, polynomials and quadratic equations. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

MATH 4R. Intermediate Algebra (3)
Prerequisite: see the online *Class Schedule* for restrictions on enrollment based on the Entry Level Math test. Covers radicals, rational exponents, quadratic equations, simultaneous linear equations, graphing, inequalities, and complex numbers. *CR/NC* grading only; not applicable toward baccalaureate degree requirements.

MATH 4RA. Intermediate Algebra (3)
Focuses on arithmetic review, linear equalities, inequalities, and graphing. *Note*: MATH 4RA together with MATH 4RB is equivalent to MATH 4R. Enrollment is limited to first-time freshmen who score 30 and below on the ELM exam. *CR/NC* grading only; not applicable toward baccalaureate degree requirements. (Formerly MATH ILR)

MATH 4RB. Intermediate Algebra (3)
Prerequisite: MATH 4RA. Focuses on radicals, rational exponents, and quadratic equations *Note*: MATH 4RB together with MATH 4RA is equivalent to MATH 4R. Enrollment is limited to first-time freshmen who score 30 and below on the ELM exam. *CR/NC* grading only; not applicable toward baccalaureate degree requirements. (Formerly MATH ILR)

MATH 4RL. Intermediate Algebra Laboratory (1)
Prerequisites: concurrently enrolled in MATH 4RA, 4RB, or 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.

MATH 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)

MATH 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)

MATH 10A. Structure and Concepts in Mathematics I (3)
Prerequisite: students must meet the ELM requirement. No credit for MATH 10A if taken after MATH 41. 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 B4 G.E. requirement only for liberal studies majors.

MATH 10B. Structure and Concepts in Mathematics II (3)
Prerequisite: MATH 10A or 41. 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.

MATH 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 (or 75A and B) take MATH 101. (CAN STAT 2)

MATH 25. Mathematica (1)
Prerequisites: MATH 70, 71, 75 or 75A and B (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.

MATH 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.

MATH 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.

MATH 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.

MATH 70. Mathematical Analysis for Life Sciences (4)
No credit if taken after MATH 72 or 75 or 75A and B. Prerequisite: students must meet the ELM requirement. Functions and graphs, limits, derivatives, antiderivatives, differential equations, and partial derivatives with applications in the Life Sciences.

MATH 71. Elementary Mathematical Analysis I (3)
No credit if taken after MATH 70, 72, or 75 or 75A and B. 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.

MATH 72. Elementary Mathematical Analysis II (3)
No credit if taken after MATH 75 or 75A and B. Prerequisites: MATH 71 and trigonometry. Analytic geometry and calculus of polynomials, rational functions, transcendental functions; polar coordinates, conic sections, integration and applications.

MATH 75. Mathematical Analysis I (4)
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)

MATH 75A. Math Analysis with Review IA (4)
Prerequisite: elementary geometry, intermediate algebra, trigonometry, ELM requirement. Inequalities, functions, graphs, limits, continuity, derivatives, and applications, with extensive review of algebra and elementary functions. Use of computer software as an exploratory tool. With MATH 75B, equivalent to MATH 75.

MATH 75B. Math Analysis with Review IB (4)
Prerequisite: MATH 75A. Applications of differentiation, antidifferentiation, the definite integral, and applications, with extensive review of algebra. Use of computer software as an exploratory tool. With MATH 75A, equivalent to MATH 75.

MATH 76. Mathematical Analysis II (4)
Prerequisite: MATH 75 or 75A and B. Transcendental functions, techniques of integration, improper integrals, conic sections, polar coordinates, infinite series. Using Mathematica™ software as an exploratory tool. (CAN MATH 20)

MATH 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)

MATH 81. Applied Analysis (3)
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 computer software as an exploratory tool.

MATH 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)

MATH 100. Exploring Mathematics (3)
Prerequisite: MATH 10B. A problem-solving approach to topics from game theory, combinatorics, mathematical modeling, and finite geometries.

MATH 101. Statistical Methods (4)
Prerequisite: MATH 70, 71, or 75 or 75A and B; 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.

MATH 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.

MATH 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.

MATH 109. Applied Probability (3)
Prerequisite: MATH 107. Introduction to stochastic processes and their applications in science and industry. Markov chains, queues, stationary time series.

MATH 110. Symbolic Logic (3)
(Similar to PHIL 145; consult department.)
Prerequisite: MATH 75 or 75A and B. An informal treatment of the theory of logical inference, statement calculus, truth-tables, predicate calculus, interpretations applications.

MATH 111. Transition to Advanced Mathematics (3)
Prerequisite: MATH 76. Introduction to the language and problems of mathematics. Topics include set theory, symbolic logic, types of proofs, and mathematical induction. Special emphasis is given to improving the student's ability to construct, explain, and justify mathematical arguments.

MATH 114. Discrete Structures (3)
Prerequisite: MATH 111. Counting techniques, matrix algebra, graphs, trees and networks, recurrence relations and generating functions, applied modern algebra.

MATH 116. Theory of Numbers (4)
Prerequisite: MATH 111. Divisibility theory in the integers, primes and their distribution, congruence theory, Diophantine equations, number theoretic functions, primitive roots, indices, the quadratic reciprocity law.

MATH 118. Graph Theory (3)
Prerequisite: MATH 111. Trees, connectivity, Euler and Hamilton paths, matchings, chromatic problems, planar graphs, independence, directed graphs, networks.

MATH 121. Numerical Analysis I (3)
Prerequisites: MATH 77 and CSCI 40. Zeros of nonlinear equations, interpolation, quadrature, systems of equations, numerical ordinary differential equations, and eigenvalues. Use of numerical software libraries.

MATH 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.

MATH 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.

MATH 133. Number Theory for Liberal Studies (3)
Prerequisite: MATH 10B or permission of instructor. 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

MATH 134. Geometry for Liberal Studies (3)
Prerequisite: MATH 10B or permission of instructor. 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.

MATH 137. Exploring Statistics (3)
Prerequisite: MATH 10B or permission of instructor. 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.

MATH 138. Exploring Algebra (3)
Prerequisite: MATH 10B or permission of instructor. 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.

MATH 143. History of Mathematics (4)
Prerequisite: MATH 72 or 75 or 75A and B. 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.

MATH 145. Problem Solving (3)
Prerequisite: MATH 111; EHD 50 (may be enrolled concurrently). 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.

MATH 151. Principles of Algebra (4)
Prerequisite: MATH 111. Equivalence relations; groups, cyclic groups, normal subgroups, and factor groups; rings, ideals, and factor rings; integral domains and polynomial rings; fields and field extensions.

MATH 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.

MATH 161. Principles of Geometry (3)
Prerequisite: MATH 111. 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.

MATH 165. Differential Geometry (3)
Prerequisite: MATH 111 or permission of instructor. 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.

MATH 171. Intermediate Mathematical Analysis I (4)
Prerequisite: MATH 111. 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)

MATH 172. Intermediate Mathematical Analysis II (4)
Prerequisite: MATH 77 and 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.

MATH 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.

MATH 182. Partial Differential Equations (3)
Prerequisites: MATH 81 or 123. 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.

MATH 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

MATH 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.

MATH 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 *Catalog Numbering System*.)

Mathematics (MATH)

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.

MATH 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.

MATH 216T. 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. (Formerly MATH 216)

MATH 221. Advanced Numerical Analysis (3)
Prerequisite: MATH 121. Linear equations and matrices; parabolic, hyperbolic, and elliptic differential equations; constructive function theory.

MATH 223. Principles and Techniques of Applied Mathematics (3)
Prerequisite: graduate standing or permission of instructor. Linear spaces and spectral theory of operators.

MATH 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.

MATH 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.

MATH 232. Mathematical Models with Technology (3)
Prerequisite: graduate standing in mathematics or permission of instructor. A technology-assisted study of the mathematics used to model phenomena in statistics, natural science, and engineering.

MATH 250. Perspectives in Algebra (3)
Prerequisite: graduate standing in mathematics or permission of instructor. Study of advanced topics in algebra, providing a higher perspective to concepts in the high school curriculum. Topics selected from, but not limited to, groups, rings, fields, and vector spaces.

MATH 251. Abstract Algebra I (3)
Prerequisite: undergraduate abstract algebra. Groups, rings, integral domains, and fields.

MATH 252. Abstract Algebra II (3)
Prerequisite: MATH 251. Rings and ideals, modules, linear and multilinear algebras, representations.

MATH 260. Perspectives in Geometry (3)
Prerequisite: graduate standing in mathematics or permission of instructor. Geometry from a transformations point of view. Euclidean and noneuclidean geometries in two and three dimensions. Problem solving and proofs using transformations. Topics chosen to be relevant to geometrical concepts in the high school curriculum.

MATH 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.

MATH 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.

MATH 270. Perspectives in Analysis (3)
Prerequisite: graduate standing in mathematics or permission of instructor. An overview of the development of mathematical analysis, both real and complex. Emphasizes interrelation of the various areas of study, the use of technology, and relevance to the high school mathematics curriculum.

MATH 271. Real Variables (3)
Prerequisite: MATH 172. Theory of sets; cardinals; ordinals; function spaces, linear spaces; measure theory; modern theory of integration and differentiation.

MATH 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).

MATH 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

MATH 291. Seminar (3)
Prerequisite: graduate standing. Presentation of current mathematical research in field of student's interest.

MATH 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 ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Mathematics (MATH)

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
Gerardo Munoz, *Chair*
Carol Rayner, *Administrative Support Coordinator*
Diedre Fields, *Administrative Support Assistant*
McLane Hall, Room 173
559.278.2371
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B.S. in Physics

B.S. Special Major (Biomedical Physics)

B.A. in Natural Science Teaching Credential

M.S. in Physics

Minor in Astronomy

Minor in Medical Physics

Minor in Physics

Minor in Physical Science

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 all matter, of electromagnetic, gravitational, atomic and nuclear forces, of energy, of light and heat, of electronics and the structure and properties of materials, of the interiors of the earth and the stars.

Faculty and Facilities

Our faculty are here to teach and to do research. Several faculty members have research projects involving students. Two of our faculty members do theoretical work in particle physics and field theory while others are involved with numerous different experimental research fields; some of our faculty are involved in physics pedagogy.

Our classes are small; our upper-division and graduate classes usually have 10-15 students or less. Physics majors get to know each other very well. They develop friendships with peers, faculty, and staff, which extend well beyond graduation.

Our physics facilities underwent a multimillion dollar renovation. The renovation project substantially improves both our research and teaching capabilities. 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 have two medium-power lasers, which enhance our capabilities in modern optical studies, including Raman spectroscopy and nonlinear optics.

Four new research laboratories are also part of our current experimental efforts: the Radiation Measurements and Instrumentation Laboratory, the High Energy Physics Laboratory, the Semiconductor Characterization Laboratory, and the Astrophysics Laboratory. The High Energy Laboratory develops and constructs state-of-the-art solid-state charged particle detectors to be used in the D0 Project at Fermi National Laboratory (Fermilab). This has linked us to new frontier physics research areas, including studies of top quark properties and the search for the Higgs boson. The Semiconductor Laboratory is well equipped with both teaching and student research equipment, such as a pulsed NMR spectrometer, superconductivity experiment, temperature-dependent measurement of resistivity, and conduction phenomena determination of semiconductor band gap. Two new major pieces of equipment have been added to our condensed matter physics research: an X-ray fluorescence spectrometer that is capable of sub *ppm* resolution and a Fourier Transform Infrared spectrometer (FTIR) that permits analysis of spectra in the mid-infrared region. We also have an argon ion laser (tunable) with a 400 megawatt output, a three-stage high temperature furnace, and a fume hood providing a sample preparation chamber. This allows us to make many important measurements of condensed matter properties such as resistivity, conductivity, mobility, charge concentration, activation energy, the charge sign of majority carriers, and photoconductivity. It leads us to material science technologies and novel semiconductors used in solar cell applications. The Astrophysics Laboratory is loaded with powerful computing equipment, all available to students. It is used for image processing and remote observatory operations. Graduate students can participate in astrophysics research. They use both ground-based telescopes and space observatories (including *Hubble Space Telescope*, *Chandra X-ray Observatory*, and other NASA spacecraft.)

We have upgraded instrumentation in our existing Radiation Laboratory and we have begun a new program of research in biomedical physics. In general, the field is subdivided into four subspecialties: nuclear medicine, diagnostic radiology (use of X-rays, MRI, ultrasound, etc.), radiation therapy (the use of radioactive materials produced by accelerators for the treatment of cancer and other diseases), and radiation biology. With the establishment of affiliations with local area medical centers, research opportunities in this field will open up for our students.

We have received a grant from the National Institute of Mental Health (NIH/NIMH) to initiate one of the first medical physics/neuroimaging undergraduate programs in the nation. Students enrolling in this special degree program will get a chance to intern at the end of their junior year in the finest state-of-the-art laboratories across the nation. Our department has a collaboration with the VA Medical Center, where students are provided with hands-on instruction on MR scanners and other imaging equipment. The curriculum ranges from

courses in MRI/MRS, X-ray imaging, nuclear medicine, and neuroimaging to courses in radiation health physics. This program is designed to provide a solid foundation in physics, biology, and mathematics so that students can tackle the challenges of an interdisciplinary program of graduate instruction in the broad field of neurosciences. The program also aims to serve as a feeder program to graduate schools across the nation.

The Downing Planetarium, operated by the Physics Department, was completed in the spring of 2000. It has proven highly successful, with more than 100,000 visitors since opening. The planetarium features a computer controlled Minolta MS-8 star projector and a main theater with 74 reclining seats under a 30-foot dome. The facility presents multi-media shows on a daily basis. Physics students have the opportunity to participate in presenting the shows and to assist in planetarium operation.

Adjacent to the planetarium is a new campus observatory equipped with a 16-inch Schmidt-Cassegrain telescope, CCD camera, and adaptive optics system. This observatory is being used for classes and for student research projects. A second observatory with a more advanced 16-inch telescope is built at a dark site in the Sierra Nevada mountains. This telescope will be remotely controlled from campus, and students will be able to download images from it over the Internet without having to go to the telescope site. Eventually, the observatory will be able to function as a totally autonomous robot, able to carry out a student's program of observations and close itself down at the onset of bad weather.

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

Gerardo Munoz, *Chair*
Raymond Hall,
Undergraduate Adviser
Douglas Singleton, *Graduate Coordinator*
Amir Huda,
Premedical and Preoptometry Adviser
Steven J. White,
Downing Planetarium Director
Manfred Bucher
Vanvilai Katkanant
Brandt Kehoe
Frederick Ringwald
Michael J. Zender

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	**27-29***
(see *notes 1 and 3*)	
MATH 75, 76, 77, 81; CHEM 1A, 1B	(25)
Plus one of the following IT 52 or CSCI 15 or CSCI 40 or ECE 70	(2-4)
General Education requirements	**45****
Electives	**0-1**
Total units	**120***

* The 120 unit total assumes students will select either IT 52, CSCI 15, or ECE 70 for this area.

** There are 51 units required for General Education. Of these 51 required units, 6 units will be satisfied by the following two courses in additional requirements: 3 units of CHEM 1A in G.E. Breadth B1 and 3 units of MATH 75 in G.E. Foundation B4.

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. 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. It is important to fulfill the upper-division writing skills requirement by exam or *W* class after completing 60 units for which a student may request 1 unit of credit.

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 average total of units to 15 per semester. A minimum total of 120 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; 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 units	**20**

Note: The Physics Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Bachelor of Science Special Major (Biomedical Physics)

The B.S. Special Major (Biomedical Physics) is an interdisciplinary program developed with the assistance of the National Institute of Mental Health and the National Institute of Biomedical Imaging and Bioengineering to motivate students pursuing careers in applications of physics in medicine. The curriculum provides fundamental groundwork in physics, mathematics, and biology. For further details, please contact Dr. Amir Huda at 559.278.8427 or visit *http://medicalphysics.csufresno.edu*.

Bachelor of Arts in Natural Sciences

Physics Option

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. For more information, please contact David Andrews, B.A. in Natural Science coordinator and science credential adviser, at 559.278.2412. 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**
Biology	(12)
BIOSC 1A, 1B, 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology[1]	(8)
GEOL 1 and 3 (or 15)[1], 168	
Natural Science	(3)
NSCI 106	
Physical Science	(4)
PSCI 21	
Physics Option	**44-45**
CHEM 128A	(3)
PSCI 168	(3)
MATH 75, 76, 77, 81	(15)
PHYS 4A, 4AL, 4B, 4BL, 4C	(11)
PHYS 102, 105A, 107A; 140 or 162 or 104 or 150	(12-13)
General Education requirements[2,3]	**51**
Total units	**120**

Advising Notes for the Natural Sciences Major

1. GEOL 15 is 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. Of the 51 General Education units, 12 units may be satisfied as follows: CHEM 1A (3 units), BIOSC 1A (3 units), GEOL 168 (3 units), and MATH 75 (3 units). Consult your major adviser for details.
3. Students should be sure to take sufficient upper-division units in their General Education courses and electives to satisfy the graduation requirements of 40 upper-division units and upper-division writing skills.

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.

Astronomy Minor

	Units
PHYS 4A, 4AL, 4B, 4BL, 4C	**11**
PSCI 21	**4**
PHYS 150	**3**
Remaining requirement	**3**
Choose one course from GEOL 150T (Planetary Science), PHYS 110, 145, 175T (Computational Physics, Observational Astronomy), or 190 by approval	
Total units	**21**

Note: The astronomy minor also requires a 2.0 GPA and 6 upper-division units in residence.

Medical Physics Minor

	Units
PHYS 4A, 4AL, 4B, 4BL, 4C	**11**
PHYS 130	**2**
PHYS 136	**3**
Remaining requirement	**4**
Choose one course from PHYS 175T (Intro to MRI/MRS, Nuclear Medicine, or Radiation Biology)	
Total units	**20**

Note: The medical physics minor also requires a 2.0 GPA and 6 upper-division units in residence.

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.

Note: The Physical Science Minor also requires a 2.0 GPA and 6 upper-division units in residence.

* 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; PSCI 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 graduate writing requirement. To satisfy the writing requirement, students must submit a formal paper demonstrating writing skills at the graduate level. This graduate-level paper may be a research proposal, a literature review in their field, a paper from a graduate-directed research project, or another paper. Detailed writing requirement regulations are available from the department's graduate coordinator. Please contact the graduate coordinator for more information. Advancement also requires a scoring at or above the 25th percentile 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/coordinator.

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 faculty are active include physics pedagogy, condensed matter theory and experiment, characterization of materials properties (amorphous semiconductors), dipolar magnetism, Fullerene research, laser Raman spectroscopy, radiation medical physics, classical and quantum field theory, and general relativity. Faculty also study forces and interaction of fundamental constituents of matter with experiments using the world's most powerful particle accelerator at Fermi National Laboratory. Astronomy research includes observations of cataclysmic variables, black holes, and extrasolar planets. It is done with the most powerful instruments available today, including the *Hubble Space Telescope*, the *Chandra X-ray Observatory*, other NASA spacecraft, and the Keck I telescope, the largest on Earth, as well as many other telescopes around the world.

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 thesis (PHYS 299) or a project (PHYS 298) plus a competency examination, 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 290 (minimum 3 units); PHYS 298 or 299 (minimum 3 units)	(6)
Additional graduate courses in physics	(15)
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)

PHYS 2A. General Physics (4)
Prerequisite: G.E. Foundation B4. 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)

PHYS 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)

PHYS 4A. Mechanics and Wave Motion (3)
Prerequisite: G.E. Foundation B4; 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; fluids; gravity; wave motion; and sound. G.E. Breadth B1 when taken with PHYS 4AL.

PHYS 4AL. Laboratory in Mechanics and Wave Motion (1)
Corequisite: PHYS 4A; prerequisite: G.E. Foundation B4. Introduction to laboratory methods. Experiments in mechanics, waves, and sound. G.E. Breadth B1 when taken with PHYS 4A. (3 lab hours)

PHYS 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.

PHYS 4BL. Laboratory in Electricity, Magnetism, and Heat (1)
Corequisite: PHYS 4B. Experiments in electricity, magnetism, heat, and thermodynamics. (3 lab hours)

PHYS 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.

PHYS 10. Conceptual Physics (4)
Prerequisites: G.E. Foundation B4 (except for those with declared majors in the College of Science and Mathematics). 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)

PHYS 90. Directed Study (1-2; max total 3)
Prerequisite: any university-level physics or physical science 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)

PHYS 100. Concepts of Quantum Physics (3)
Prerequisites: G.E. Foundation and Breadth Area B. Key discoveries in quantum physics and conceptual development of quantum theory. Lecture demonstration of experiments, graphical visualization of theory, and hi-tech applications. G.E. Integration IB. (3 lecture hours)

PHYS 102. Modern Physics (3)
Prerequisite: PHYS 4C; MATH 81 (may be taken concurrently). 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.

PHYS 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)

PHYS 105A-B. Analytical Mechanics (3-3)
Prerequisite: PHYS 4C; MATH 81 (may be taken concurrently). (A) Analytical and vector treatment of the fundamental principles of statics, kinematics, and dynamics. (B) Prerequisite: PHYS 105A. Advanced dynamics; harmonic motion, central force fields, and Lagrange's equations.

PHYS 107A-B. Intermediate Electricity and Magnetism (3-3)
(A) Prerequisites: PHYS 105A, MATH 81. Mathematical analysis of electrostatics and magnetostatics, Gauss' law, solutions of Laplace's equation, images, theory of conduction, magnetic potentials. (B) Prerequisite: PHYS 107A. Motion of ions in electric and magnetic fields, electromagnetic induction, Maxwell's equations and wave propagation, electron theory, and magnetic properties.

PHYS 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)

PHYS 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.

PHYS 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)

PHYS 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.

PHYS 140. Thermodynamics and Kinetic Theory (3)
Prerequisite: PHYS 102, MATH 81. Fundamental concepts and laws of classical thermodynamics. Rudiments of kinetic theory and statistical thermodynamics with application to physical and chemical systems.

PHYS 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.

PHYS 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.

PHYS 162. Condensed Matter Physics (3)
Prerequisites: PHYS 102, or CHEM 110B and permission of instructor. 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.

PHYS 170A. Mathematical Physics (3)
Prerequisite: PHYS 4C, MATH 81. Application of mathematical methods to the solution of problems in physics.

PHYS 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.

PHYS 180. Seminar in Physics (1; max total 3)
Prerequisite: senior or graduate physics major or permission of department chair.

PHYS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Physics (PHYS)

PHYS 203. Classical Mechanics (4)
Prerequisites: PHYS 105B, 170A. Advanced treatment of classical analytical mechanics including Lagrange's and Hamilton's formulation of the laws of motion, special relativity, small oscillation theory, hydrodynamics.

PHYS 220A-B. Advanced Electricity and Magnetism (3-3)
Prerequisites: PHYS 107B, 170A. 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.

PHYS 222A. Quantum Mechanics I (3)
Prerequisite: PHYS 115, 170A. 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.

PHYS 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.

PHYS 262. Advanced Condensed Matter Physics (3)
Prerequisites: PHYS 115, 162, 170A. Binding and crystal structure, crystal electron theories, elementary excitations, transport theories, crystal defects, superconductivity.

PHYS 270. Advanced Mathematical Physics (3)
Prerequisite: PHYS 170A. 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.

PHYS 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.

PHYS 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.

PHYS 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

PHYS 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 ***RP*** grading.

PHYS 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 ***RP*** grading.

PHYSICAL SCIENCE COURSES
Physical Science (PSCI)

ASTRONOMY
PSCI 21. Elementary Astronomy (4)
Prerequisite: G.E. Foundation B4 (except for those with declared majors in the College of Science and Mathematics). Recommended: 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
PSCI 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.

PSCI 131. Concepts of Classical Physics from Babylon to Maxwell (3)
Prerequisites: G.E. Foundation and Breadth Area B. Concepts, theories, and laws of classical physics. Mathematics, astronomy, mechanics, light, electricity, magnetism, thermodynamics, chemistry, and the atom. G.E. Integration IB.

PSCI 168. Energy and the Environment (3)
Prerequisites: G.E. Foundation and Breadth Area B. 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. G.E. Integration IB. (3 lecture hours)

PSCI 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 *Catalog Numbering System*.)

Physical Science (PSCI)

PSCI 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.

PSCI 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
Karen Carey, *Chair*
Sheri Osborn, *Administrative Support Coordinator*
Science II Bldg., Room 312
559.278.2691
http://psych.csufresno.edu

B.A. in Psychology
Pre-M.B.A. Option

M.A. in Psychology

M.S. in Psychology

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. The department is equipped with a seventeen station computer lab which is networked to the departmental server and to the campus fiber optic network. Professors within the psychology department have very active research programs and are able to offer undergraduate and master's-level students the opportunity to participate in a variety of research projects.

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.

Recent surveys show that large numbers of psychology graduates are employed in business and administration, social services, and education. Significant numbers can also be found in the health care professions, biological sciences, and computer programming.

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. provides a strong background for further graduate study toward the doctoral (Ph.D.) degree. In the 82-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.

Psychology

Faculty

Karen Carey, *Chair*

Ronald Yockey,
Undergraduate Advising Coordinator

Marilyn Wilson, *Graduate Adviser*

Sergio Aguilar-Gaxiola
Jennifer Austin
Barbara Basden
David Basden
Michael Botwin
Thomas Breen
Christine Edmondson
Constance Jones
Lorin Lachs
Robert Levine
Terry Newell
Karl Oswald
Paul Price
Jean Ritter
Aroldo Rodrigues
Martin Shapiro
Matthew Sharps
Michael Thackrey
Lynnette Zelezny

Bachelor of Arts Degree Requirements

Psychology Major *Units*

Major requirements 44-53

A. *Core Courses* (all required):
PSYCH 10, 42, 144 ..... (12)

B. *Basic Knowledge and Skills*
(select 2): PSYCH 36,
60T, 145, 166 ..... (4-8)

C. *Basic Applications* (select 1):
PSYCH 136, 162, 169, 173,
175, 176 ..... (3-4)

D. *Advanced Applications*
(select 1): PSYCH 143,
149, 172,177, 179 ..... (4)

E. *Advanced Content*
(select 2): PSYCH 154,
155, 156 ..... (8)

F. *Advanced Processes* (select 2):
PSYCH 121, 122,
124, 125, 128 ..... (8)

G. *Integration:*
PSYCH 182 ..... (4)

H. *Advanced Topics* (select 1):
PSYCH 120T, 140T, 150T,
160T, 170T, 180T ..... (1-5)

I. *Psychology Electives*
(see *Advising Note 5)*

General Education requirements 51

Electives and remaining degree requirements 24-27*
(See *Degree Requirements*);
may be used toward a
double major or minor.

Total 120

* This total indicates that 3 units of PSYCH 10 in G.E. Breadth D3 also may be applied to the psychology major. In addition. G.E. certified courses that are equivalent to PSYCH 10 and PSYCH 42 taken at another CSU campus or a public California community or junior college may be applied to the major. Consult the 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 Office during the semester in which they expect to successfully complete the core course 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 north lobby, Joyal Administration Building.
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 double major or minor (see *Double Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
5. Students who complete all courses required in the major may be cleared with a minimum of 44 units for the psychology major or 64 units for the pre-M.B.A. option. Although not required, psychology electives may be applied toward the major and may be used to meet the required minimum total of 44 units for the psychology major or 64 units for the pre-M.B.A. option.

Pre-M.B.A. 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 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 California State University, Fresno. By completing the requirements of the pre-M.B.A. option, students will generally 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 GPA of 3.4 or more in their last 60 units and in the major, and who receive a suitable score on the GMAT, are reasonably assured of admission to the Craig M.B.A. program. Students not meeting these requirements will, however, also be considered and are encouraged to apply.

Psychology Pre-M.B.A. Option *Units*

Major option requirements 64-72

A. *Core Courses* (all required):
PSYCH 10, 42, 144 ..... (12)

B. *Basic Knowledge and Skills*
(select 1): PSYCH 145 or
IS 52 and 52L *and* (select 1):
PSYCH 36, 60T, or 166 .... (5-8)

C/D. *Applications*:
MKTG 100 or 100S and
MGT 104; or MGT 110 .... (6-7)

E. *Advanced Content*
(select 2): PSYCH 154,
155, 156 ..... (8)

F. *Advanced Processes*
(select 2): PSYCH 121,
122, 124, 125, 128 ..... (8)

G. *Integration:*
PSYCH 182 ..... (4)
H. *Advanced Topics* (select 1):
PSYCH 120T, 140T, 150T, 160T, 170T, 180T ..... (1-5)
I. *Psychology Electives* (see *Advising Note 5)*
J. *Additional pre-business requirements*: ECON 40, 50, ACCT 4A, FIN 120, BA 174, MGT 124 ..... (20)

General Education requirements 51
Electives and remaining degree requirements 0-4*
Total 120

* See footnote to the psychology major.

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 Behavior Analysis Certification Board. Behavior analysts and specialists design and implement behavior change programs in a variety of settings including schools, 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 ..... (12)
2. *Theory/Basic Processes/Basic Content*
PSYCH 121, 136, 155 ..... (11)
3. *Applications*
PSYCH 172, 177 ..... (8)
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 of 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.

Note: The Psychology Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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 is preferred. 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.

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. Grades of A or B must be

earned in PSYCH 231 and PSYCH 244 for advancement to candidacy and graduate credit in these courses.

The graduate writing requirement can be fulfilled by PSYCH 244. Further information can be found in the course syllabus and graduate handbook.

(See also *Admission to Graduate Standing*, *Advancement to Candidacy*, *Program Requirements*, and *Criteria for Thesis and Project* in the *Graduate Studies* section of the catalog, page 486-496.)

Under the direction of a graduate adviser, a coherent program is prepared and submitted, directed toward the achievement of the student's goal in graduate study.

Master of Arts Degree Requirements

The Master of Arts degree program in psychology may be arranged to include interest areas such as general experimental, developmental, and social psychology, as well as special master of arts programs for individuals. This 30-unit degree program is intended primarily to prepare 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.

Minimum Course Requirements for the M.A.

Core	*Units*
PSYCH 231	3
PSYCH 244	4
PSYCH 200T or 250T or 255T (one course)	3
PSYCH 220T or 225T (one course)	3
PSYCH 299 (Thesis)	3
Total	**16**

Electives	*Units*
Must include two additional courses in psychology or a related field; maximum of 6 units independent study. Program must be approved by graduate adviser	14
Total	**30**

Master of Science Degree Requirements

The Master of Science in Psychology is a three-year, full-time graduate program and requires a minimum of 82 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.

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.

Minimum Course Requirements for the M.S.

	Units
PSYCH 200T	4
PSYCH 225T	3
PSYCH 231	3
PSYCH 244	4
PSYCH 255T	3
PSYCH 267	12
PSYCH 270T	6
PSYCH 277	3
PSYCH 278	4
PSYCH 279	4
PSYCH 282	4
PSYCH 284	4
PSYCH 285	4
PSYCH 286	4
PSYCH 287	4
PSYCH 288	4
PSYCH 299 (Thesis)	3
COUN 200	3
COUN 201	3
COUN 240	3
Total	**82**

COURSES

Psychology (PSYCH)

PSYCH 10. Introduction to Psychology (3)
Prerequisite: G.E. Foundation A2. 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. (CAN PSY 2)

PSYCH 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)

PSYCH 40T. Topics in Research Design and Statistics (2-8; max total 12 if no topic repeated)
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)

PSYCH 42. Introductory Statistics (4)
Basic statistical methods for analysis of data; parametric tests of significance; linear regression and correlation; analysis of variance; introduction to non-parametric techniques. (May include lab hours)

PSYCH 60T. Psychology as a Behavioral Science (2-5; max total 6 if no topic repeated)
Problems in approaching man as a social animal; sections in basic or applied processes in personality, interpersonal relations, social environment, and group participation. (May include lab hours)

PSYCH 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.

PSYCH 101. Child Psychology (3)
Not open to students with credit in PSYCH 155. The dynamics of infant and child development and adjustment.

PSYCH 102. Adolescent Psychology (3)
Adjustment of youth to self and society.

PSYCH 103. Psychology of Aging (3)
(Same as GERON 103.) Psychological study of maturity and old age; physiological and sociological considerations.

PSYCH 120T. Topics in General Psychology (2-5; max total 12 if no topic repeated)
Prerequisites: psychology major or minor status 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)

PSYCH 121. Learning and Memory (4)
Prerequisites: psychology major or minor status 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)

PSYCH 122. Motivation (4)
Prerequisites: psychology major or minor status or permission of instructor. Initiation and continuation of behavior, acquisition, and modification of motives. (May include lab hours)

PSYCH 123. Developmental Psychobiology (4)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

PSYCH 124. Sensation and Perception (4)
Prerequisites: psychology major or minor status 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.

PSYCH 125. Behavioral Neuroscience (4)
Prerequisites: psychology major or minor status 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)

PSYCH 126. Cognitive Neuroscience (3)
Prerequisites: G.E. Foundation and Breadth Area B. 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.

PSYCH 128. Cognitive Psychology (4)
Prerequisites: psychology major or minor status 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.

PSYCH 132. Psychology of Sexuality (3)
Prerequisite: upper-division standing. Psychological aspects of human sexual behavior: influence on personality, various behavioral manifestations and pathologies.

PSYCH 136. Human Learning and Behavior (3)
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.

PSYCH 140T. Topics in Psychological Methods (4; max total 8 if no topics repeated)
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)

PSYCH 143. Intermediate Computer-based Statistical Analysis (4)
Prerequisites: psychology major or minor status 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)

PSYCH 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)

PSYCH 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)

PSYCH 149. Psychological Testing (4)
Prerequisites: psychology major or minor status or permission of instructor. Theories of psychological testing stressing the logic and limits of measurement. Emphasis on technical and individual tests. (May include lab hours)

PSYCH 150T. Problems in Personality, Developmental and Social Psychology (2-5; max total 12 if no topic repeated)
Prerequisites: psychology major or minor status 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)

PSYCH 153. Developmental Research and Inquiry for Practitioners (3)
PSYCH 101, PSYCH 155, or CFS 39 recommended prior to enrollment in this course. Empirical and theoretical treatment of developmental issues. Emphasizes understanding the process of scientific discovery and learning to accurately interpret and evaluate developmental research. Examines theories and methods that guide research on physical, social, cognitive, and emotional development.

PSYCH 154. Personality (4)
Prerequisites: psychology major or minor status or permission of instructor. Major contemporary theories of personality; techniques for research in personality. (May include lab hours)

PSYCH 155. Developmental Psychology (4)
Prerequisites: psychology major or minor status 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)

PSYCH 156. Social Psychology (4)
Prerequisite: psychology major or minor status 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)

PSYCH 160T. Topics in Clinical Processes (2-5; max total 12 if no topic repeated)
Prerequisite: psychology major or minor status 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.

PSYCH 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.

PSYCH 166. Abnormal Psychology (3)
Study of the origins, symptoms, and treatments of behavioral and personality distur-

bances from childhood through senescence; application of current DSM.

PSYCH 168. Exceptional Children (3)
The atypical child; etiology, symptomatology, nosology, recognition, and recommendations.

PSYCH 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.

PSYCH 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)

PSYCH 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. Not open to students with credit in PSYCH 60T or PSYCH 61. G.E. Breadth E1.

PSYCH 172. Applied Behavior Analysis (4)
Prerequisite: psychology major or minor status or permission of instructor. Introduction to the philosophy and research of applied behavior analysis. Includes the methods of research, basic principles, and applied techniques used in the field. Presents ethical and legal standards under which behavior analysts work. (Formerly PSYCH 170T)

PSYCH 173. Environmental Psychology (3-4; max total 4)
Prerequisites: G.E. Foundation and Breadth Area D. 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 grass-roots movements worldwide. G.E. Integration ID.

PSYCH 174. Introduction to Counseling (3)
(See COUN 174.)

PSYCH 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.

PSYCH 176. Industrial Psychology (3)
Occupational assessment, training procedures, production efficiency, morale determinants, human engineering, decision processes, organization theory.

PSYCH 177. Behavioral and Cognitive Change Techniques (4)
Prerequisites: psychology major or minor status 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.

PSYCH 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.

PSYCH 179. Supervised Field Experience (4)
Prerequisites: psychology major or minor status 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.

PSYCH 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.

PSYCH 182. History and Systems (4)
Prerequisite: psychology major or minor status; 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.

PSYCH 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)

PSYCH 190. Independent Study
(1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

PSYCH 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 *Catalog Numbering System*.)

Psychology (PSYCH)

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)

PSYCH 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)

PSYCH 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)

PSYCH 231. Ethics in Psychology (3)
(Same as AETH 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.

PSYCH 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)

PSYCH 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)

PSYCH 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)

PSYCH 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)

PSYCH 267. Internship in School Psychology (3-6; max total 12)
Prerequisites: PSYCH 281, 284, 285, 288, and permission of instructor. University and school-based supervised internship in school psychology.

PSYCH 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.

PSYCH 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.

PSYCH 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.

PSYCH 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.

PSYCH 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.

PSYCH 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.

PSYCH 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.

PSYCH 283T. Topics in Clinical Intervention (1-4; 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.

PSYCH 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.

PSYCH 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.

PSYCH 286. Instructional Consultation and Intervention (4)
Develops students' skills for using assessment data to target areas of student needs. After identifying student needs, course covers skills in consulting with teachers about how to develop, implement, and evaluate instructional interventions (e.g. materials, strategies, etc.) (Formerly PSYCH 283T)

PSYCH 287. Practicum in School Psychology (1; max total 6)
Prerequisite: enrollment in the M.S. in Psychology program. University- and school-based supervision of practica in school psychology. *CR/NC* grading only. (Formerly PSYCH 283T)

PSYCH 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.

PSYCH 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for *RP* grading.

PSYCH 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 *RP* grading.

Science and Math — Interdisciplinary

College of Science and Mathematics
Kin-Ping Wong, *Dean*
Science II Building, Room 301
559.278.3936

B.A. in Natural Sciences

Biotechnology Certificate

Single Subject Teaching Credential

Science and Mathematics

The primary 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, Earth and Environmental Science, 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 collaboratively 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.

Bachelor of Science 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 University of California, Riverside. For further information call Dr. Fraka Harmsen, Earth and Environmental Sciences Department, 559.278.3086.

Math and Science Teacher Education

The college offers baccalaureate degree programs in mathematics and natural sciences that serve as subject matter preparation 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 David Andrews (Science Education) at 559.278.2412.

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 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)
NSCI 15 Environmental Science (3)
SSCI 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 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.

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
Vanvilai Katkanant 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 subject matter preparation 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, Earth and Environmental Science or Physics departments or see the B.A. in Natural Sciences credential coordinator, David Andrews, at 559.278.2412.

	Units
Core requirements	**37**
Biology	(12)
BIOSC 1A, 1B, 130	
Chemistry	(10)
CHEM 1A, 1B	
Geology[1]	(8)
GEOL 1 and 3 (or 15), 168	
Natural Science	(3)
NSCI 106	
Physical Science	(4)
PSCI 21	
Options (select one)	**39-45**
Biology	(42-44)
CHEM 8 or 128A	(3)
PHYS 2A, 2B[2]	(8)
PSCI 168 or GEOL 155	(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; 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	(39)
PHYS 2A, 2B[2]	(8)
PSCI 168 or GEOL 155	(3)
MATH 75	(4)
MATH 76	(4)
CHEM 128A	(3)
CHEM 102, 108, 128B, 129A, 155	(17)
Earth Science	(44)
CHEM 8 or PSCI 168	(3)
PHYS 2A, 2B[2]	(8)
MATH 70 or 75	(4)
GEOL 12, 30, 100, 101, 102, 105, 112, 155	(23)
Select two courses: GEOL 110, 114, 117, 124; GEOG 111	(6)
Physics	(44-45)
CHEM 128A	(3)
PSCI 168	(3)
MATH 75, 76, 77, 81	(15)
PHYS 4A, 4AL, 4B, 4BL, 4C	(11)
PHYS 102, 105A, 107A; 140 or 162 or 104 or 150	(12-13)
General Education requirements	**51**
Electives and remaining degree requirements[3,4]	**0-5**
Total	**120**

Advising Notes for all Options within the Natural Sciences Major

1. GEOL 15 is 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 total assumes that students in this option will maximize the 12 units required for the major that also may be applied to fulfill General Education requirements as follows: CHEM 1A (3 units), BIOSC 1A (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 graduation requirements of 40 upper-division units and Upper-division Writing Skills.
5. No physical science Integration B course may be used to satisfy the General Education requirements for majors in physical science.

COURSES

Natural Science (NSCI)

NSCI 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.

NSCI 1A. Integrated Science: Physics and Chemistry (4)
Prerequisite: MATH 10A with a grade of *C* or higher. 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) Meets G.E. B1 requirement only for liberal studies majors.

NSCI 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)

NSCI 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.

NSCI 15. Environmental Science: An Integrative Course (3)
Concurrent enrollment in BIOL 15, GEOL 15, and SSCI 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)

NSCI 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.

NSCI 100 and 100S. Chemistry for Liberal Studies (3)
Not open to engineering students. Prerequisites: NSCI 1A and 1B. Emphasizes chemistry as a process rather than a collection of facts, laws, theories, and content in California K-8 Science Standards. Designed especially for students planning careers in K-8 teaching. S sections include a service-learning requirement.

NSCI 101. Biology for Liberal Studies (3)
Not open to engineering students. Prerequisites: NSCI 1A and 1B. Emphasizes biology as a process rather than a collection of facts, laws, and theories. Designed especially for students planning careers as elementary school teachers.

NSCI 102. Physics and Astronomy for Liberal Studies (3)
Not open to engineering students. Prerequisites: NSCI 1A and 1B. 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)

NSCI 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.

NSCI 110. Practicum in Medicine (1-2; max total 6)
Prerequisite: permission of instructor. The Academic Research Associate Program is offered in association with the UCSF Fresno Medical Education Program and the Department of Emergency Medicine. Premedical students, working at University Medical Center with health professionals, will aid biomedical research efforts and have opportunities for clinical observation. *CR/NC* grading only.

NSCI 115. Environmental Earth and Life Science (3)
Prerequisites: G.E. Foundation and Breadth Area B. 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.

NSCI 116. Energy, Technology, and Society (3)
Not open to engineering students. Prerequisites: NSCI 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.

NSCI 120. Biotechnology and Its Impact on Society (3)
Prerequisites: G.E. Foundation and Breadth Area B; 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.

NSCI 121. Blood: Science, Art, and Folklore (3)
Prerequisites: G.E. Foundation and Breadth Area B; courses in biology and chemistry (high school or college) strongly recommended. Introduction to blood — its unique chemical, physical, and biological properties and its importance in medicine and forensics. Explores the significance of blood images for artistic and religious symbolism in both contemporary and historical cultures. G.E. Integration IB.

NSCI 125. Revenge of the Killer Microbes (3)
Prerequisites: G.E. Foundation and Breadth Area B; 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.

NSCI 131. Biological Bases of Mental Illness (4)
Prerequisites: G.E. Foundation and Breadth Area B. 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.

NSCI 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)

NSCI 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 (NSCI)

NSCI 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 (NSCI)

NSCI 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
Luz Gonzalez, *Interim Dean,* 559.278.3013
http://socsci.csufresno.edu/

The Mission of the College

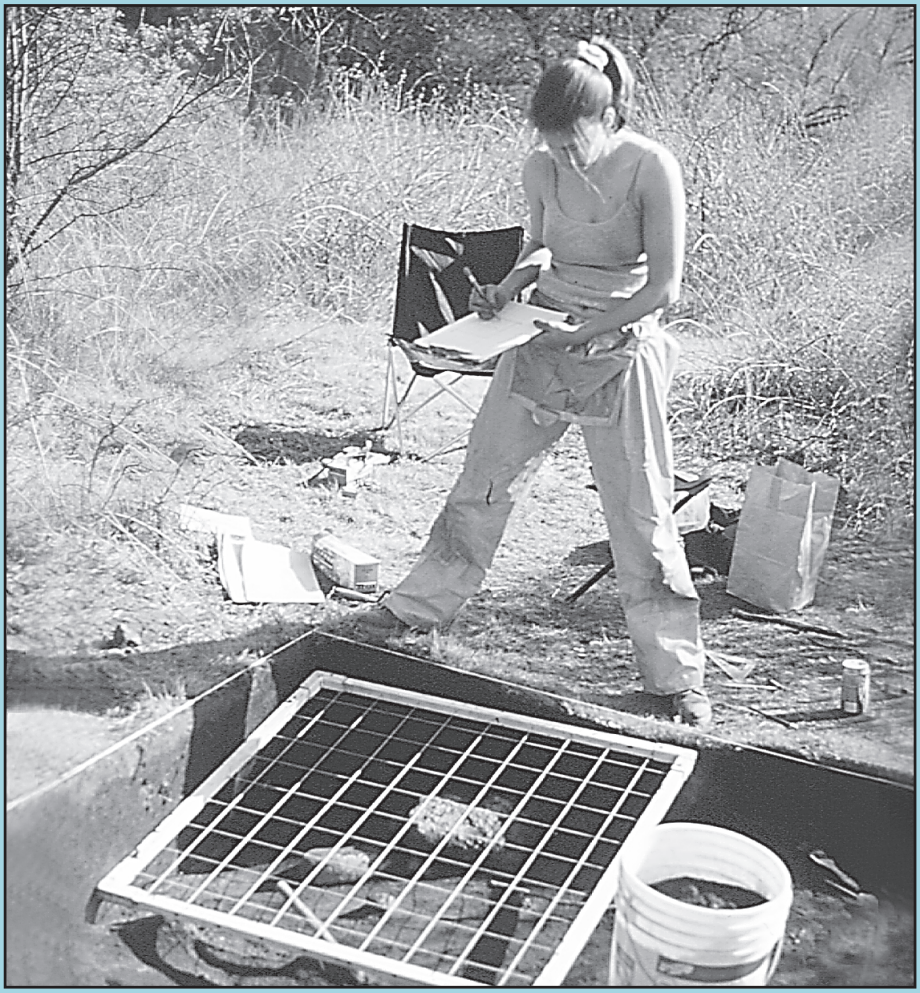
The mission of the college is to seek and impart knowledge of human social experience in all its diversity in order to educate students and benefit humanity.

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. Africana and American Indian Studies, American Humanics, Asian American Studies, International Relations, Peace and Conflict Studies, Public Administration, and Women's Studies are programs of the college.

Africana and American Indian Studies

College of Social Sciences

Africana and American Indian Studies Program
Yaw Oheneba-Sakyi, *Coordinator*
Vonda J. Epperson, *Department Administrative Assistant*
McKee Fisk Building, Room 243
559.278.2832
FAX: 559.278.2233
http://www.csufresno.edu/aais

B.A. in African American Studies

B.A. Major in African American Studies

Minor in Africana Studies

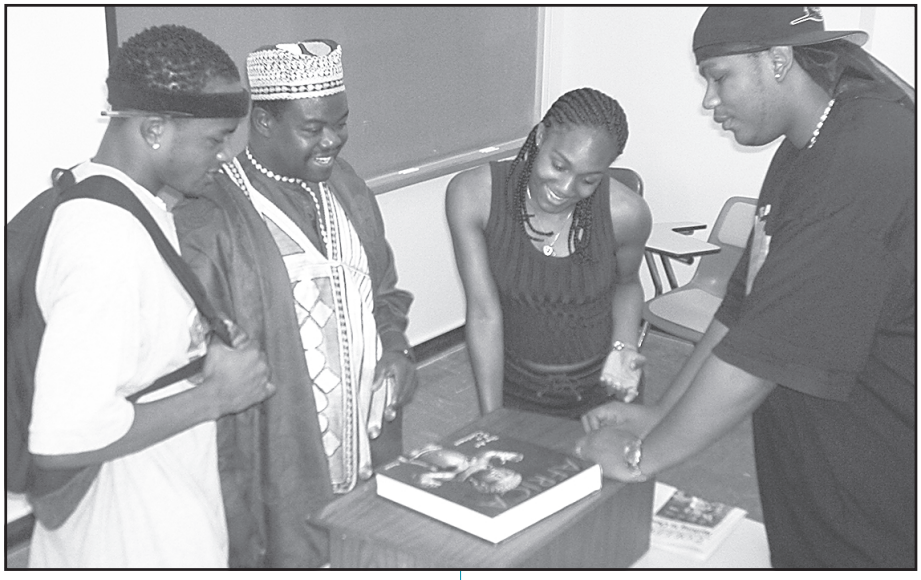
Minor in American Indian Studies

Minor in Ethnic Studies

Africana and American Indian Studies

The Africana and American Indian Studies program (AAIS) at California State University, Fresno offers an interdisciplinary curriculum that illuminates the connectedness of the human experience and provides culturally-appropriate knowledge and skills. This helps students understand the experiences of African peoples all over the world, American Indians in North America, and other ethnic groups in the United States. The program also involves its faculty and students in research, experiential learning, career counseling, computer technology, curriculum development, conference participation, and extended day, evening, and weekend courses.

The program offers interdisciplinary courses leading to the Bachelor of Arts in African American Studies as well as minors in Africana Studies, American Indian Studies, and Ethnic Studies. Students with a B.A. in African American Studies can pursue a master's or doctoral degree in the humanities, social sciences, or health sciences. Students can also seek other professional degrees in such areas as business, human resources, teacher education, and law. The program teaches appreciation for the heritage of African peoples and American Indians and their contributions to the shaping of the fabric of American life and history.



Faculty Specialties

The AAIS program is made up of faculty with backgrounds and expertise in African and African American Studies, business, English, history, education, sociology, and American Indian affairs. Professors have published in prestigious national and international peer reviewed academic journals and are recipients of numerous awards for teaching, research, and community service.

Africana Studies

Africana Studies emphasizes the study of the history and culture of African Americans as they relate to the experiences of Africans on the continent and other peoples of African descent in the Diaspora. The major in African American Studies provides an epistemological basis for understanding issues that pertain to the experiences of African peoples and other minority ethnic groups in the American society. The curriculum promotes an awareness of the African heritage of African Americans and others throughout the Americas. Opportunities are provided for students to engage in study abroad and service-learning in Africa and the Caribbean to stimulate intellectual interest in, and linkage to, contemporary Africa and the African Diaspora while enhancing global understanding of the varied social realities of the human experience.

Africana Business and Cultural Center (ABCC) is an ancillary unit housed within the Africana Studies program to promote intercultural, educational, and business opportunities through the exchange of students, faculty, entrepreneurs, and other professionals. ABCC is a resource for curriculum development, research, cultural enrichment, and training. It enhances economic growth in the San Joaquin Valley and the Africana world.

American Indian Studies

American Indian Studies is a discipline within the AAIS program that focuses 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. 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. This program is intended to strengthen the position of American Indian students and communities in this region as well as introduce native cultures to all students. Courses are interdisciplinary and cover the social sciences and the humanities, as well as specialized offerings in such fields as law and education.

Student Life & Community Events

The offices of the AAIS program serve as a resource and information center for several African American and American Indian student organizations and the community at large.

Faculty

Yaw Oheneba-Sakyi, *Coordinator*

Delores J. Huff
Robert S. Mikell
Meta Schettler
Lily B. Small, *Emerita*

Bachelor of Arts Degree Requirements

The African American Studies major offers courses in the social sciences, humanities, and the arts as they relate to the experiences of peoples of African descent. The major provides an epistemological basis for the understanding of the social, political, and cultural reality of Africans, African Americans, and other African peoples in the Diaspora.

Double B.A. Major in African American Studies

A double B.A. major in African American Studies consists of 33 units of AAIS courses, 15 of which must be upper division. However, up to 9 units (6 upper-division units) may be double counted. Students are strongly encouraged to see an Africana and American Indian Studies academic adviser for assistance in planning the major.

	Units
Major requirements	**33**
Lower-division requirements AAIS 1, 10, 27 or 36; SOC 25 or PLSI 90	(12)
Upper-division requirements AAIS 137, 104W, 144, 150 or 164, 189 (3 units)	(15)
Approved Africana and American Indian electives *Consult your academic adviser for approval.*	(6)
General Education	**51**
Electives and remaining degree requirements (See *Degree Requirements*); it is recommended that units in this area be utilized to complete a second major or minor.	**36***
Total units	**120**

*This total indicates that AAIS 1 in G.E. Breadth D3 also may be applied to the African American studies major.

Advising Note

No General Education Integration or Multicultural/International course offered by the Africana and American Indian Studies Program may be used to satisfy the General Education requirements for African American Studies majors.

Africana Studies Minor

	Units
AAIS 1 and 189	**6**
Approved Africana Studies career-oriented courses (upper division)	**9**
Approved Africana Studies electives	**6**
Total	**21**

For students interested in the general dimensions of the Africana experience, the following courses are recommended:

AAIS 10, 27, 36, 38, 135, 137, 140, 145, 150, 164

For students interested in the following careers, the following courses are recommended:

Education: AAIS 38, 42, 124, 130T, 135
Performing Arts: AAIS 21, 24, 27, 35, 121, 130T, 144, 189
Business: AAIS 38, 130T, 135, 136, 189, 190
Preprofessional (nursing, criminology, prelaw, etc.): AAIS 56, 130T, 135, 142, 144, 146, 189, 190
Writing: AAIS 25, 104W, 127, 190
Social Sciences: AAIS 27, 38, 135, 140, 178, 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
AAIS 5, 50, 60T (choose one)	**3**
AAIS 100, 101, 103, 160, 170 (choose four)	**12**
Electives (choose two) EHD 109; ANTH 105W, 130; ART 170	**6**
Total	**21**

It is anticipated that AAIS 100 may be used for the American Indian Studies Minor and to satisfy General Education requirements.

Ethnic Studies Minor

The Minor in Ethnic Studies consists of 21 units, of which 9 must be upper-division.

	Units
AAIS 1 and 189	**6**
Approved electives in one of the areas listed (Asian American Studies, Africana Studies, Chicano and Latin American Studies, and American Indian Studies)	**9**
Approved Asian American Studies, Africana 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.

Asian American Studies Minor

(See *Asian American Studies* in *Courses and Programs* section, page 434.)

Note: The minors also require a 2.0 GPA and 6 upper-division units in residence.

COURSES

Africana and American Indian Studies (AAIS)

AAIS 1. Ethnic Experience (3)
Prerequisite: G.E. Foundation A2. 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 D3. (Formerly ETHS 1)

AAIS 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. (Formerly ETHS 2)

AAIS 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. (Formerly AIS 5)

AAIS 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. (Formerly AIS 9T)

AAIS 10. Introduction to Africana Studies (3)
A survey course designed to introduce students to the vast array of scholarship defining the African American experiences as they relate to the experiences of Africans on the continent and other peoples of African descent in the Diaspora. (Formerly AFAM 10)

AAIS 20. Critical Thinking about Race (3)
Uses critical thinking skills to discuss, analyze, and critique centuries-old ideas on race/ethnicity and the social policies that were enacted to promote prejudice and discrimination against minorities. Special focus on peoples of African descent and American Indians.

AAIS 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. (Formerly AFAM 21 and 121)

AAIS 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. (Formerly AFAM 24)

AAIS 25. African American Literature (3)
Major authors, their works, themes, and movements in African American literature in America from colonial times to the present. (Formerly AFAM 25)

AAIS 27. Africana Cultures and Images (3)
Prerequisite: G.E. Foundation A2. Introduction to the historical and contemporary experiences of African Americans and other peoples of African descent. Examines historical and social arrangements implicated in the experiences and the images these arrangements construct both in the United States and around the world. G.E. Breadth D3. (Formerly AFAM 27)

AAIS 35. Art and Music of Africa (3)
Comprehensive study of African artistry and music. (Formerly AFAM 35)

AAIS 36. Contemporary African Societies (3)
Analysis of the cultural and political structure of African societies; understanding the impact of colonialism in Africa; realizing the relationship of African Americans to Africa. (Formerly AFAM 36)

AAIS 38. African American Sociology (3)
Basic principles sociology from the perspective of the African American experience. (Formerly AFAM 38)

AAIS 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. (Formerly AFAM 42)

AAIS 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. (Formerly AIS 50)

AAIS 55T. Topics in African American Studies (1-3; max total 9)
Selected topics at the introductory level in African American Studies. (Formerly AFAM 50T)

AAIS 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. (Formerly AFAM 56)

AAIS 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. (Formerly AFAM 60)

AAIS 65T. 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. (Formerly AIS 60T)

AAIS 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. (Formerly AIS 100)

AAIS 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. (Formerly AIS 101)

AAIS 102A. 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) (Formerly AFAM 100A)

AAIS 102B. African Dance (3)
Prerequisite: AAIS 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) (Formerly AFAM 100B)

AAIS 103. Indians of California (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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. G.E. Integration ID. (Formerly AIS 103)

AAIS 104W. Writing about American Inequality (3)
Prerequisite: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement. Analysis of poverty, social class, and inequality in America. Students receive feedback in preparing papers on poverty and inequality. Emphasis on research techniques, evaluation and documentation of evidence, and style and mechanics of writing. Meets the upper-division writing skills requirement for graduation. (Formerly ETHS 104W)

AAIS 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. (Formerly AFAM 124)

AAIS 129. African American Literary Classics (3)
Discussion and written analyses of significant poetry, drama, fiction, and nonfiction by African American writers representing a variety of views and perspectives. Historical and social contexts of literary works. (Formerly AFAM 129)

AAIS 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. (Formerly ETHS 130T)

AAIS 135. The African American Community (3)
Analysis of the various lifestyles and cultural patterns of African American communities. Emphasis on unique cultural features of the family, religion, foods, music, art, and folkways. (Formerly AFAM 135)

AAIS 136. Africana Business Development (3)
Introduction to African American entrepreneurship with special emphasis on the development of business ventures and partnerships in Africa and the Caribbean. Analysis of historical, political, economic, and cultural forces in developing business opportunities. (Formerly AFAM 136)

AAIS 137. African American Women (3)
(Same as WS 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. (Formerly AFAM 137)

AAIS 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. (Formerly AFAM 140)

AAIS 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. (Formerly AFAM 144)

AAIS 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. (Formerly AFAM 145)

AAIS 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. (Formerly AFAM 146)

AAIS 148. Issues in the African American Community (3)
Prerequisite: AAIS 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. (Formerly AFAM 148)

AAIS 150. South Africa (3)
Prerequisites: G.E. Foundation and Breadth Area D. An introductory analysis of the social, racial, political, and economic problems of people of South Africa, both past and present. G.E. Multicultural/International MI. (Formerly AFAM 150)

AAIS 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. (Formerly AIS 160)

AAIS 164. African Cultural Perspectives (3)
Prerequisites: G.E. Foundation and Breadth Area D. Explores the realities of the African cultural experiences through readings and films by Africans. The goal is to study the historical, political, economic, religious, and sociocultural conditions of the continent in the precolonial, colonial, and postcolonial periods. G.E. Multicultural/International MI.

AAIS 165. African American Theatre Styles (3; max total 6)
(See DRAMA 187.) (Formerly AFAM 165)

AAIS 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. (Formerly AIS 170)

AAIS 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. (Formerly AFAM 178)

AAIS 189. Fieldwork in Community Relations (3; max total 6)
Supervised field observation, participation, and documentation in the operation of minority communities. (Formerly ETHS 189)

AAIS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading. (Formerly AFAM 190, AIS 190)

AAIS 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. (Formerly AFAM 191)

American Humanics

College of Social Sciences
Luz Gonzalez, *Interim Dean*
Matthew A. Jendian, *Director*
Social Science Building, Room 218
559.278.2891
http://socsci.csufresno.edu/department_pages/humanics.htm

Certificate in Nonprofit Management and Leadership

American Humanics National Certification

Nonprofit Administration

The purpose of the American Humanics Program is to prepare students and community members for professional positions in community-based organizations.

Our program is linked with the curriculum and competencies of American Humanics, Inc. (AH), a national organization that collaborates with affiliated college and university programs, professional organizations, and nonprofit agencies. These institutions work to educate, prepare, and certify professionals who can strengthen and lead nonprofit organizations. Students earning the Certificate in Nonprofit Management and Leadership simultaneously earn national professional certification from American Humanics, Inc.

Participation in the Nonprofit Administration Program builds on and enhances students' chosen major course of study and provides the tools to achieve success in the field of nonprofit management. This interdisciplinary program is open to students of all majors and to community individuals. Courses may be taken through Open University.

Career Opportunities

Today, more than 1.5 million nonprofit organizations are serving communities throughout the United States, including 1,500 organizations here in the Central San Joaquin Valley.

As the nonprofit sector grows at twice the rate of the government and private sectors, demand for capable nonprofit professionals increases accordingly and is higher than ever. Each year nearly 30,000 new agencies are established. They offer an estimated 50,000 entry-level professional positions.

The Bureau of Labor Statistics estimates that the need for qualified nonprofit professionals will increase significantly over the next several years. According to the Nonprofit Advancement Center in Fresno, many new community-based organizations are being established locally every year.

As a result of this expansive growth, the demand for candidates to fill professional positions far exceeds the supply of qualified applicants.

A career in nonprofit management rewards not only you, but also your community. As a nonprofit professional, you will reap emotional and financial rewards while making a difference in society.

Students seeking American Humanics' Certification are eligible to apply for special scholarships and awards. AH Internet services can help students post resumes on the World Wide Web where prospective employers can view students' qualifications and students can review employment opportunities.

American Humanics' students are the preferred source of entry-level nonprofit professionals among the organization's 17 national nonprofit partners which include America's Second Harvest, American Red Cross, The Arc of the United States, Big Brothers/Big Sisters of America, Boy Scouts of America, Boys and Girls Clubs of America, Camp Fire U.S.A., Girl Scouts of the U.S.A, Girls Incorporated, Junior Achievement Inc., March of Dimes, National Urban League, Points of Light Foundation, Outreach International, United Way of America, Volunteers of America, and Young Men's Christian Association (YMCA) of the U.S.A.

AH Collaborating Associations include Accountants for the Public Interest, AmeriCorps, Association for Research on Nonprofit Organizations and Voluntary Action (ARNOVA), Association of Fundraising Professionals (AFP), Association of Volunteer Administration (AVA), BoardSource, Habitat for Humanity International, Hispanic Association of Colleges and Universities, Independent Sector, National Training Institute for Community Youth Work, Nonprofit Risk Management Center, The Learning Institute, The Peter F. Drucker Foundation for Nonprofit Management, The Society for Nonprofit Organizations, and United Negro College Fund.

Requirements for the Certificate

The interdisciplinary certificate in nonprofit management and leadership requires a minimum of 12 and a maximum of 24 semester units (depending on prior experience and skill), including 300 hours of field experience with a nonprofit, community-based service provider. The number of units for this certificate will be determined by the director based on the background and experience of each individual student. Students will be involved in the AH Student Association and participate in one AH Management Institute. Courses or practicum may be used to fulfill requirements of other degree and certificate programs.

Core

	Units
MGT 133 (Managing Nonprofit Organizations)	3

Competency Areas*

- *Foundations of Social Service* (COMS 1; CRIM 176; GERON 125; HS 100; RLS 55; SOC 130W; SWRK 20, 123, 125)
- *Youth and Adult Development* (CFS 133, 134, 136; COUN 150, 174; CRIM 120; EHD 108; GERON 103; PSYCH 101, 102, 155, 174; RLS 113, 125; SOC 165; SWRK 135, 136)
- *Accounting/Financial Management* (ACCT 3, 4A; FIN 120; RLS 128)
- *Program Planning and Evaluation* (EHD 109; PLSI 182; RLS 117, 139; COMM 171, 176; SOC 150T)
- *Leadership and Communication in Organizations* (ASP 104A; IS 3; CFS 130; MGT 127; PAX 110, 120; PHIL 122; PHTH 110; PSYCH 176; RLS 73; SOC 145, 168; COMM 164, 167, 168, 170)
- *Marketing/Fund Raising/Grant Writing*
- *Board and Committee Development*
- *Volunteer Recruitment, Training, and Supervision*
- *Ethical, Legal, and Risk Management Issues*

* Each competency area must be satisfied through academic coursework (*C/CR* grade or better), documentation of prior internship experience, and/or co-curricular activities.

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

College of Social Sciences

Department of Anthropology
Roger M. La Jeunesse, *Chair*
Sherry McCulloch, *Administrative Support Coordinator*
Peters Business Building, Room 393
559.278.3002
FAX 559.278.7234

B.A. in Anthropology

Minor in Anthropology

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*
Henry D. Delcore
Walter A. Dodd
Ellen Gruenbaum
James J. Mullooly
Jay O'Brien
John H. Pryor

Bachelor of Arts Degree Requirements

Anthropology Major	*Units*
Major requirements[1]	**34**
A. *Core curriculum*	(19)
(required of all majors)	
ANTH 2	(3)
ANTH 3	(3)
ANTH 100	(3)
ANTH 101A or ANTH 111A&B	(6)[2]
ANTH 104	(3)
ANTH 195	(1)
In addition to the core curriculum, each student, in consultation with an adviser, will select the following:	
Elective curriculum	
15 units minimum. Three classes within the student's area of concentration (e.g. cultural, physical, or archaeology)	(9)
Two classes, one in each remaining subdiscipline (e.g., an archaeology student would take one cultural and one physical course)	(6)
B. *Additional electives*	
Students may benefit from additional courses to supplement their area of interest; please consult an adviser.	
General Education requirements	**51**
Second major, electives, and remaining degree requirements[3,4]	**35-38***
(See *Degree Requirements*); may be used toward a double major or minor	
Total	**120**

*This total indicates that ANTH 2 or 3 in G. E. Breadth D3 also may be applied to the anthropology major. Consult the department chair or faculty adviser for additional details.

Advising Notes

1. *CR/NC* grading is not permitted in the anthropology major or minor.
2. ANTH 101A and 111B requirements can be satisfied by 101A-S and 111B-S respectively.
3. Units in this category as well as in General Education, may also be applied toward a double major or minor, as appropriate. (See *Double Major* or departmental minor.)
4. Students must complete 40 upper-division units as part of the requirements to earn a B.A. degree.
5. No General Education Integration or Multicultural/International course offered by the Anthropology Department may be used to satisfy the General Education requirements for majors in the department.

Anthropology Minor

Units	
A. *Core curriculum*	**9**
ANTH 2	(3)
ANTH 3	(3)
ANTH 100	(3)
B. *Elective curriculum*	**9**
Three upper-division courses	(9)
Total	**18**

See *Advising Note 1* above.

Note: The Anthropology Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Asian American Studies Minor

Courses in the Asian American Studies minor 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* on page 434.

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

ANTH 1. Introduction to Physical Anthropology (3)
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)

ANTH 2. Introduction to Cultural Anthropology (3)
Prerequisite: G.E. Foundation A2. 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)

ANTH 3. Introduction to Prehistory and Physical Anthropology (3)
Prerequisite: G.E. Foundation A2. Examines the biological and cultural basis of being human. Compares us with our primate relatives, traces the biological and cultural evolution of our species from earliest ancestors, through the development of agriculture to the emergence of civilization. G.E. Breadth D3.

ANTH 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.

ANTH 101A. Introductory Fieldwork in Archaeology (6)
An introduction to basic methods and strategies for archaeological excavation and site survey. Involves a commitment by students of a block of time in the field away from campus. Not open to students who have taken 101A-S. Course fee, $75.

ANTH 101A-S. Introductory Fieldwork in Archaeology (6)
An introduction to basic methods and strategies for archeological excavation and site survey in a public service context. Involves a commitment by students of a block of time in the field away from campus. Not open to students who have taken 101A.

ANTH 101B. Advanced Fieldwork in Archaeology (6)
Advanced methods and strategies for archaeological excavation and site survey. Involves a commitment by students of a block of time in the field away from campus. Not open to students who have taken 101B-S.

ANTH 101B-S. Advanced Fieldwork in Archaeology (6)
Advanced methods and strategies for archeological excavation and site survey in a public service context. Involves a commitment by students of a block of time in the field away from campus. Not open to students who have taken 101B.

ANTH 104. History and Theory of Anthropology (3)
Prerequisite: ANTH 100. 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.

ANTH 111A. Introduction to Ethnographic Fieldwork (3)
An introduction to methods of ethnographic field methods, including participant observation, interviewing, and the use of audiovisual media. Topics include the ethics of fieldwork, organizing data, and ethnographic writing. Students will conduct short fieldwork assignments on cultural and linguistic topics in the local area. (Formerly ANTH 101)

ANTH 111B. Intermediate Ethnographic Fieldwork (3)
Prerequisite ANTH 111A. Students conduct an enthnographic field project under the direction of the instructor, employing methods such as participant observation, interviewing, and audiovisual media. Involves field trips and may include weekend sessions. Not open to students who have taken 111B-S.

ANTH 111B-S. Intermediate Ethnographic Fieldwork (3)
Prerequisite ANTH 111A. Students conduct an enthnographic field project under the direction of the instructor, employing methods such as participant observation, interviews, and audiovisual media. Involves field trips and may include weekend sessions. Not open to students who have taken 111B.

ANTH 111C. Advanced Ethnographic Fieldwork (3)
Prerequisite ANTH 111B. Students continue work on an ethnographic field project begun in ANTH 111B. Under the direction of the instructor, students employ methods such as participant observation, interviewing, and audiovisual media. Students produce a substantial written review combining secondary sources with their own data.

ANTH 111C-S. Advanced Ethnographic Fieldwork (3)
Prerequisite ANTH 111B or 111B-S. Students continue work on an ethnographic field project begun in ANTH 111B or 111B-S, employing various research methods. Students produce a substantial final paper with a focus on public service applications of their findings.

ANTH 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.

B. CULTURAL CURRICULUM

ANTH 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.

ANTH 102. Introduction to Linguistic Anthropology (3)
A compendium of current thinking on language and culture from a variety of interdisciplinary perspectives. Examines the nature of language, language description, language and worldview, gendered speech, ethnicity and language, power and performance, verbal and nonverbal art, and associated theories and research methods.

ANTH 105W. Applied Anthropology (3)
Prerequisite: G.E. Foundation and Breadth Area D, satisfactory completion (C or better) of ENGL 1 graduation requirement, to be taken no sooner than the term in which 60 units are completed. 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. Meets the upper-division writing skills requirement for graduation. G.E. Multicultural/International MI.

ANTH 111B-S. Intermediate Ethnographic Fieldwork (3)
Prerequisite: ANTH 111A. Students conduct a public service ethnographic field project under the direction of the instructor, employing methods such as participant observation, interviewing, and audiovisual media. Involves field trips and may include weekend sessions.

ANTH 111C-S. Advanced Ethnographic Fieldwork (3)
Prerequisite: ANTH 111B or 111B-S. Involves continued work on ethnographic field project begun in ANTH 111B or 111B-S, employing various research methods. Includes producing a substantial final paper with a focus on public service applications of their findings.

ANTH 115. World Cultures (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.

ANTH 116W. Anthropology of Religion (3)
Prerequisites: G.E. Foundation and Breadth Area D, 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. 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.

ANTH 117. Folk Medicine (3)
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.

ANTH 118. Women: Culture and Biology (3)
(Same as WS 170.) 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.

ANTH 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.

ANTH 120. Ethnic Relations and Cultures (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

ANTH 123. Peoples and Cultures of Southeast Asia (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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. G.E. Multicultural/International MI.

ANTH 124. Peoples and Cultures of East Asia (3)
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.

ANTH 125. Tradition and Change in China and Japan (3)
(Same as HUM 140.) Prerequisites: G.E. Foundation and Breadth Area D. 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. G.E. Multicultural/International MI.

ANTH 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.

ANTH 128. Environmental Anthropology (3)
Examines the interactions between environment and human culture. Specific topics include theoretical and empirical trends in environmental anthropology, materialist and cognitive approaches to human-environment interactions, human culture in ecosystem perspective, religion and ecology, and contemporary environmental movements.

ANTH 130. Peoples and Cultures of the Southwest (3)
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.

ANTH 134. Modern Africa (3)
(See HIST 157.)

ANTH 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.

C. ARCHAEOLOGY CURRICULUM

ANTH 101A-S. Introductory Fieldwork in Archeology (6)
Introduces basic methods and strategies for archaeological excavation and site survey in a public service context. Involves a commitment by students to a block time in the field away from campus.

ANTH 101B-S. Advanced Fieldwork in Archaeology (6)
Advanced methods and strategies for archaeological excavation and site survey in a public service context. Involves a commitment by students to a block of time in the field away from campus.

ANTH 140. Contemporary Archaeology (3)
Examines archaeological theory (both historical and contemporary) as well as methods and techniques used by archaeologists to gather, analyze, and interpret data.

ANTH 141. Prehistory of North America (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.

ANTH 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.

ANTH 143. Archaeology and Prehistory of California (3)
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.

ANTH 145. Cultural Resources Management (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

ANTH 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.

D. PHYSICAL ANTHROPOLOGY CURRICULUM

ANTH 161. Bio/Behavioral Evolution of the Human Species (3)
Prerequisites: G.E. Foundation and Breadth Area B. 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.

ANTH 162. Primates (3)
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.

ANTH 163. Human Variation (3)
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.

ANTH 164. Human Osteology (3)
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.

ANTH 169T. Topics in Physical Anthropology (1-6; max total 12 if no topic repeated)
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

ANTH 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

ANTH 192. Directed Readings (1-3; max total 3)
Supervised reading on a student-selected topic outside the regular curriculum, conducted through regular consultation with a faculty sponsor.

ANTH 193. Internships in Anthropology (1-6; max total 6)
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. *CR/NC* grading only.

ANTH 194. Honors Thesis (1-3; max total 3)
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.

ANTH 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

College of Social Sciences

Department of Anthropology
Franklin Ng, *Coordinator*
Peters Business Building, Room 393
559.278.3002

Minor in Asian American Studies

Minor in Southeast Asian Studies

Certificate in Southeast Asian 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

	Units
Select from ANTH 2, ASAM 110, ETHS 1	**6**
Select from ASAM 15, 30, 56	**6**
Select from ASAM 150, 180T; ANTH 123, 124	**9**
Total	**21**

Note: The minor also requires a 2.0 GPA and 6 upper-division units in residence.

Southeast Asian Studies Minor

	Units
Lower-division courses ASAM 15, SSCI 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; SWRK 181	**9**
Total	**21**

Note: The minor also requires a 2.0 GPA and 6 upper-division units in residence.

Certificate in Southeast Asian Studies

The Certificate of Southeast Asian Studies requires a minimum of 12 units. Select from the following upper-division courses:

ANTH 123, 190; ASAM 110, 138, 140, 190; GEOG 177T; HMONG 100, 101; LING 190; SWRK 181

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. Franklin Ng, Department of Anthropology, at 559.278.3002.

COURSES

Asian American Studies (ASAM)

ASAM 15. Introduction to Asian Americans (3)
Prerequisite: G.E. Foundation A2. 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.

ASAM 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.

ASAM 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.

ASAM 110. Asian American Communities (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

ASAM 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.

ASAM 140. Southeast Asian Americans (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.

ASAM 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.

ASAM 151. Cultures and Foods of East Asia (3)
(See ANTH 126.)

ASAM 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.

ASAM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

[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.

Chicano and Latin American Studies

College of Social Sciences

Department of Chicano and Latin American Studies
Carlos Perez, *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 and multicultural society at large.

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 social reality 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, Latin America, Latino literature, and the arts. The department is the proud sponsor of Fresno State's Los Danzantes de Aztlan. 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, Latino literature, multimedia, social work, and education. Also, students are encouraged to pursue double 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

Carlos Perez, *Chair*

Manuel Figueroa-Unda
Luz Gonzalez
Ernesto A. Martinez
Victor Torres

Bachelor of Arts Degree Requirements

Students are strongly encouraged to pursue a double major and can take the Chicano Studies either as a primary or secondary major. Chicano Studies majors and double 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	(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 (see *note 1*)	(3)
Research Methods: CLS 142 or 116	(3)
Family and Gender: CLS 152, 160 or 162	(3)
Education: CLS 141 or 143	(3)
Community Service/ Senior Project: CLS 145 (see *note 1*)	(3)
• Approved electives	(6)
Consult your adviser.	
General Education	**51**
Electives and remaining degree requirements	**36-42***
It is recommended that units in this area be utilized to complete a second major or minor. See *Degree Requirements*.	
Total	**120**

* This total indicates that 6 units of the following courses in General Education also may be applied to the Chicano studies major: CLS 9 in G.E. C1, and CLS 3 or 5 in G.E. D3.

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 *Class Schedule* 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 double major or minor (see *Double 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.
8. No General Education Integration or Multicultural/International course offered by the Chicano and Latin American Studies Department may be used to satisfy the General Education requirements for majors in the department.

Double Major in Chicano Studies

A double 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 double major programs. The double major consists of 33 units of CLS courses, 21 of which must be upper-division. However, up to 9 units may be double counted. The CLS adviser, in consultation with the student, will select and approve courses that complement the student's other 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.

Note: The minors also require a 2.0 GPA and 6 upper-division units in residence.

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. See *Minor Advising Note 2* below.

	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*; AAIS 130T*; ARTH 173, 175; ECON 114, 178, 179, 181, 188T*; FL 125, 143, 145, 147, 148T*, 240T*; GEOG 170T, 172, 188T*; HIST 145, 160, 162, 165, 166, 169T, 183; HUM 130; PHIL	

132; PLSI 121, 126, 146T; WS 135

Total 21

Minor 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)

CLS 3. Introduction to Chicano/Latino Studies (3)
Prerequisite: G.E. Foundation A2. 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.

CLS 5. Chicano Culture (3)
Prerequisite: G.E. Foundation A2. 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. G.E. Breadth D3.

CLS 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.

CLS 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.

CLS 30. Critical Thinking in Chicano and Latin American Studies (3)
Distinguishes belief vs. knowledge and fact vs. opinion; examines relationship between language/logic in structuring around arguments; uses deductive/inductive reasoning; distinguishes and evaluates unsupported beliefs. Critical thinking skills are applied to topics concerning questions of race, ethnicity, gender, culture and class with a focus on Chicanos and Latin America. G.E. Foundation A3.

CLS 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)

CLS 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)

CLS 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.

CLS 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.

CLS 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.

CLS 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.

CLS 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.

CLS 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.

CLS 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.

CLS 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.*

CLS 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.

CLS 114. Mexico and the Southwest 1810-1910 (3)
Prerequisites: G.E. Foundation and Breadth Area D. Examines the development of the Mexican nation from the Independence period to the Mexican Revolution (1810-1910). Special attention is given to the nineteenth-century Mexican-American and Chicano ex-

perience in the Southwest United States before the Treaty of Guadalupe Hidalgo (1848). G.E. Integration ID.

CLS 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.

CLS 116. Cultural Change and the Latino (3)
Prerequisite: CLS 5 for CLS majors. Examines the growing complexity and diversity of the Latino population in the U.S. by analyzing its cultural, political, social, and economic manifestations. Emphasizes its contribution to the development of a multicultural nation during the late twentieth century.

CLS 123. Business Development in Minority Communities (3)
Business and economic development in minority communities and their relationship to the wider economic and social systems.

CLS 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.

CLS 128. Contemporary Political Issues (3)
Political philosophies, goals, and strategies of Chicanos and Latinos as reflected in their attempts to gain political power.

CLS 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.

CLS 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.

CLS 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.

CLS 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.)

CLS 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*.)

CLS 152. The Chicano Family (3)
(Same as WS 152.) Traditional and changing relationships in the family structure of the Chicano; interaction with wider institutional social system.

CLS 154. The Chicano Child (3)
General psychological principles and theories of growth and development and their applicability to the Chicano child.

CLS 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.

CLS 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.

CLS 160. Sex, Race, and Class in American Society (3)
From an interdisciplinary perspective, focuses on ethnic identity and gender and their interrelationship with socioeconomic class structure in American society. Special attention is given to analyzing how inequities in race, gender, and class structures influence and shape social, economic, and political relations in society. G.E. Multicultural/International MI.

CLS 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.

CLS 170. Latin American Studies (3)
Prerequisites: G.E. Foundation and Breadth Area D. Overview of the dynamic changes in the nations of Latin America. Uses an interdisciplinary approach that integrates a cultural, political, social, and economic perspective to the study of Latin American countries. Helps students develop a better understanding of the historical roots and circumstances that are shaping the current realities of each nation. G.E. Multicultural/International MI.

CLS 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.

CLS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Criminology

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.

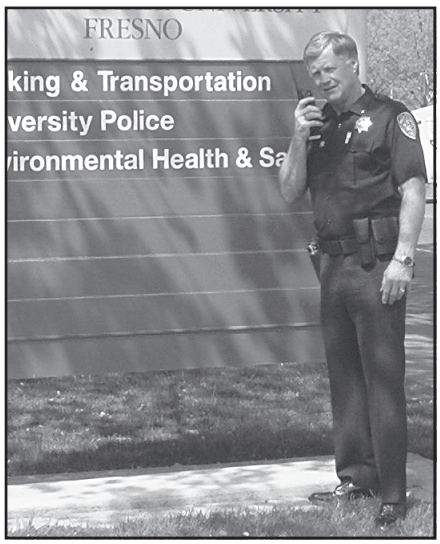
Undergraduate Program

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 victimology option is designed for students interested in careers in domestic violence programs, rape counseling programs, victim/witness programs, or other victim-related programs at the local, state, or federal level; these programs can either be criminal justice based or community based. 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 its B.S. degree via compressed video at the university satellite campuses located at College of the Sequoias in Visalia, California and West Hills College in Lemoore, California.

Justice Center/Joint Center on Violence and Victim Studies

The department also administers two centers that provide education, training, assistance, and consultation to criminal justice agencies throughout the Valley and the country. The centers offer 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.

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, Office of Criminal Justice Planning, 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, federal prisons, and Office for Victims of Crime.

College of Social Sciences

Department of Criminology
Steven D. Walker, *Chair*
McKee Fisk Building, Room 244
559.278.2305
FAX: 559.278.7265
http://www.csufresno.edu/criminology/

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

Faculty

The criminology department consists of 16 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.

Steven D. Walker, *Chair*
John H. Burge
R. Thomas Dull
John P.J. Dussich
Max D. Futrell
Richard G. Greenleaf
Eric W. Hickey
Jerome E. Jackson
Ruth E. Masters
Bernadette T. Muscat
Barbara Owen
Robert F. Perez
H. Otto Schweizer
Candice Skrapec
Harvey Wallace
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 47
Lower-division requirements: (see *note 1*): CRIM 1 (see *note 9*), 2, 20, 35 ..... (10)
Upper-division core (see *note 2*): CRIM 100, 102, 109, 112, 170 (see *note 6*), 174, 199 ..... (19)
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; PAX 100, 110, 120 ..... (6)

Criminology — Law Enforcement Option Major 47
Lower-division requirements: (see *note 1*): CRIM 1 (see *note 9*), 2, 20, 35 ..... (10)
Upper-division core (see *note 2*): CRIM 100, 102, 109, 112, 170 (see *note 6*), 174, 199 ..... (19)
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; PAX 100, 110, 120 ..... (6)

Criminology — Victimology Option Major 50
Lower-division requirements: (see *note 1*): CRIM 1 (see *note 9*), 2, 20, 35 ..... (10)
Upper-division core (see *note 2*): CRIM 100, 102, 109, 112, 170 (see *note 6*), 174, 199 ..... (19)
Upper-division requirements: CRIM 118, 134, 175, 176, 177, 182 ..... (18)
CRIM electives: AAIS 146; CLS 116; CRIM 139, 140, 141, 192; WS 126; PAX 100, 110, 120 ..... (3)

General Education requirements 51
Electives and remaining degree requirements 19-22
(*see Degree Requirements)*; may be used toward a double major or minor
Total 120

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 or Multicultural/International 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, 199, 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 double major or minor (see *Double Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
9. Freshmen and transfer students majoring in criminology must take CRIM 1 during their first semester.

Criminology Minor

Units

CRIM 2, 20, 100 ..... **9**
Upper-division CRIM electives **12**
Total 21

CRIM 100, 120, and 153 may still be used to meet requirements for both General Education and the minor, for catalogs prior to the 1999-2000 *General Catalog*.

Note: The Criminology Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Honors Program

The Department of Criminology Honors Program has several major components that are completed over the course of two years. Students will annually (during the fall semester) participate in an honors core course. They will take two of the following: CRIM 100H, 102H, and 170H. These courses are designed to provide and advance study of research, theory, and administration in criminology. In addition, students will annually (during the spring semester) participate in an honors seminar (CRIM 160H) that explores specialized areas, new developments, and synthesis of criminological processes, thought, and theory. During their senior year, members of the honors program will participate in a honors internship, which will be specialized to their degree concentration (law enforcement, corrections, or victimology.)

The program provides highly qualified advanced students with the opportunity to sharpen their analytical abilities and expand their knowledge of criminology. Minimum criteria for application to the program include second semester sophomore standing, GPA of at least 3.25 prior to enrollment, GPA of 3.4 for each semester after enrollment, letters of recommendation, and acceptance by the Honors Committee. Applications are accepted in the spring semester for the following academic year. Successful students will graduate with a B.S. in Criminology with Honors Distinction, an inscribed Smittcamp bronze medallion awarded at graduation, and special recognition at convocation and commencement.

Graduate Education

A note about graduate education: Students considering careers in research should consult with their advisor regarding additional coursework to prepare for graduate schools in the social sciences. Such courses may include supplemental work in research methods and statistical and other forms of analysis; they may also be offered interdepartmentally. Students are also encouraged to consider developing a research-based independent study in consultation with faculty members.

Master of Science Degree Requirements

Under the direction of a graduate adviser, each student prepares and submits a coher-

ent program individually designed within the framework that follows.

	Units
Core	**12**
CRIM 200, 201, 202, 203	
Electives	**15**
Select criminology or related areas 200-series (under special circumstances a maximum of 6 upper-division units may be allowed)	
Culminating experience	**3**
Thesis or Project: 298 or 299 (3 units) *or* Comprehensive Exam and CRIM 295 (3 units).	
Total	**30**

Graduate-Level Writing Competence. The university requires that students have graduate-level writing abilities before being advanced to candidacy for the master's degree. The Graduate Writing Skills requirement for the graduate program in criminology is met by passing the writing component of CRIM 200. Please see the program's Graduate Writing Requirement Policy for more information.

Advising Notes

1. Each student must see the graduate coordinator each semester prior to registering.
2. All students must complete required core courses as a condition of advancement to candidacy.
3. All students must meet the graduate writing requirement. See the program coordinator for details.

(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:

	Units
1. **Theory**	**3**
CRIM 175	
2. **Victim Issues**	**3**
CRIM 140; WS 116, 108, 109; EHD 107	
3. **Service Delivery**	**3**
CRIM 176; SWRK 128; EHD 108	
4. **Legal/Social Policy**	**3**
CRIM 177; CRIM/WS 126; EHD 109	

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, Special Education, and Rehabilitation. 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, 208, 232, and 239. The required certificate courses for the M.S. in Counseling, Marriage and Family Therapy option, and Rehabilitation Counseling option students include CRIM 130, 153, 201, 203, and 281 with CRIM 100 as a prerequisite. (Please note: Counseling students must meet with a criminology adviser a semester prior to enrolling in CRIM 281.)

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 page 367, *Health and Human Services Interdisciplinary Courses* in this catalog.)

COURSES

(CRIM 1 is required of all criminology majors, including freshmen and transfer students majoring in criminology. Not open to non-majors)

Criminology (CRIM)

CRIM 1. Strategies for Success in Criminology (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.

CRIM 2. Administration of Justice (3)
Purpose, function, and history of agencies dealing with administration of justice; survey of criminal procedures; organization of law enforcement agencies at federal, state, and local levels; organization and functions of courts; probation, parole, and pardons; penology and prison administration; purpose and function of victim services. (CAN AJ 2)

CRIM 10. Crime, Criminology, and Justice (3)
Prerequisite: G.E. Foundation A2. 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.

CRIM 20. Criminal Law (3)
Highly recommended: CRIM 1. 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)

CRIM 35. Communications and Technology in Criminology (3)
Not open to students with credit in CRIM 31. Highly recommended: CRIM 1. The use of technology in the criminal justice system; the evolution of telecommunications; advancements of computer science and automation; and applications of verbal,

*Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor.

nonverbal, and written communication in criminal justice. (Formerly CRIM 31)

CRIM 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.

CRIM 100. Criminology (3)
Sociological, biological, psychological theories of crime causation; crime measurement; schools of criminology; crime typologies.*

CRIM 101. Crime and Violence in America (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

CRIM 102. Criminal Justice Organization and Management (3)
Prerequisites: CRIM 2, 20. Highly recommended: CRIM 100 (the section for majors) and CRIM 170. Fundamentals of organization/management theory, principles, and processes relating to the operation and functioning of the criminal justice system, including victim services agencies.*

CRIM 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 ***RP*** grading. ***CR/NC*** grading only. (Minimum of 6 field hours per unit.)

CRIM 109. Comparative Systems of Criminal Justice (3)
Prerequisites: CRIM 2. Highly recommended: CRIM 20, 100, and 170. 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.*

CRIM 112. Professionalism in Criminal Justice (3)
Prerequisites: CRIM 2, 20. Highly recommended: CRIM 100 and 170. 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.*

CRIM 113. Forensic Science (3)
Open only to criminology majors. Advanced study of scientific crime investigation, identification, and detection methods.*

CRIM 117. Criminal Legal Process (3)
Prerequisite: CRIM 20. 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.*

CRIM 118. Individual Rights in the Criminal Justice System (3)
Prerequisite: CRIM 20. 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.*

CRIM 120. Juvenile Delinquency (3)
The problem of juvenile delinquency; portrait of delinquency; causal factors; agencies of justice; treatment process; programs for control and prevention. G.E. Integration ID

CRIM 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.

CRIM 126. Women and Violence: Public Policy and the Law (3)
(See WS 126.)

CRIM 127. Advanced Criminal Legal Process (3)
Prerequisite: CRIM 117 or 118. 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.*

CRIM 130. Corrections in America (3)
Highly recommended: CRIM 2. 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.

CRIM 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.

CRIM 134. Criminal Justice Counseling (3)
An overview of counseling modalities and counseling techniques in criminal justice settings.*

CRIM 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.

CRIM 139. Criminal Justice Counseling Skills Practicum (3)
Highly recommended: CRIM 134 or permission of instructor. 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.

CRIM 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.

CRIM 141. Alcohol, Drugs, and Criminality (3)
Analysis of the composition, manufacture, use, and misuse of drugs (including alcohol); their relationship to criminality, and current responses by governmental and private organizations. Exposure to treatment programs may be required.

* Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor.

CRIM 153. Psychology of Crime (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

CRIM 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.

CRIM 170. Research Methods in Criminal Justice (3)
Highly recommended: CRIM 50 or an equivalent course (such as HS 92, PSYCH 42, MATH 11, SOC 25, DS 73). 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.

CRIM 174. Ethnic and Gender Issues in Criminal Justice (3)
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.*

CRIM 175. Victimology (3)
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.*

CRIM 176. Victim Services (3)
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.*

CRIM 177. Legal Policy in Victim Services (3)
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.*

CRIM 180. Internship in Law Enforcement (1-3; 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.)**

CRIM 181. Internship in Corrections (1-3; 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.)**

CRIM 182. Internship in Victimology (1-3; 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.)**

CRIM 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

CRIM 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.

CRIM 199. Senior Seminar (1)
Prerequisite: CRIM 1, 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. *CR/NC* grading only.

* Graduating criminology seniors have first priority; other students may receive priority status by permission of instructor.

** 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 internship units previously earned; check with departmental adviser. Of the 12 units, 6 can be applied to the student's major and 6 can be used as degree electives.

Criminology Honors (CRIM)

CRIM 100H. Honors Criminology (3)
Prerequisite: open only to students who are qualified members of the Criminology Honors Program. An advanced exploration of the etiology of crime. Places emphasis on primary literature with analysis and criticism of both classical and modern criminological theories.

CRIM 102H. Honors Criminal Justice Organization and Management (3)
Prerequisite: open only to students who are qualified members of the Criminology Honors Program. A comprehensive examination of the structure and process of the American Criminal Justice System from an organizational management perspective. Conceptual thinking is essential in this exploration of current and future organizational challenges.

CRIM 160H. Honors Seminar in Criminology (3; max total 6)
Prerequisite: open only to students who are qualified members of the Criminology Honors Program. Honors seminar in specialized areas, new development, and synthesis of criminological processes, thought, and theory.

CRIM 170H. Honors Research Methods (3)
Prerequisite: open only to students who are qualified members of the Criminology Honors Program. Introduction to social science research. Goal is to develop a literature review and research design. Involves an intense library search, development of a literature review, and implementation of a research project.

CRIM 180H. Honors Internship in Law Enforcement (3; max total 6)
Prerequisite: open only to students who are qualified members of the Criminology Honors Program with senior standing. Relates the student's classroom studies with occupational and professional experiences. Students will be referred to related agencies where they will engage in activities requiring significant responsibility.

CRIM 181H. Honors Internship in Corrections (3; max total 6)
Prerequisite: open only to students who are qualified members of the Criminology Honors Program with senior standing. Relates the student's classroom studies with occupational and professional experiences. Students will be referred to related agencies where they will engage in activities requiring significant responsibility.

CRIM 182H. Honors Internship in Victimology (3; max total 6)
Prerequisite: open only to students who are qualified members of the Criminology

Honors Program with senior standing. Relates the student's classroom studies with occupational and professional experiences. Students will be referred to related agencies where they will engage in activities requiring significant responsibility.

GRADUATE COURSES

(See *Catalog Numbering System*.)

Criminology (CRIM)

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.

CRIM 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.

CRIM 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.

CRIM 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.

CRIM 220. Seminar in Group Therapy in Criminal Justice Agencies (3)
Prerequisite: admission to the criminology graduate program. The theory and practice of group therapy in criminal justice agencies. Use of transactional analysis concepts in describing group interactions.

CRIM 221. Seminar in Family Counseling in Criminal Justice Agencies (3)
Prerequisite: admission to the criminology graduate program. The theory and practice of family counseling in criminal justice agencies.

CRIM 252. Seminar in Criminal Justice Personnel Administration (3)
Prerequisite: admission to the criminology graduate program. 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.

CRIM 255. Seminar in Criminal Justice Labor Relations (3)
Prerequisite: admission to the criminology graduate program. 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.

CRIM 265. Sex Crimes (3)
Explores the topic of sex offenders from epidemiological, psychological, and etiological underpinnings and constraints as they relate to power, sex, gender, and psychopathology. Gives attention to the role of paraphilia and the vast array of sexual predators, lust killers, paraphilic stalkers, and the mentally disordered sex offender. (Formerly CRIM 270T)

CRIM 270T. Problems in Criminology (1-6; max total 12 if no topic repeated)
Prerequisite: admission to the criminology graduate program. Special problems in law enforcement or corrections; individual research in laboratory, library, or fieldwork; formal written reports. Weekly conference with instructor.

CRIM 275. Victimology and Social Change (3)
Prerequisite: admission to the criminology graduate program. Theories and scientific research on the effects of crime on victims. An analysis of victim rights and services with specific review of victim agencies and programs of community change. Models and strategies of understanding and assisting crime victims will be analyzed. (Formerly CRIM 270T)

CRIM 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 ***RP*** grading. ***CR/NC*** grading only.

CRIM 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

CRIM 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 ***RP*** grading.

CRIM 295. Controversial Issues in Crime, Criminology, and Law (3)
Prerequisites: CRIM 200, 201, 202, and 203. An inclusive overview of controversial issues in criminology and law with an emphasis upon critical thinking, organization, decision-making, and writing skills. An apogean experience involving the integration of graduate-level scholarly knowledge related to the study of criminology. (Formerly CRIM 270T)

CRIM 298. Project (3)
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 ***RP*** grading.

CRIM 299. Thesis (3)
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 ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

Criminology (CRIM)

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.

Economics

College of Social Sciences

Department of Economics
Don R. Leet, *Chair*
Sherry McCulloch, *Department Administrative Coordinator*
Peters Business Building, Room 393
559.278.3916

B.A. in Economics

Minor in Economics

Minor in International Political Economy
(Jointly with Department of Political Science)

Subject Matter Preparation for Single Subject Teaching Credential in Social Science

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.

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.

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.

Don R. Leet, *Chair*
Antonio Avalos
James M. Cypher
Scott England
Sasan Fayazmanesh
Scott D. Houser
Jeanette S. Iwasa
Va Nee Van Vleck

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	(12)
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 189T	
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 requirements	**51**
Electives and remaining degree requirements (see *Degree Requirements*); may be used toward a double major or minor	**30**
Total	**120**

Advising Notes

1. Economics majors may not use ECON 25, 40, 50, or AGEC 1 for General Education requirements.
2. 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.
3. *CR/NC* grading is not permitted in the economics major or minor, except for courses offered only under *CR/NC* grading.
4. General Education and elective units may be used toward a double major or minor (see *Double Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
5. No General Education Integration or Multicultural/International course offered by the Department of Economics may be used to satisfy the General Education requirements for economics majors.

Economics Minor

	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	
PLSI 120	**3**
Electives*	**6**
Select from: PLSI 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**

* PLSI 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.

Note: The minors also require a 2.0 GPA and 6 upper-division units in residence.

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.

Teaching Credential in Social Science. See the Social Sciences credential adviser, Social Science Building, Room 118, for advising, and refer to *Secondary Teaching Credential* under Social Sciences Programs (see page 469).

COURSES

Economics (ECON)

ECON 25. Introduction to Economics (3)
Prerequisite: G.E. Foundation A2. 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.

ECON 40. Principles of Microeconomics (3)
Prerequisite: G.E. Foundation A2. 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)

ECON 50. Principles of Macroeconomics (3)
Prerequisite: G.E Foundation A2. Economic 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)

ECON 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.

ECON 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.

ECON 101. History of Economic Thought (3)
Prerequisite: ECON 40 or 50 or 165. Evolution of economics as a science; doctrines of different schools of thought — Mercantilists, Physiocrats, Historical School, Classical Economists; contributions of outstanding economists.

ECON 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.

ECON 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.

ECON 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.

ECON 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.

ECON 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.

ECON 110. Economic History of the United States (3)
Prerequisites: ECON 40 or 50 or 165. Exploration and colonization to the present; economic factors in development of the United States; relationships of economic forces to historical, political, and social change.

ECON 114. Economic Development of Poor Nations (3)
Prerequisites: ECON 25 or 40 or 50. Intensive study of the causes and consequences of underdevelopment that affects 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.

ECON 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.

ECON 117. Environmental Economics (3)
Prerequisite: ECON 40. 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.

ECON 119. San Joaquin Valley Economic Problems and Promise (3)
Examination of San Joaquin Valley economy from a policy-oriented perspective. Application of regional economic models to the local economy. Empirical analysis of issues including immigration, unemployment, and local economic development.

ECON 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)

ECON 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.

ECON 131. Public Finance (3)
Prerequisite: ECON 40. Impact of government expenditures and taxes on the allocation of resources and the distribution of income. Evaluation of government expenditure programs and tax policies. Analysis of existing government policies and proposed reforms.

ECON 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.

ECON 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.

ECON 144. Economics of Sports (3)
Analyzes issues surrounding the monopolistic nature of professional leagues, tax incentives used to attract/maintain a professional franchise, and collective bargaining agreements through industrial-organization, public finance, and labor economics respectively. (Formerly ECON 188T)

ECON 146. Economics of Crime (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

ECON 150. Labor Economics (3)
Prerequisite: ECON 40 or 50 or 165. 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.

ECON 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.

ECON 152. Economics of Human Resources (3)
Prerequisite: ECON 40 or 50 or 165. Economic theory of investments in education and job training; economic theories of discrimination; analysis of earnings differentials for women and ethnic minorities. Issues discussed include educational choices, affirmative action, comparable worth, and human resource planning policies.

ECON 161. Population Economics (3)
Prerequisites: ECON 40 or 50 or 165. 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.

ECON 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.

ECON 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.

ECON 167. Contemporary Socioeconomic Challenges (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

ECON 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.

ECON 176. Economics Themes in Film (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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. (2 lecture, 2 lab hours)

ECON 178. International Economics (3)
Prerequisites: ECON 40, 50. International economic relations; problems and policies in the light of fundamental economic theory.

ECON 179. International Political Economy (3)
Analysis of greater internationalization of national economies. Policies of states and transnational corporations in the context of globalization. Trade, finance, and production in the international context. Regional economic integration. Global assembly and labor issues. Evolution of multilateral institutions. (3 lecture/recitation hours)

ECON 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.

ECON 181. Political Economy of Latin America (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

ECON 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.

ECON 183. Political Economy of the Middle East (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

ECON 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.

ECON 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.

ECON 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.

ECON 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study.* Approved for ***RP*** grading.

ECON 191. Internship in Applied Economics (1-3; 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 *Catalog Numbering System.*)

Economics (ECON)

ECON 365T. Economics for Teachers (1-6; max total 12)

Geography

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 and advanced 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
Aribilola S. Omolayo, *Chair*
Kristi Larkin, *Administrative Support Coordinator*
Science Building, Room 182
559.278.2797

B.A. in Geography

Minor in Geography

Minor in Urban Studies

Subject Matter Preparation for Single Subject Teaching Credential in Social Sciences

Faculty

Aribilola S. Omolayo, *Chair*
Michelle Calvarese
Douglas A. Hurt
James Kus
Chi Kin Leung
Michael J. Moratto
Stanley F. Norsworthy
Joyce A. Quinn

Bachelor of Arts Degree Requirements

Geography Major

The Bachelor of Arts degree with a major in geography requires the completion of 120 units, at least 42 of which shall be in geography. The major is so designed that students can emphasize that area in geography which most interests them; or which meets their career objectives.

	Units
Major requirements	**42**
Lower-division courses: GEOG 4, 5, 7, 20	(12)
Upper-division breadth requirements GEOG 100 or 101, 167	(6)
Upper-division emphasis requirements (See *Advising Notes)*	(24)
General Education requirements	**51**
Electives and remaining degree requirements	**27-30***
(See *Degree Requirements*); may be used toward a double major or minor	
Total	**120**

* This total indicates that GEOG 4 in G.E. Breadth D3 also may be applied to the geography major. Consult the department chair or faculty adviser for additional details.

Advising Notes

1. Geography majors can select one of three emphases for their major.
   For the *Technical emphasis*, select:
   a. 12 units from Geography Techniques
   b. 3 units from Physical-Environmental Studies, 3 units from Human-Systematic, and 3 units from Regional Geography
   c. 3 units of electives from upper-division Geography courses.
   For the *Physical-Environmental emphasis*, select:
   a. 15 units from Physical-Environmental Studies
   b. 3 units from Human-Systematic and 3 units from Regional Geography
   c. 3 units of electives from upper-division Geography courses.
   For the *Human-Systemic emphasis*, select:
   a. 12 units from Human-Systematic Geography
   b. 3 units from Physical-Environmental and 3 units from Regional Geography
   c. 6 units of electives from 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 or Multicultural/International 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 *Double Major* or departmental minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
6. Students must complete 40 upper-division units as part of the requirements to earn a B.A.
7. It is strongly recommended that students interested in professional careers in geography select the emphasis in Geographic Techniques and complete a minor in a related field.
8. 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.
9. The selection of an emphasis within the major should 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
GEOG 4 and 20	**6**
GEOG 5 or 7	**3**
GEOG 167	**3**
Select from upper-division geography	**9***
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.

Urban Studies Minor

The interdisciplinary 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. See *Special Major,* page 82.

Coordinator: Consult department chair, Geography Department.

Faculty Advisers: Roger LaJeunesse, Anthropology Department; Edward E. Nelson, Sociology Department.

Required Courses	*Units*
Concepts and Issues	**9***
GEOG 160, or SOC 163	(3)
PLSI 181	(3)
CRP 100	(3)
Methods and Techniques	**6-9***
Select from the following list of courses: CRP 135; GEOG 101, 110; PLSI 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: AAIS 1, 104W, 135; ANTH 120; BA 120, 154; CRP 110T, 135, 190, 192; CLS 3; CRIM 2; ECON 40, 50; FIN 180; GEOG 101, 107, 108, 109, 128, 146, 160; HIST 137; PLSI 90, 103, 160, 163; SOC 2, 25, 111, 131, 163. Senior students may elect internship by registering for SSCI 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.

Note: The minors also require a 2.0 GPA and 6 upper-division units in residence.

Credential Program

See the Social Sciences credential adviser, Social Science Building, Room 118, for advising, and refer to *Secondary Teaching Credential* under Social Sciences Programs (see page 469).

COURSES

Introductory Geography (GEOG)

GEOG 2. Introduction to Cultural Geography (3)
Prerequisite: G.E. Foundation A2. 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)

GEOG 4. World Geography (3)
Prerequisite: G.E. Foundation A2. 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.

GEOG 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.

GEOG 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.

GEOG 20. Introduction to Spatial Techniques (3)
Introduction to spatial/geographical techniques, including cartography, topographical map reading, geographical information systems, and aerial photo interpretation.

Geographic Techniques (GEOG)

GEOG 100. Cartography (3)
Prerequisite: GEOG 20 or permission of instructor. Theory map communication. Practical experience in compilation, generalization, symbolization, and design to produce original maps. Teaches the skill of presenting tabular data in map form, using pen-and-ink and computer-assisted drafting. (2 lecture, 2 lab hours)

GEOG 101. GIS I: Data Display and Manipulation (3)
Use of computers in mapping and geographic information systems applications. Operational knowledge of boundary and attribute data manipulation, spatial query, geocoding, and layout using state-of-the-art mapping and geographic information systems software. (2 lecture, 2 lab hours)

GEOG 102. Computer Cartography (3)
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, 2 lab hours)

GEOG 104. Map Interpretation (3)
Prerequisite: GEOG 20 and GEOL 1 or 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, 2 lab hours)

GEOG 105. Aerial Photograph Interpretation (3)
Prerequisites: GEOL 1 or GEOG 7; GEOG 20 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, 2 lab hours)

GEOG 106. Advanced Aerial Photo Interpretation and Remote Sensing of Environment (3)
Prerequisite: GEOG 105 or permission of instructor. 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, 2 lab hours)

GEOG 107. GIS II: Data Creation and Project Implementation (3)
Prerequisite: GEOG 101 or permission of instructor. Fundamental concepts of acquisition, structure, manipulation, and analysis of GIS data. Practice in the design, management, and implementation of GIS. Specific operational knowledge may include georegistration, boundary and attribute file creation, map development, spatial query, and spatial analysis. (2 lecture, 2 lab hours)

GEOG 108. GIS III: Spatial Analysis and Modeling (3)
Prerequisite: GEOG 107 or permission of instructor. Spatial analysis and modeling in a GIS environment. Spatial geometry, pattern analysis, terrain analysis, path analysis, network analysis, surface modeling, spatial autocorrelation, and spatial interpolation. (2 lecture, 2 lab hours)

GEOG 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)

GEOG 110. Basic Quantitative Techniques (3)
Introduction of elementary statistical principles and techniques: probability theory, sampling, descriptive statistics, spatial statistics, hypothesis testing, correlation analysis, bivariate regression, and forecasting. (2 lecture, 2 lab hours)

GEOG 189W. Research and Writing in Geography (3)
Prerequisite: G.E. Foundation and Breadth Area D. 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. Intensive library work, manuscript preparation, and small group interaction to impart strategies, methods, and skills for proper geographic research and writing. Meets the upper-division writing skills requirement for graduation. (Formerly GEOG 200)

Physical-Environmental Geography (GEOG)

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.

GEOG 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.

GEOG 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.

GEOG 115. Violent Weather/ Climatic Hazards (3)
Prerequisites: G.E. Foundation and Breadth Area B. Studies hurricanes, tornadoes, thunderstorms, lightning, destructive winds, heat waves, drought, severe winter storms, and floods. Looks at physical laws and processes that account for their formation and behavior; examines human impacts. G.E. Integration IB.

GEOG 117. Introduction to Biogeography (3)
Examination of the living planet and global patterns of life. Topics covered include evolution, biodiversity, extinction, conservation, and impacts of global change on our planet's biosphere.

GEOG 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.

GEOG 128. Environmental Pollution (3)
Prerequisites: G.E. Foundation and Breadth Area B. 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. G.E. Integration IB.

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.

Human-Systematic Geography (GEOG)

GEOG 127. Human Impact on Nature (3)
Effects of human activities on the natural world, from ancient times to the present, with emphasis on local, regional, and global environmental changes and their implications for the future.

GEOG 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.

GEOG 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.

GEOG 155. Medical Geography (3)
Examination of spatial patterns of diseases worldwide, with special emphasis on diffusion patterns for infectious diseases. Analysis of global health care delivery systems including health care resources, accessibility, and uses.

GEOG 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.

GEOG 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.

GEOG 162. Political Geography (3)
Systematic treatment of the nature and structure of states, boundary problems, political policy for the oceans, international power, air space.

GEOG 163. World Crises (3)
Current major political, economic, and environmental crises occurring on either a global or a regional level.

GEOG 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.

GEOG 167. People and Places — A Global Perspective (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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)

GEOG 166T. Anglo-American Regions (1-3; max total 9 if no area repeated)
Examination of the physical, economic, and cultural geographic foundations of major Anglo-American regions. Regions to be discussed include Canada, the United States, the American West, the South, the Middle West, and the North East.

GEOG 168. Geography of California (3)
Natural and cultural patterns of California; historical and regional geography of the state.

GEOG 169. The American West (3)
Prerequisites: G.E. Foundation and Breadth Area D. Physical and human geography of the western continental United States. Occupance of the region, both historically and in contemporary times, by different peoples including Indians, Hispanics, Anglos, and others. Examines population, land and resource use, urban centers, and subdivision of the American West. G.E. Integration ID.

GEOG 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.

GEOG 172. Cultural Geography of Ancient America (3)
Examines human and physical geography (prehistoric, historic, and contemporary time periods) of several distinctive and important regions of the Western Hemisphere. Addresses the unique characteristics of these regions in terms of early human arrivals, cultural developments, conquest by European invaders, and modern survivals and cultural legacies.

GEOG 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.

GEOG 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.

GEOG 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.

GEOG 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.

GEOG 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.

Geographic Topics, Research and Field Trips (GEOG)

GEOG 188T. Topics in Geography (1-3; max total 9)
Selected topics in cultural, physical, environmental, or economic geography or in geographic techniques.

GEOG 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GEOG 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.

GEOG 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 (CRP)

GEOG 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.

GEOG 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.

GEOG 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.

GEOG 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GEOG 192. Directed Readings (1-3; max total 6)
Prerequisite: permission of instructor. Supervised readings in a selected field related to city and regional planning.

History

College of Social Sciences

Department of History
Michelle DenBeste, *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

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 15 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.

The History Department is a chartered member of Phi Alpha Theta National History Honor Society. Our chapter is Alpha Kappa Beta.

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

Michelle DenBeste, *Chair*

William E. Skuban,
Undergraduate Adviser
Maritere Lopez, *Graduate Adviser*
Lori Clune, *Social Science Credential Adviser*

Mark Arvanigian
Lori Clune
Jeronima Echeverria
Jill S. Fields
Bridget Ford
David C. Hudson
Melissa Jordine
Isabel Kaprielian
John C. Kendall
Pamela D. Lackie
Maritere López
Jesus Luna
William E. Skuban
Malik Simba
Ephraim K. Smith Jr.
Eileen Wallis

Bachelor of Arts Degree Requirements

A grade of *C* or higher is required for all courses to be counted toward the major.

History Major	*Units*
Major requirements	**45**
Lower-division requirements:	
HIST 1, 2, and 4	(9)
Select two: HIST 3, 6, 7, 8, 9	(6)
Upper-division requirements:	
HIST 100	(3)
Select nine courses from the fields listed on this page	(27)
General Education requirements	**51**
Electives and remaining degree requirements	**24**
(See *Degree Requirements*); may be used toward a double major or minor.	
Total	**120**

Advising Notes

1. HIST 4 is required before enrollment in HIST 100 for all students catalog year 2004-05 to present.
2. It is strongly recommended that history majors take both HIST 11 and 12.
3. No General Education Integration or Multicultural/International course offered by the Department of History may be used to satisfy the General Education requirements for history majors.
4. History majors are not permitted to take history courses by ***CR/NC*** grading.
5. General Education and elective units may be used toward a double major or minor (see *Double Major* or 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 history are advised to take a foreign language as an undergraduate in consultation with the History Department.
7. HIST 100 should be scheduled in consultation with the undergraduate adviser.
8. All majors must take a total of 27 units from the three fields listed below, taking into account the following requirements:
   - Students must take a minimum of two courses (6 units) in each field, with at least one from A and one from B in the European History Field.
   - Up to 3 units of HIST 190 may be applied toward the major.
   - HIST 190 may not be taken in lieu of a course offered by the department. Students should have taken courses in the appropriate field prior to taking HIST 190.

Fields

United States History: HIST 101, 102T, 137, 153, 158, 159, 171, 172, 173, 174, 175, 177, 178, 179T, 180, 181, 182, 183, 184, 185, 186, 187, 190.

European History: (A) HIST 103, 111, 112, 116, 119T, 120, 121, 122, 124T, 125, 126, 130, 131, 150, 190. (B) HIST 104, 129T, 132, 133, 135, 136, 138, 140, 141, 142, 143, 145, 149T, 151, 152, 190.

World Regions: HIST 105, 106, 107, 108A, 108B, 109T, 110, 114, 115, 157, 160, 162, 165, 166, 169T, 190, 191, 192, 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.

Note: The History Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Credential Program

See the Social Sciences credential adviser, Social Science Building, Room 118, for advising, and refer to *Secondary Teaching Credential* under Social Sciences Programs (see page 469).

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.

Graduate Writing Requirement. The graduate writing requirement will be met by submission of a 15- to 20-page research paper formatted according to disciplinary style. The graduate writing committee will meet twice a year — November 15 and March 14 — to assess student writing. Detailed guidelines can be found in the Department of History's *Graduate Student Handbook* or by consulting the graduate coordinator.

Master of Arts Degree Requirements

(See *Division of Graduate Studies.*)

The History Department offers a 30-unit Master of Arts program with two options: Thesis and Examination. The basic requirements are as follows:

	Units
A. Core	**15**
HIST 200A, 200B, 210T, 220T, 230T	
Note: HIST 200A/B must be taken within the first year of enrollment in the history program.	
B. Electives	**6**
Students will select 6 additional units from HIST 210T, 220T, 230T. (Students may repeat course numbers but may not repeat topics.)	
C. Independent Study	**3**
Students will select 3 units of either HIST 290 or 292.	

D. Culminating Experience 6

1. Thesis option: 6 units of HIST 299A-B
2. Examination option: Six additional units from HIST 210T, 220T, or 230T, plus a written comprehensive examination in three fields chosen from among the following. (No more than two fields may be taken from any group.)

Group I: (a) Ancient History, (b) Medieval History, (c) Early Modern Europe to 1815, (d) Modern Europe since 1815.
Group II: (a) The United States to Reconstruction, (b) The United States since Reconstruction.
Group III: (a) Latin America, (b) Asia, (c) Africa.

Total 30

No more than two examinations may be taken from any group. Not all fields will be available at all times.

Comprehensive examinations are given during the first week in November and the first week in April of each year. If students fail an exam they will be allowed to retake it once. For other specifics, consult the department graduate adviser; for general requirements see the *Division of Graduate Studies.*

Not all fields will be offered at all times.

Foreign Language Requirement. All graduate students of the Department of History (on both tracks) must pass a reading competency examination in at least one foreign language approved by the graduate adviser before being advanced to candidacy. With the prior approval of the graduate adviser, a foreign language readings course may be substituted for the exam.

Graduate Writing Requirement. The graduate writing requirement may be met by passing the writing component of HIST 280T (see graduate program coordinator for more information).

COURSES
History (HIST)

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)

HIST 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)

HIST 3. Colonial Americas (3)
Examines the colonial history of North and South America. Analyzes the impact of European colonization of Native American societies, the African slave trade, the evolution of colonial societies, and the independence movements in the 18th/19th centuries.

HIST 4. Introduction to Historical Skills (3)
Introduction to the varieties of writing in history. Students receive careful guidance in basic historical skills: writing book reviews, taking notes, conducting research, quoting and documenting sources, formulating thesis statements, and presenting research in both oral and written forms.

HIST 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.

HIST 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.

HIST 8. Republics of Latin America (3)
Rise of the modern Hispanic American states since 1800: political, social, economic development.

HIST 9. Russian and Eurasian Civilization (3)
Introduction to the history, culture, literature, and visual and performing arts of Russia and Eurasia from the late medieval period to the present.

HIST 11. American History to 1877 (3)
Prerequisite: G.E. Foundation A2. Examines the history of the United States through 1877, looking at the significant events from the founding of the colonies through Reconstruction, including the role of major ethnic and social groups in the formation of the American nation. G.E. Breadth D1. (CAN HIST 8)

HIST 12. American History from 1877 (3)
Prerequisite: G.E. Foundation A2. Examines the history of the United States from 1877, looking at the significant events from the end of the Civil War to the present, including the role of major ethnic and social groups in the formation of the American nation. G.E. Breadth D1. (CAN HIST 10)

HIST 20. World History I (3)
Prerequisite: G.E. Foundation A2. The economic, political and social development in world history from the earliest times to the modern period (1500). G.E. Breadth D3.

HIST 21. World History II (3)
Prerequisite: G.E. Foundation A2. The economic, political, and social development in world history from 1500 to the present. G.E. Breadth D3.

HIST 100. Historical Research and Writing (3)
Prerequisites: HIST 4, ENGL 1, upper-division standing. Individual guidance and criticism in research, writing, argumentation, and documentation. While engaging in historical research and writing, students gain a deeper appreciation of the discipline's theoretical and methodological concerns.

HIST 101. Women in History (3)
(Same as WS 101.) Prerequisites: G.E. Foundation and Breadth Area D. Historical survey of women's roles in history, with an emphasis on the emergence of the feminist movement. G.E. Integration ID.

HIST 102T. Topics in Women's History (3; max total 6 if no topic repeated)
(See WS 102T.)

HIST 103. History of Early Christianity (3)
Early Christianity from the first century to eve of Reformation.

HIST 104. History of Women and Men in Modern Europe (3)
Studies everyday lives of modern European women and men in historical context. Examines how gender identities and relations developed and changed through industrialization, revolution, wars, and social and political movements.

HIST 105. Armenian Genocide in Comparative Context (3)
(Same as ARMS 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.

HIST 106. Armenians in North America (3)
(Same as ARMS 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.

HIST 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.

HIST 108A. Armenian History I: Ancient and Medieval (3)
(Same as ARMS 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.

HIST 108B. Armenian History II: Modern and Contemporary (3)
(Same as ARMS 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.

HIST 109T. Studies in Middle East and Africa (1-3; max total 6 if no topic repeated)
Intensive study of special topics.

HIST 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.

HIST 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.

HIST 112. Ancient Rome (3)
The early history of Rome and the evolution of Roman society, politics, and culture through the republican and imperial periods.

HIST 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.

HIST 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.

HIST 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.

HIST 119T. Studies in Ancient History (1-3; max total 6 if no topic repeated)
Intensive study of special topics.

HIST 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.

HIST 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.

HIST 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.

HIST 124T. Studies in Medieval History (1-3; max total 6 if no topic repeated)
Intensive study of special topics.

HIST 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.

HIST 126. Reformation (3)
Analysis of the political, social, and intellectual movements associated with the 16th century religious upheaval.

HIST 127. Women and Power in Early Modern Europe (3)
Exploration of the roles of European women circa 1400-1800 A.D. Studies perceptions and representations of women and secular/religious constraints upon them. Also investigates women's own views and the ways in which they confronted and/or manipulated social strictures.

HIST 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.

HIST 130. Europe in the 17th Century (3)
European culture, society, and politics from 1600 to the death of Louis XIV.

HIST 131. Europe in the 18th Century (3)
Intellectual, social, and political development of Europe from 1715 to the French Revolution and Napoleon Bonaparte.

HIST 132. Revolutionary Europe (3)
Prerequisite: HIST 2 or permission of instructor. History of Europe from the French Revolution to the Russian Revolution. Social and cultural consequences of Industrialization and the rise of Nationalism and Imperialism.

HIST 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.

HIST 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.

HIST 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.

HIST 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.

HIST 138. World War II: A Global Conflict (3)
A detailed examination of the military, diplomatic, political, economic, social, and cultural impact of the Second World War. The causes, conduct, and consequences of the war are analyzed.

HIST 140. Modern France (3)
The culture, politics, and society of France from the Old Regime to the Fifth Republic.

HIST 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.

HIST 142. Tsarist Russia (3)
The political, economic, and social history of Tsarist Russia from 862 to 1917.

HIST 143. Russia and Eurasia in the 20th Century (3)
The political, social, cultural and economic history of Russia and Eurasia from the rise of communism to the present. Examines the rise of communism and its political and social structures. Explores Soviet systems, arts, literature, the dissident movement, and nationalities policies. Looks at the fall of communism, the end of the Soviet Union, and the new states that have emerged in its wake.

HIST 145. Spain and Portugal (3)
Development of the Iberian Peninsula from prehistoric to modern times.

HIST 149T. Studies in Modern European History (1-3; max total 6 if no topic repeated)
Intensive study of special topics.

HIST 150. England to 1485 (3)
Structure of the British government, society, and economic life from Roman times to The War of the Roses.

HIST 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.

HIST 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.

HIST 153. Canada (3)
Analysis of the Canadian historical experience; from discovery, through French regime and British Empire, to modern transcontinental nation.

HIST 157. Modern Africa (3)
(Same as ANTH 134.) The history of Africa since 1800. Topics given special attention include the slave trade and its abolition, European exploration, the imposition of European colonial rule, African nationalism, the struggle for independence and Africa's rise to prominence in world affairs.

HIST 158. The American Civil War (3)
Looks at the causes of the Civil War (1861-1865) and its revolutionary consequences for American individuals and institutions. Devotes attention to military as well as political, economic, social, and cultural aspects of the war.

HIST 159. Reconstruction in the United States (3)
Examination of a defining era for American citizenship, federalism, and modern race relations. Analysis of meaning of freedom for ex-slaves, status of the South, segregation, and Reconstruction's aftermath. Comparisons with Latin American/Caribbean post-emancipation societies.

HIST 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.

HIST 162. South America (3)
The history of South American republics, with an emphasis on such themes as instability, economic development, political parties, and revolution.

HIST 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.

HIST 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.

HIST 167. Social Revolution in Latin America (3)
Highlights Mexico, Cuba, and Central America in exploring the origins, social constituencies, and consequences of the major 20th century Latin American revolutions. Examines the impact of counter-revolutionary movements, foreign intervention, and the successes and failures of each revolution.

HIST 169T. Studies in Latin American History (1-3; max total 6 if no topic repeated)
Intensive study of special topics.

HIST 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.

HIST 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.

HIST 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.

HIST 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.

HIST 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.

HIST 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.

HIST 178. History of African Americans (3)
(See AAIS 178.)

HIST 179T. Studies in United States History (1-3; max total 6 if no topic repeated)
Intensive study of special topics.

HIST 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.

HIST 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.

HIST 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.

HIST 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.

HIST 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.

HIST 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.

HIST 186. American Immigration and Ethnic History (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

HIST 187. California History (3)
Explores California history from before the Spanish conquest to the present. Themes include the cultural, social, political, and economic practices of the various immigrant and indigenous groups that have occupied the state. (Formerly HIST 188, HIST 189)

HIST 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

HIST 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.

HIST 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.

HIST 199T. Studies in Far Eastern History (1-3; max total 6 if no topic repeated)
Intensive study in special topics.

GRADUATE COURSES

(See *Catalog Numbering System*.)

History (HIST)

HIST 200A. Introduction to Graduate Writing and Historiography (3)
Introduction to the methods and skills of graduate writing. Introduction to the varieties of history writings from the ancient world to early modern times, focusing especially on major themes, approaches, and categories of history writing and authors. (Formerly HIST 200)

HIST 200B. Introduction to Graduate Research and Historiography (3)
Introduction to the methods and skills of graduate research. Introduction to the varieties of modern history writing, focusing especially on major theses, approaches, and categories of history writing, and major figures in modern historical debates. (Formerly HIST 200)

HIST 210T. Topics in United States History (3)
Intensive reading, analysis, and discussion of significant historical problems in United States history.

HIST 220T. Topics in European History (3)
Intensive examination of methodological and theoretical issues pertaining to the advanced study of diverse topics in European history.

HIST 230T. Topics in World History (3)
Intensive reading, analysis, and discussion of selected problems in world history.

HIST 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

HIST 292. Directed Readings (1-3; max total 3)
Prerequisite: permission of instructor. Readings on selected themes and topics in consultation with a faculty adviser.

HIST 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 ***RP*** grading.

IN-SERVICE COURSE

(See *Catalog Numbering System*.)

History (HIST)

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

College of Social Sciences
Luz Gonzalez, *Interim Dean*
Arthur Wint, *Coordinator*
McKee fisk Building, Room 244
559.278.2305

Peace and Conflict Studies Minor

Certificate in Peacebuilding and Mediation

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.

Core Faculty

Sudarshan Kapoor, *Social Work Education*
Pamela Lane-Garon, *Educational Research and Administration*
Marilyn Shelton, *Literacy and Early Education*

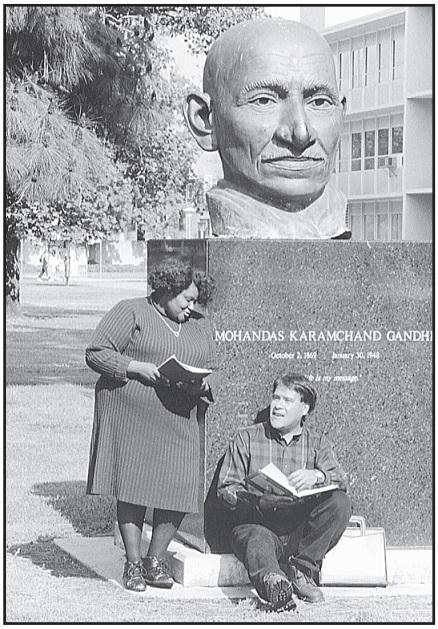
Affiliated Faculty

Barbara Birch, *Linguistics*
Jeronima Echeverria, *History*

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.
4. The minor also requires a minimum 2.0 GPA and six upper-division units in residence.
5. Courses also can fulfill General Education requirements as appropriate.

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; AAIS 144; ECON 167; CRIM 140; CLS 128; ECON 140; ISC 93; SOC 111; PHIL 120, 125; PLSI 116; PSYCH 156; WS 108, 116

AREA III — International and Global Issues
AGEC 140; AAIS 150; BA 174; ECON 114, 179; GEOG 163; HIST 105, 180; PLSI 112, 120, 121, 122, 125; SOC 157

AREA IV — Conflict Management
AGEC 117; BA 156; HIST 166, 185; HRM 152; PLSI 126; COMM 164, 169

AREA V — Education for Peace and Nonviolence
AAIS 145; EHD 101; KINES 111; PHIL 131; SOC 122

Certificate in Peacebuilding and Mediation

12 units: Peacebuilding, Mediation, Internship, and Elective

Open to all majors. Contact the coordinator for details.

COURSES

Peace and Conflict Studies (PAX)

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. Principled negotiation; cultural awareness.

PAX 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.

PAX 120. Mediation (3)
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.

PAX 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.

PAX 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Political 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.

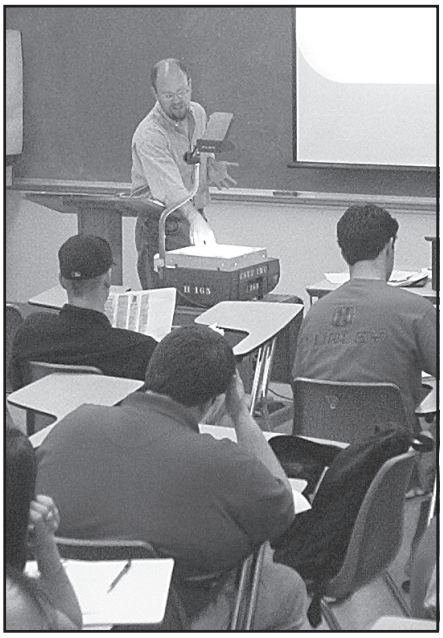
Students may elect to concentrate within political science on American government and politics, international politics, comparative government, or political theory. The Public Administration Program is designed to prepare students for administrative positions in public service agencies and includes instruction 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,*
Yishaiya Abosch, *Prelaw Adviser*
David Schecter, *Undergraduate Public Administration Adviser*

Graduate Advisers:
Russell Mardon, *International Relations;* David Schecter, *Public Administration*

Marn J. Cha
Kurt Cline
Alfred B. Evans Jr.
Lyman H. Heine Jr.
David L. Schecter
Mark Somma
Freeman J. Wright

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

Minor in International Political Economy
(Jointly with Department of Economics)

Subject Matter Preparation for Single Subject Teaching Credential in Social Science

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: PLSI 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 requirements 51
Electives and remaining degree requirements 33
(See *Degree Requirements*); may be used toward a double major or minor.
Total 120

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 double major or minor (see *Double 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: PLSI 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: PLSI 150, 181, 182, 184, 185 ..... (15)
Upper-division electives ..... (15)
Select from:
PLSI 110, 111, 114, 170 .... (6)
PLSI 160, 163, 169T ..... (3)
PLSI 183, 187, 188T, 189T, 190, 191 ..... (6)
General Education requirements 51
Electives and remaining degree requirements 33
(See *Degree Requirements*); may be used toward a double major or minor.
Total 120

Advising Notes

1. *CR/NC* grading is not permitted in the public administration major with the exception of PLSI 187.
2. No course used to satisfy a General Education requirement may be used to satisfy public administration major requirements. In addition, PLSI 120 may not be used to satisfy the General Education Multicultural/International requirement for public administration majors.
3. General Education and elective units may be used toward a double major or minor (see *Double 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*

PLSI 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

PLSI 1, 181, 182 ..... **9**
Select from PLSI 110, 111, 114, 150, 151, 170 ..... **3**
Select from PLSI 183, 184, 185, 189T **6**
Electives (upper division) in anthropology, economics, English, geography, history, philosophy, psychology, or sociology **3**
Total 21

No course used to satisfy a General Education requirement may be used to satisfy requirements for the Political Science and Public Administration minors.

International Political Economy

For details about the Minor in International Political Economy, see listing in the Department of Economics.

Note: The minors also require a 2.0 GPA and 6 upper-division units in residence.

United States Constitution Requirement

The United States Constitution (including California State Constitution and local government) requirement for graduation will be fulfilled by PLSI 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, Social Science Building, Room 118, for advising, and refer to *Secondary Teaching Credential* under Social Sciences Programs (see page 469).

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 PLSI 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. The graduate program in international relations student can meet the university Graduate Writing Requirement by passing the writing component of PLSI 200. Please see program coordinator for the written policy.

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. The graduate program in public administration student can meet the university Graduate Writing Requirement by passing the writing component of the course GPA 210. Please see program director for the written policy. 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; HS 210, 213; NURS 226, 240; PLSI 210, 240, 250; SWRK 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 know-

ingly 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. PLSI 187 (5 units) internship experience must be completed before enrollment in second semester courses.

COURSES

Political Science (PLSI)

PLSI 1. Modern Politics (3)
Prerequisite: G.E. Foundation A2. 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.

PLSI 2. American Government and Institutions (3)
Prerequisite: G.E. Foundation A2. Meets the United States Constitution requirement and the federal, California state, and local government requirement. Not open to students with credit in PLSI 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)

PLSI 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.

PLSI 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)

PLSI 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 PLSI 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.

PLSI 102. California Government and Institutions (1)
Not open to students with credit in PLSI 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.

PLSI 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 (PLSI)

PLSI 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.

PLSI 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.

PLSI 112. Politics and Christianity (3)
(Same as AETH 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.

PLSI 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.

PLSI 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 (PLSI)

PLSI 120. International Politics (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

PLSI 121. American Foreign Affairs (3)
Prerequisite: PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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 (PLSI)

PLSI 140. Approaches to Comparative Politics (3)
Prerequisite: PLSI 1. Exploration of theories, models, and conceptual frameworks for the comparative study of political systems and subsystems; methodological rather than an area emphasis.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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 PLSI 145T)

PLSI 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 PLSI 146T)

PLSI 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 (PLSI)

PLSI 71. Introduction to Environmental Politics (3)
Prerequisite: G.E. Foundation A2. Introduction to study of environmental politics and policy making in the United States; a brief history of environmentalism; basic principles in environmental policy making, including policy making for interest groups, legislatures, and levels of government; and selection of current topics in environmental issues. G.E. Breadth D3.

PLSI 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).

PLSI 151. Political Participation and Political Parties (3)
Political parties; nature and extent of citizen political activity; election of public officials; political organization of government.

PLSI 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 PLSI 156T)

PLSI 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 PLSI 159T)

PLSI 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 PLSI 159T)

PLSI 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.

PLSI 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 PLSI 189T)

PLSI 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.

PLSI 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 (PLSI)

PLSI 160. State and Local Governments (3)
The organization, structure, powers, and functions of state and local governments.

PLSI 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.

PLSI 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 (PLSI)

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 179T. Seminar in Public Law (1-4; max total 8)
Administrative law, international law, judicial administration, jurisprudence, legal institutions.

Public Administration (PLSI)

PLSI 181. Public Administration (3)
General analysis of the field of public administration; administrative theories; policy and administration; behavioralism; budgeting, planning, and legal framework.

PLSI 182. Administrative Analysis: Management and Organization (3)
Administrative organization; methods; systems and procedures; problem solving; systems analysis; reports and records; resources management.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 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.

PLSI 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

PLSI 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 (PLSI)

PLSI 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.

PLSI 210. International Relations and Political Theory (3)
(Same as AETH 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.

PLSI 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.

PLSI 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.

PLSI 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 na-

tions from the perspectives of policy analysis and decision-making; considers the role of bureaucracy, the welfare state, political economy, and competing ideologies.

PLSI 290. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

PLSI 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 ***RP*** grading.

PLSI 299. Thesis (6)
See *Criteria for Thesis and Project*. Approved for ***RP*** grading.

Graduate Public Administration (GPA)

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)

GPA 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.

GPA 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.

GPA 215. State and Local Government (3)
Helps students understand state and local government history and how these governmental units interact with the federal government. Legislatures, executives, courts and city, and county councils are studied, particularly in terms of their emphasis on public policy. (Formerly GPA 280T)

GPA 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.

GPA 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.

GPA 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.

GPA 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.

GPA 250. Ethics and Public Administration (3)
(Same as AETH 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.

GPA 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.

GPA 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.

GPA 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.

GPA 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.

GPA 290. Independent Study (1-4; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

GPA 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 ***RP*** grading.

Social Sciences Programs

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: AAIS 1 or 2; AAIS 5 or 9T; AAIS 135; CLS 3, 160, or 162; WS 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 as early in their programs as possible. A detailed list of the teaching credential program is available from Social Sciences, Room 118 and from Social Sciences, Room 101.

Social Sciences (SSCI)

SSCI 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)

SSCI 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.

SSCI 110. California Studies (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

SSCI 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.

SSCI 180. Diversity in the U.S. (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

SSCI 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.

College of Social Sciences
Luz Gonzalez, *Interim Dean*
Social Science Building, Room 108
559.278.3013
http://socsci.csufresno.edu

Social Sciences Prelaw Program

Secondary Teaching Credential in Social Sciences

Sociology

College of Social Sciences

Department of Sociology
Elizabeth Hartung, *Chair*
Betsy Swift and Vonda Epperson,
Department Administrative Assistants
Social Science Building, Room 211
559.278.2234
http://www.csufresno.edu/sociology

B.A. in Sociology

Minor in Sociology

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 using 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 survey 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.

Faculty

Elizabeth Hartung, *Chair*
Xuanning Fu
Deborah Helsel
Matthew A. Jendian
Timothy Kubal
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**
Tier One: SOC 1, 3, 25, 130W or Upper-Division Writing Exam (See *Major Advising Note 2*)	(9-12)
Tier Two: SOC 151, 153, 162, 175	(12)
Sociology Upper-division electives	(15-18)
General Education requirements	**51**
Electives and remaining degree requirements (See *Degree Requirements*); may be used toward a double major or minor.	**30-36***
Total	**120**

* This total indicates that 6 units of SOC 3 in G.E. Foundation A3 and SOC 1 in G.E. Breadth D3 also may be applied to the sociology major. Consult the department chair or faculty adviser for additional details.

Major Advising Notes

1. Tier One courses must be completed before enrollment in Tier Two courses, generally before the second semester of the junior year. Tier One courses are all prerequisites for Tier Two. Upper division electives, however, may be taken in any sequence.
2. Students majoring in sociology are permitted to pass the Upper-Division Writing Examination (UDWE) in lieu of taking SOC 130W, thus having to complete only three courses for 9 units in Tier One. If the student requests 1 unit of ENGL 100W for passing the UDWE, that unit will be applied to the overall elective unit total for the B.A. degree.
3. *CR/NC* grading is not permitted in the sociology major, except for courses offered only under *CR/NC* grading.
4. General Education and elective units may be used toward a double major or minor (see *Double Major* or department minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.
5. No General Education Integration or Multicultural/International course offered by the Sociology Department may be used to satisfy the General Education requirements for majors in the department.

Sociology Minor

	Units
Minor requirements	**6**
SOC 1, 25	
Sociology upper-division electives	**15**
Total	**21**

Note: The Sociology Minor also requires a 2.0 GPA and 6 upper-division units in residence. *CR/NC* grading is not permitted in the Sociology Minor, except for courses offered only under *CR/NC* grading.

Certificate

The Certificate in Nonprofit Management and Leadership is offered through American Humanics.

COURSES

Sociology (SOC)

SOC 1. Principles of Sociology (3)
Prerequisite: G.E. Foundation A2. 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)

SOC 2. Social Problems (3)
Prerequisite: G.E. Foundation A2. 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)

SOC 3. Critical Thinking about Society (3)
Prerequisite: grade of *C* or better in SOC 1 for sociology majors and minors. 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)

SOC 25. Introductory Statistics for the Social Sciences (3)
Prerequisites: completion of Math requirement in G.E. Foundation B4; grade of *C* or better in SOC 1 for sociology majors and minors. 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)

SOC 111. Sociology of Race and Ethnicity (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

SOC 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.

SOC 130W. Contemporary Social Issues (3)
Prerequisites: satisfactory completion (*C* or better) of the ENGL 1 graduation requirement; grade of *C* or better in SOC 1 for sociology majors and minors. 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.

SOC 131. Sociology of Sex and Gender (3)
Prerequisites: G.E. Foundation and Breadth Area D. Introduces students to the sociological study of sex and gender. Looks at how men and women differently experience such social structures as work and the economy, family and courtship, and media. Examines the evidence for the persistence of gender differences and their importance. G.E. Integration ID.

SOC 132. Women and Work (3)
(Same as WS 132.) An examination of women and work in contemporary society, including housework, labor force participation, employment in various occupations, and career planning.

SOC 142. Sociology of Popular Culture (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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. G.E. Multicultural/International MI.

SOC 143. Deviance and Control (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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. G.E. Integration ID.

SOC 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.

SOC 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.

SOC 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.

SOC 148. Sociology of Education (3)
A sociological examination of education as an institution, including its social determinants, functions, and consequences.

SOC 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.

SOC 150T. Special Topics Seminar (1-3; max total 9)
Topics include those areas of advanced theoretical and empirical studies that will orient the student to contemporary sociological endeavors.

SOC 151. Social Classes and Inequality (3)
Prerequisites: Tier One courses (SOC 1, 3, 25, and SOC 130W or UDWE). 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.

SOC 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 others.

SOC 153. Sociological Theory (3)
Prerequisites: Tier One courses (SOC 1, 3, 25, and SOC 130W or UDWE). Survey of classical and contemporary sociological theory. Major sociological theories presented include functionalism, conflict, rationalism-utilitarianism, and symbolic interactionism, as well as their origins in the thought of Marx, Weber, Durkheim, Comte, Saint-Simon, and others.

SOC 157. Social Change (3)
Analysis of directions, patterns, and processes of social and cultural change.

SOC 161. Population Analysis (3)
Population theories and history; demographic processes and variables in contemporary society. Analysis of census data.

SOC 162. Social Psychology (3)
Prerequisites: Tier One courses (SOC 1, 3, 25, and SOC 130W or UDWE). 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.

SOC 163. Urban Sociology (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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. G.E. Integration ID.

SOC 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.

SOC 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.

SOC 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.

SOC 168. Interpersonal Relationships (3)
Exploration of the basic elements of interpersonal relationships including listening, disclosure, feedback, empathy.

SOC 169. Sociology of Religion (3)
Major sects, denominations, and churches; integrative and disintegrative processes in the United States; contemporary religious phenomena.

SOC 170T. Research Topics (1-3; max total 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.

SOC 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)

SOC 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.

SOC 175. Sociological Research Methods (3)
Prerequisites: Tier One courses (SOC 1, 3, 25, and SOC 130W or UDWE). The research process with special emphasis on measurement, sampling, data collection, data analysis, and report preparation. Basic assumptions and dilemmas of social science research.

SOC 185. Field Experience in Sociology (1-6; max total 6)
Prerequisites: 2.75 minimum cumulative GPA, junior/senior standing in sociology, and completion of Tier 1 courses. Individually-planned field experience relating sociology coursework with applied community-based experience. Hours to be announced. ***CR/NC*** grading only. (Minimum of 3 field hours per week per credit unit.)

SOC 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

Women's Studies

College of Social Sciences

Women's Studies Program
Loretta Kensinger, *Coordinator*
Social Science Building, Room 226
559.278.2858

Elizabeth Swift and Vonda Epperson,
Department Administrative Assistants
Social Science Building, Room 211A
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 the 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: American studies, anthropology, education, history, 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

Loretta Kensinger, *Coordinator*
Susan Arpad, *Emerita*
Kathryn Forbes
Lenore Kuo
Janet Slagter

Bachelor of Arts Degree Requirements

Women's Studies Major

	Units
Major requirements	**36**
Core: WS 103, 143, 153, 175	(12)
Approved electives	(24)
General Education requirements	**51**
Electives and remaining degree requirements	**33-42***
Total units	**120**

* This total indicates that three courses (9 units) in General Education also may be applied to fulfill WS major requirements. These courses are WS 12 in G.E. Foundation A3, WS 10 in G.E. Breadth D3, and WS 18 in G.E. Breadth E1. Consult the 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 available in the Women's Studies Program office. At least one course must be selected from each of the following three clusters:

   Cluster 1, Gender and Diversity — WS 125, 134, 136T (with adviser approval), 150T (with adviser approval), 151T (with adviser approval); ASAM 138; CLS 162; WS/AAIS 137.

   Cluster 2, Women and the Arts and Humanities —WS 136T (with adviser approval), 148, 150T (with adviser approval), 151T (with adviser approval), 165; WS/ENGL 168T; WS/ENGL 194T; WS/HIST 102T; LING 130; PHIL 110.

   Cluster 3, Women and the Social, Natural, and Applied Sciences —WS 105, 114, 134, 136T (with adviser approval), 150T (with adviser approval), 151T (with adviser approval), 160; WS/CRIM 126; WS 127/HS 126; WS/HS 130; WS/SOC 132; MGT 189T; SWRK 271T.
2. No more than 3 units may be selected from the 1-unit Saturday courses: WS 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 double major or minor (see *Double Major* or departmen-

tal minor). Consult the appropriate department chair, program coordinator, or faculty adviser for further information.

5. No General Education Multicultural/International course offered by the Women's Studies Program may be used to satisfy the General Education requirements for majors in the department.
6. Majors are urged to fulfill the upper-division writing skills requirement during the first semester of their junior year. See *Degree Requirements.*

Women's Studies Minor

An interdisciplinary minor in women's studies is available to any Fresno State student.

The minor in women's studies requires a minimum of 20 units, including WS 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.

Note: The Women's Studies Minor also requires a 2.0 GPA and 6 upper-division units in residence.

Certificate in Alcohol/Drug Studies

The Women's Studies Program participates 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 page 367, *Health and Human Services Interdisciplinary Courses* in this catalog.)

Victim Services Certificate

The Women's Studies Program participates 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 *Kremen School of Education and Human Development*.)

COURSES

Women's Studies (WS)

WS 10. Introduction to Women's Studies (3)
Prerequisite: G.E. Foundation A2. Interdisciplinary course designed to introduce students to the major social, cultural, economic, and political forces which define gender in society. G.E. Breadth D3.

WS 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.

WS 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.

WS 50T. Studies in Literature (4)
(See ENGL 50T section.) *Women in Novels* section.

WS 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 *Class Schedule* for specific topics.)

WS 101. Women in History (3)
(See HIST 101.)

WS 102T. Topics in Women's History (3; max total 6; repeatable with different topics)
(Same as HIST 102T.) (See *Class Schedule* for specific topics.)

WS 103. History of Feminism (3)
Survey of history of feminist thought and action from Middle Ages to present, with emphasis on nineteenth and twentieth centuries and major actors and debates.

WS 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.

WS 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.

WS 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.

WS 110. Representations of Women (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

WS 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.

WS 114. Women in Family Contexts (3)
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.

WS 115. Women, Children, and Alcohol (1)
Covers impact of addiction on women and children using a systems perspective. (Formerly WS 150T)

WS 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.

WS 120. Women of Color in the United States (3)
Prerequisites: G.E. Foundation and Breadth 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.

WS 125. Introduction to Lesbian/Gay Studies (3)
Introduction to theory, questions, and topics in interdisciplinary lesbian and gay studies.

WS 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.

WS 127. Female Sexuality (3)
(See HS 126.)

WS 130. Women's Health (3)
(See HS 130.)

WS 132. Women and Work (3)
(See SOC 132.)

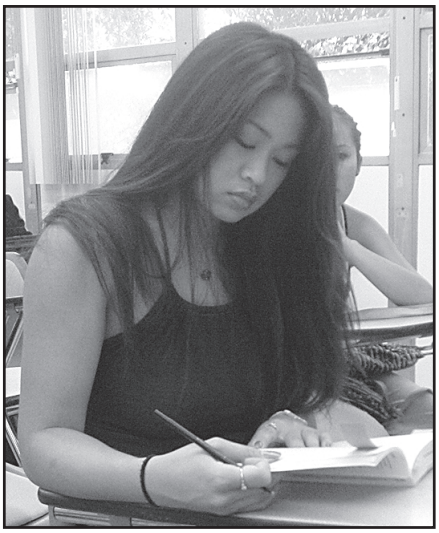
WS 134. Health Issues, Women of Color (3)
Examines major health issues as they affect U.S. minority women: AIDS/HIV, substance abuse, cancer incidence and prevention, reproductive health, and mental health. Comparisons of white, Asian, Native American, African American, and Mexican American women are made. Addresses the role of race, class and gender as they affect health outcomes for women of color.

WS 135. Women in Other Cultures (3)
Prerequisites: G.E. Foundation and Breadth Area D. 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.

WS 136T. Topics in International Women's Studies (3; max total 9)
Examines how global economic and cultural processes affect women. Investigates the interconnections between "first" and "third" worlds through topics such as international division of labor, work and gender ideologies, and women's organized resistance to changes in local economics. (Formerly WS 150T)

WS 137. African American Women (3)
(See AAIS 137.)

WS 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.

WS 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.

WS 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 *Class Schedule* for specific topics.)

WS 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.

WS 152. The Chicano Family (3)
(See CLS 152.)

WS 153. Feminist Research Methods (3)
Introduction to quantitative and qualitative research methods. Hands-on practice of designing and conducting a research project and writing a grant.

WS 160. Feminist Issues in Counseling (3)
Prerequisite: WS 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.

WS 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.

WS 162. Community Service in Women's Studies (1-3; max total 6)
Prerequisite: 9 hours of WS courses and permission of instructor and sponsoring agency. Individual experience relating student's classroom studies to experience in a women's community service agency. ***CR/NC*** grading only. (Minimum of 3 field hours per unit.)

WS 163. Consciousness Raising: Group Leader (1; max total 2)
Prerequisite: permission of instructor. Students learn skills in facilitating group discussion of women's issues through training and practicum. ***CR/NC*** grading only.

WS 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.

WS 168T. Women and Literature (4)
(See ENGL 168T.)

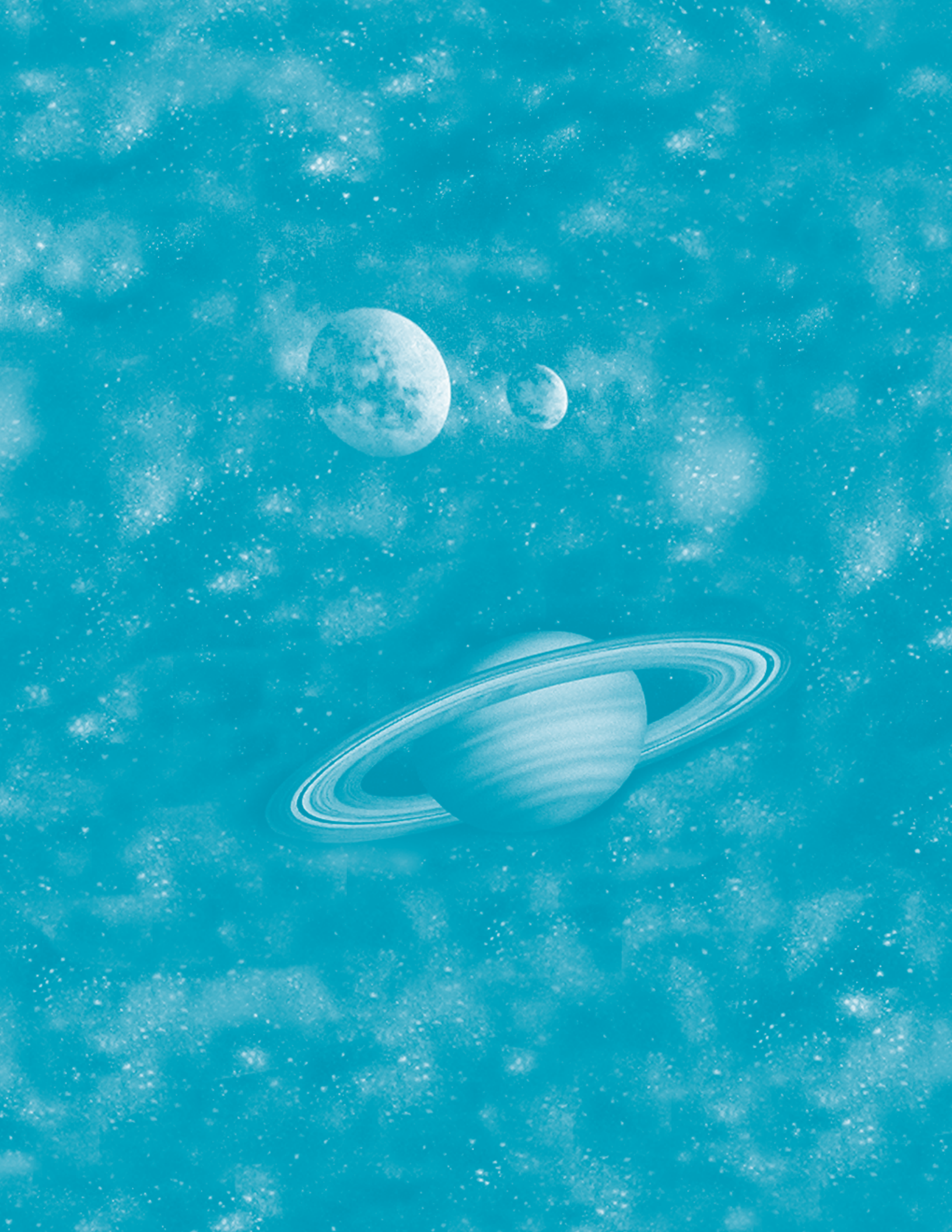
WS 170. Women: Culture and Biology (3)
(See ANTH 118.)

WS 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.

WS 176T. Genre Film: Form and Function (1-4; max total 8)
(See ENGL 176T.)

WS 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

WS 194T. Seminar in Women and Literature (4; max total 8; repeatable with different topics)
(See ENGL 194T.)



Fresno State

Discover
Yourself

Special Programs

American English Institute

Established in 1972, the American English Institute (AEI) is an academic program that specializes in preparing international students for university study in the United States by offering intensive instruction in English as a Second Language (ESL). Students receive 20 hours of instruction each week but do not earn academic credit. Students receive an ESL Program Certificate at the end of each session. During each session, up to 100 international students enroll at the AEI. Students 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 two months 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
5048 N. Jackson Ave. #130 M/S LS74
Fresno, CA 93740-8022

Calendar and Fees. The AEI has 13-week spring and fall sessions and an 8-week summer session. Students pay application, tuition, health insurance, health center, and student service fees. Interested students should contact the institute to get specific information on fees and session dates.

Instruction Offered. The AEI courses include writing, grammar, reading, vocabulary development, listening, speaking, TOEFL preparation, pronunciation, and computer-assisted language learning.

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. Barbara La Bossiere (Philosophy) and the *Class Schedule*.

COURSES

Applied Ethics (AETH)

AETH 100. Contemporary Conflicts of Morals (3)
(See PHIL 120.)

AETH 104. Politics and Christianity (3)
(See PLSI 112.)

AETH 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.

AETH 190. Independent Study (1-3; max total 6)
See *Academic Placement — Independent Study*. Approved for ***RP*** grading.

AETH 192. Directed Reading (1-3; max total 6)
Prerequisite: permission of instructor. Supervised readings in a selected applied ethics field.

AETH 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.

AETH 200. Ethics in Psychology (3)
(See PSYCH 231.)

AETH 201. International Relations and Political Theory (3)
(See PLSI 210.)

AETH 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 **Dr. Franklin Ng,** a member of the Asian Studies Committee, **559.278.5187.**

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.

Note: The Asian Studies Minor also requires a 2.0 GPA and 6 upper-division units in residence.

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 125	Tradition and Change in China and Japan (3)
ANTH 126	Cultures and Foods of East Asia (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)
PLSI 145T	Area Studies in Asia (3)
PLSI 183	Comparative Administration (3)
SWRK 122T	Gandhi and Nonviolence (3)

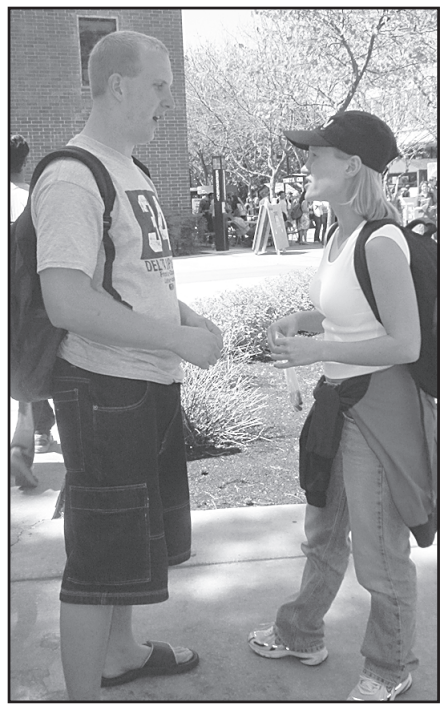
Section III. Courses Partially Related to Asia

AGEC 140	Agriculture and International Development (3)

Additional courses may be selected with prior approval from the coordinator.

CalStateTEACH

Multiple Subject, CalStateTEACH (CST) is both a field study/student teaching program and an intern program. CalStateTEACH is an alternative path to a multiple subject preliminary teaching credential. Available to individuals residing in the Valley, the Central Coast, northern California, and eastern California. CalStateTEACH is designed specifically to serve teachers who are interns or who can volunteer to practice teach in an elementary school (grades K-6). 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.



CalStateTEACH 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, CD ROM, and video. There are no regular university classes to attend, although there are five Saturday seminars over the course of the four-semester program. After successfully completing the program, participants will have earned a multiple subject credential and 40-46 semester units of credit.

The CalStateTEACH program is offered in four stages. Fees include the cost of instruction and all books, course guides, videotapes, CD-ROM, and computer software. Federal and state financial aid in the form of grants and loans are available for qualified students.

For more information, contact Dr. Walter Ullrich at 559.278.0234, *wullrich@csufresno.edu*, KSOEHD Room 210C, M/S ED1.

Program Requirements

1. **Subject Matter Competency**. California provides one way for potential teachers to demonstrate knowledge of subject matter: passage of the California Subject Matter Examination for Teachers (CSET). At initial enrollment, students who have not already met this requirement will be advised regarding how to meet this admission requirement.
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 two letters of recommendation. Assuming that these requirements are met, teachers working full-time under an intern credential in a public elementary school or as a half-time practice teacher in an elementary school will qualify for CalStateTEACH. Assuming they are otherwise qualified, some elementary private school teachers, and long-term elementary substitute teachers may be accepted into the program. This determination will be made on an individual basis, according to program specifications. Candidates must have access to a multiple subject classroom in which the core curriculum is taught to all students. Candidates must have a minimum of 17.5 hours/week of contact with children in a classroom.
4. **Professional Preparation: Conventional Option**

	Units
Stage 1: CST 401	10
Stage 2: CST 402	10
Stage 3: CST 403	10
Stage 4: CST 404	10
Total	**40***
CST 444: Optional CSET Prep Course	3-6**
Total	**43-46***

Professional Preparation: Split-Track Option

	Units
Stage 1: CST 401A	7
Stage 1: CST 401B	6
Stage 2: CST 402	10
Stage 3: CST 403	10
Stage 4: CST 404	10
Total	**43***

CST 444: Required
CSET Prep Course 3**

Total 46

* Twenty units are practice or 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; mainstreaming; and technology curriculum.

** To be taken concurrently with CST 401A for those who have not passed CSET.

See page 276 for courses.

Cognitive Science

Cognitive Science Minor

The Cognitive Science Minor requires 18-22 units. Students are required to take the two foundational CGSCI courses: CGSCI 100 (4 units) and CGSCI 101 (2 units).

In addition, students are required to take four courses (12-16 units) from the list below, with no more than two courses from the same department. ***Please note***: students are not allowed to count any courses taken as part of the Cognitive Science Minor toward their major.

Units

Foundational courses:
CGSCI 100, 101 ..... **6**
Four of the following: CSCI 119*, 164*, 166*; CSD 172; PHIL 145, 146, 151; PSYCH 121, 124**, 126**, 128; LING 142***, 143***, 152***, 165***; IS 174 ..... **12-16**

Total 18-22

* These courses have the following prerequisites: CSCI 40, 41, 60. CSCI 119 is also a prerequisite for CSCI 164 and 166.

** These courses have the following prerequisites: PSYCH 10, 42, 144.

*** These courses have the following prerequisites: LING 100.

COURSES

Cognitive Science (CGSCI)

CGSCI 100. Foundations of Cognitive Science (4)
Overview of cognitive science, an interdisciplinary area of study focusing on cognition: how we perceive the world and how we can model the ways we think or perceive. Brings together the key fields of linguistics, psychology, philosophy, and computer science.

CGSCI 101. Cognitive Science Seminar (3; max total 9)
Introduces students to the discipline of cognitive science through a series of lectures given by local and visiting cognitive scientists. The structure and content will vary from term to term. May be taken three times for credit. (Formerly LING 140T)

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 worked 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 559.278.2381,** or visit the center in the Joyal Administration Building, Room 256. Please note: all business related co-ops or internships accredited through the Craig School of Business are handled by the internship coordinator in the Peters Building, Room 189, 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:

AGEC 194	Agribusiness Internship
ASCI 194	Agricultural Internship
CE 193	Internship in Civil Engineering
COUN 239	Field Placement in Marriage and Family Therapy
COUN 249	Field Practice in School Counseling
COUN 269	Internship in Rehabilitation Counseling
CSCI 194	Cooperative 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
GME 193	Internship in Geomatics Engineering
HS 185F	Fieldwork in Health
IT 194	Cooperative Education in Industrial Technology
ME 193	Mechanical Engineering Cooperative Internship
NUTR 193	Supervised Work Experience
PLANT 194	Agricultural Internship
PLSI 158	Internship in Political Science
PLSI 187	Internship in Public Administration

Institute for Innovation

The Institute for Innovation assists faculty and staff in the creation of innovative new courses, programs, minors, and majors. The Institute also serves as a means to "incubate" new courses and programs until they are placed with a permanent department, school, or college.

For more information, contact Dr. Tim Stearns at 559.294.2045.

Innovation Institute (INOV)

INOV 191T. Studies in High-Tech Entrepreneurship (3)
Prerequisite: approval of instructor. Studies important aspects of high-tech business start-ups such as personality characteristics, sources of funding, and protecting intellectual property. Students will go through hypothetical start-up.

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, such as the University English Exam (UEE). As a result of such testing, any student may be required to register for ESL writing classes (ESL 20, 30, or 110W.)
- The **overseas program** features study abroad through the CSU system-wide program; the campus semester programs to London and Armenia; **short-term travel study programs** led by campus faculty; and the University Studies Abroad Consortium (USAC).
- The **National Student Exchange** offers off-campus study in another state.

For more information, contact the International Programs Office, Family and Food Sciences Building, Room 111, 559.278.6452. For information on study abroad options throughout the CSU system, see *http://www.gateway.calstate.edu*.

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 English as a Second Language (ESL)/International Studies Courses (ISC) 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.*)

First Semester Program. Most undergraduate students are required to enroll in ESL 30 and ISC 93 the first semester of residence. In addition, students with less skill in English may be required to take ESL 20. With permission of their international counselor, students may enroll in other regular courses. The department of Linguistics also offers several sections of English 1 and English 1LA-C for resident and international English learners.

Other Undergraduate Courses. ESL 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 similar standards of English proficiency as are undergraduate students and may be required to enroll in the following undergraduate courses (such as ESL 110W). English proficiency is based on performance on the UEE.

COURSES

English as a Second Language (ESL)

Newly arrived international students are placed into or exempted from ESL classes based on their University English Exam (UEE) scores.

ESL 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.

ESL 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.

ESL 30. Advanced English as a Second Language (3)
An introduction to reading based on academic writing and the advanced ESL writing skills required for academic exposition, argumentation, and research papers. Areas of English grammar important to nonnative speakers are taught based on problems in student compositions.

ESL 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 (ISC)

ISC 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 many academic majors. Affiliated with more than 50 recognized universities and institutions of higher education in 18 countries, the International Programs also offers a wide selection of study locales and learning environments.

The affiliated institutions are Griffith University, University of Western Sydney, Macquarie University, Queensland University of Technology, University of Queensland, Victoria University of Technology (Australia); the universities of the Province of Quebec (Canada); Pontificia Universidad Catolica de Chile, Santiago (Chile); Peking University (Beijing, China); the University of Copenhagen (Denmark) through Denmark's International Study Program; the Institute of French Studies for Foreign Students (Academy of Aix-Marseille) and the Universities of Paris, the Institute of Oriental Languages and Civilizations, and the University of Evry (France); The University of Tübingen and a number of institutions of higher education in the federal state of Baden-Württemberg (Germany); Tel Aviv University, the Hebrew University of Jerusalem, and the University of Haifa (Israel); CSU's Florence Study

Center (Italy); Waseda University (Tokyo, Japan); Yonsei University (Seoul, Korea); Instituto Tecnológico y de Estudios Superiores de Monterrey (Querétaro, Mexico); Massey University and Lincoln University (New Zealand); the University of Granada and of Madrid (Spain); Uppsala University (Sweden); National Taiwan University at Taipei, National Tsing Hua University (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 most International Programs, students must have upper-division or graduate standing at a CSU campus by the time of departure. 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 Office of International Programs, California State University, 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 remain registered at Fresno State, 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 (ISA)

ISA 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.

ISA 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.

ISA 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

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. Call 559.278.3056. (See page 169.)

Armenian Semester (spring) is being planned. Call Armenian Studies at 559.278.2669 for information.

Short-term Travel Study

Each summer campus faculty members offer short (two- to four-week long) programs in other countries. Students take classes for academic credit and participate in cultural activities led by campus faculty. Check with the International Programs Office at 559.278.6452 for program locations.

University Studies Abroad Consortium

The University Studies Abroad Consortium (USAC), a consortium of nine American universities, organizes fully accredited summer, semester, and year-long programs in Australia, Chile, China, Costa Rica, Czech Republic, Denmark, England, France, Germany, Ghana, Ireland, Italy, Japan, Korea, Malta, the Netherlands, New Zealand, Norway, Scotland, Spain, Sweden, 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.

National Student Exchange Program

The National Student Exchange, a consortium of over 170 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 completion of the term prior to exchange; (4) be in good standing at California State University, Fresno. The program is closed to postbaccalaureate and international students. Applications are available in December. Deadline for submission is mid-February.

For more information about these opportunities for educational travel and study in a new environment, contact the International Programs Office, Family and Food Sciences Building, Room 111, **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 postbaccalaureate graduate studies and at minimum be admissable to unclassified postbaccalaureate standing. (See *Division of Graduate Studies*.)
2. Follow application guidelines for CASIC program.
3. Participate in a formal interview with the CASIC Admissions Committee faculty member 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*.)

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 list of acceptable electives. Three units must be taken from each group.

Electives (6 units)
Group A: AAIS 144; EHD 108; SOC 162, 168; COMM 108, 164, 266; COUN 201; CRIM 134; CI 140; PSYCH 175, 178, 278; SPED 155; SWRK 135, 140, 216, 244

Group B: EHD 109; COMM 167, 168, 268; COUN 202; EAD 264, 265, 275; GPA 210, 240; NURS 225; PHTH 231, 232; PSYCH 277, 279; SPED 219; SWRK 141, 247

COURSES

Interprofessional Collaboration (IPC)

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.

IPC 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.

IPC 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 *W* courses. Classes are taught by members of the Linguistics Department.

COURSES

Revising and Editing Skills (RES)

RES 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.

RES 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.

RES 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 is a campus-based, team centered, open-ended, problem-solving experience appropriate for upper-division 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 sponsor from industry, government, or 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, a Solutions Center project fulfills the requirement for a senior project or an internship.

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 2.5 or greater grade point average, and be a senior level 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 559.294.6663 or visit our Internet site at *http://solutionscenter.csufresno.edu/*.

Solutions Center (SC)

SC 197. Solutions through Collaboration (1-6; 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 practices as they research questions for business, industry, and government. (Formerly AST 197)

CSU Summer Arts

California State University 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.

Course Description

Topics courses are offered by the CSU Summer Arts festival in the visual and performing arts, media art, creative writing, and art education. See CSU Summer Arts brochure for topics offered. Audition or portfolio review by CSU Summer Arts is required for enrollment. Special course fees may be required. Each topics course may be repeated for a total of 12 units. See page 94 for information about the *Course Numbering System*.

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.

For more information, call 559.241.6090.

Fresno State

Discover
Yourself

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 Fresno State students is enrolled 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 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.

The Madden Library holdings include one million volumes and nearly 2,600 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.

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.

Housed within the Division of Graduate Studies are the special admission, program, and degree evaluators, and the thesis consultant. They advise both domestic and foreign students about the requirements and regulations for completion of a graduate degree and 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 often serves as the initial point of contact for entering graduate students. The faculty members in the department who constitute the graduate faculty group have initial responsibility for the quality and scheduling of courses (including special topics) and the preparation of course syllabi, examinations, projects, and theses.

As a member of the graduate faculty, the major professor/adviser for a student is responsible for guiding the student in selecting appropriate courses, research problems, and professional experiences. Moreover, the major professor/adviser 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

Accountancy, M.S.

Animal Sciences, M.S.

Art, M.A.

Biology, M.S.

Business Administration, M.B.A.

Chemistry, M.S.

Civil Engineering, M.S.

Communication, M.A.

Communicative Disorders, M.A.
- Deaf Education
- Speech-Language Pathology

Computer Science, M.S.

Counseling, M.S.
- Counseling and Student Services
- Marriage and Family Therapy

Creative Writing, M.F.A.

Criminology, M.S.

Education, M.A.
- Administration and Supervision
- Curriculum and Instruction
- Early Childhood
- Reading/Language Arts

Engineering, M.S.
- Electrical Engineering
- Mechanical Engineering

English, M.A.
- Composition Theory
- Literature

Family and Consumer Sciences, M.S.**

Food and Nutritional Sciences, M.S.

Geology, M.S.

History, M.A.

Industrial Technology, M.S.

International Relations, M.A.

Interdisciplinary Studies, M.A., M.S.

Kinesiology, M.A.
- Exercise Science
- Sports Psychology

Linguistics, M.A.*
- English as a Second Language

Marine Science, M.S.

Mass Communication and Journalism, M.A.

Mathematics, M.A.*
- Teaching

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.

Viticulture and Enology, M.S.

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)

* In these programs, a student may earn a degree without also declaring an option.

** Admission to these programs is currently 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 specific information, write to the chair of the major department.

Graduate Student Research Awards

Limited awards of $750 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 Pro-

gram 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.

Robert and Norma Craig Fellowship

These fellowships, awarding student stipends of $1,000 each, provide benefits for both graduate students and faculty. Eligible projects will include such mentored activities as research, instructional assistance, or other faculty-assigned duties. Applications are due at the announced deadline, and must be jointly developed by the faculty member and the graduate student(s).

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

Scholarship applications and information for postbaccalaureate/graduate students for the fall 2005-spring 2006 academic year will only be available and accepted online. Students may log on to *http://studentaffairs.csufresno.edu/scholarships* and click on ***Scholarship Application***.

The "priority application" period for "full consideration" of scholarship opportunities has been established as September 1, 2005 through November 30, 2005; however, the application will remain on-line until May 31, 2006. This gives late applicants the opportunity to submit an application to be considered for unused scholarship funds.

In addition, each year Fresno State also awards entering graduate students two President's Graduate Scholars Fellowships of $3,500 each. President's Graduate Scholars may obtain a second year of funding if satisfactory progress is maintained.

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 Division 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 University Admissions-Graduate/Postbaccalaureate Office (located in Joyal Administration Building, Room 121) keeps a record of all applications during the time they are being considered and may be consulted at 559.278.4073. For information on the status of an application, students may access the university portal at MyFresnoState, *my.csufresno.edu*. Prospective master's, credential, and advanced certificate students apply to the university online at *http://csumentor.edu* using the Graduate and Postbaccalaureate Application. 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 also apply through *http://csumentor.edu* using the Graduate Postbacculaureate Application.

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

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.

Admission to Graduate Degree Programs with Graduate Standing

Admission to graduate standing is the responsibility of the graduate program. Students admitted to graduate standing have met the general requirements for university admission and the additional requirements and standards of the specific graduate program to which they are applying. These requirements include 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. (*www.csumentor.edu*) Please submit all additional graduation program application materials directly to the graduate program of choice.

Standardized Test Requirements

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 Kremen School of Education and Human Development may submit either GRE or Miller Analogies Test (MAT) scores. GMAT information is available in the Craig School of Business Graduate Office in the Peters Building, Room 183. Applications and information concerning the GRE as well as the MAT and GMAT are 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.

All applicants are admitted to a graduate program through conditional or classified standing as follows.

Graduate Program Admission: Conditional Classified Status. 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 and rehabilitation counseling, classification must occur prior to the completion of 20 units. Failure to attain classified graduate 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 graduate 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 Program Admission: Classified Graduate 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.

Double Major Objectives

Those graduate/postbaccalaureate students pursuing more than one objective (i.e., two graduate degrees) 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.

A *Proposed Program for the Certificate of Advanced Study* form must be on file in the Division of Graduate Studies office immediately following completion of the first semester/term of certificate coursework. The submission of the proposed program is important because it gives a student permission to proceed toward qualifying for the advanced certificate, and approval of the program is required for a student to remain in good standing. Proposed program forms are available in the Division of Graduate Studies Office, Thomas Administration Building, Room 132.

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. The Application for the Award of the Certificate of Advanced Study form 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. Upon clearance of the advanced certificate, a notation that the certificate has been awarded will be posted to the student's official transcript.

For more detailed information regarding advanced certificate program eligibility, course guidelines/limitations, required grades, etc., contact the Division of Graduate Studies or the appropriate certificate program coordinator for the "Guidelines for the Certificate of Advanced Study (CAS)" form.

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. Students may apply to pursue a second bachelor's degree using the undergraduate application.

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 or certificate of advanced study 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.

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.

Graduate and Postbaccalaureate TOEFL Requirement

All graduate and postbaccalaureate applicants, regardless of citizenship, whose native language is not English and whose preparatory education was principally in a language other than 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 General Test scores, application, and official academic documents reach the university International 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 the following address:

Office of Testing Services
California State University, Fresno
5300 Campus Drive M/S FF63
Family/Food Sciences Building
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: Eligibility

Classified graduate standing gives a student permission to work toward qualifying for candidacy. 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 graduate standing to discuss advancement to candidacy. (See also *Petition of Advancement to Candidacy*.)

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. 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 graduate 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 graduate 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 psychology, and the Master of Science degrees in physics and psychology. A departmental qualifying examination is required in art, civil engineering, kinesiology, linguistics, mathematics, plant science, and viticulture and enology.
4. Completion of the foreign language requirement, as appropriate to the program.
5. 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.
6. 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.
7. All graduate students must demonstrate their competence in written English prior to advancement to candidacy. Early completion of this requirement is recommended. 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.
8. Submission to the Division of Graduate Studies of the properly signed Petition of Advancement to Candidacy. Petition forms are available in 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. 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.

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.

Competence in the use of a foreign language is required for advancement to candidacy for the Master of Arts degree in English, History, and Music (vocal performance and choral conducting 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, however, specifies that a student doing a thesis involving a foreign country must have a reading knowledge of the language of that country. Consult your graduate adviser or the chair of the Foreign Languages and Literatures Department for information about placement tests.

Advancement to Candidacy: Policies

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 and overall GPA, 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:

1. 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, or no more than 18 units in the 60 unit program.
2. 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 graduate degree at that institution, the course numbering and grading systems, and information clarifying whether the institution used the semester or quarter system.
3. 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.
4. Courses used to fulfill G.E. curriculum (Capstone, Integration, or Multicultural/International), 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.
5. 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 University Graduate Committee.
6. Credit by Examination (CBE) may be used to fulfill prerequisites, but may not apply toward the master's degree program.
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 Class Schedule. 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 graduate program coordinator, postbaccalaureate/graduate credit allowed for work taken prior to the granting of the baccalaureate degree 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 petition 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 listed on the advancement petition.

Program Adjustments

It is the student's responsibility to complete the specific courses listed on his or her Petition of Advancement to Candidacy (master's program) or the Proposed Program for the Certificate of Advanced Study (advanced certificate program). 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 graduate program adviser (if required) and coordinator/director, and with the approval of the dean, Division of Graduate Studies. Program Adjustment Request forms for master's and certificate programs are available in the Division of Graduate Studies Office.

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.

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) overall, Fresno State and program grade point average;
   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. for the thesis, secured a committee (a chair and at least two other members); for the project, met individual departmental requirements; and
   f. for the 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 [1a] through [1f] 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. Students who plan to extend their thesis work over more than the semester in which they first enroll may select one of the following options (with the approval of their graduate adviser): (a) register in 299 each term they are 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, or GS 299 (regular enrollment) a zero-unit course required for enrollment purposes; (c) option "a" supplemented by GS Continuation or GS 299 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 ***RP*** (Satisfactory Progress) grade is recorded. If the ***RP*** 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 completion of the final draft. This date should be early enough 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 in content and form, should be submitted to the office of the Division of Graduate Studies by the established deadline (see item 5 above). 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 term). Students are urged to follow meticulously the *Guidelines for Thesis Preparation* 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 may be bound with the other copies ordered 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 or the Office of the Vice President for Administration. 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 office of the dean, College of Science and Mathematics.

Continuous Enrollment

University policy requires graduate students to be continuously enrolled at the university (1) while completing a grade of ***RP*** in either thesis or project, or a grade of ***RP*** 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 GS 299C (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 reapply 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 reapplying 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.

GS Continuation (Extension). Students who choose to enroll in GS 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 Continuing and Global Education Office, 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.)

GS 299C (Regular University Enrollment). Students enrolling in GS 299C through regular university enrollment should follow the registration instructions for S.T.A.R. in the Class Schedule. GS 299C enrollees must go to the office of the Division of Graduate Studies to obtain the class and permission numbers and have their eligibility verified prior to their assigned registration date and time.

*The International Students Services and Programs Office has indicated that international students may fulfill the continuous enrollment requirement **only** through GS 299C 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 petition. 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 be validated only if such work has been approved previously on this Petition of Advancement to Candidacy. A maximum of one-third of required degree units may be thus validated, by such means as are recommended by the department and approved by the graduate dean. Coursework from other institutions may not be validated.

The same time limitations and validation procedures noted above also apply to the completion of a Certificate of Advanced Study. The time limit for an advanced certificate is noted on the *Proposed Program for the Certificate of Advanced Study* form.

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 graduate 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 overall Fresno State and program grade point average of ***B***.

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. In addition, grades must be posted in all courses taken, including those that are not part of the student's approved program, beginning with the earliest semester or summer term listed on the Petition of Advancement to Candidacy. Students may **not** graduate with an "I," "RD," or "RP" in any course on their records, beginning with the earliest semester/term listed on the advancement petition.

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 the 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 *Class Schedule*.) 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 four to six 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.

Graduate Interdisciplinary Studies

- Master of Arts in Interdisciplinary Studies (M.A.)
- Master of Science in Interdisciplinary Studies (M.S.)

The interdisciplinary studies major for the Master of Arts (M.A.) or Master of Science (M.S.) 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 approval. 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.

The M.S. in Interdisciplinary Studies differs from the M.A. in Interdisciplinary Studies by requiring breadth of technical knowledge and attainment of specific professional competencies in scientific research methodologies and data-driven analysis. For detailed policy, requirements, and application, contact the Division of Graduate Studies.

Admission Eligibility

Those seeking admission to the M.A. or M.S. in Interdisciplinary Studies must adhere to university graduate admissions requirements, including submission of applications, official transcripts, and appropriate standardized test scores (e.g. GRE, TOEFL). Applicants must have a 3.0 GPA on previous graduate work and related prerequisites, and must be admitted to the university. Standards for admission to classified graduate standing as specified in this catalog for at least one of the principal departments must be met. All appropriate course prerequisites on the approved program must be completed.

General Degree Requirements

A minimum of 30 units is required. 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 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. An acceptable thesis (2-6 units) that demonstrates interdisciplinary research is required. The faculty advisory committee may require an oral defense of the thesis or a written final examination.

Although interdisciplinary studies 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.

Procedures

Prior to or during the first term of study, students should seek the support of a preliminary faculty advisory committee to gain counsel and advice in forming an interdisciplinary graduate program. After consultation with the advisory committee, students should complete the Application to Pursue an Interdisciplinary Studies Master's Degree Program, which includes a plan of study.

After approval by the sponsoring faculty and department, the application and supporting documents are formally presented to the graduate dean. The application will then be forwarded to the University Graduate Committee for final approval. A formal application and plan of study must be filed with the

Division of Graduate Studies no later than the beginning of the second term of study. A maximum of 10 units may be applied toward the master's degree prior to official university approval of the plan of study.

Master of Arts

For the unusually talented student with superior preparation, the M.A. in Interdisciplinary Studies provides an opportunity to work in a highly individualized graduate program that emphasizes interdisciplinary graduate study, independence in securing a faculty graduate committee across departmental lines, and the opportunity to establish expertise in a special arena. Graduate students have pursued special majors in subjects that included multimedia electronic art, biological illustration, ethnomusicology, and agribusiness.

Master of Science

At least 15 units for the M.S. in Interdisciplinary Studies must be from one of the campus colleges offering a broad range of instructional programs in science or technology-based disciplines. Typically this disciplinary range is found in colleges with three or more such programs of study. These colleges include the following: Agricultural Sciences and Technology, Engineering and Computer Science, Health and Human Services, Science and Mathematics, and Social Sciences. Coursework must be taken in at least three different subject areas or field of study with no more than 12 units from any one field and not less than 6 units in each of the three areas. Two of the three fields may be from one department if the subject area content and/or professional requirements within these two fields are clearly recognized as being uniquely different.

Community College Faculty Preparation Certificate

This extension certificate program is designed to provide coursework and instructional development for future and current community college faculty. Course content will enhance technical competencies, provide students with greater understanding of the role and functions of the community college, and provide important understanding of community college students and the factors crucial to their success in learning.

This certificate program consists of five courses for a total of 12 units. One of these courses is a culminating course that includes a mentored experience at a regional community college. Field placement is contingent upon participants receiving a positive recommendation from each of the program instructors. Depending on the participant's professional status, this experience will include either a mentored teaching placement in a community college classroom or the assignment of a coach. Letter grades are used for all courses with the exception of the mentored experience.

COURSES

Graduate Studies Community College (GSCC)

GSCC 220. The Community College as an Institution (2)
Emphasis will be on faculty responsibilities in the area of curriculum content and institutional governance, including student support services and issues of retention and matriculation methods.

GSCC 221. The Community College Student (2)
Explores the cultural, sociological, economic, and political factors that affect learning and success in the community college classroom. Participants learn to recognize the factors that affect student success and to implement strategies to enhance cross-cultural understanding within classrooms.

GSCC 223. Effective Community College Teaching and Classroom Communication Strategies (2)
Examines various instructional techniques specific to the community college. Also examines the unique characteristics of the classroom as a communication context. Participants will apply theory to practice of effective lecture, discussion, and collaborative lessons.

GSCC 224. Curriculum, Instruction, and Assessment at the Community College (3)
Introduces students to fundamental theories of curriculum, curriculum development and approval processes, transfer course curriculum, and program review. Participants will learn to use and adapt assessment instruments to meet the needs of a diverse student population.

GSCC 225. Sponsored Experiences at the Community College (3)
The field experience promotes adherence to high standards of professional conduct. It also promotes effective cooperation and professional development through self-assessment and collegial interactions with other members of the profession. Participants must complete all coursework prior to being approved for field placement.

COURSE

Graduate Studies (GS)

GS 296. Interdisciplinary Colloquium (1-3)
Prerequisite: consent of coordinator. Seminar in interdisciplinary special major issues, allowing discussion with a broad-based, cross-disciplinary emphasis.

GS 299. Interdisciplinary Thesis (2-6; max total 6)
Prerequisite: see university *Criteria for Thesis and Project;* consent of thesis chair. Preparation, completion, and submission of an acceptable thesis for the interdisciplinary master's degree. Approved for *RP* grading.

GS 299C. Graduate Program Continuation (0)
For continuous enrollment while completing the culminating experience.

GS 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.

Fresno State

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Yourself

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.

HUGO MORALES, CHAIR
JIM ANTON, VICE CHAIR

ELAINE BERNARD
JOHN BOOGAERT
JULIA BROWN
KATHERINE FLORES
J. MICHAEL MCGOWAN
MICHAEL PATTON
JAMES SHEKOYAN
JULIE TONE
JOE WILLIAMS
KIRK DeVERTEUIL

Association, Inc. Board of Directors

The California State University, Fresno Association, Inc. is responsible for the management and operation of commercial services including the Kennel Bookstore, University Courtyard (on-campus living), University Food Services, University Student Union, and the Save Mart Center. In addition, the Association provides accounting and managerial services to four other university auxiliary corporations.

Chair
CYNTHIA TENIENTE-MATSON
Vice Chair
PAUL M. OLIARO
Executive Director
DEBORAH S. ADISHIAN-ASTONE
Chief Financial Officer
PETER PRESTEGARD
Director of Kennel Bookstore
RON DURHAM
Director of Food Services
PAUL IDSVOOG
Director of Housing
KAREN L. JOHNSON
Director of University Student Union
DIANE MILUTINOVICH
Director of Auxiliary/Human Resources
DENNIS MILLER
Director of M.I.S.
THERESA EURICH
Corporate Operations Manager
TAMARA DURANT
Staff Counsel
JOHN MELIKIAN

Foundation Board of Governors

The California State University, Fresno Foundation is responsible for the financial management and administration of grants and contracts, scholarships, student loan finds, and the university's endowment. The Foundation is responsible for the acceptance of all gifts and donations to the university.

Chair
ROBERT H. OLIVER
Vice Chair
JAMES D. HALLOWELL

Agricultural Foundation Board of Directors

The Agricultural Foundation provides the financial resources, land, animals, orchards, and vineyards for students to receive practical experience in the field of agriculture that reinforces their classroom instruction. Many of the products grown and produced by the enterprise units are sold through the campus Farm Market.

Chair
PAT RICCHIUTI
Vice Chair
LARRY LAYNE

Associated Students

Associated Students is the recognized student body government organization and provides a means for student participation in the governance of the university. It fosters awareness of student opinions on campus issues, assists in the protection of students' rights, and provides programs and services to meet the needs of students and the campus community.

Student Body President
MOLLY FAGUNDES
Adviser
GARY NELSON

Athletic Corporation

The Athletic Corporation was formed to promote and assist the athletics and educational program of the university. It applies the funds and properties coming into its hands toward furthering the athletics and educational program carried on by the university.

Chair
PAUL M. OLIARO
Vice Chair
VINCI RICCHIUTI

Programs for Children, Inc.

The Board of Directors for Fresno State Programs for Children (PFC) oversees the operation of the four centers that provide childcare services to the campus. The mission of PFC is to assist students who are parents attain their educational goals by providing quality care in a convenient and appropriate educational setting.

Executive Director and Chair
KENNETH G. SHIPLEY
Vice Chair
ROBERT MONKE

President

JOHN D. WELTY
Internal Auditor
To be announced
Executive Coordinator of Events
ROSIE GUTIERREZ

Provost and Vice President for Academic Affairs

JERONIMA ECHEVERRIA
Associate Provost
KENNETH G. SHIPLEY
Interim Budget Officer, Academic Affairs
RAYMOND ABHOLD
Interim Associate Vice President and Dean of Undergraduate Studies
DENNIS L. NEF
Interim Associate Vice President for Academic Personnel
JANETTE REDD WILLIAMS
Associate Vice President Grants and Research
THOMAS McCLANAHAN
Associate Vice President for Continuing and Global Education
BERTA GONZALEZ
Director of Institutional Research, Planning, and Assessment
To be announced

Deans/Associate Deans

Dean of the College of Agricultural Sciences and Technology
DANIEL P. BARTELL
Interim Associate Dean
WILLIAM R. FASSE
Interim Dean of the College of Arts and Humanities
VIDA SAMIIAN
Interim Associate Dean
JOSE DIAZ
Interim Dean of the Craig School of Business
GARO KALFAYAN
Interim Associate Dean
ROBERT HARPER
Dean of the Kremen School of Education and Human Development and Director of Teacher Education
PAUL L. BEARE
Interim Associate Dean
COLLEEN TORGERSON
Dean of the College of Engineering
To be announced
Associate Dean
WALTER LOSCUTOFF
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
ROBERT LEVINE

Interim Dean of the College of Social Sciences
LUZ GONZALEZ

Interim Associate Dean
HARVEY WALLACE

Dean of Library Services
MICHAEL GORMAN

Dean of the Division of Graduate Studies
VIVIAN A. VIDOLI

Associate Dean
DIANNE K. DICKERSON

Executive Director of Auxiliary Services
DEBORAH ADISHIAN-ASTONE

Vice President for Administration and Chief Financial Officer
CYNTHIA TENIENTE-MATSON

University Controller/ Financial Management
STEVE KATZ

Director of Facilities Management
ROBERT BOYD

Director of Public Safety
DAVID MOLL

Director of Human Resources
JEANNINE M.S. RAYMOND

University Budget Officer
JOHN R. WAAYERS

Director of Facilities Planning
GARY WILSON

Interim Director of Campus Information Systems
JOHN BRIAR

Interim Director of Information Technology Services
DARRELL MARTIN

Information Technology
Provost and Vice President for Academic Affairs
JERONIMA ECHEVERRIA

Vice President for Student Affairs and Dean of Students
PAUL M. OLIARO

Vice President for Administration
CYNTHIA TENIENTE-MATSON

Director of Academic Services Center
ETHELYNDA HARDING

Interim Director of Information Technology Services
DARRELL MARTIN

Interim Director of Campus Information Systems
JOHN BRIAR

Vice President for University Advancement
PETER N. SMITS

Director of Advancement Operations
RANDY LARSON

Comprehensive Campaign Director
MARY ANNA DUNN

Director of Volunteer Relations
NAOMI STROM

Director of Stewardship
MICHELE O'LAUGHLIN

Director of Planned Giving
CAROL WIDMER

Directors of Development

College of Agricultural Sciences and Technology
ALCIDIA FREITAS GOMES

College of Arts and Humanities
JESSE ARREGUIN

Craig School of Business
CATY MASSEY

Associate Director of Development
Vacant

College of Health and Human Services
SUE FENSKE

Kremen School of Education and Human Development
KATIE ZENOVICH

College of Engineering
DANA LUCKA

College of Science and Mathematics
DANA LUCKA

College of Social Sciences
JESSE ARREGUIN

Henry Madden Library
MARCIA MORRISON

Student Affairs
PAUL DeRUOSI

Director of Data and Information Services
ALEXIS PEREZ

Assistant Vice President for University Communications
MARK AYDELOTTE

Director of News Services
SHIRLEY MELIKIAN ARMBRUSTER

Director of Publications
BRUCE WHITWORTH

Web Manager
ENOCH GAMOIAN

Executive Director of Alumni Relations
JACQUELYN GLASENER

Director of Alumni Programs
LETICIA REYNA

Manager of Marketing and Membership
PETER ROBERTSON

Manager of Smittcamp Alumni House
LOIS MAY

Vice President for Student Affairs and Dean of Students
PAUL M. OLIARO

Associate Vice President and Associate Dean and Director of University Health and Psychological Services
ROBERT M. PAULL

Associate 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

Executive Director of Student Life
CAROLYN V. COON

Student Affairs Directors and Coordinators

Director of Admissions/Records/Evaluations
VIVIAN FRANCO

Director of Advising Services
To be announced

Director of Career Services
To be announced

Director of Development and Scholarship Programs
PAUL DeRUOSI

Director of Financial Aid
MARIA HERNANDEZ

Director of International Student Services and Programs
To be announced

Director of University Student Union
DIANE MILUTINOVICH

Coordinator of Student Activities and Leadership
GARY NELSON

Coordinator of Learning Resource Center/ Intensive Learning Experience
SONYA L. HILDRETH

Coordinator of Reentry Programs
To be announced

Director of Services for Students with Disabilities
CAROLE A. SNEE

Director of CSU Alcohol and Traffic Safety
PERRY ANGLE

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
SCOTT L. JOHNSON

Associate Athletics Director/External Operations
RANDY WELNIAK

Associate Athletics Director/Compliance and Student-Athlete Services/Senior Woman Administrator
DESIREE REED-FRANCOIS

Assistant Athletics Director/Communications
STEVE WEAKLAND

Assistant Athletics Director/Facilities Operations
JOHN J. KRIEBS

Assistant Athletics Director/Marketing
DEENA DIBOLL

Interim Assistant Athletics Director/ Student-Athlete Services
LINDA GANNAWAY

Assistant Controller
Vacant

Associate Athletics Director/Development
GREG WALAITIS

Department Chairs and Program Coordinators

College of Agricultural Sciences and Technology

Chair of Agricultural Economics
JAMES CASEY

Chair of Animal Sciences and Agricultural Education
ARTHUR A. PARHAM

Chair of Child, Family, and Consumer Sciences
WILLIAM R. FASSE

Chair of Food Science and Nutrition
SANDRA WITTE

Chair of Industrial Technology
TONY M. AU

Chair of Plant Science
CHARLES KRAUTER

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
RICHARD L. McQUONE

Chair of Communication
KATHERINE L. ADAMS

Chair of English
JAMES E. WALTON

Chair of Foreign Languages and Literatures
BARBARA BIRCH

Chair of Linguistics
ELLEN LIPP

Chair of Mass Communication and Journalism
DONALD M. PRIEST

Chair of Music
JOSÉ A. DÍAZ

Chair of Philosophy
ROBERT MALDONADO

Chair of Theatre Arts
KATHLEEN S. McKINLEY

The Craig School of Business

Chair of Accountancy
BENJAMIN TAI

Chair of Aerospace Studies
COL. JOSEPH BROZENA

Chair of Finance and Business Law
K.C. CHEN

Director of Graduate Business Program
ROBERT C. HILL

Chair of Information Systems and Decision Sciences/Marketing
DONALD STENGEL

Chair of Management
PAULA L. RECHNER

Chair of Military Science
LTC JOEL MANNING

Director of University Business Center
AMY CHUBB

Director of Real Estate and Land Use Institute
JOHN MAHONEY

Director of Small Business Development Center
RICHARD WHEELER

Kremen School of Education and Human Development

Chair of Counseling, Special Education, and Rehabilitation
CHARLES AROKIASAMY

Coordinator of Counselor Education Program
CHRISTOPHER LUCEY

Coordinator of Rehabilitation Counseling
CHARLES AROKIASAMY

Coordinator of School Counseling
SARAH LAM

Coordinator of Special Education Program
DANA CASEAU

Chair of Curriculum and Instruction
JOAN C. HENDERSON-SPARKS

Chair of Educational Research and Administration
DONALD WISE

Coordinator of Educational Administration
DONALD WISE

Chair of Literacy and Early Education
JUDITH CHIBANTE NEAL

Coordinator of BCLAD Program
ARMANDO BALTRA

Coordinator of Early Childhood Education Program
SUSAN MACY

Coordinator of Reading Language Arts Program
GLEN DEVOOGD

Co-Director of Joint Doctoral Program
SHARON BROWN-WELTY

Director of Early Education Center
SHAREEN S. ABRAMSON

Director of Reading Recovery Project
JUDITH CHIBANTE NEAL

Coordinator of Curriculum and Instruction M.A. Program
JEAN BEHREND

Coordinator of Graduate Programs
SUSAN TRACZ

Coordinator of Liberal Studies Program
ROBERT MONKE

Coordinator of Multiple Subject Program
COLLEEN TORGERSON

Coordinator of Single Subject Program
JOLYNE S. DAUGHTRY

Co-Coordinator of Victim Services Certificate Program
JOAN C. HENDERSON-SPARKS

College of Engineering

Chair of Civil and Geomatics Engineering and Construction
JAMES K. CROSSFIELD

Program Coordinator for Electrical and Computer Engineering
RAMAKRISHNA NUNNA

Program Coordinator for Mechanical and Industrial Engineering
SATYA D. MAHANTY

College of Health and Human Services

Chair of Communicative Disorders and Deaf Studies
DON B. FREED

Chair of Health Science
SHERMAN K. SOWBY

Chair of Kinesiology
CATHERINE G.R. JACKSON

Chair of Nursing
MICHAEL F. RUSSLER

Chair of Physical Therapy
PEGGY TRUEBLOOD

Coordinator of Recreation Administration and Leisure Studies/Gerontology Program
JOHN CROSSLEY

Chair of Social Work Education
E. JANE MIDDLETON

College of Science and Mathematics

Chair of Biology
SHIRLEY KOVACS

Chair of Chemistry
RONALD L. MARHENKE

Chair of Computer Science
TAREK ALAMELDIN

Chair of Earth and Environmental Sciences
FREDERIKA J.M. HARMSEN

Chair of Mathematics
LARRY W. CUSICK

Chair of Physics
GERARDO MUNOZ

Chair of Psychology
KAREN CAREY

College of Social Sciences

Coordinator of Africana and American Indian Studies Program
YAW OHENEBA-SAKYI

Chair of Anthropology
ROGER M. LaJEUNESSE

Chair of Chicano and Latin American Studies
CARLOS PEREZ

Chair of Criminology
STEVEN D. WALKER

Co-Coordinator of Victim Services Certificate Program
STEVEN D. WALKER

Chair of Economics
DON R. LEET

Chair of Geography
ARIBILOLA S. OMOLAYO

Chair of History
MICHELLE DenBESTE

Chair of Political Science
RUSSELL MARDON

Chair of Sociology
ELIZABETH HARTUNG

Coordinator of Women's Studies Program
LORETTA KENSIGNER

Privacy Rights of Students in Education Records

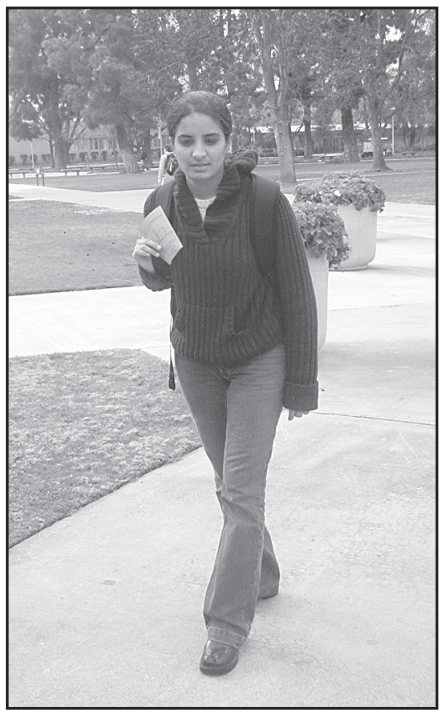
The federal *Family Educational Rights and Privacy Act* of 1974 (20 U.S.C. 1232g) and regulations adopted thereunder (34 C.F.R. 99) set out requirements designed to protect students' privacy in their records maintained by the campus.

The statute and regulations govern access to student records maintained by the campus and the release of such records. The law provides that the campus must give students access to records directly related to the student, and must also provide opportunity for a hearing to challenge the records if the student claims they are inaccurate, misleading, or otherwise inappropriate. The right to a hearing under this law does not include any right to challenge the appropriateness of a grade determined by the instructor. The law generally requires the institution to receive a student's written consent before releasing personally identifiable data about the student. The institution has adopted a set of policies and procedures governing implementation of the statute and the regulations. Copies of these policies and procedures may be obtained at the Office of the Vice President for Student Affairs and Dean of Students. The vice president for Student Affairs and dean of students is the custodian of all student records maintained by the university.

Among the types of information included in the campus statement of policies and procedures are the following: (1) the types of student records maintained and the information they contain, (2) the official responsible for maintaining each type of record, (3) the location of access lists indicating persons requesting or receiving information from the record, (4) policies for reviewing and expunging records, (5) student access rights to their records, (6) the procedures for challenging the content of student records, (7) the cost to be charged for reproducing copies of records, and (8) the right of the student to file a complaint with the Department of Education.

The Department of Education has established an office and review board to investigate complaints and adjudicate violations. The designated office for this purpose is Family Policy Compliance 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" at California State University, Fresno may include the student's name; major field of study; participation of officially recognized activities and sports; weight and height of members of athletic teams; enrollment status; degrees, honors, and awards received; and the most recent educational institution attended.



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 the student requests not be released. Written requests to restrict directory information should be sent to the Office of Admissions, notated on an Admissions Address Change Form, or noted on the personal portfolio in the portal under *myfresnostate.com*.

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 the campus's academic, administrative or service functions and have reason for using student records associated with their campus or other related academic responsibilities. Students' records may also be disclosed 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; or to other institutions to which the student is transferring).

Use of Social Security Number. Applicants are required to include their correct Social Security 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 (26 U.S.C. 6109). The university uses the Social Security number to identify students and locate their records. The Social Security number is used to determine 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

Entering CSU students are required to present proof of the following immunizations to the CSU campus they will be attending before the beginning of their first term of enrollment.

Measles and Rubella. All new and readmitted students born after January 1, 1957 must provide proof of full immunization against measles and rubella prior to enrollment.

Hepatitis B. All new students who will be 18 years of age or younger at the start of their first term at a CSU campus must

provide proof of full immunization against Hepatitis B before enrolling. Full immunization against Hepatitis B consists of three timed doses of vaccine over a minimum four- to six-month period. If you need further details or have special circumstances, please consult the Student Health Center, 559.278.2734.

Incoming freshmen who will be residing in on-campus housing will be required to return a form indicating that they have received information about meningococcal disease and the availability of the vaccine to prevent them from contracting the disease and whether or not they have chosen to receive the vaccination. These are ***not*** admission requirements, but shall be required of students as conditions of enrollment in CSU.

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 (in the Equal Employment and Education Opportunity Plan and the Equal Opportunity Plan for Individuals with Disabilities, Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans) addresses 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 by contacting Jeannine Raymond, director of Human Resources, 559.278.2364, Joyal Administration Building, Room 148. Inquiries may also be directed to Janette Redd-Williams, the interim associate vice president for Academic Personnel and reviewer for faculty concerns, 559.278.3027, or Paul Oliaro, vice president for Student Affairs/dean of students and reviewer for student concerns, 559.278.2541.

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 managers 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 Office of the Vice President for Student Affairs and Dean of Students, 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 Jeannine Raymond, the director of Human Resources, 559.278.2364.

Race, Color, and National Origin. The California State University complies with the requirements of Title VI and Title VII of the Civil Rights Act of 1964 as amended and the regulations adopted thereunder. No person shall, on the basis of race, color, or national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any program of the California State University.

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, director of Services for Students with Disabilities, 559.278.2811. Reasonable efforts will be made to accommodate your special needs.

Sex/Gender. The California State University does not discriminate on the basis of sex or 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; Paul Oliaro, vice president for Student Affairs and dean of students, Joyal Administration Building, Room 262, 559.278.2541; the personnel director, Auxiliary Services, 4910 N. Chestnut, 559.278.0860; 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.

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

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-193), also known as the Welfare Reform Act, includes 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 percent 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, including, but not limited to, Education Code Sections 90012, 90027, and 90068. *Student body association fees* support a variety of cultural and recreational programs, childcare centers, and special student support programs.

The process to establish and adjust other campus-based mandatory fees requires consideration by the campus fee advisory committee and sometimes a student referendum. 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. Unauthorized recording, dissemination, and publication of academic presentations for commercial purposes. This prohibition applies to a recording made in any medium, including, but not limited to, handwritten or typewritten class notes.
   1. The term "academic presentation" means any lecture, speech, performance, exhibition, or other form of academic or aesthetic presentation, made by an instructor of record as part of an authorized course of instruction that is not fixed in a tangible medium of expression.
   2. The term "commercial purpose" means any purpose that has financial or economic gain as an objective.
   3. "Instructor of record" means any teacher or staff member employed to teach courses and authorize credit for the successful completion of courses.
o. 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 or of the CSU system.

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 *Class Schedule*.

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.

Reservation to Deny Admission

The university reserves the right to select its students and deny admission to the university or any of its programs as the university, in its sole discretion, determines appropriate, based on an applicant's suitability and the best interests of the university.

Fresno State

Discover
Yourself

Faculty, Admin, Emeriti 2004-2005

WELTY, JOHN D., President (1991)
Professor, Counseling, Special Education, and Rehabilitation
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)
Interim Budget Officer, Academic Affairs; Professor, Biology
B.S., University of Washington;
M.S., Ph.D., Rutgers University, New Brunswick.

ABOSCH, YISHAIYA (2002)
Assistant Professor, Political Science
B.A., Princeton University;
M.A., State University of New York, Buffalo;
Ph.D, Claremont Graduate School.

ABRAMSON, SHAREEN (1981)
Professor, Literacy and Early Education
B.A., University of California, Los Angeles;
M.A., Antioch University;
Ph.D., Vanderbilt University.

ADAMS, KATHERINE L. (1983)
Professor, Chair, Communication
B.S., M.A., University of Wyoming;
Ph.D., University of Utah.

ADAMS, PAUL D. (1987)
Professor, Mass Communication and Journalism
B.A., University of Oklahoma, Norman;
M.A., Ph.D., University of Texas at Austin.

ADISASMITO-SMITH, STEVEN E. (2003)
Assistant Professor, English
B.A., University of Illinois;
M.A., Ph.D., University of Illinois, Urbana-Champlain.

AGBAYANI, BRIAN (2001)
Assistant Professor, Linguistics
B.A., M.A., Ph.D., University of California, Irvine.

AGUILAR-GAXIOLA, SERGIO (1990)
Professor, Psychology
M.D., Autonomous University of Guadalajara (Mexico); M.S., Ph.D., Vanderbilt University.

AHN, KYU-HO (2002)
Assistant Professor, Art and Design
B.F.A., Honk Ik University, College of Fine Arts, Seoul; M.F.A, Iowa State University.

ALAMELDIN, TAREK K. (1990)
Professor, Chair, Computer Science
B.S., Ain Shams University, Cairo (Egypt);
M.S., Columbia University;
Ph.D., University of Pennsylvania.

ALDRICH, KENNETH R. (1988)
Associate Professor, Kinesiology
B.A., California State University, San Bernardino; M.A., University of Oregon;
Ed.D., University of California, Davis/ California State University, Fresno.

ALEXANDER, LINNEA M. (1983)
Professor, English
B.A., M.A., California State University, Fresno; Ph.D., University of Iowa.

ALAMILLO, LAURA (2004)
Lecturer, Literacy and Early Education
B.A., University of California, Berkeley.

AMARAL, JACINTA (1988)
Professor, Foreign Languages and Literatures
B.A., Wells College;
M.A., New York University;
Ph.D., Yale University.

AMARAL, PEDRO (1987)
Professor, Philosophy
B.A., Ph.D., University of Pittsburgh.

AMARASINGHE, THISATH R. (2000)
Assistant Professor, Mathematics
B.S., Colombo University, Colombo, Sri Lanka; M.S., Purdue University;
Ph.D., Indiana University.

ANAGNOSTOPOULOS, MARINA (2002)
Lecturer, Philosophy
B.A., UC Los Angeles;
M.A., Ph. D. UC Irvine.

ANDERSON, RANDY J. (1982)
Professor, Information Systems and Decision Sciences
B.S., M.A., Arizona State University;
Ph.D., North Texas State University.

ANDERSON, RODNEY A. (1996)
Lecturer, Political Science
B.A., University of Nebraska, Lincoln;
Ph.D., Ohio State University.

ANDERSON, TIMOTHY R. (1983)
Professor, Kinesiology
B.A., M.S., Ed.D., University of Kentucky.

ANDREWS, DAVID M. (1993)
Professor, Biology and Curriculum and Instruction
B.A., Southern Connecticut State University;
M.Ed., Ed.D., University of Maine.

ARENAS, ROSIE A. (1996)
Assistant Professor, Literacy and Early Education
A.A., Kings River Community College;
B.A., California State University, Fresno;
M.A., Fresno Pacific College;
Ed.D., University of San Francisco.

ARENZ, BERNARD (2001)
Associate Professor, Curriculum and Instruction
B.S., University of Minnesota;
M.S., Ph.D., University of Wisconsin.

AROKIASAMY, CHARLES V. (1996)
Professor, Chair, Counseling, Special Education, and Rehabilitation
B.S., M.S., Ph.D., Southern Illinois University.

ARVANIGIAN, MARK E. (2003)
Assistant Professor, History
B.A., M.A., California State University, Fresno; Ph.D., University of Durham-United Kingdom.

ASAHINA, ROBERTA REESE (1984)
Professor, Mass Communication and Journalism
B.A., M.A., University of Utah;
Ph.D., Tufts University.

ATTAR, SAEED (1998)
Assistant Professor, Chemistry
B.S., M.S., Ph.D., University of Nevada, Reno.

ATWOOD, RITA ANN (1987)
Professor, Mass Communication and Journalism
B.A., M.A., California State University, Fresno; Ph.D., University of Washington, Seattle.

AU, TONY M. (1985)
Professor, Chair, Industrial Technology
B.S., National Taiwan Normal University;
M.S., University of Wisconsin, Stout;
Ph.D., University of Minnesota.

AUERNHEIMER, BRENT J. (1986)
Professor, Computer Science
B.A., M.S., Ph.D., University of California, Santa Barbara.

AUSTIN, DON (2000)
Lecturer, Industrial Technology
B.A., Wake Forest University;
M.S., University of North Texas.

AUSTIN, JENNIFER (2004)
Assistant Professor, Psychology
B.S., M.S., Ph.D., Florida State University.

AVALOS-HUERTA, ANTONIO (2003)
Assistant Professor, Economics
B.S., Universidad Popular Autonoma del Estado Puebla, Mexico;
M.S., Ph.D., Oklahoma State University.

AVILA, DEBBIE (2004)
Lecturer, Foreign Language
B.A., California State University, Sacramento;
M.A., University of California, Irvine.

AYDELOTTE, MARK (2000)
Assistant Vice President for University Communications
B.A., California State University, Fresno.

AYOTTE, KEVIN J. (2002)
Assistant Professor, Communication
B.A., DePaul University;
M.A., Ph.D., University of Pittsburgh.

BACA, MARIO L. M. (1983)
Professor, Curriculum and Instruction
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, Viticulture and Enology
B.S., Ain-Shams University (Egypt);
M.S., Ph.D., University of California, Davis.

BAKER, DENNIS M. (1984)
Professor, Accountancy
B.S., California State University, Fresno;
Ph.D., University of California, Los Angeles;
C.P.A.

BAKER, TIMOTHY (2001)
Lecturer, Accountancy
B.A., California State University, Los Angeles.

BALDIS, MARK (2000)
Lecturer, Kinesiology
B.A., M.A., California State University, Fresno.

BALINT, KENNETH (2001)
Assistant Professor, Theatre Arts
B.A., Jacksonville University;
M.A., Arizona State University.

BALTRA, ARMANDO (1987)
Professor, Literacy and Early Education
B.A., University of Chile;
M.Sc., University of Edinburgh (Scotland);
Ph.D., Catholic University of Sao Paulo (Brazil).

BARABAS, ARTHUR H. (1983)
Professor,
Earth and Environmental Sciences
A.B., Princeton University;
M.PHIL., Ph.D., Yale University.

BARAKZAI, MARY D. (2003)
Assistant Professor, Nursing
B.A., Wellesley College;
B.S., Cornell University;
B.S.N., Cornell University-Endowed Colleges;
M.S., M.S.N., Columbia University;
Ed.D., University of California, Davis/ California State University, Fresno.

BARKER, NAN O. (1999)
Lecturer, Communicative Disorders and Deaf Studies
B.A., M.A., California State University, Fresno.

BARTELL, DANIEL P. (1992)
Dean, School of Agricultural Sciences and Technology; Professor, Plant Science
B.S., Eastern Illinois University;
M.S., Purdue University;
Ph.D., University of Kentucky.

BASURTO, IMELDA (1999)
Assistant Professor,
Literacy and Early Education
B.A., Prescott College;
M.A., Ph.D., University of New Mexico.

BATESOLE, MICHAEL (2002)
Head Baseball Coach, Athletics
B.S., M.S., California State University, Fullerton.

BAXTER, JOHN (1996)
Assistant Coach, Men's Football, Athletics
B.S., Loras College;
M.S., Iowa State University.

BEACH, GUY (2003)
Assistant Coach, Men's Basketball, Athletics
B.S., Weber State University.

BEAMAN, M. TERESA (1986)
Professor, Music
B.A., Yale College;
M.M., Yale University School of Music;
D.M.A., State University of New York at Stony Brook.

BEARE, PAUL L. (2003)
Dean, Kremen School of Education and Human Development;
Professor, Counseling Special Education and Rehabilitation
B.A., M.Ed., Ph.D., University of Missouri – Columbia.

BEAURGARD, DONALD (1997)
Lecturer, Curriculum and Instruction
B.A., M.A., California State University, Fresno.

BEHREND, JEAN (1997)
Associate Professor,
Curriculum and Instruction
B.S., Ph.D., University of Wisconsin, Madison; M.S., California State University, Hayward.

BELL, KAREN R. (1987)
Professor, Philosophy
A.B., Boston University;
M.A., M.Phil., Ph.D., University of Kansas.

BENAVIDES, OTTO (1990)
Associate Professor,
Curriculum and Instruction
B.A., Universidad La Gran Columbia;
M.Ed., Ed.S., Northeast Louisiana University.

BENES, SHARON (1998)
Associate Professor, 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, Electrical and Computer Engineering
B.S., Alexandria University, Egypt;
M.E., Carleton University, Ottawa, Canada;
Ph.D., University of Calgary, Alberta, Canada.

BENNINGA, JACQUES S. (1983)
Professor, Curriculum and Instruction
B.A., University of North Carolina;
M.A., Ph.D., George Peabody College for Teachers.

BERGMAN, TED LARS (2004)
Assistant Professor,
Foreign Languages and Literatures
B.A., Wesleyan University; M.A., Ph.D., Princeton University.

BERLINER, ANN E. (1984)
Professor, Philosophy
B.A., Goddard College;
M.A., California State University, Sonoma;
Ph.D., Graduate Theological Union.

BERNTHAL, CRAIG A. (1988)
Professor, English
B.A., B.S., M.A., Michigan State University;
J.D., University of Washington;
Ph.D., Michigan State University.

BERRETT, BRYAN D. (1998)
Lecturer,
Communicative Sciences and Disorders
B.A., California State University, Northridge;
M.A., California State University, Chico.

BEYNON, JOHN C. (2000)
Assistant Professor, English
B.A., M.A., University Utah;
Ph.D., University of California, Riverside.

BIACINDO, KATHRYN J. (1989)
Associate Professor,
Curriculum and Instruction
B.A., M.Ed., Ed.D., Rutgers University.

BIRCH, BARBARA (1990)
Professor, Linguistics, Chair,
Foreign Languages and Literatures
B.A., M.A., Ph.D., University of Wisconsin-Madison.

BLAIR, DIANE M. (2000)
Assistant Professor, Communication
B.A., Mount Union College;
M.A., Ohio State University;
Ph.D., University of Maryland, College Park.

BLAKE-QUISENBERRY, JANINE (1998)
Lecturer, Curriculum and Instruction
B.A., California State University, Fresno.

BLUM, DENISE (2003)
Assistant Professor,
Curriculum and Instruction
B.A., Rhodes College;
M.A., Ph.D., University of Texas at Austin.

BLUMENSHINE, STEVEN (2001)
Assistant Professor, Biology
B.S., University of Wisconsin-Madison;
M.S., George Mason University;
Ph.D., University of Notre Dame.

BOCHIN, JANET S. (1973)
Librarian, Music Library
B.M., M.L.S., University of Texas at Austin;
M.A., California State University, Fresno.

BOHLIN, CAROL FRY (1990)
Professor, Curriculum and Instruction
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, Curriculum and Instruction
B.S., Bowling Green State University;
M.Ed., Ph.D., Kent State University.

BOONE, BENJAMIN (2000)
Assistant Professor, Music
B.A., B.M., University of Tennessee, Knoxville; M.M., Boston University, Boston;
D.M.A., University of South Carolina, Columbia.

BOTWIN, MICHAEL D. (1990)
Chair, Academic Senate;
Professor, Psychology
B.A., Oakland University (Michigan);
Ph.D., University of Michigan, Ann Arbor.

BRADY, ROLAND H. (1986)
Professor,
Earth and Environmental Sciences
B.S., Sonoma State University;
Ph.D., University of California, Davis.

BRIAN, NANCY K. (1987)
Professor, Art and Design
B.F.A., M.F.A., University of Georgia.

BROWN, DAN (1996)
Recruiting Coordinator/Linebacker Coach, Football, Athletics
B.S., Boise State.

BROWN-WELTY, SHARON (1993)
Co-Director of Joint Doctoral Program at California State University, Fresno;
Professor, Educational Research and Administration,
B.S., M.B.A., Indiana University of Pennsylvania;
Ed.D., University of Pittsburgh.

BROZENA, COL. JOSEPH J. JR. (2003)
Professor, Aerospace Studies
B.S., University of Wisconsin-Superior;
M.S., Central Michigan University.

BUCHER, MANFRED (1982)
Professor, Physics
Diplom-Physiker, Dr. Phil. Nat., Goethe University (Germany).

BUKOFZER, DANIEL C. (1989)
Professor,
Electrical and Computer Engineering
B.S., California State University, Los Angeles;
M.S., University of California, Los Angeles;
Ph.D., University of California, Davis.

BURKE-DOE, ANNIE P. (2003)
Assistant Professor, Physical Therapy
B.A., Ph.D., University of the Pacific;
M.P.T., M.S., University of California, San Francisco.

BURNS, THOMAS (1998)
Lecturer, Management
B.A., Central Washington State University;
M.B.A., Pepperdine University.

BYLER KELM, KATHERINE S. (2002)
Assistant Professor, Mathematics
B.A., University of California, Berkeley;
M.S., University of Oregon.

CAGLE, JOHN A. (1970)
Professor, Communication
B.A., M.A., San Fernando Valley State College; Ph.D., University of Iowa.

CAILLIET, GREG M. (1974)
Professor, Biology at Moss Landing
B.A., Ph.D., University of California, Santa Barbara.

CALDERON-URREA, ALEJANDRO (1997)
Associate Professor, Biology
B.A., Universidad del Valle, Colombia;
M.S., Vrije Universiteit Brussel, Belgium;
Ph.D., Yale University.

CALDWELL, MICHAEL D. (2002)
Assistant Professor, Music
B.A., California State University, Fresno;
M.A., Ph.D., University of Illinois Urbana-Champaign.

CALVARESE, MICHELLE (2000)
Assistant Professor, Geography
B.A., Villanova University;
M.A., West Chester University;
Ph.D., Texas A&M University.

CAPITMAN, JOHN (2004)
Professor, Health Science
B.A., Yale University; Ph.D., Duke University.

CARDEN, ALLEN (2001)
Lecturer, History
B.A., Biola College
M.A., California State University, Fullerton
Ph.D., University of California, Irvine.

CAREY, KAREN T. (1989)
Professor, Chair, Psychology;
B.S., San Diego State University;
M.S., University of Nevada, Las Vegas;
Ph.D., University of Cincinnati.

CARLIN, ANDREA B. (1992)
Lecturer, Social Work Education
B.A., Colby College;
M.S.W., Smith College.

CARPENTER, ANGELICA (1999)
Librarian, Henry Madden Library
B.A., M.S., M.Ed., University of Illinois at Urbana, Champaign.

CARR, JACQUELINE B. (1998)
Assistant Professor, History
B.A., Ph.D., University of California, Berkeley;
M.A., California State University, Sacramento.

CARRION, DANIEL E. (1985)
Professor, Theatre Arts
B.A., M.A., California State University, Fresno.

CASEY, JAMES E. (1999)
Professor, Chair, Agricultural Economics
B.S., M.S., Ph.D., Texas A & M University.

CAUGHLAN, SAMANTHA (2004)
Assistant Professor, English
B.A., B.S., M.S., Ph.D., University of Wisconsin-Madison.

CHAFFE-STENGEL, PRISCILLA M. (1984)
Professor, Information Systems and Decision Sciences
B.A., University of California, San Diego;
M.A., California State University, Fresno;
Ph.D., Stanford University.

CHAPMAN, HONORA H. (2002)
Assistant Professor,
Foreign Languages and Literatures
B.A., Ph.D., Stanford University.

CHATTERJEE, KAUSIK (2002)
Assistant Professor, Electrical and Computer Engineering
B.S., Jadavpur University, Calcutta, India;
M.S., Indian Institute of Technology, Kanpur India; Ph.D., Rensselear Polytechnic Institute.

CHATTOPADHAY, SOMMATH (2002)
Lecturer, Electrical and Computer Engineering
B.E., University of Gorakhpur;
M.Tech, Ph.D., Institute of Technology, Banaras Hindu University.

CHEN, KUANG C. (1988)
Professor, Chair, Finance and Business Law
B.A., National Taiwan University;
M.B.A., Ph.D., Ohio State University.

CHIERO, ROBIN (1997)
Associate Professor,
Curriculum and Instruction
B.A., University of Redlands; B.S., Coleman College; M.A., Joint Ph.D., Claremont Graduate University and San Diego State University.

CHOUDHURY, GOUR (2004)
Associate Professor,
Food Science and Nutrition
B.S., University of Gauhati;
M.S.,University of Mysore;
Ph.D., University of Alberta.

CHOY, CLAIRE (2001)
Assistant Professor,
Counseling, Special Education, and Rehabilitation
B.E., M.E., University of Toronto;
Ph.D., University of Ontario.

CHUA, CHENG LOK (1986)
Professor, English
B.A., DePauw University;
M.A., Ph.D., University of Connecticut.

CIGNETTI, FRANK JR (2002)
Assistant Coach, Men's Football, Athletics
B.A., Indiana University of Pennsylvania.

CLINE, KURT D. (2003)
Assistant Professor, Political Science
B.A., M.A., University of Northern Iowa;
Ph.D., Colorado State University.

CLUNE, LORI (2001)
Lecturer, History
B.A., Purchase College, SUNY;
M. A., New York University.

COE, CHARLENE BROWN (1994)
Lecturer, Management
B.A., M.B.A., California State University, Fresno.

COLES, MICHAEL G. (1998)
Assistant Professor, Kinesiology
B.A., M.A., California State University, Fresno; Ph.D., University of Utah.

CONLEE, CONSTANCE C. (1983)
Professor, Communication
B.S., Georgia State University;
M.A., Auburn University;
Ph.D., University of Oklahoma.

CONNOLLY, COLLEEN M. (2003)
Assistant Professor, English
B.A., M.A., University of Wisconsin, Milwaukee; Ph.D., University of South Florida.

CONSTABLE, JOHN V. (2002)
Assistant Professor, Biology
B.S., Syracuse University;
Ph.D., Louisiana State University.

CORDIERO, JOHN (1969)
Lecturer, Animal Sciences and Agricultural Education
B.S., M.S., California Polytechnic State University, San Luis Obispo.

CORDS, DOUGLAS A. (1969)
Professor, Marketing and E-Business
B.S., M.B.A., California State University, Fresno; Ph.D., University of California, Los Angeles.

COTICONE, SULEKHA RAO (2003)
Assistant Professor, Chemistry
B.S., University of Delhi;
M.S., Indian Institute of Technology;
Ph.D., University of Minnesota.

CRANE, MAUREEN T. (1989)
Lecturer, Accountancy
B.S., California State University, Northridge;
M.S., California State University, Fresno.

CROSBIE, PAUL R. (2000)
Assistant Professor, Biology
B.S., University College of Swansea, Wales;
P.G.C.E., Avery Hill College,
London, England;
M.A., California State University, Fresno;
Ph.D., University of California, Davis.

CROSSFIELD, JAMES K. (1984)
Professor, Chair, Civil and Geomatics Engineering and Construction
B.S., CHEM., B.S.C.E., M.S., Ph.D.,
University of Wisconsin, Madison.

CROSSLEY, JOHN C. (2000)
Professor, Coordinator, Recreation Administration, and Leisure Studies Program; Coordinator, Gerontology Program
B.S., Florida State University;
M.Ed., University of Georgia;
Ed.D., University of Utah.

CUELLAR, ALFREDO (1990-96; 1999)
Associate Professor,
Educational Research and Administration
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