Chemistry/Biochemistry

College of Natural Sciences and Mathematics

DEPARTMENT CHAIR

Maria C. Linder

DEPARTMENT OFFICE

McCarthy Hall 580

PROGRAMS OFFERED

Bachelor of Science in Biochemistry

Bachelor of Science in Chemistry

Bachelor of Arts in Chemistry

Minor in Chemistry

Minor in Biotechnology

Emphasis in Biotechnology

Emphasis in Environmental Chemistry

Master of Science in Chemistry

Emphasis in Geochemistry

SUBJECT MATTER PREPARATION PROGRAM

Single Subject Teaching Credential in Science

DEPARTMENT WEBSITE

http://chemsrvr2.fullerton.edu/

FACULTY

Peter de Lijser, Richard Deming, Mark Filowitz, Leslie Gillespie, Barbara Gonzalez, Christina Goode, A. Scott Hewitt, Paula Hudson, Christopher Hyland, Katherine Kantardjieff, Zhuangjie Li, Maria Linder, Christopher Meyer, Madeline Rasche, Kereen Monteyne, Harold Rogers, Chandra Srinivasan, Jonathan Stoddard, Fu-Ming Tao

ADVISERS

Undergraduate: Mark Filowitz

Graduate: Peter de Lijser

INTRODUCTION

The Department of Chemistry and Biochemistry plans its curriculum to provide thorough instruction in the basic principles and concepts of chemistry and biochemistry for students who will (1) advance to graduate work in chemistry or biochemistry; (2) teach in the science programs of secondary schools; (3) seek employment in industry or government; (4) advance to medical, dental, or pharmacy training or (5) pursue a degree or minor in support of a career in other areas such as physics, biology, geology, business or computer science.

The department offers three bachelor's degrees, the Bachelor of Science (B.S.) and the Bachelor of Arts (B.A.) in Chemistry and the Bachelor of Science (B.S.) in Biochemistry.

To qualify for any of these degrees, a student must earn a "C" (2.0) grade or better in all courses required for the major including prerequisites in related sciences or mathematics.

The Department of Chemistry and Biochemistry is currently on the approved list of The American Chemical Society (ACS), and students have the opportunity to earn ACS certification of the B.S. degrees offered.

The Bachelor of Arts in Chemistry, the Bachelor of Science in Chemistry and the Bachelor of Science in Biochemistry require a minimum of 120 units. These total units include courses for the major, General Education, all University requirements, and free electives.

Internships

Internship in Chemistry and Biochemistry (Chemistry 490) provides practical work experience which integrates with the student's classroom studies.

Recommended Program in General Education

Because of high unit requirements for chemistry degree programs, a student majoring in chemistry is strongly urged to consult with an adviser at the Academic Advisement Center in UH-123 prior to designing his/her general education program. There is a six-unit exemption in general education for B.S. Chemistry degree majors for which the undergraduate Chemistry adviser must be consulted.

Upper-Division Baccalaureate Writing Requirement

Chemistry and biochemistry majors meet the coursework portion of the university's upper-division writing requirement by passing Chemistry 340, English 301, or English 360 with a grade of "C" or better.

TEACHING CREDENTIALS

A bachelor's degree in Chemistry may be effectively combined with subject matter studies necessary for the single subject teaching credential in science. Undergraduates are encouraged to work with the department adviser and/or the Center for Careers in Teaching (714-278-7130) as early as possible in their academic careers to plan efficient course selections for general education, the major, and electives. Postbaccalaureate students need to contact the Admission to Teacher Education office in the College of Education (714-278-3352) to obtain information on attending an overview presentation and orientation prior to meeting with the department adviser.

BACHELOR OF SCIENCE IN BIOCHEMISTRY

The B.S. degree in Biochemistry is recommended for students planning to go directly into professional biochemistry careers and for students planning to attend graduate school in biochemistry or molecular biology. It is also excellent preparation for medical, dental and pharmacy school. Students who complete this program and include Chemistry 325 (3 units) and Chemistry 411 (3 units) may qualify for certification by the American Chemical Society. The major in biochemistry requires the following courses:

Basic Requirements (45 units)

Courses Normally Taken During the First Two Years (Courses are prerequisite to additional required courses.):

General Chemistry (Chemistry 120A,B) (10)

Introductory Chemical Computation (Chemistry 210) (1)

Organic Chemistry (Chemistry 301A,B) (6)

Organic Chemistry Laboratory (Chemistry 302) (2)

Elementary Physics (Physics 211, 212) (6)

Elementary Physics: Laboratory (Physics 211L, 212L) (2)

Calculus (Math 150A,B) (8)

Biology 172, 273 (10) or appropriate transfer classes.

Note: Students who pass multivariable calculus Math 250A (4) are exempt from Chemistry 210.

Note: Chemistry 306A and B (4) may be substituted for Chemistry 302 (2).

Additional Required Courses (29 units)

Theory of Quantitative Chemistry (Chemistry 315) (3)

Quantitative Chemistry Laboratory (Chemistry 316) (1)

Writing for the Chemical Sciences (Chemistry 340) (3)

Introduction to Physical Chemistry (Chemistry 361A,B) (6)

Careers in Chemistry and Biochemistry (Chemistry 390) (1)

Introduction to Computational Genomics (Chemistry 410A) (1)

General Biochemistry Laboratory (Chemistry 422) (2)

General Biochemistry (Chemistry 423A,B) (6)

Advances in Biotechnology (Chemistry 477) (3)

Senior Research (Chemistry 495) (3)

Note: Chemistry 371A,B may be substituted for Chemistry 361A,B

Note: English 301 or English 360 may be substituted for Chemistry 340.

Upper-division electives are encouraged. See the department handbook or the department adviser for the approved list of courses.

BACHELOR OF SCIENCE IN CHEMISTRY

The Bachelor of Science degree in chemistry is recommended for students planning to go directly into professional chemistry careers and for those who wish to do graduate work in chemistry. Students who complete this program and include an advanced course in instrumental analysis (such as 3 units of Chemistry 411) and advanced inorganic-chemistry (Chemistry 425) may qualify for degree certification by the American Chemical Society. The B.S. in Chemistry requires 48 units of Chemistry courses, 25 units of support courses, and 9 units of adviser-approved career-breadth courses.

Basic Requirements (42 units)

Courses Normally Taken During the First Two Years (These courses are prerequisite to the additional required chemistry courses):

General Chemistry (Chemistry 120A,B) (10)

Introductory Chemical Computation (Chemistry 210) (1)

Organic Chemistry (Chemistry 301A,B, 306A,B) (10)

Quantitative Chemistry (Chemistry 315) (3)

Quantitative Chemistry Laboratory (Chemistry 316) (1)

Fundamental Physics (Physics 225, 226, 227 (1 unit), 225L, 226L) (9)

Calculus (Math 150A,B) (8)

Note: For students planning to pursue a graduate degree, both Physics 227 (3 units) and 227L (1 unit) are highly recommended.

Additional Required Chemistry Courses (19 units)

Inorganic Chemistry (Chemistry 325) (3)

Physical Chemistry Laboratory (Chemistry 355) (3)

Writing for the Chemical Sciences (Chemistry 340) (3)

Physical Chemistry (Chemistry 371A,B) (6)

Careers in Chemistry and Biochemistry (Chemistry 390) (1)

Senior Research (Chemistry 495) (3)

Note: English 301 or English 360 may be substituted for Chemistry 340.

Upper-division elective (3 units)

The following upper-division chemistry courses do not apply toward the upper-division elective requirement: Chemistry 480A, 490, 495, 496 and 499.

Other Requirements (9 units)

Multivariate Calculus (Math 250A) (4)

Introduction to Linear Algebra and Differential Equations (Math 250B) (4)

Introduction to Computational Chemistry (Chemistry 410C) (1)

Career Breadth Requirements (9 units)

The career breadth requirement is satisfied by taking nine units of upper-division course work directly related to the student's career plans and approved in advance by the undergraduate adviser.

BACHELOR OF ARTS IN CHEMISTRY

The Bachelor of Arts in Chemistry is offered for students who are planning careers that require a sound background in fundamental chemistry, but not at the depth of the B.S. degree. The B.A. is particularly suited for those who plan to go into areas such as secondary education, technical sales, food processing, chemical patent law and forensic sciences. The B.A. in Chemistry requires 45 units of Chemistry courses, and 16 units of support courses.

Basic Requirements (41 units)

Courses Normally Taken During the First Two Years (These courses are prerequisite to the additional required chemistry courses):

General Chemistry (Chemistry 120A,B) (10)

Introductory Chemical Computation (Chemistry 210) (1)

Organic Chemistry (Chemistry 301A,B, 306 A,B) (10)

Quantitative Chemistry (Chemistry 315) (3)

Quantitative Chemistry Laboratory (Chemistry 316) (1)

Elementary Physics (Physics 211, 212, 211L, 212L) (8)

Calculus (Math 150A,B) (8)

Additional Required Chemistry Courses (20 units)

Introduction to Computational Chemical (Chemistry 410C) (1)

Inorganic Chemistry (Chemistry 325) (3)

Writing for the Chemical Sciences (Chemistry 340) (3)

Introduction to Physical Chemistry (Chemistry 361A, B) (6)

Career Options in Chemistry (Chemistry 390) (1)

Instrumental Analysis (Chemistry 411A-G)

OR other one unit adviser approved course (1)

Biological Chemistry (Chemistry 421) (3)

Senior Research (Chemistry 495) (2)

Note: English 301 or English 360 may be substituted for Chemistry 340.

Chemistry/Pre MBA Program

A student may combine a B.A. in chemistry with a minor in Business Administration to qualify to enroll in and complete an MBA degree at CSUF in one additional year (33 units), provided all entrance requirements for the MBA program have been met. See your department adviser for details.

MINOR IN CHEMISTRY

A minor in chemistry requires a minimum of 24 acceptable units of chemistry, including general chemistry (Chemistry 120A,B) plus 14 units of upper-division chemistry courses. These courses must be completed with an overall grade-point average of 2.0. A list of approved upper-division chemistry classes is available from the department office.

The chemistry minor is appropriate for students majoring in Biological Science, Geological Science, or Physics. It is also appropriate for students who have an interest in Art Restoration, Environmental Science, Forensic Science, Industrial Administration, Medical Technology, Patent or Environmental Law, or Science Writing. Students with an interest in these or other areas should consult the chemistry department about courses for the minor which are most appropriate for the interests.

EMPHASIS IN BIOTECHNOLOGY

This emphasis is appropriate for students majoring in biochemistry and interested in gaining employment in nearly any area of the medical and agricultural biotechnology industries, working in academic research laboratories, or pursuing postgraduate degrees in molecular biology or biochemistry.

Required Courses (12 units)

Advances in Biotechnology Lab (Chemistry 472A,B) (6)

Advances in Biotechnology (Chemistry 477) (3)

Principles of Gene Manipulation (Biology 412) (3)

EMPHASIS IN ENVIRONMENTAL CHEMISTRY

This emphasis provides a concentration in chemistry with respect to the environment. The course work addresses issues of concern such as EPA analysis protocols and other analytical methods, the interactions of chemicals with the air, water, and soil environments, how chemicals interact with living systems, chemical hazards, safe handling and disposal of chemicals, and an introduction to the regulatory framework. Interested students should consult their academic adviser for specific course requirements. The emphasis provides training for individuals interested in becoming environmental scientists and for those interested in graduate programs in this area.

Requirements (18-19 units)

Three of the following (9 units):

Chemistry of Hazardous Materials (Chemistry 435) (3)

Atmospheric Chemistry (Chemistry 436) (3)

Environmental Water Chemistry (Chemistry 437) (3)

Environmental Biochemistry (Chemistry 438) (3)

Three of the following one-unit mini-courses (3 units):

Optical Spectroscopy (Chemistry 411A) (1)

Separations (Chemistry 411C) (1)

Mass Spectrometry (Chemistry 411G) (1)

Statistics Applied to the Natural Sciences (Math 338) (4 units)

(This course can be substituted for chemical and biochemical computation courses in meeting requirements for the major.)

Senior Research (Chemistry 495) (2-3 units).

Topic must be environmentally related.

The Environmental Chemistry Emphasis may be integrated with the B.S. in Chemistry with no additional required units by using the above courses to meet career breadth and elective requirements. The environmental chemistry courses also can be used to satisfy requirements for the minor in chemistry.

REQUIREMENTS FOR CHEMISTRY MAJORS SEEKING A TEACHING CREDENTIAL

To qualify for the Subject Matter Preparation Program for the Single Subject Teaching Credential in Science with a concentration in Chemistry, students must earn a bachelor's degree and complete the following:

1. Biology 171
2. Geological Sciences 101, 101L and 420 and/or
3. Pass California Subject Examinations: (CSET) exams Science Subtest I (astronomy, geology, Earth sciences, and physics), Science Subtest II (biology and chemistry), and Science Subtest III (chemistry). Consult the Secondary Science Education Credential adviser at (714) 278-5637 for more information.

MASTER OF SCIENCE IN CHEMISTRY

The degree is designed to qualify students for more advanced work in chemistry, to provide preparation that will lead to responsible positions in industrial or government research and development laboratories, and to provide preparation for the effective teaching of chemistry in high schools and community colleges.

The program provides fundamental courses at a level and depth commensurate with those taken during the first year of a doctoral program and provides an introduction to research and research methods.

Admission

Students must meet the university requirements for admittance to the university. This normally requires a baccalaureate degree from an accredited institution and a grade-point average of at least 2.5 in the last 60 semester units attempted. (See the section of this catalog on Graduate Admissions for a complete statement and procedures.) In addition to university requirements, in order to achieve conditionally

classified standing in the chemistry program, a student must meet the following requirements:

1. An undergraduate degree in chemistry or a selection of science courses deemed as adequate preparation for further study in chemistry by the Department Graduate Committee; and
2. At least a 2.5 GPA in upper division chemistry courses.

Application Deadlines

The deadlines for completing online applications are March 1st for the fall semester and October 1st for the spring semester (see http://www.csumentor.edu). Mailed applications need to be postmarked by the same deadlines. However, deadlines may be changed based upon enrollment projections. Check the university graduate studies website for current information http://www.fullerton.edu/graduate.

Placement Examinations

All incoming students are required to pass an analytical writing exam. Any student failing to pass will be required to take a remedial writing class. Each student is required to take and pass placement examinations or take and pass with a grade of "B" (3.0) or better in the appropriate courses. Graduate students in one of the chemistry options must demonstrate competency by passing four placement examinations in the following five areas of chemistry: analytical, inorganic, organic, physical, and/or biochemistry. Graduate students in the biochemistry option must demonstrate competency in the following areas of chemistry: analytical, biochemistry, and organic, as well as either biology or physical chemistry.

A student may take each placement examination three times within the first 13 months of enrolling in the graduate program. A student who does not pass the placement examinations within the 13 months must demonstrate competency by passing with a grade of "B" (3.0) or better the appropriate courses within two years after first enrolling.

The appropriate courses are Chemistry 301B for organic, 315 for analytical, 325 for inorganic, 361A,B for physical (biochemistry option), 371A,B for physical (chemistry option), 423A,B for biochemistry and Biology 273 for biology.

Classified Standing

In order to proceed from conditionally classified to classified standing, a student must meet the following requirements:

1. Demonstration of competency in any three of the areas, as described above.
2. Approved selection of a research director.
3. An approved study plan.
4. The university graduate-level writing requirement.

Study Plan

Three alternatives are available for the study plan. The student can complete either a laboratory thesis (preferred) a library thesis, or project.

The degree program consists of 30 units of graduate committee-approved course work completed with a minimum grade of "B" in all course work exclusive of Chemistry 505A,B and 599. Each student prepares a study plan in consultation with the graduate program adviser. The study plan must be approved by the student's research director, the department, and the Office of Graduate Studies. All chemistry courses on the study plan must be 400 level or above.

Study plans may contain no more than 2 units of Chemistry 505A,B, and no more than 6 units of Chemistry 599 (3 units for students electing the library thesis alternative).

1. Basic requirements

Courses required of all students:

Chemistry 505A,B Seminar (2)

Chemistry 599 Independent Graduate Research (3-6)

Chemistry 598 Thesis (2-4)

OR Chemistry 597 Project (2-4)

2. Core and Elective Requirements

A minimum of 18 units of adviser-approved coursework are required, at least nine units of which must be the 500 level. Nine of these units must be core courses in the student's area of specialization, as follows:

Analytical: Chemistry 511, 512, and 552

Biochemistry: Chemistry 541, 542, and 546

Inorganic: Chemistry 425, 431, and 552

Organic: Chemistry 431, 535, and 539

Physical: Chemistry 512, 551, and 552

A specialization in geochemistry is also available. Consult the chemistry graduate adviser for more information. For further details or advisement concerning the M.S. program, contact the graduate adviser.

CHEMISTRY AND BIOCHEMISTRY COURSES

Courses are designated as CHEM in the class schedule.

100 Survey of Chemistry (3)

Prerequisite: one year of high school algebra. The fundamental principles of chemistry; atomic and molecular structure and the application of these principles to contemporary problems. For the nonscience major.

100L Survey of Chemistry Laboratory (1)

Prerequisite: concurrent or prior enrollment in Chemistry 100 or Chemistry 115. Experiments chosen to develop laboratory techniques; chemical principles and their application to environmental and societal problems. (3 hours laboratory)

102 Physical Science for Future Elementary Teachers (3)

(Same as Physics 102)

105 Survey of the Molecules of Life (3)

An introduction to the biochemical processes of life, including metabolism, development and disease. Recent scientific advances are discussed with emphasis on AIDS, cancer, diabetes and cloning. Scientific methods and ethical issues in scientific research are examined. For the non-science major. (Same as Biology 105)

111 Nutrition and Health (3)

The basics of nutrition; diet, food additives, vitamins, hormones, drugs, disease and related biochemical topics. Current controversies, popular practices, fads and fallacies. For the non-science major.

115 Introductory General Chemistry (4)

Chemistry at the basic level. For students with limited background in chemistry who plan to take additional chemistry or other science courses. Does not fulfill chemistry requirements for majors or minors in the physical or biological sciences (3 hours lecture, 2 hours activity)

120A General Chemistry (5)

Prerequisites: passage of the chemistry placement examination and exemption from or passage of the ELM examination or completion of Chemistry 115 with a grade of "C" (2.0) or better. For majors and minors in the physical and biological sciences The principles of chemistry: stoichiometry, acids, bases, redox reactions, gas laws, solid and liquid states, changes of state, modern atomic concepts, periodicity and chemical bonding. Laboratory: elementary syntheses, spectroscopy and volumetric quantitative analysis. (3 hours lecture, 3 hours laboratory, 2 hours activity) (CAN CHEM 2) (CAN CHEM SEQ A = Chemistry 120A and B)

120B General Chemistry (5)

Prerequisite: Chemistry 120A or its equivalent. For majors and minors in the physical and biological sciences, chemical thermodynamics, chemical equilibrium (gaseous, aqueous, acid-base, solubility and complexation), elementary electrochemistry and chemical kinetics. Laboratory: quantitative and qualitative analysis and elementary physical chemistry; some qualitative analysis. (3 hours lecture, 6 hours laboratory). (CAN CHEM 4) (CAN CHEM SEQ A = Chemistry 120A and B)

125 General Chemistry for Engineers (3)

Prerequisite: Chemistry 120A. The topics are the same as Chemistry 120B but without laboratory. Not open to students with credit in Chemistry 120B.

200 Chemistry for Nursing and Allied Health Professionals (4)

Prerequisites: one year of high school chemistry or its equivalent. A one-semester course that introduces the fundamental concepts of general, organic and biochemistry and their applications to the health sciences. Meets requirement for pre-nursing curriculum and can be applied to other allied health majors. (3 hours lecture, 3 hours laboratory)

210 Introductory Chemical Computation (1)

Prerequisites: Chemistry 120A,B and a major in chemistry or biochemistry. Introduction to the use of spreadsheets and higher level programming languages and molecular modeling for chemical problem solving and data management. Chemical algorithms; data analysis and interpretation; graphical preparation and analysis; search/retrieval of chemical data and literature; file transfers between programs and operating systems.

295 Directed Study (1)

Prerequisite: consent of instructor. Research in chemistry under the supervision of a chemistry department faculty member. Credit/no credit only. May be repeated for credit. Does not count towards major. (3 hours laboratory per unit)

301A Organic Chemistry (3)

Prerequisites: Chemistry 120A,B. Properties and reactions of aliphatic and aromatic compounds, theories of structure, and reaction mechanisms. For the nonchemistry major or for a B.A. in Chemistry, B.S. in Chemistry or B.S. in Biochemistry major.

301B Organic Chemistry (3)

Prerequisites: Chemistry 120A,B and 301A. Properties and reactions of aliphatic and aromatic compounds, theories of structure, and reaction mechanisms. For the nonchemistry major or for a B.A. in Chemistry, B.S. in Chemistry or B.S. in Biochemistry major.

302 Organic Chemistry Laboratory (2)

Prerequisite: Chemistry 301A. Corequisite: Chemistry 301B. Techniques for the synthesis, characterization and isolation of typical aliphatic and aromatic compounds. For the non-chemistry major or the B.S. in Biochemistry major. (6 hours laboratory)

302A Organic Chemistry Laboratory (1)

Chemistry 302A must be taken concurrently with Chemistry 301A. Techniques for the synthesis, isolation and characterization of typical aliphatic and aromatic compounds. Students wishing to fulfill all of their organic chemistry laboratory requirements in a single semester should enroll in Chemistry 302.

302B Organic Chemistry Laboratory (1)

Chemistry 302B must be taken concurrently with Chemistry 301B. Techniques for the synthesis, isolation and characterization of typical aliphatic and aromatic compounds. Students wishing to fulfill all of their organic chemistry laboratory requirements in a single semester should enroll in Chemistry 302.

303A Biotechnology: Business and Society (1)

Prerequisites: completion of General Education Categories I, II, and III.A.1 and 2. Major applications of modern biotechnology will be explored in a lecture/discussion/presentation format that includes guest speakers from industry. (3 hours lecture/discussion for 5 weeks)

303B Biotechnology: Medical Biotechnology (1)

Prerequisites: completion of General Education Categories I, II, III. A.1, and 2 and Chemistry 303A. Major applications of modern biotechnology will be explored in a lecture/discussion/presentation format that includes guest speakers from industry. (3 hours lecture/discussion for 5 weeks)

303C Biotechnology: Agricultural and Environmental Biotechnology (1)

Prerequisites: completion of General Education Categories I, II, III.A.1, and 2 and Chemistry 303A. Major applications of modern biotechnology will be explored in a lecture/discussion/presentation format that includes guest speakers from industry. (3 hours lecture/discussion for 5 weeks)

306A Organic Chemistry Laboratory (2)

Prerequisites: Chemistry 120 A,B. Corequisite: Chemistry 301A. Techniques for synthesis, isolation and characterization of typical aliphatic and aromatic compounds, with applications of instrumental and spectroscopic methods for the B.A. and B.S. in Chemistry major. (6 hours laboratory)

306B Organic Chemistry Laboratory (2)

Prerequisites: Chemistry 301A, 306A. Corequisite: Chemistry 301B. Continuation of Chemistry 306A for the B.A. and B.S. in Chemistry major. (6 hours laboratory)

311 Nutrition and Disease (3)

Prerequisite: Chemistry 111 or Biology 101. Relationship between nutrients and disease, with an emphasis on cancer, atherosclerosis and infectious illness. Dietary factors that modify and/or contribute to the disease process from the viewpoints of physiology, biochemistry and immunology. Not applicable to the major. (Same as Biology 311)

313A Environmental Pollution and Its Solutions: Air Pollution (1)

Prerequisites: completion of General Education Categories I, II, and III.A. Human pollution of the Earth's atmosphere and means to ameliorate this pollution. Historical examples, current cases, and future prospects. (3 hours lecture/discussion for 5 weeks)

313B Environmental Pollution and Its Solutions: Water Pollution (1)

Prerequisites: completion of General Education Categories I, II, and III.A. Human pollution of the Earth's aqueous environment and means to ameliorate this pollution. Historical examples, current cases, and future prospects. (3 hours lecture/discussion for 5 weeks)

313C Environmental Pollution and Its Solutions: Land Pollution (1)

Prerequisites: completion of General Education Categories I, II, and III.A. Human pollution of the Earth's terrestrial environment and means to ameliorate this pollution. Historical examples, current cases, and future prospects. (3 hours lecture/discussion for 5 weeks)

315 Theory of Quantitative Chemistry (3)

Prerequisite: Chemistry 120B. Physics 211, 212 or Physics 225. Physics 226 strongly recommended. Modern analytical chemistry; aqueous and non-aqueous equilibrium calculations, electrochemistry, spectrometry, and contemporary separation methods with emphasis on chromatography.

315W Quantitative Chemistry Workshop (1)

Corequisite: Chemistry 315. Designed to enhance knowledge and skills needed for success in Chemistry 315. Emphasis on review of general chemistry, problem-solving skills, study and exam skills, and their application to quantitative chemistry. Credit/No Credit only. (2 hours activity)

316 Quantitative Chemistry Laboratory (1)

Prerequisites: Chemistry 315, Chemistry 210. Modern analytical chemistry laboratory: polyprotic acids, liquid chromatography, electrochemistry, absorption spectroscopy (ultraviolet/visible, infrared, atomic). (3 hours laboratory)

325 Inorganic Chemistry (3)

Prerequisite: Chemistry 301B. The chemistry of the main group elements and an introduction to transition metal chemistry.

340 Writing for the Chemical Sciences (3)

Prerequisites: Upper-division standing, English 101 and two semesters of chemistry beyond general chemistry. Design and preparation of scientific manuscripts and presentations. Emphasizes practice in writing, American Chemical Society writing guidelines, peer-review and critical analysis of scientific literature. (English 301 or English 360 may be substituted.)

355 Physical Chemistry Laboratory (3)

Prerequisite: Chemistry 316, Chemistry 361A or Chemistry 371A. Corequisite: Chemistry 361B or 371B. Experiments in chemical synthesis, instrumental analysis and physical chemistry. Laboratory training and written presentation of theory, data and results are emphasized. (1 hour lecture, 6 hours laboratory).

361A Introduction to Physical Chemistry (3)

Prerequisites: Math 150A,B and Physics 211, 212 or 225, 226, Chemistry 301A,B. Thermodynamics and kinetics; properties of gases and solutions; molecular structure and energies and application to spectroscopic techniques; liquids, phase equilibria, thermodynamics of multicomponent systems with application to the life sciences.

361B Introduction to Physical Chemistry (3)

Prerequisites: Math 150A,B and Physics 211, 212 or 225, 226, Chemistry 301A,B. Thermodynamics and kinetics; properties of gases and solutions; molecular structure and energies and application to spectroscopic techniques; liquids, phase equilibria, thermodynamics of multicomponent systems with application to the life sciences.

371A Physical Chemistry (3)

Prerequisites: Math 250A, Physics 225, 226 and Chemistry 301A,B. Thermodynamics, solutions, chemical and phase equilibria, electrochemistry, transport phenomena, introduction to atomic and molecular structure, rotation and vibration spectroscopy, statistical mechanics, and kinetics.

371B Physical Chemistry (3)

Prerequisites: Math 250A, Physics 225, 226 and Chemistry 301A,B. Thermodynamics, solutions, chemical and phase equilibria, electrochemistry, transport phenomena, introduction to atomic and molecular structure, rotation and vibration spectroscopy, statistical mechanics, and kinetics.

390 Careers in Chemistry and Biochemistry (1)

Prerequisite: Chemistry 120B. Career options in chemistry. Credit/No Credit only.

395 Undergraduate Research (1-3)

Prerequisites: Completion of one upper-division course in chemistry, one semester of experience working in a research laboratory, and consent of instructor. Independent research in chemistry or biochemistry under the guidance of a department faculty member. May be repeated for credit. Does not count towards major. (3 hours per week per unit). (4 units maximum)

410A Introduction to Computational Genomics (1)

Prerequisites: Chemistry 361A; 421 or 423A; 210. Co-requisite, 361B or 371B or 423B. Introduction to protein and DNA sequence analysis and molecular evolution; probabilistic models of sequences; gene identification; comparative genomics (algorithms and statistics); brief review of structure and evolution of genes and proteins.

410B Advanced Computational Biochemistry (1)

Prerequisites: Chemistry 361A; 421 or 423A; 210. Co-requisite, 361B or 371B or 423B. Principles of protein folding and structure; methods for determining protein structure; methods of protein structure prediction and modeling; contents of structural databases; structure visualization, validation and analysis; structure-based drug design; rational mutagenesis; computational biochemistry tools.

410C Introduction to Computational Chemistry (1)

Prerequisites: Chemistry 361A or 371A; 210. Co-requisite, 361B or 371B. Basic theory of molecular electronic structure; common methods for molecular computation; visualizing molecular structure and understanding calculated properties; predicting molecular spectra and other experimental data; applying molecular computation to practical problems in research.

410D Advanced Computational Chemistry (1)

Prerequisites: Chemistry 361A or 371A; 210; 410C. Co-requisite, 361B or 371B. High level methods of molecular computation; theory of reaction rates; methods for transition state computations; tools and techniques for exploring reaction mechanisms or pathways; prediction of reaction kinetics data; applications of molecular computations in research.

411A Instrumental Analysis - Optical Spectroscopy (1)

Prerequisites: Chemistry 315 and 316.Corequisite: Chemistry 361B or 371B. (UV/visible, infrared, atomic absorption, flame emission) Students wishing an ACS certified degree must take three units of Chemistry 411 courses. (1 hour lecture, 3 hours laboratory for 5 weeks)

411B Instrumental Analysis - Magnetic Resonance (1)

Prerequisites: Chemistry 315 and 316. (nuclear magnetic resonance, electron spin resonance) Students wishing an ACS certified degree must take three units of Chemistry 411 courses. (1 hour lecture, 3 hours laboratory for 5 weeks)

411C Instrumental Analysis - Separations (1)

Prerequisites: Chemistry 315 and 316. (high performance liquid chromatography, gas chromatography) Students wishing an ACS certified degree must take three units of Chemistry 411 courses. (1 hour lecture, 3 hours laboratory for 5 weeks)

411G Instrumental Analysis - Mass spectrometry (1)

Prerequisites: Chemistry 315 and 316. (conventional magnetic sector, quadruple, Fourier transform, tandem, and time-of-flight; hyphenated techniques including gas chromatography (GC-MS), liquid chromatography (LC-MS).Students wishing an ACS certified degree must take three units of Chemistry 411 courses. (1 hour lecture, 3 hours laboratory for 5 weeks)

421 Biological Chemistry (3)

Prerequisite: Chemistry 301A. Co-requisite: Chemistry 315. Survey of biochemistry designed for biology majors and pre-health profession careers. This course will cover major areas of biochemistry, including intermediary metabolism and compounds of biochemical interest. The focus of this one-semester course will be on the application of biochemistry and the biochemical foundation of health science.

422 General Biochemistry Laboratory (2)

Prerequisites: Chemistry 302 or 306A and 316. Corequisite: Chemistry 421 or 423A. The chemistry and metabolism of carbohydrates, nucleic acids, lipids and proteins; techniques of enzyme chemistry and isolation; research methods. (6 hours laboratory)

423A General Biochemistry (3)

Prerequisite: Chemistry 301B. Corequisite: Chemistry 315. Survey of biochemistry designed for Biochemistry majors; structural chemistry and function of biomolecules, bioenergetics and intermediary metabolism.

423B General Biochemistry (3)

Prerequisite: Chemistry 423A. Corequisite: Chemistry 315. Survey of biochemistry designed for Biochemistry majors; structural chemistry and function of biomolecules, central metabolism; replication and expression of the genetic material.

425 Advanced Inorganic Chemistry (3)

Prerequisites: Chemistry 325 and 361A,B or 371A,B. The bonding, structure and reactivity of transition and lanthanide elements. Molecular orbital and ligand field theory, classical metal complexes and organometallic chemistry of the transition elements.

431 Advanced Organic Chemistry (3)

Prerequisites: Chemistry 301B and 361A,B or 371A. Theoretical and physical aspects of organic chemistry. The modern concepts of structure, and reaction mechanisms.

435 Chemistry of Hazardous Materials (3)

Prerequisite: Chemistry 301B. An in-depth examination of hazardous chemicals; organic and inorganic air- and moisture-sensitive compounds, reactive metals; chemical reactivity patterns; chemical compatibilities; storage and handling; methods of disposal and waste containment; Federal and local regulations; case histories.

436 Atmospheric Chemistry (3)

Prerequisite: Chemistry 315 or consent of instructor. Chemistry and photochemistry of the troposphere and stratosphere, both natural and polluted. Includes fundamental reaction kinetics and mechanisms, monitoring techniques, smog chamber, field and modeling studies.

437 Environmental Water Chemistry (3)

Prerequisite: Chemistry 315. Chemical characteristics of fresh and oceanic water; major water pollutant classes, origins, environmental chemical transformations, effects, abatement, and fates; chemical methods for determining water quality, large scale processes for water treatment.

438 Environmental Biochemistry (3)

Prerequisite: Chemistry 301B. Effects of current agricultural, industrial and mechanical practices on the composition, metabolism and health of soil, plants, animals and man, from a biochemical perspective; mechanism of action and degradation of common agricultural chemicals and industrial pollutants.

445 Nutritional Biochemistry (3)

Prerequisite: Chemistry 423A or 421. Nutrition, metabolism and excretion of carbohydrates, proteins, fats, vitamins, major minerals and trace elements from a biochemical perspective. Relevant variations in dietary practices related to life stages and specific illnesses.

472A Advances in Biotechnology Lab (3)

Prerequisites: completion of Biology lower-division core or Chemistry 477. First semester explores biotechnology techniques for DNA cloning and analysis: restriction enzyme action, DNA sequencing, sequence analysis by computer, plasmid cloning, genomic library production and screening, DNA probe hybridization. (1 hour lecture/discussion, 6 hours laboratory) (Same as Biology 472A)

472B Advances in Biotechnology Laboratory (3)

(Same as Biology 472B)

473 Introduction to Bioinformatics (3)

(Same as Biology 473)

477 Advances in Biotechnology (3)

Prerequisites: completion of Biology 172 and Biology 273. Corequisite: Chemistry 421 or 423B. Current topics in biotechnology centering on techniques for molecular cloning and DNA sequencing of genes. Medical breakthroughs for diagnosis of mutations and gene therapy. Role of biotechnology in agriculture, energy and environment. Bioethical issues. (Same as Biology 477)

480A Topics in Contemporary Chemistry (1)

Prerequisite: junior or senior standing in chemistry. Research seminar dealing with topics of current interest in chemistry such as photochemistry, biochemistry, analytical chemistry and organometallic chemistry. Credit/no credit only. Not applicable toward master's degree. May be repeated for credit.

480M MARC Proseminar (1)

(Same as Biology and Psychology 480M)

480T Topics in Contemporary Chemistry (2-3)

Prerequisite: junior or senior standing in chemistry. Special lecture topics of current interest in chemistry. May be repeated for credit. (1 hour lecture per unit)

490 Internship in Chemistry and Biochemistry (1-2)

Prerequisites: junior or senior standing in chemistry and consent of instructor. Internship in chemistry. Work on projects in industrial, governmental or medical laboratories. May count as career breadth requirement units for chemistry majors. May be repeated once. Does not count toward M.S. degree.

495 Senior Research (1-3)

Prerequisites: three one-year courses in chemistry, Chemistry 390, and consent of instructor. Corequisite: Chemistry 340. The methods of chemical research through a research project under the supervision of one of the Department faculty. May be repeated for credit. Only 6 units may apply toward B.A. or B.S. degree (3 hours per week per unit)

496 Student-to-Student Tutorials (1-3)

Supervised experience in chemistry teaching through tutoring or assisting in laboratory or field classes. Consult "Student-to-Student Tutorials" in this catalog for prerequisites and a more complete course description.

498 Senior Thesis (2)

(Same as Biology 498)

499 Independent Study (1-3)

Prerequisites: junior or senior standing and completion of two one-year courses in chemistry. Special topics in chemistry selected in consultation with the instructor and approval of department chair. May be repeated for credit. Only six units may apply toward B.A. or B.S. degree. In some cases, 499 can be substituted for 495, Senior Research, to meet degree requirements.

505A Seminar (Participation) (1)

Prerequisites: graduate standing and consent of department. Student attendance at presentations by invited scientists on topics of current interest in chemistry. May not be repeated for credit. (1 hour seminar)

505B Seminar (Presentation) (1)

Prerequisites: Chemistry 505A, graduate standing and consent of the department. Student presentation of recent contributions to the chemical literature. May not be repeated for credit. (1 hour seminar)

511 Theory of Separations (3)

Prerequisites: Chemistry 355 and 361A,B or 371A,B. The theory, application and limitations of physical and chemical separation techniques; chromatography.

512 Advanced Instrumentation (3)

Prerequisite: Chemistry 315. Spectroscopic instrumentation components and systems. Includes laser spectroscopy, mass spectroscopy, chemical sensor, process control, surface science, and microscopy methods; vacuum technology, optics, electro-optics, and electronics components; design and repair of instrumentation.

535 Organic Synthesis (3)

Prerequisites: Chemistry 361A,B or 371A,B and 301B. Methods of synthetic organic chemistry and their application to construction of organic molecules.

537 Organic Spectroscopy (3)

Prerequisites: Chemistry 301B/302 or 301B/306B, Chemistry 361A,B. Chemistry 431 recommended. Theory and use of infrared spectroscopy, mass spectrometry, ultraviolet-visible spectroscopy and nuclear magnetic resonance spectroscopy as methods for the identification of organic compounds.

539 Chemistry of Natural Products (3)

Prerequisite: Chemistry 301B. The biosynthesis of the alkaloids, terpenes, steroids and other natural products of plant and animal origin.

541 Protein Biochemistry (3)

Prerequisites: Chemistry 423A,B or equivalent. Protein isolation strategies and techniques; chemical/physical characterization and modeling; functional characterization (kinetics, binding, chemical modification); molecular biology, including cloning, expression, sequencing and engineering.

543 Physical Biochemistry (3)

Prerequisites: Chemistry 361A,B or 371A,B, 421 or 423A,B. Methods for measuring physical properties of proteins and nucleic acids. Thermodynamic and hydrodynamic aspects.

546 Metabolism and Catalysis (3)

Prerequisite: Chemistry 421 or 423A,B. Regulation of bio-synthetic and degradative reactions in living systems. The control of enzyme activity and concentration. Mechanisms of hormone action.

551 Quantum Chemistry (3)

Prerequisites: Chemistry 371A,B. Postulates and theories of approximation methods in quantum chemistry, the electronic structure of atoms and molecules, chemical bonds, group theory and applications.

552 Kinetics and Spectroscopy (3)

Prerequisite: Chemistry 361B or 371B. Kinetics and spectroscopy of chemical and biochemical systems in the gas phase, in the liquid phase, and on surfaces.

580T Topics in Advanced Chemistry (1-6)

Prerequisite: graduate standing in chemistry. Current research topics in chemistry in the area of analytical, organic, inorganic, physical chemistry and biochemistry. May be repeated for credit. (1 hour seminar per unit)

597 Project (1-6)

Prerequisites: an officially appointed project committee and consent of the department chair. Guidance in the preparation for a project for the master's degree.

598 Thesis (1-6)

Prerequisite: an officially appointed thesis committee. Guidance in the preparation of a thesis for the master's degree.

599 Independent Graduate Research (1-6)

Prerequisite: graduate standing in chemistry. May be repeated for credit.

INTRODUCTION

Chicana and Chicano Studies offers an outstanding interdisciplinary education. Highlights of our program include the following:

Great Credentials

We have developed a challenging curriculum that is especially relevant in our growing multicultural society. Increasingly, public and private employers are recognizing the need for professionals who can relate to Chicano and other Latino populations. A number of employers have expressed a sincere interest in hiring well-rounded individuals with marketable skills and who have in-depth knowledge relating to these communities. The Chicana and Chicano Studies Department takes great pride in preparing graduates who can fulfill these criteria.

Exciting Classes

Our department offers challenging coursework that explores racial politics, history, education, literature, law and immigration, civil rights, feminism, socio-economics, the Chicana/o family, art, music and film. Particular emphasis is given to other Latino cultures in the United States. Students emerge from this challenging major armed with powerful analytical tools, a strong expertise in subject matter, and a newfound appreciation for the complexity of the Chicana/o experience. Frequently, our students conduct important research under the supervision of our superb faculty. Several classes offer student opportunities to internationalize their educational experience. Some seminars also provide students with the chance to strengthen local communities through service-learning internships. Finally, coursework and learning are continually reinforced through technology-based assignments that encourage students to hone their computer skills and become internet savvy.

Outstanding Faculty

Our faculty members are internationally recognized scholars that hold doctorate and professional degrees from prestigious universities. Several have won prestigious grants and fellowships and all are eager to share their enthusiasm about the field of Chicana and Chicano studies.

Teaching Credential

Because Chicana/o Studies is interdisciplinary, the major provides a particularly appropriate background for elementary school teaching (K-8) and for secondary school teaching (7-12). Undergraduate majors are encouraged to work closely with the CSUF Center for Careers in Teaching at (714) 278-7130. Working closely and collaboratively with the center will help speed majors towards obtaining their credentials in a straightforward and efficient manner. With careful planning, it may be possible to enter into the credential program in a student's senior year. Postgraduate students should contact the Admission to Teacher Education Office in the College of Education at (714) 278-3352 to obtain information on attending an overview presentation.

Excellent Jobs After Graduation

Our graduates are very well prepared to excel in a variety of areas. Many have found rewarding careers as counselors, social workers, police officers, community organizers, and work in various local, state and federal agencies. Several alumni have also gone on to study at prestigious professional schools of business and law, as well as graduate programs in history, political science, anthropology, and ethnic studies. We look forward to having you learn more about the extraordinary opportunities that await you as a Chicana/o Studies major at California State University, Fullerton.

DEPARTMENT CHAIR

Dagoberto Fuentes

DEPARTMENT OFFICE

Humanities 314

DEPARTMENT WEBSITE

http://hss.fullerton.edu/chicano

PROGRAMS OFFERED

Bachelor of Arts in Ethnic Studies
Option in Chicano Studies
Minor in Chicano Studies

FACULTY

Isaac Cárdenas, Robert F. Castro, Dagoberto Fuentes, Erualdo González, Alexandro José Gradilla, Patricia Pérez, Nancy Porras Hein

ADVISERS

Consult the department chair.

BACHELOR OF ARTS IN ETHNIC STUDIES OPTION IN CHICANO STUDIES

The Bachelor's of Arts in Ethnic Studies (Chicana/o Studies) requires a minimum of 120 units which includes courses for the option, General Education, all University requirements, and free electives.

A total of 36 units from the following courses are required for the option.

Lower Division (6 units minimum)

Chicana/o 106 Intro to Chicano Studies (3)

Chicana/o 220 Mexican Heritage (3)

Upper Division (24 units minimum)

Required Courses (9 units)

Selected from the following courses:

Chicana/o 330 The Evolution of Mexican Literature (3)

Chicana/o 331 The Chicano Child (3)

Chicana/o 340 Mexican/Chicano Intellectual Thought (3)

Chicana/o 345 History of the Chicano (3)

Chicana/o 353 Mexico Since 1906 (3)

Upper-Division Writing Requirement (3 units)

Chicana/o 307 Research and Writing in Ethnic Studies (3) OR English 301 Advanced College Writing (3)

Electives (12 units minimum)

Four additional courses (12 units) to be selected from remaining Chicana/o Studies curriculum.

MINOR IN CHICANO STUDIES

The minor in Chicano Studies consists of 24 units in the following areas:

Required lower-division courses (6 units)

Chicana/o 106 Intro to Chicano Studies (3)

Chicana/o 220 Mexican Heritage (3)

Required upper-division courses (9 units)

(to be selected from the following)

Chicana/o 330 The Evolution of Mexican Literature (3)

Chicana/o 331 The Chicano Child (3)

Chicana/o 340 Mexican/Chicano Intellectual Thought (3)

Chicana/o 345 History of the Chicano (3)

Chicana/o 353 Mexico Since 1906 (3)

Approved Electives

Nine units of approved course work in lower- and upper-division classes that are selected by the adviser.

GRADUATE STUDY

The Department of Chicana and Chicano Studies offers courses for advanced study in the following graduate degree programs:

Master of Science in Education: Bilingual/Bicultural Concentration

Master of Arts in Spanish: Bilingual Concentration

CHICANA AND CHICANO STUDIES COURSES

Courses are designated as CHIC in the class schedule.

101 Introduction to Ethnic Studies (3)

(Same as Afro-Ethnic Studies 101)

102 Communication Skills (3)

The basic communication skills including oral and written expression. A unit on the mechanics of writing and reporting on a term paper.

106 Introduction to Chicano Studies (3)

Prerequisite: Completion of General Education Category III.C.1. The role of the Chicano in the United States. The Chicano's cultural values, social organization, urbanization patterns, and the problems in the area of education, politics and legislation.

108 Linguistics and Minority Dialects (3)

(Same as Linguistics 108)

190 Survey of American History with Emphasis on Ethnic Minorities (3)

(Same as History 190 and Afro-Ethnic Studies 190. This course fulfills Title V, Statutory Requirements.)

220 Mexican Heritage (3)

The basic characteristics of the Mexican, especially the Chicano society and culture. From 1519 to the present. Emphasis on the arts, literature and history of Mexico and the Chicano in the United States.

302 Ancient Mexican Culture (3)

An historical and cultural survey of the principal pre-Columbian cultures of Mexico and their significance for Mexican society.

303 Cultural Differences in Mexico & the Southwest (3)

Prerequisite: completion of General Education Category III.C.1. The cultural conflicts in Mexico as seen by the contemporary thinkers of Mexico and the United States. Urban and rural problems.

304 Music of Mexico (3)

(Same as Music 304)

305 The Chicano Family (3)

The Chicano family development as an American social institution. Historical and cross-cultural perspectives. The socio- and psycho-dynamics of the Chicano family.

306 Barrio Studies (3)

Prerequisite: Chicana/o Studies 220. The major characteristics of the barrio. Supervised fieldwork in the barrio is required. Analysis of the barrio or agency will be made after fieldwork is completed. (2 hours lecture, 3 hours fieldwork)

307 Research and Writing in Ethnic Studies (3)

(Same as Afro 307 and Asian American 307)

313 La Chicana (3)

Prerequisite: completion of General Education Category III.C.1. The cultural influences that the family, religion, economic status and community play upon the lifestyles, the values and the roles held by Chicanas. (Same as Women's Studies 313)

315 Chicano/Latino Theater (3)

Prerequisite: completion of General Education Category III.B.1. or III.B.2. Analysis of contemporary Chicano/Latino theater in relation to its historical evolution. Emphasis on plays, playwrights and theater groups expressing the Chicano/Latino experience. Extensive play reading. (Same as Theater 315)

316 The Chicano Music Experience (3)

Mexican folk and popular music and its relationship to the culture that produced it. The pre-Cortesian period to the present in Mexico and in the Southwestern United States.

330 The Evolution of Mexican Literature (3)

Prerequisite: completion of the General Education Category III. B.2. Survey and analysis of the Nahautl, Mexican and Chicano literature from the pre-Columbian period to the present. Not applicable for graduate degree credit.

331 The Chicano Child (3)

Prerequisite: completion of General Education Category III.C.1. The Chicano child from preschool through grade six. Motor, physical, social, intellectual and emotional growth and development and their effect on school adjustment and achievement. Observation of preschool and grade school children.

332 The Chicano Adolescent (3)

Prerequisite: completion of the General Education Category III.C.1 The Chicano adolescent's social, intellectual and emotional growth and development. The bicultural pressures from the barrio, family structure, school and achievement values.

333 Mexican Literature Since 1940 (3)

Prerequisite: completion of General Education Category III.B.2. The literature of Mexico since 1940: Carlos Fuentes, Luis Spota, Rodolfo Usigli, Xavier Villarrutia, Juan Jose Arreola, Octavio Paz, Roberto Blanco Moheno and Luis G. Basurto. Not applicable for graduate degree credit.

336 Main Trends in Spanish-American Literature (3)

The main currents of Spanish-American literature emphasizing contemporary works. The relation between the artistic expression and the ideological values of the period.

337 Contemporary Chicano Literature (3)

Prerequisite: Chicana/o Studies 106 or 220. The modern Chicano writers in the United States: Alurista, Corky Gonzales, Octavio Romano, El Teatro Campesino and the major Chicano magazines and newspapers.

340 Mexican/Chicano Intellectual Thought (3)

Prerequisite: completion of General Education Category III.B.2. The emergence of the Chicano movement dealing with political, economic and sociological facets. The writing of Nahautl, Spanish, Spanish-American, Chicano, and contemporary writers. Not applicable for graduate degree credit.

345 History of the Chicano (3)

Prerequisite: completion of the General Education Category III.C.1. History of the Chicano from the pre-Columbian period to the present. The Chicanos' changing role in the United States, their cultural identity crisis and their achievements.

350 Mexican Life and Culture (3)

(Same as Latin American Studies 350)

353 Mexico Since 1906 (3)

Prerequisite: completion of General Education Category III.C.1. The Mexican Revolution of 1910 stressing the political, economic and social aspects as well as its contributions in the fields of art, literature and social reforms.

360 Chicanos and the Law (3)

The relationship between Chicanos and the legal and judicial system, including the administration of justice, Chicano-police relations, and Chicanos and the prison system. Guest speakers will be a regular feature.

367 Latino/a Spirituality and Religion (3)

(Same as Comparative Religion 367)

450 The Chicano and Contemporary Issues (3)

The socioeconomic and political problems confronting the Chicano including proposed solutions. The effect that social institutions have had on the Chicano community.

460 The Chicano and Politics (3)

Theory of urban politics and evaluation of issues that affect the Chicanos and American society. Evaluations and surveys will be made on political organizations in Hispanic-surnamed communities. (Same as Political Science 460)

480 The Immigrant and the Chicano (3)

Mexican immigration to the United States and its social, economic and political impacts on the Chicano and non-Chicano communities and other immigrant groups.

499 Independent Study (1-3)

Prerequisites: senior standing and approval by the department chair and instructor(s) in charge of directing the study. An opportunity to do independent study, under the guidance of the faculty, on a subject of special interest to the student.

599 Independent Graduate Research (1-3)

Prerequisites: consent of instructor and classified status. Individual research for Chicana and Chicano Studies components in Master of Arts in Bilingual Studies (Spanish), Master of Science in Bilingual Education (Education) and related programs. Maximum of 3 hours credit.

Child and Adolescent Studies

College of Health and Human Development

INTRODUCTION

Child and Adolescent Development is a social science concerned with the study of development and the interrelationships between the developing person, family, and community. The major is designed to provide students with knowledge about empirically derived biological-physical, socio-emotional, and cognitive developmental milestones; individual differences; and common variations in development in order to interact effectively with children, adolescents, and families from diverse backgrounds in a variety of educational and service settings. Effective work with and advocacy on behalf of children, adolescents, and families are informed by research, theory, developmental methodologies and practices, fieldwork experience, and relevant professional and ethical standards. Moreover, the curriculum provides students with tools to acquire, evaluate, communicate, and disseminate information to sustain a lifelong pursuit of developmental inquiry and enable appropriate and effective responses to changing professional demands.

The Bachelor of Science in Child and Adolescent Development provides broad undergraduate preparation for careers in child and adolescent-related professions, including elementary education, special education, early care and education, child/adolescent guidance, and a variety of youth-related social service careers, as well as graduate study in disciplines such as child development, counseling, developmental psychology, and social work.

ACADEMIC ADVISEMENT

Academic advisement is provided at both the Fullerton and Irvine campuses through regularly scheduled Overview of the Major sessions and individual student advising appointments. During their first semester as a major, students are required to attend an Overview of the Major session and are expected to consult with a department adviser to develop an academic plan to ensure efficient progress towards graduation. Consult the department website or contact the department office for a schedule of Overview of the Major sessions and available individual advisement appointments.

BACHELOR OF SCIENCE IN CHILD AND ADOLESCENT DEVELOPMENT

The Bachelor of Science in Child and Adolescent Development requires the successful completion of a minimum of 51 units in the major consisting of required core classes, advisement track courses, practicum courses, developmental electives, and breadth electives. A grade of "C" (2.0) or better is required to satisfy prerequisites to CAS courses; all prerequisites are strictly enforced. A grade of "C" (2.0) or better is required in all courses applied to the major.

Required Core Classes (21 units)

Child/Adolescent Studies 101 Introduction to Child and Adolescent Development (3)

Child/Adolescent Studies 300 Elements of Effective Professional Communication (3)

Child/Adolescent Studies 301 Inquiry and Methodology in Development (3)

Child/Adolescent Studies 310 Assessing and Observing Development (3)

Child/Adolescent Studies 325A Conception through Adolescence (3)

Child/Adolescent Studies 325B Age 9 through Adolescence (3)

Child/Adolescent Studies 490T Senior Seminar (3)

DEPARTMENT CHAIR

Patricia A. Szeszulski

DEPARTMENT OFFICE

Education Classroom 105

DEPARTMENT WEBSITE

http://hhd.fullerton.edu/CAS

PROGRAMS OFFERED

Bachelor of Science in Child and Adolescent Development

Minor in Child and Adolescent Development

FACULTY

Sylvia Alva, Katherine Bono, Jacqueline Coffman, Jessica Gomel, Leslie Grier, Enid Gruber, Diana Wright Guerin, Ellen Junn, Janna Kim, Leigh Hobson, Kari Knutson Miller, Sharon Seidman, Pamella Oliver, Mark Runco, Susan Shipstead, Patricia A. Szeszulski, Sharon Willmer, Shelli Wynants, Shu-Chen Yen

Advisement Track (15 units)

Each student, in consultation with a department adviser, selects a 15-unit advisement track in an area of specialization. Standard advisement tracks include elementary education, special education, early care and education, adolescent/youth services, preparation for master's/doctoral degrees or other specialized training, and general studies in child and adolescent development.

Practicum Courses (6 units)

Students take the core practicum course (3 units) and one advanced, advisement track-specific practicum course (3). Students must complete a minimum of 60 hours of supervised fieldwork **while enrolled** in each of the two required fieldwork courses.

Core Practicum Course (3 units)

Child/Adolescent Studies 394 Seminar (2)

and

Child/Adolescent Studies 394L Practicum in Child Development (1)

One of the following advanced, advisement track-specific practicums (3 units)

Child/Adolescent Studies 464 Seminar (2) and

Child/Adolescent Studies 464L Practicum in Early Care and Education (1)

Child/Adolescent Studies 474 Seminar (2) and

Child/Adolescent Studies 474L Practicum in Development in School Settings (1)

Child/Adolescent Studies 484 Seminar (2) and

Child/Adolescent Studies 484L Practicum in Adolescent/Youth Services (1)

Child/Adolescent Studies 494 Seminar (2) and

Child/Adolescent Studies 494L Practicum in Youth and Families in Community Settings (1)

Developmental Electives (3 units)

CAS 340 Parenting in the 21st Century (3)

CAS 345 Development in Diverse Contexts (3)

CAS 360 Adolescents and the Media (3)

CAS 365 Adolescent Pregnancy and Parenting (3)

* CAS 490T Senior Seminar

*Must select different seminar topic than taken for required core (3)

Breadth Electives (6 units)

*Biology 305 Human Heredity and Development (3)

*Approved Cultural Diversity Class (3) (see CAS adviser for approved list)

*Sociology 351 Sociology of Families (3)

OR Sociology 353 Sociology of Childhood (3)

Special Ed 371 Exceptional Individual (3)

OR Special Ed 400 Early Childhood Special Education (3)

*May satisfy a General Education requirement. Consult current Class Schedule.

MINOR IN CHILD AND ADOLESCENT DEVELOPMENT

For a minor in Child and Adolescent Development, 21 units are required. A minimum of 12 units of coursework for the minor must be distinct from coursework that is applied to the major. No more than 6 units of lower-division coursework may be applied to the minor. Minors pursuing a Multiple Subject Teaching credential can use Ed El 315 as an approved elective provided that they document a minimum number of 60 hours of field work.

Core Courses (6 units)

CAS 101 Introduction to Child and Adolescent Studies

AND one of the following:

CAS 312 Human Growth and Development (3)

CAS 315 Child Development (3)

CAS 330 Adolescence and Early Adulthood (3)

Research Methods (3 units)

CAS 301 Inquiry and Methodology in Child/Adolescent Development or approved alternate (3)

Practicum (3 units)

CAS 394 Practicum Seminar/Practicum in Child and Adolescent Development (3)

Electives (9 units)

Nine units selected in consultation with department adviser.

MULTIPLE SUBJECTS TEACHING CREDENTIAL PREPARATION

A Multiple Subjects Teaching Credential is required to teach in California public elementary schools. Completion of both the California Basic Educational Skills Test (CBEST) and the California Subject Examinations for Teachers (CSET) is an entrance requirement for Multiple Subjects Teaching Credential programs. Further information is available from the Center for Careers in Teaching.

STREAMLINED TEACHER EDUCATION PROGRAM

Designed for freshmen planning to be teachers, students in the Streamlined Teacher Education Program (STEP) combine their bachelor's degree requirements with credential program courses to earn both the degree and the preliminary credential in an efficient, well-planned program. Students in STEP-CHAD complete the requirements for the bachelor's degree in Child and Adolescent Development and the requirements for a Professional (preliminary) Multiple Subject Credential (for teaching elementary school) and/or an Education Specialist Credential (for teaching special education).

Students in STEP benefit from early field experience in K-12 classrooms, regular contact with faculty members from their major departments and from the education departments, and regular advisement and support throughout the program. Students in STEP also have multiple opportunities to meet and work with other students in the program, facilitating their social connections with other students with similar career aspirations.

Transfer students may also participate in STEP. To be well-positioned to participate in the program, they must seek advisement from their community college counselors as early in their academic careers as possible. Students in this program must take a particular pattern of courses to satisfy General Education Program requirements. Transfer students should check the Center for Careers in Teaching website for more information.

For further information about STEP, please visit the Center for Careers in Teaching (CCT) website at www.fullerton.edu/cct or visit the CCT directly in H 113.

CHILD AND ADOLESCENT STUDIES COURSES

Courses are designated as CAS in the Class Schedule.

101 Introduction to Child and Adolescent Development (3)

Overview of major concepts and related professional opportunities. Practical applications will be considered within different biological, familial, social, and cultural contexts to facilitate understanding of influences on developmental outcomes.

210 Orientation to the Field of Child Development (3)

Introduction to the field of child development. Survey of programs and services for children, adolescents, and young adults, and exploration of professional opportunities, organizations, and publications.

300 Elements of Effective Professional Communication (3)

Prerequisite: sophomore standing. Styles of written communication common to child development programs and services. Reporting on theories and research to multiple audiences (e.g., other professionals, parents, community groups) in written and oral formats. Meets upper-division baccalaureate writing course requirement for Child and Adolescent Development majors.

301 Inquiry and Methodology in Development (3)

Prerequisite: sophomore standing. Framework and methods necessary for interdisciplinary study of child development. Conducting library research, reading and writing scientific reports, using descriptive and inferential statistics, developing computer literacy, and exploring developmental methodology and theory. (2 hours lecture, 2.5 hours laboratory)

310 Assessing and Observing Development (3)

Prerequisites: Child/Adolescent Studies 101, 300, 301. Purposes and methods associated with assessing and observing child and adolescent development. Topics include selection of appropriate methods, survey of standardized measures, ethics, and interpretation and implications of data.

312 Human Growth and Development (3)

Prerequisite: Psychology 101. Biological/ physical, socio-emotional, cognitive development across the lifespan. One or more section may be offered online.

315 Child Development (3)

Prerequisite: Completion of the General Education Category III.C.1. Examines major concepts, principles, theories, and research related to cognitive, linguistic, social, emotional, and physical development from birth through adolescence; emphasizes developmentally appropriate practices.

325A Conception through Age 8 (3)

Prerequisites: Child/Adolescent Studies 101, 300, 301. Research, theories and their application to biological/physical, socio-emotional, and cognitive development from conception through age 8.

325B Age 9 through Adolescence (3)

Prerequisites: Child/Adolescent Studies 101, 300, 301, 325A. Research, theories and their application to biological/physical, socio-emotional, and cognitive development from age 9 through adolescence.

330 Adolescence and Early Adulthood (3)

Prerequisite: Psychology 101. Examination of human development during and following adolescence. Community resources and services for adolescents and their families. Consequences of adolescent experiences for later development.

340 Parenting in the 21st Century (3)

Prerequisite: Completion of a General Education Category III.C.1 course. Examines goals and patterns of parenting in context of contemporary, multicultural society; identifies changing demands of parenting infants, children and adolescents; summarizes current scholarly research on relation of parenting practices to child development outcomes.

345 Child and Adolescent Development in Diverse Family Contexts (3)

Prerequisites: Child/Adolescent Studies 300, 301. Examines patterns and processes of child/adolescent development within families of various cultural/ethnic/social contexts. Identifies multiple theoretical and disciplinary perspectives in studying child and family developmental processes, as well as summarizing the current related scholarly literature.

360 Adolescents and the Media (3)

Prerequisite: Completion of General Education Category III.C.1. Summarizes current social, cultural, and behavioral research on adolescents and mass media. Examines how teens use, learn, are depicted in, and shape cultural meaning from exposure to television and other electronic media.

365 Adolescent Pregnancy and Parenting (3)

Prerequisite: Completion of course in General Education Category III.C.1. Reviews current knowledge base on adolescent pregnancy and the developmental implications for parent and child. Examines the social, educational, and health implications of early parenting and articulates the resources, skills, and supports needed to foster success in parenting.

394 Practicum Seminar in Child and Adolescent Development (2)

Prerequisite: Child/Adolescent Studies 101. Corequisite: Child/Adolescent Studies 394L. Classroom analysis of field experience focusing on linkages between theory and practice and skills and techniques of child development professionals.

394L Practicum in Child and Adolescent Development (1-2)

Corequisite: Child/Adolescent Studies 394. Supervised field experience in agencies, institutions and organizations serving children and families. Minimum of 4 hours per week for a total of 60 hours required for the semester. Credit/No Credit grade option only. May be repeated once for credit.

464 Practicum Seminar in Early Care and Education (2)

Prerequisites: Child/Adolescent Studies 101, 300, 301, 310, 325A, 394, 394L. Corequisite: Child/Adolescent Studies 464L. Classroom analysis of field experience focusing on linkages between theory and practice and skills and techniques of early childhood development professionals.

464L Practicum in Early Care and Education (1)

Corequisite: Child/Adolescent Studies 464. Supervised field experience in agencies, institutions, and organizations serving young children and families. Minimum of 4 hours per week for a total of 60 hours required for the semester. Credit/No Credit grade option only.

474 Practicum Seminar in Development in School Settings (2)

Prerequisite: Child/Adolescent Studies 101, 300, 301, 310, 325A, 394, 394L. Corequisite: Child/Adolescent Studies 474L. Positive developmental outcomes associated with programs/materials used in elementary school contexts are examined. Developmental theory and research findings are linked to these practice alternatives.

474L Practicum in Development in School Settings (1)

Corequisite: Child/Adolescent Studies 474. Supervised field experiences in educational setting serving elementary school-aged children. Minimum of 4 hours per week for a total of 60 hours for credit. Credit/No Credit grade option only.

484 Practicum Seminar in Adolescent and Youth Services (2)

Prerequisites: Child/Adolescent Studies 101, 300, 301, 310, 325A, 394, 394L. Corequisite: Child/Adolescent Studies 484L. Classroom analysis of field experience focusing on linkages between theory and practice and skills and techniques of adolescent development/youth services professionals.

484L Practicum in Adolescent and Youth Services (1)

Corequisite: Child/Adolescent Studies 484. Supervised field experience in agencies, institutions, and organizations serving adolescents and families. Minimum of 4 hours per week for a total of 60 hours required for the semester. Credit/No Credit grade option only.

490T Senior Seminar in Child and Adolescent Development (3)

Prerequisites: Child/Adolescent Studies 101, 300, 301, 310, 325A, 325B. Systematic study of theory, methods, and findings concerning a specific developmental topic. Variable topics include Children and Adolescents at Risk, Cognition and Motivation, Controversial Issues in Development, Culture and Ethnicity in Development, Life Span Creativity, Life Span Perspective, Families and Development, Gender and Development, Gifted Intelligence, Working for Change: Legislative Advocacy, Moral Development, Self Concept, and Temperament and Development. May be repeated for credit under different topic.

494 Practicum Seminar in Youth and Families in Community Settings (2)

Prerequisites: Child/Adolescent Studies 101, 300, 301, 310, 325A, 394, 394L. Corequisite: Child/Adolescent Studies 494L. Classroom analysis of field experience focusing on linkages between theory and practice and skills and techniques of professionals working with parents and families in school and community settings.

494L Practicum in Youth and Families in Community Settings (1)

Corequisite: Child/Adolescent Studies 494. Supervised field experience in agencies, institutions, and organizations serving parents and families. Minimum of 4 hours per week for a total of 60 hours required for the semester. Credit/No Credit grade option only.

496 Student-to-Student Tutorial (1-3)

Prerequisites: a 3.0 or higher grade-point average and simultaneous enrollment in the course being tutored or previous enrollment in a similar course or its equivalent. Consult "University Curricula" section of this catalog for more complete course description. May be repeated for a maximum of 3 total units of credit. Only 3 units may be taken in a single semester.

499 Independent Study (1-6)

Individual research project, either library or field, under the direction of a Child and Adolescent Studies faculty member. May be repeated for a maximum of 9 total units of credit. Only 6 units may be taken in a single semester.

The Mission, Vision, Objectives, and Outcomes of the Civil and Environmental Engineering Department are:

MISSION

- To provide the best engineering program based on a foundation of mathematics, basic and applied science, engineering science, and civil engineering fundamentals
- To produce graduates who have the technical skills required for immediate entry into industry or graduate school
- To facilitate active student participation in research
- To provide service to the profession, the state of California, the country and to the world wide development of engineering
- To prepare students for higher engineering education.

VISION

- To excel in Civil and Environmental engineering education
- To systematically upgrade curricula that emphasize breadth and depth of education, which reflect the current developments in Civil and Environmental engineering
- To engage in research and scholarly activity that enhance student learning while being of benefit to the state, region, and nation

OBJECTIVES

- To provide a practice oriented curriculum that prepares students to apply theory to real world problems
- To develop the skills of the students which are pertinent to the design process, including the students ability to formulate problems, to think creatively, to communicate effectively, to synthesize information and to work collaboratively
- To develop the skills of the students aimed at designing civil engineering systems through design courses
- To instill in the students an understanding of their professional, social and ethical responsibilities and prepare them for life long learning

OUTCOMES

After completing one of the Civil and Environmental engineering programs, graduates should have the following attributes:

- An ability to apply knowledge of mathematics, science and engineering to design and conduct experiments as well as to analyze and interpret data
- An ability to design a multidisciplinary system, component or process to meet the desired needs
- An ability to use the techniques, skills and modern engineering tools necessary for engineering practice
- An ability to communicate effectively, have knowledge of contemporary issues and be able to recognize the need for engaging in life long learning

DEPARTMENT CHAIR

Pinaki R. Chakrabarti

DEPARTMENT OFFICE

Engineering 100

DEPARTMENT WEBSITE

http://cee.fullerton.edu

PROGRAMS OFFERED

Bachelor of Science in Civil Engineering

Emphasis in Architectural Engineering

Master of Science in Civil Engineering

Concentration in Environmental Engineering

FACULTY

Pinaki Chakrabarti, Uksum Kim, Jeff Kuo, George Lin, Mallela Prasada Rao, Chandrasekhar Putcha, Dindial Ramsamooj, Mufid Samara, Binod Tiwari

ADVISERS

Undergraduate advisers:

Pinaki R. Chakrabarti

M. P. Prasada Rao

Graduate adviser:

Pinaki R. Chakrabarti

INTRODUCTION

The civil engineering program at CSUF includes the fields of engineering mechanics and structural, geotechnical, hydraulic, environmental, construction, transportation, and architectural engineering. Modern civil engineering practices rely heavily upon computer-aided analysis and design. Students at CSUF use both microcomputers and the mainframe computer.

"Structural" engineers are designers of buildings, bridges, dams, power plants, offshore structures and many other kinds of systems. These engineers determine, usually by computer analysis, the forces that a structure must resist, the appropriate materials, and the possible structural types. Structural engineers usually work with a team that includes architects, mechanical and electrical engineers, contractors, and the owner of the project.

"Engineering Mechanics" courses offered in this department provide strong support for research, consulting and teaching in many fields of civil engineering.

"Geotechnical" engineers analyze the properties of soils and rocks that affect the behavior of structures. They evaluate the potential settlements of buildings, the stability of slopes and fills, and the effects of earthquakes. They take part in the design and construction of foundations, including those of offshore platforms, tunnels and dams.

"Hydraulic" engineers deal with all aspects of the physical control of water. They work to prevent floods, develop irrigation projects, design hydroelectric power systems, manage water resources, and predict water runoff.

"Architectural" engineering is a combination of the art of architecture and the science of engineering. The architect conceives of structures as an art form, and relies upon the structural engineer to translate his concepts of beauty into structural reality. The architectural engineer has the training to interact with both architects and engineers or to work on his own in designing structures that combine both strength and beauty.

"Construction engineering and management" is a wide ranging specialization that uses both technical and management skills to plan and build public and private projects and commercial developments.

"Environmental" engineers apply science and engineering principles to minimize the adverse effects of human activity on the environment. They typically deal with water and waste water treatment, air pollution control, solid and hazardous waste management, and groundwater/soil remediation. They also help draft regulations and enforce many federal and state laws to control damage to the environment.

"Transportation" engineers are concerned with the planning, design, and control of projects related to transportation of people and goods. They also help draft regulations and enforce many federal and state laws related to transportation.

The undergraduate engineering program is designed to impart knowledge of mathematics and natural sciences to students so that they learn to use the forces of nature and materials economically while maintaining engineering ethics and high professional standards.

One of the major objectives of this program is to provide design experience to the students gradually from the very beginning years until they graduate, through a variety of courses. During this time, they also learn about safety, reliability, ethics and socially sensitive problems.

The graduate engineering program is designed for specialization in the areas of structures, engineering mechanics, geotechnology, hydraulics, construction management, and environmental engineering.

High School Preparation

The entering high school student should have a preparation which includes two years of algebra, geometry, trigonometry, and one year of physics or chemistry. Students deficient in mathematics or chemistry must take special preparatory courses, i.e., Mathematics 125 and Chemistry 115, which will not carry credit for the major. (See Mathematics Section for Entry Level Mathematics test and Math-Science Qualifying Examination requirements.)

Transfer Students

A transfer student shall complete a minimum of 30 units in residence of which at least 15 units shall be taken in upper-division engineering courses. Work taken at another college or university on which a grade of "D" (1.0) was earned may not be substituted for upper-division courses.

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

The undergraduate program requirements for the bachelor of science in civil engineering are comprised of four major segments: foundation courses in mathematics and the physical sciences; basic engineering courses; general education courses in the arts, humanities, social sciences, biological sciences and other related areas; and a sequence of courses to fulfill the requirements of the Civil Engineering degree or the Architectural Engineering Emphasis.

Undergraduate students are required to meet with their academic adviser every semester during the first year and at least once a year thereafter. Students are strongly encouraged to see their academic advisers frequently. All courses taken in fulfillment of the requirements for the bachelor's degree must be taken for a letter grade, i.e., under grade Option 1. All mathematics and physical science courses required for the degree must be completed with at least a "C minus" (1.7) grade to count as prerequisite courses to engineering courses or as credit towards the degree. Graduate courses are not open to undergraduate students without approval of the program coordinator.

Mathematics and Science Courses (31)

Mathematics 150A Calculus (4)

Mathematics 150B Calculus (4)

Mathematics 250A Multivariate Calculus (4)

Mathematics 250B Introduction to Linear Algebra and Differential Equations (4)

Biology 101 Elements of Biology (3)

Chemistry 115 Introductory General Chemistry (4)

Physics 225, 225L Fundamental Physics: Mechanics and Lab (4)

Physics 226, 226L Fundamental Physics: Electricity and Magnetism and Lab (4)

Introductory Engineering Courses (9)

EGCE 201 Statics (3)

EGCE 302 Dynamics (3)

EGCE 308 Engineering Analysis (3)

General Education Courses

I. Core Competencies (9)

A. Oral Communication (3)
Honors 101B, Human Comm 100, or Human Comm 102

B. Written Communication (3)
English 101

C. Critical Thinking (3)
Honors 101A; Philosophy 105, 106; Psychology 110; Reading 290; or Human Comm 235

II. Historical and Cultural Foundations (9)

A. Development of World Civilization (3)
History 110A or 110B

B. American History, Institutions and Values (6)

1. American History (3)
Afro Ethnic Studies 190, American Studies 201, Chicano 190, History 180, 190, or Honors 201A

2. Government (3)
Poli Sci 100

III. Disciplinary Learning (26)

A. Mathematics and Natural Sciences (11)

1. Mathematics
Mathematics 150A (4)

2. Natural Sciences (4)

a. Physical Science
Physics 225, 225L

b. Earth and Astronomical Sciences
Not applicable for engineering majors

c. Life Science
Biology 101 (3)

B. Arts and Humanities (9)

1. Introduction to the Arts (3)
Art 101, 201A, 201B, 311, 312, Dance 101, Music 100, Theater 100

2. Introduction to the Humanities (3)
Any lower-division course in this category listed in the current class schedule

3. Implications, Explorations and Participatory Experience in the Arts and Humanities (3)
Any upper-division course in this category in the current class schedule

C. Social Sciences (6)

1. Introduction to the Social Sciences (3)
EGCE 401

2. Implications, Explorations and Participatory Experience in the Social Sciences (3)
Any upper-division course in this category listed in the current class schedule

IV. Lifelong Learning

This category is not applicable to engineering majors

V. Cultural Diversity

Take at least one star (*) course in Sections III.B.3 or III.C.2

Upper-Division Writing Requirement

In addition to the Examination in Writing Proficiency which is to be taken as soon as 60 units are completed, six units from the following courses are required and must be passed with a grade of "C" (2.0) or better. The laboratory reports are graded on English composition as well as content.

EGCE 324L Soil Mechanics Laboratory (1)

EGCE 325L Structural Analysis Laboratory (1)

EGCE 377 Civil Engineering Materials Lab (1)

EGCE 428L Engineering Hydraulics Lab (1)

EGCE 431L Advanced Structural Lab (1)

EGCE 463L Precast and Prestressed Concrete Design Lab (1)

EGCE 465 Planning and Control of Engineering Construction Projects (3)

EGCE 468 Engineering Construction (3)

Required Courses in Civil Engineering (39 units)

EGCE 206 Computer-Aided Architectural and Civil Engineering Drafting (1)

EGCE 214 Engineering Surveying (2)

EGCE 214L Engineering Surveying Laboratory (1)

EGCE 301 Mechanics of Materials (3)

EGCE 324 Soil Mechanics (3)

EGCE 324L Soil Mechanics Laboratory (1)

EGCE 325 Structural Analysis (3)

EGCE 325L Structural Analysis Laboratory (1)

EGCE 377 Civil Engineering Materials Lab (1)

EGCE 408 Reinforced Concrete Design (3)

EGCE 418 Foundation Design (3)

EGCE 428 Engineering Hydraulics (3)

EGCE 428L Engineering Hydraulics Lab (1)

EGCE 430 Structural Steel Design (3)

EGCE 432 Computer-Aided Design and Analysis in Civil Engineering (3)

EGCE 441 Enivronmental Engineering (3)

ECGE 468 Engineering Construction (3)

EGCE 494 Design of Civil Engineering Structures (3)*

EGCE 494L Civil Engineering Structural Laboratory (1)*

EGCE 496 Architectural Design (3)

*EGCE 494 and 494L must be taken together.

Technical Electives in Civil Engineering (14 units minimum)

Before enrolling in any elective course, approval of the adviser must be obtained.

EGCE 411 Structural Dynamics (3)

EGCE 431L Advanced Structural Laboratory (1)

EGCE 435 Design of Hydraulic Structures (3)

EGCE 436 Engineering Hydrology (3)

EGCE 463 Precast and Prestressed Concrete Design (3)

EGCE 463L Precast and Prestressed Concrete Design Lab (1)

EGCE 465 Planning and Control of Engineering Construction Projects (3)

EGCE 466 Public Transit Systems Planning and Operations (3)

EGCE 468 Engineering Construction (3)

EGCE 481 Solid Waste Technology and Management (3)

EGCE 482 Liquid Waste Technology and Management (3)

EGCE 493 Structural Systems for Buildings (3)

EGCE 497 Senior Projects (1-5)

EGCE 499 Independent Study (1-5)

Chemistry 125 General Chemistry for Engineers (3)

EGEE 203 Electric Circuits (3)

EGME 304 Thermodynamics (3)

Geological Sciences 376 Engineering Geology (3)

ARCHITECTURAL ENGINEERING EMPHASIS

Mathematics and Science Courses (28 units)

Introductory Engineering Courses (9 units)

Required Courses in Civil Engineering (30 units)

EGCE 206 Computer-Aided Architectural and Civil Engineering Drafting (1)

EGCE 214 Engineering Surveying (2)

EGCE 214L Engineering Surveying Laboratory (1)

EGCE 301 Mechanics of Materials (3)

EGCE 324 Soil Mechanics (3)

EGCE 324L Soil Mechanics Laboratory (1)

EGCE 325 Structural Analysis (3)

EGCE 325L Structural Analysis Laboratory (1)

EGCE 377 Civil Engineering Materials Laboratory (1)

EGCE 408 Reinforced Concrete Design (3)

EGCE 418 Foundation Design (3)

EGCE 428 Engineering Hydraulics (3)

EGCE 428L Engineering Hydraulics Lab (1)

EGCE 430 Structural Steel Design (3)

EGCE 432 Computer-Aided Design and Analysis in Civil Engineering (3)

EGCE 494 Design of Civil Engineering Structures (3)*

EGCE 494L Civil Engineering Structural Laboratory (1)*

EGCE 496 Architectural Design (3)

*EGCE 494 and 494L must be taken together.

Technical Electives for the Architectural Engineering Emphasis (14 units minimum)

Before enrolling in any elective course, approval of the adviser must be obtained.

EGCE 411 Structural Dynamics (3)

EGCE 431L Advanced Structural Laboratory (1)

EGCE 435 Design of Hydraulic Structures (3)

EGCE 436 Engineering Hydrology (3)

EGCE 441 Environmental Engineering (3)

EGCE 463 Precast and Prestressed Concrete Design (3)

EGCE 463L Precast and Prestressed Concrete Design Lab (1)

EGCE 465 Planning and Control of Engineering Construction Projects (3)

EGCE 466 Public Transit Systems Planning and Operations (3)

EGCE 468 Engineering Construction (3)

EGCE 481 Solid Waste Technology and Management (3)

EGCE 482 Liquid Waste Technology and Management (3)

EGCE 493 Structural Systems for Buildings (3)

EGCE 497 Senior Projects (1-5)

EGCE 499 Independent Study (1-5)

Chemistry 125 General Chemistry for Engineers (3)

EGEE 203 Electric Circuits (3)

EGME 304 Thermodynamics (3)

Geological Sciences 376 Engineering Geology (3)

MASTER OF SCIENCE IN CIVIL ENGINEERING

The Master of Science degree in Civil Engineering is intended to meet the needs of students who wish to prepare for careers in areas such as construction and project management, design and analysis of complex systems (including structures such as tall buildings and bridges), environmental engineering, consulting, and research. This program also provides excellent preparation for doctoral studies.

The program provides advanced study within the area of civil engineering and allows students to elect coursework, with adviser approval, in the areas of structural engineering, hydraulics/ hydrology, geotechnical engineering, engineering mechanics, engineering management or environmental engineering.

Graduates from the M.S. program have obtained employment in various fields including manufacturing, construction, business, education, and government.

Admission Requirements

To qualify for admission to conditionally classified standing, applicants must meet the following university and departmental requirements:

1. Bachelor's degree from a regionally accredited institution.
2. Bachelor's degree in Civil Engineering from an institution accredited by the Accreditation Board for Engineering and Technology (ABET).
3. Minimum grade-point-average of 2.5 in the last 60 semester units.
4. Good standing at the last institution attended.

Students meeting the above requirements will be admitted to the graduate program in Civil Engineering and will be advanced to classified standing immediately after filing an adviser-approved study plan in the Civil and Environmental Engineering Department office.

Students not meeting the above requirements may be admitted at the discretion of the department head and will be required to take an additional six or more units of adviser-approved prerequisite coursework. The student must demonstrate potential for graduate study by earning a GPA of 3.0 or higher in these prerequisite courses.

Any student entering the Master of Science degree program without a B.S. in Civil Engineering will also be required to complete deficiency courses prior to beginning coursework for the master's degree.

Graduate and postbaccalaureate students who do not possess a bachelor's degree from a postsecondary institution where English is the principal language of instruction must receive a minimum score of 550 on the Test of English as a Foreign Language (TOEFL).

The Civil and Environmental Engineering Department does not require the Graduate Record Exam (GRE).

Application Deadlines

The deadlines for completing online applications are March 1st for the fall semester and October 1st for the spring semester (see http://www.csumentor.edu). Mailed applications need to be postmarked by the same deadlines. However, deadlines may be changed based upon enrollment projections. Check the university graduate studies website for current information at http://www.fullerton.edu/graduate.

Classified Standing

Students meeting the following additional requirements will be advanced to classified standing and are eligible to take graduate courses for which they are qualified.

1. Completion of all deficiency work specified by the graduate adviser with a grade of "B minus" (2.7) or better.
2. Development of an approved study plan. Before completing nine units at CSUF toward the M.S. degree, the student must meet with an adviser for preparation of a study plan which must be approved by the department head and Office of Graduate Studies.
3. Fulfillment of the university writing requirement prior to completing nine units at CSUF toward the M.S. degree. Students must demonstrate writing ability commensurate with the baccalaureate degree by successfully completing one of the following:
   A. An upper-division writing requirement at any CSU campus.
   B. An upper-division writing course from another university which is equivalent to a course satisfying the CSUF Upper-Division Writing Requirement. Equivalency must be certified by the department head.
   C. Cal State Fullerton Examination in Writing Proficiency (EWP).
   D. A CSUF upper-division or graduate-level course that is certified as meeting the writing requirement and is approved by the department head. The grade received must be a "C" (2.0) or better.

Study Plan

The study plan consists of a minimum of 30 units of adviser-approved upper-division or graduate-level coursework which must be completed with an overall grade-point average of at least 3.0. At least half the units required for the degree must be in approved graduate (500-level) courses.

Required Courses (6 units)

EGGN 403 Computer Methods in Numerical Analysis (3) and an additional adviser-approved math-oriented course (3) OR six units adviser-approved electives (for those focusing on environmental and construction areas).

Concentration Courses (15 units)

A student is required to select a minimum of 15 units in Civil Engineering. These units may be 400-level (subject to approval by the department head) and 500-level courses and are selected according to the student's areas of interest. Coursework may focus on the following areas: Engineering Mechanics, Geo-technical Engineering, Hydraulics/Hydrology, Structural Engineering, and Construction Engineering and Management. Students interested in Environmental Engineering should refer to the text following this section.

Other Courses (9 units)

Elective units should be taken in Civil Engineering or a related engineering field and are subject to adviser approval.

Exam/Thesis/Project Option

Subject to approval by the department head, students may select one of the following three options for final review by a department committee:

1. Oral comprehensive examination OR
2. EGCE 598 Thesis OR
3. EGCE 597 Project

Students enrolling in less than six units of Independent Study/Thesis/ Project will be required to take an oral comprehensive exam. Students enrolling in six units of thesis or project may defend their thesis or project instead of taking an oral comprehensive exam.

Advancement to Candidacy

Advancement to candidacy and completion of requirements for the degree include:

1. Filing a graduation check prior to the beginning of the final semester (deadlines are listed in the class schedule).
2. Completion of study plan coursework with a minimum overall GPA of 3.0.
3. Successful completion of a comprehensive examination or oral defense of a thesis or project.
4. Recommendation by the Civil and Environmental Engineering Department faculty and Office of Graduate Studies.

CONCENTRATION IN ENVIRONMENTAL ENGINEERING

Required Concentration Courses (15 units)

EGCE 481 Solid Waste Technology & Management (3)

EGCE 482 Liquid Waste Technology & Management (3)

Adviser-approved Environmental Engineering courses which may include Thesis, Project or Independent Study (9)

Electives (15 units)

Adviser-approved electives must include a minimum of six units in non-Environmental Engineering courses.

Students enrolling in less than six units of Independent Study/ Thesis/Project will be required to take an oral comprehensive exam. Students enrolling in six units of thesis or project may defend their thesis or project instead of taking an oral comprehensive exam.

CIVIL AND ENVIRONMENTAL ENGINEERING COURSES

Courses are designated as EGCE in the class schedule

201 Statics (3)

Prerequisites: Math 150B and Physics 225. Vectorial treatment of statics of particles and rigid bodies. Free body diagrams. Applications to problems of equilibrium (two and three dimensions) of structural and mechanical force systems. Trusses, frames and machines. Friction problems. Centroids and moments of inertia. (CAN ENGR 8)

206 Computer-Aided Architectural and Civil Engineering Drafting (1)

Prerequisite: Math 125. Architectural and civil engineering drawing with the aid of computer-aided drafting techniques; grading plans, engineering drawings (including standard structural, electrical and hydraulic details) of buildings, bridges, dams and civil engineering structures. Bill of Materials. (3 hours laboratory)

214 Engineering Surveying (2)

Corequisite: EGCE 214L. Basis of plane surveying. Distance measurement using tapes and EDM. Leveling. Measurement of angles and directions. Traverse and topographic survey and computations. Applications in highway curves, construction surveys and land surveys. Principles of stadia.

214L Engineering Surveying Laboratory (1)

Corequisite: EGCE 214. Field practice of measurement of distance, difference of elevation, and horizontal and vertical angles using tapes, EDM, automatic levels, theodolites and total stations. (3 hours laboratory)

301 Mechanics of Materials (3)

Prerequisites: Math 250A and EGCE 201. Stress and deformation analysis for axial load, torsion, flexure, and combined forces. Analysis of simple statically indeterminate structures. Deflection and stress analysis of beams. Stability of columns. Strain energy and ultimate resistance. Interactive relationships between analysis and design.

302 Dynamics (3)

Prerequisites: Math 250A and EGCE 201. Kinematics and kinetics of particles and rigid bodies, kinetics of rigid bodies in three dimension, Newton's laws, work and energy, impulse and momentum. Solution of problems using vector approach.

305 Failure of Building and Structure due to Earthquakes and After Effects (3)

Prerequisites: Students must have completed one course from General Education Category III.A.1 Math, or III.A.2 Natural Science. Geological aspects of earthquakes as they apply to building safety, introduction to earthquake-related problems and building damages cause by historic earthquakes. Discussion on destruction aspects of earthquakes, preparedness for large earthquakes and ho to protect structural and non-structural parts of buildings. (Same as Geology 305)

308 Engineering Analysis (3)

Prerequisites: Physics 226, Math 250B or equivalent. Fundamentals and engineering applications of Fourier transforms, Laplace transforms, complex analysis, vector analysis; engineering applications. (Same as EGEE/EGGN/EGME 308)

324 Soil Mechanics (3)

Prerequisite: EGCE 301. Soil properties and soil action as related to problems encountered in engineering structures; consolidation, shear strength, stability and lateral earth pressures.

324L Soil Mechanics Laboratory (1)

Prerequisites: English 101 and EGCE 324. Behavior and properties of soils. Application to foundation design, liquefaction and seepage.

325 Structural Analysis (3)

Prerequisite: EGCE 301. Analysis of forces and displacements in statically determinate and indeterminate elastic structures by force and displacement methods. Approximate methods of analysis. Matrix formulation of structural analysis and computer applications. Introduction to structural design.

325L Structural Analysis Laboratory (1)

Prerequisites: English 101 and EGCE 325. Principles of model analysis and similitude. Influence lines for reactive and internal forces; generalized displacements of statically indeterminate structures. Nonprismatic members. (3 hours laboratory)

377 Civil Engineering Materials Laboratory (1)

Prerequisites: EGCE 324 and 325. Behavior and properties of most common materials, e.g., steel, concrete, wood, masonry and asphalt. Mix design of asphalt and concrete. Determination of strain and stress using strain gages. Specimen testing according to ASTM. Material properties determination. Safety, reliability, and design considerations. (3 hours laboratory)

401 Engineering Economics and Professionalism (3)

Prerequisites: Math 150A and junior or senior standing in Civil or Electrical Engineering. Development, evaluation and presentation of design alternatives for engineering systems and projects using principles of engineering economy and cost benefit analysis. Study of engineering profession, professional ethics and related topics. (Not available for use on graduate study plans.) (Same as Computer Engineering and Electrical Engineering 401)

408 Reinforced Concrete Design (3)

Prerequisite: EGCE 325. Corequisite: EGCE 377 or equivalent. Design for bending, shear, axial force, torsion and combined loading. Beam, columns, slab and foundation design for ultimate strength and serviceability requirements. Prestressed concrete design. Safety, reliability and cost considerations. Design project conforming to latest ACI code. Professional computer program. (2 hours lecture, 3 hours lab)

411 Structural Dynamics (3)

Prerequisites: EGCE 308 and 325. Free and forced vibrations of discrete and continuous systems. Matrix formulation and normal coordinates analysis. Response of structures to impulse and earthquake loads. Application to structural design problems and comparison with code prescribed forces.

418 Foundation Design (3)

Prerequisites: EGCE 324 and 408. Design of footings and retaining walls. Mat and piled foundations for structures. Design project to standards of professional practice using latest codes and standards. Consideration for safety, reliability and cost.

428 Engineering Hydraulics (3)

Prerequisite: EGCE 302. Incompressible fluid flow in closed conduits and open channels. Hydrostatics, energy, and hydraulic grade lines. Momentum, friction formulas, pipelines, uniform flow, and water surface profiles. Design of pipes and open channels. Computer solutions.

428L Engineering Hydraulics Laboratory (1)

Prerequisites: English 101 and EGCE 428. Introduction to experimental hydraulics in open channel and pipe flows including measurements of discharge, depth, velocity, force and friction coefficients. Hydraulic model laws and report writing. (3 hours laboratory)

430 Structural Steel Design (3)

Prerequisite: EGCE 325. Corequisite: EGCE 377 or equivalent. Design for bending, torsion, shear, axial forces, combined loadings. Design of built-up girders, composite construction. Design of shear and moment connections. Design project using professional practice standards. LRFD method. Safety, reliability and cost considerations. Professional computer program. (2 hours lecture and 3 hours lab)

431L Advanced Structural Laboratory (1)

Prerequisites: EGCE 325L and either EGCE 408 or EGCE 430. Fundamentals of earthquake engineering and soil structure interaction; design of lateral bracing for model buildings. (3 hours laboratory)

432 Computer-Aided Design & Analysis in Civil Engineering (3)

Prerequisites: EGCE 206, 324 and 325. Computer-aided analysis and design in various branches of civil engineering. Introduction of finite element methods with computer techniques. Application of professional computer programs.. (2 hours lecture, 3 hours laboratory)

435 Design of Hydraulic Structures (3)

Prerequisite: EGCE 428. Applications of hydraulic principles to design of various structures including spillways, energy dissipators, outlet works, storm drains, culverts and water distribution systems. Use of computers in design process.

436 Engineering Hydrology (3)

Corequisite: EGCE 428. Hydrologic cycle with applications to hydrologic design of engineering structures. Rainfall, stream flow, ground water, surface runoff, hydrographs, flood routing, frequency distributions and design hydrographs.

441 Environmental Engineering (3)

Prerequisites: Biology 101 EGCE 308. Planning and control of the environment; wastewater treatment and disposal; solid waste management; air pollution; radiation protection; housing and residential environment.

463 Precast and Prestressed Concrete Design (3)

Prerequisite: ECCE 408. Prestressed concrete design and analysis for conventional and lateral loading. Design of reinforced and prestressed structural and architectural elements. Safety and economy. Connection design for earthquake and wind loadings. Design projects using professional practice standards including latest codes.

463L Precast and Prestressed Concrete Design Lab (1)

Prerequisites: EGCE 408 and EGCE 463 or equivalent. Behavior of prestressed and reinforced concrete beams subjected to the different types of loadings. Observation of elastic and ultimate strength behavior, deflection crack propagation and collapse. Observation of prestressing operation and camber. (3 hours laboratory)

465 Planning and Control of Engineering Construction Projects (3)

Prerequisite: Senior standing. Overview of construction project management; construction scheduling fundamentals: bar charts, CPM, PERT; schedule control: manual vs. computer systems, reports, schedule maintenance; cost control: code of accounts, control base, budgets, forecasting, reports, computer systems; applications in construction projects.

466 Public Transit Systems Planning and Operations (3)

Prerequisite: Senior standing in Civil Engineering. Urban passenger transportation modes, paratransit, special modes, vehicles characteristics and motion, highway transit mode, rail transit mode new concepts, transit system performance (capacity, productivity, efficiency and utilization, organization and financing).

468 Engineering Construction (3)

Prerequisite: EGCE 408 or equivalent. Corequisite: EGCE 418. Engineering construction planning equipment and methods. Construction management. Critical path method. Construction of buildings, bridges, highways, foundations and dams. Consideration for safety and reliability.

481 Solid Waste Technology and Management (3)

Prerequisite: EGCE 441 or equivalent. Process dynamics and kinetics; thermal, physical, chemical and biological treatment operations; immobilization process; residual management and treatment process train selection.

482 Liquid Waste Technology and Management (3)

Prerequisite: EGCE 441 or equivalent. Process dynamics; reactions and kinetics; reactor engineering and process design; pretreatment operations and physical, chemical and biological treatment operations; residual management and treatment process train selection.

490 Civil Engineering Professional Practice (1)

Prerequisite: Senior standing. Discussion of civil engineering as a profession and the civil engineer as a professional. Career opportunities in private sectors and government. Office and field practice. Professional growth and development. Project management. Business management and opportunities. Ethics and aesthetics. Case studies.

493 Structural Systems for Buildings (3)

Prerequisite: EGCE 408 or 430. Corequisite: EGCE 418. Building structural concepts and systems and their behavior under loads. Foundation systems. Roof, floor, wall systems. Construction safety and cost considerations. Design project to standards of professional practice. Use of latest building codes and standards and computer application. (2 hours lecture and 3 hours laboratory)

494 Design of Civil Engineering Structures (3)

Prerequisites: EGCE 408 and 430. Corequisites: EGCE 418 and 494L. Timber, reinforced masonry, reinforced concrete and steel design. Use of Uniform Building Code and standards. Design of buildings and bridges. Design projects to standards of professional practice. Reliability, safety and cost consideration. Computer application. (2 hours lecture; 3 hours laboratory)

494L Civil Engineering Structural Laboratory (1)

Corequisite: EGCE 494. Design of bridges according to AASHTO code. Design project to the standards of professional practice. (3 hours laboratory)

496 Architectural Design (3)

Prerequisite: EGCE 408 or 430 or senior standing or consent of instructor and department head. History of architectural design. Systems based design process: aesthetic, functional, environmental, and behavioral aspects. Urban planning and design. Case studies. Architectural design project to the standards of professional practice.

497 Senior Projects (1-3)

Prerequisites: Senior standing in engineering and formal approval by adviser and department head. Independent design projects. Formal report to be submitted after completion of project work.

499 Independent Study (1-3)

Prerequisites: Senior standing in engineering and formal approval by adviser and department head. Special topics in civil engineering. Formal report to be submitted after completion of independent study.

501 Analytical Methods for the Design of Civil Engineering Systems (3)

Prerequisite: graduate standing or equivalent. Application of linear and dynamic programming principles to the design of pipelines, irrigation systems, water-resources and traffic-flow control problems. Probabilistic network analysis. First order and advanced first order second moment reliability methods. Probabilistic design.

509 Theory of Plates and Shells (3)

Prerequisite: EGME 438 or equivalent. Theory of thin plates subjected to transverse loads. Analysis of plates of circular, rectangular and other shapes. Theory of thin shells. Shells of revolution. Shells of translation.

510 The Finite Element Method (3)

Prerequisites: EGCE 517 and 533 or equivalent. Formulation of finite elements for analysis of plane stress and strain problems, axisymmetric bodies, plates and shells. Conforming and non-conforming shape functions. Computer applications to complex structural systems under static and dynamic loads.

515 Geo-Environmental Engineering (3)

Prerequisite: EGCE 436 or equivalent. Geo-environmental properties and soil action related to problems encountered in waste management engineering; physico-chemical soil properties, shear strength as applied to landfill design and lateral earth pressures on braced excavation; contaminant migration and partitioning in unsaturated soils.

517 Theory of Elasticity (3)

Prerequisite: EGME 438 or equivalent. Analysis of stress and strain. Equations of elasticity. Extension, torsion and flexure of beams. Two-dimensional elastostatic problems. Variational methods and energy theorems. Elementary three-dimensional elastostatic problems. Introduction to thermoelasticity and wave propagation.

532 Earthquake Engineering (3)

Prerequisites: EGCE 411 and 533 or equivalent. Earthquake motions; response spectra; computational methods and computer applications for response of structural systems. Energy absorption capacity of materials and structural components. Soil structure interaction. Seismic design and evaluation of current building codes.

533 Matrix Methods of Structural Analysis (3)

Prerequisites: EGCE 325 and EGGN 403. Matrix formulation of structural analysis using the direct stiffness approach. Comparison of flexibility and stiffness approaches. Computer aided analysis of complex structural systems under static and dynamic loads. Stability analysis. Introduction to the finite element method.

534 Construction Methods and Equipment for Buildings (3)

Prerequisites: EGCE 408 and 430. Methods and equipment for construction of high-rise buildings, space structures, folded plates, shells, and suspension systems. Modularization. Quality control and construction failures.

537 Groundwater and Seepage (3)

Prerequisite: EGCE 436 or equivalent. Equations governing flow of liquid in porous media. Seepage through dams and under structures, flow in confined and unconfined aquifers, steady and unsteady flow, well fields, flow nets, computer solutions, sea water intrusion, recharge, groundwater pollution.

538 Construction Methods and Equipment for Heavy Construction Engineering (3)

Prerequisites: EGCE 408 and 418. Methods and equipment for construction of foundations, highways, airfields, bridges, ports, harbors, dams, nuclear power plants and industrial facilities. Quality control and construction failures.

539 Preconstruction Design Evaluation (3)

Prerequisites: EGCE 534 or equivalent. Cost benefit, preconstruction scheduling, and constructibility modifications in design, specifications and construction methods. Value Engineering.

546 Coastal Pollution Engineering (3)

Prerequisites: EGCE 436 or equivalent. Storm water runoff, best management practices for storm water runoff, waste water discharge to lakes, rivers, and oceans, wetland construction and management, remediation of contaminated sediments.

549 Theory of Elastic Stability (3)

Prerequisites: EGCE 509 and 517 or equivalent. Critical buckling loads of columns, beam-columns, frames, plates, and shells. Lateral stability of beams. Torsional buckling of open wall sections.

550 Major Commercial Project Development and Management (3)

Prerequisite: any 400-level Management course approved by the department head. Process of major commercial project development; macroeconomics aspects; project initiation and implementation, construction management systems, schedule, cost and quality control, control of long-lead equipment and materials, construction disputes and claims, case studies.

556 Construction Cost Control, Scheduling and Planning (3)

Prerequisite: EGCE 465 or 468 or equivalent. Systems approach for estimating, scheduling, cost comparison, risk analysis and cost control. Project feasibility studies and alternative approaches. Project control, baseline establishment, cost and claim management.

557 Total Cost Management of Capital Projects (3)

Prerequisite: EGCE 465 or equivalent. Management and cost control of large capital projects. Capital cost estimation, value prediction and control, cost and schedule control and management of mega projects.

559 Environmental and Public Transportation Regulations (3)

Prerequisite: EGCE 441 or equivalent. Environmental regulations, clean air act, intermodal surface transportation efficiency act of 1991, Federal Transit Administration project planning guidelines, planning for public transit and environmental requirement, development of required environ-mental documents; procedure for major investment studies; future of public transportation. Project.

563 Advanced Prestressed and Reinforced Concrete Design (3)

Prerequisite: EGCE 408 or 463. Prestressed concrete theory. Continuous prestressed concrete members, flat plate systems, virendeel systems, application of unbounded postensioning – theory and design. Yield line theory, limit analysis and cracking of concrete. Design of prestressed dome roof, barrel shell and hyperbolic paraboloid shell. Design project to standards of professional practice. Computer application. (2 hours lecture and 3 hours lab).

566 Design of Tall Buildings (4)

Prerequisite: EGCE 408 or 430; EGCE 533 or equivalent. Characteristics, design criteria and safety provisions of tall buildings. Selection, optimization and analysis of framing systems. Design standards, constructability, wind and seismic considerations. Design project to the standards of professional practice. Computer application.

575 Expert Systems in Construction Engineering (3)

Prerequisite: any 400-level Management course approved by the department head. Expert systems and artificial intelligence techniques in construction engineering; expert systems for: safety evaluation of structures during construction, site selection, construction decision making, and construction schedule analysis; project monitoring; claims and disputes.

583 Air Pollution Control Engineering (3)

Prerequisites: EGCE 441. Topics with regard to the formation and control of air pollutants are studied. This course intends to provide a strong foundation for design and development of engineering solutions, devices and systems for industrial air pollution prevention and control.

597 Project (1-6)

Prerequisites: Classified graduate status and formal approval of Civil Engineering Graduate Committee, graduate adviser and department head.

598 Thesis (1-6)

Prerequisites: Classified graduate status and formal approval of Civil Engineering Graduate Committee, graduate adviser, and department head. (Maximum of 3 units per semester)

599 Independent Graduate Research (1-3)

Prerequisites: Classified graduate status and formal approval of Civil Engineering Graduate Committee, graduate adviser, and department head.

DEPARTMENT CHAIR
Anthony R. Fellow

DEPARTMENT OFFICE
College Park 400

DAILY TITAN NEWSROOM
College Park 670

DAILY TITAN BUSINESS MANAGER
College Park 660

DEPARTMENT WEBSITE
http://communications.fullerton.edu

PROGRAMS OFFERED

Bachelor of Arts in Communications
- Concentrations:
  - Advertising
  - Entertainment Studies
  - Journalism
  - Photocommunications
  - Public Relations

Minors
- Advertising
- Journalism
- Public Relations

Master of Arts in Communications

FACULTY

Carol Ames, Genelle Belmas, Jeff Brody, Pamela Caldwell, Thomas Clanin, David DeVries, Beth Evans, Olan Farnall, Tony Fellow, Dennis Gaschen, Christine Hanson, Carolyn Johnson, Dean Kazoleas, Kuen-Hee Ju-Pak, Cynthia King, Mark Latonero, Paul Lester, Gail Love, Coral Ohl, Henry Puente, Rick Pullen, Tony Rimmer, Shay Sayre, Nancy Snow, Andi Stein, Laura Triplett, Edgar Trotter, Robert Wheeler, Diane Witmer, Gerald Wright, Mark Wu, Fred Zandpour

INTRODUCTION

Effective ethical communications are essential for the well being of a democratic society. Thus, there is a need for persons trained in the theory and practice of informing, instructing, and persuading through communications media. The educational goals of the programs leading to the Bachelor of Arts in Communications are to:

- Ensure that all majors are exposed to a broad liberal education;
- Provide majors with a clear understanding and a global perspective of the role of communications media in society; and
- Prepare majors desiring communications-related careers in the mass media, business, government, and education by educating them in depth in one of the specialized concentrations within the department.

ADVISERS

Undergraduate: All full-time faculty serve as undergraduate advisers. Students may find their assigned concentration adviser in the Communications Department Office, College Park 400.

Graduate: Diane Witmer, College Park 400 or College Park 650-29. Additional advising services are available in the College of Communications Advising Center, CP-425.

BACHELOR OF ARTS IN COMMUNICATIONS

The Communications major totals 48 units: 12 units of core requirements; 24 units in a chosen concentration (advertising, entertainment studies, journalism, photocommunications and public relations), and 12 units of collateral upper-division coursework in other departments. All prerequisite courses must be completed with a grade of "C" (2.0) or better.

Collateral requirements: All Communications majors must complete 12 units (4 courses) of upper-division course work outside of Communications. These courses are listed on advising materials available in College Park 400. These units may be taken as part of a minor or another major. Students electing to pursue a minor or a second major as part of the collateral requirement should consult the catalog on minors and multiple majors to ensure that they have the required numbers of distinct units.

Every major must take a minimum of 80 units outside Communications, out of the 120 units required for graduation. Of this 80 units, 65 must be in the traditional liberal arts, humanities and sciences. Any courses from the following departments meet the liberal arts requirement: Afro Ethnic, American Studies, Anthropology, Asian American, Biology, Chemistry, Chicana/o, Comparative Literature, Economics, English, Comparative Religion, Geography, Geological Science, Human Communication, History, Liberal Studies, Linguistics, Math, Philosophy, Physics, Political Science, Psychology, Sociology, Women's Studies, and all foreign languages. See advisers for additional qualifying courses. Students should consult the College of Communications Advisement center and their concentration adviser early in their course work to be sure they meet these requirements.

Grade-Point Average Requirements: Three grade-point averages, each 2.0 or higher, are required for graduation:

A. An average based on all units attempted, including those attempted at other institutions.

B. An average based on all units attempted at CSUF.

C. An average based on all units attempted in the major.

Communications Core

The communications core provides background and perspective appropriate to all the departmental concentrations and an understanding of the role of communicators and their contributions to the development of high standards of professionalism.

Nine units of required course work:

Communications 233 Mass Communications in Modern Society (3)

Communications 407 Communications Law (3)

Communications 425 History and Philosophy of American Mass Communication (3)

Plus three units selected from:

Communications 300 Visual Communication (3)

Communications 310 Mass Media Ethics (3)

Communications 333 Mass Media Effects (3)

Communications 410 Principles of Communication Research (3)

Communications 422 Communications Technologies (3)

Communications 426 Global Media Systems (3)

Communications 480 Persuasive Communications (3)

Communications Concentrations

Every communications major must select and complete 24 units of course work in a major concentration.

ADVERTISING CONCENTRATION

The objective of the advertising concentration is to prepare students for entry-level positions in one or more of the four basic advertising activities: creative (copy, layout design), media planning and buying, research, and management. Students are provided with knowledge and skills needed for work with an advertiser, advertising agency, the print and broadcast media, or support service industry.

Communications 350 Principles of Advertising (3)

Communications 351 Writing for the Advertising Industry (3)

Communications 352 Advertising Media (3)

Communications 353 Advertising Creative Strategy and Execution I (3)

Communications 451A, B or C Advertising Campaigns (3)

Communications 495 Mass Media Internship (3)

Plus six units from: Communications 317, 358, 361, 380, 410, 415T, 446, 450, 452, 453, 454, 455 or 456. At least three of the six units must be 450 or higher.

ENTERTAINMENT STUDIES CONCENTRATION

Courses in this concentration introduce students to theory, trends and practices emerging in entertainment and tourism. The concentration is designed to prepare students for career opportunities in entertainment communication and management in a growing range of sectors including business, industries, agencies, and nonprofit organizations.

Communications 101 Writing for Mass Media (3)

Communications 346 Introduction to Entertainment Studies (3)

Communications 446 Entertainment and Society (3)

Communications 449 Capstone in Entertainment and Tourism Studies (3)

Communications 495 Mass Media Internship (3)

Plus one of the following: Communications 301, 334, 351, 362, or 471.

Plus six units from: Communications 317, 333, 350, 361, 380, 410*, 422*, 426*, 447, 448T, 465, or 497.

*Course may count either as a core elective or as a concentration elective, but not as both.

JOURNALISM CONCENTRATION

The principal objective of the journalism concentration is to provide the skills and practice necessary for careers in the print, broadcast and online media. Specifically, the concentration objectives are: (1) to provide experience in writing various types of news stories, and to develop skills in reporting and news gathering techniques; (2) to develop critical acumen necessary to check news stories for accuracy and correctness; (3) to develop skills in graphics or photography that complement the journalistic writing skills; (4) to provide actual on-the-job experience by working on the campus newspaper and through an internship, and (5) to add breadth and depth to the professional's specialized skills through collateral courses.

The concentration includes three emphases: print, broadcast journalism, and visual journalism.

Journalism Concentration Core:

Communications 101 Writing for the Mass Media (3)

Communications 495 Mass Media Internship (3)

Print Journalism Emphasis

Communications 201 Reporting for Mass Media I (3)

Communications 202 Reporting for Mass Media II (3)

Communications 332 Editing and Design (3)

Communications 471 News Media Production (3)

Plus six units from: Communications 334, 335, 380, 434, 435, 436, 437, or 438T.

Broadcast Journalism Emphasis

Communications 201 Reporting for Mass Media I (3)

Communications 202 Reporting for Mass Media II (3)

Communications 372 TV News Production (3)

Communications 472 Advanced Electronic News Production (3)

Plus six units from: Communications 335, 371, 380, 435, 436, 438T.

Visual Journalism Emphasis

Communications 319 Photojournalism (3)

Communications 380 Web Design and Production (3)

Communications 409 Advanced Photojournalism (3)

Communications 471 News Media Production (3)

Plus six units from: Communications 317, 358, 363, 434.

PHOTOCOMMUNICATIONS CONCENTRATION

The photocommunications concentration provides a comprehensive study of the aesthetics, theories, and practices of contemporary photography for professional careers in magazine and newspaper photojournalism, and advertising/commercial photography.

Communications 101 Writing for the Mass Media (3)

Communications 217 Introduction to Photography (3)

Communications 319 Photojournalism (3)

Communications 321 Advanced Color Photography (3)

Communications 495 Mass Media Internship (3)

Plus six units selected from:

Communications 326, 340, 358, 380, 409, or 471

Plus one of the following:

Communications 301, 334 or 362.

PUBLIC RELATIONS CONCENTRATION

This concentration provides preparation in both theory and practice of two-way communication and management counsel for prospective professional public relations careers in business, industry, agency, government, and nonprofit sectors of society.

Communications 101 Writing for Mass Media (3)

Communications 361 Principles of Public Relations (3)

Communications 362 Public Relations Writing (3)

Communications 464 Public Relations Management (3)

Communications 495 Mass Media Internship (3)

Plus one writing course from:

Communications 301, 334, or 471

Plus six units selected from:

Communications 317, 346*, 350, 358, 363, 380, 410, 434, 437, 446*, 465, 467, 468, or 497.

*Course may count either as a core elective or as a concentration elective, but not as both.

WRITING REQUIREMENTS

All communications majors must satisfy both departmental and university writing requirements. For the department Writing Requirement, each concentration requires one or more writing courses. Consult an adviser or concentration checklist.

University Writing Requirement: The course work portion of the university's upper-division baccalaureate writing requirement for communications majors may be met by satisfactory completion of any one of Communications 301, 334, 335, 351, 362, 371, 435; and 471 and 476. Students must earn a "C" (2.0) or better in the course which is used to fulfill the university's upper-division writing requirement.

INTERNSHIP REQUIREMENTS

The Department of Communications has always recognized the beneficial attributes of an internship. Students intern at sites in Orange and Los Angeles counties, as well as at national and international sites. Examples of internship sites include newspapers, magazines, television and radio stations, public relations and advertising agencies, health-related institutions, nonprofit organizations, film production companies, publishers, education offices, high-tech industries, and cities and businesses with communications needs.

Students can view course syllabus on the website at https://commsec.fullerton.edu/internship for a full understanding of the internship program. Applications are approved by the Communications Faculty Internship Coordinator (located at College Park 460-24) through the online site before a student registers with Titan. Deadlines for applications are March 15 (summer); May 15 (fall); October 15 (spring). Internship coursework must be completed within the term it is taken. Incompletes are discouraged. Students are encouraged to seek advice from the Communications Faculty Internship Coordinator (located at College Park 460-24) early in their academic career to gain the highest level of professional growth from their internship experience.

Students must meet the following prerequisites:

- Communications major
- Senior standing 2.25 GPA overall and in major
- Specific prerequisites for each area of concentration – which are NOT TO BE TAKEN CONCURRENTLY WITH THE INTERNSHIP. They include:

Advertising

Required: Communications 350, 351, 352, and 353.

Recommended: Communications 358.

Entertainment Studies

Required: Communications 346, 446.

Journalism

Required: Communications 471 or 372.

Recommended: Communications 334 and 335.

Photocommunications

Required: Communications 217, 319, and 321.

Recommended: Communications 326 or 409.

Public Relations

Required: Communications 361 and 362.

Recommended: Communications 358, 363, and 464.

Students with the equivalent of one year of full-time employment in the area of their concentration may petition out of the Internship by taking a different 400-level class approved by their faculty adviser. International students must obtain approval of the International Education and Exchange Office.

Students who do not meet the 2.25 GPA may be asked to petition out of the Communications 495 class and take a different 400 level class approved by their faculty adviser.

Applications and information can be obtained at the Department of Communications Internship Office in College Park 460-24.

COMMUNICATIONS MINORS

The department offers three options for a communications minor for students NOT majoring in communications. Students majoring in communications cannot minor in communications.

MINOR IN ADVERTISING

The minor in Advertising requires 21 units as follows:

Lower-Division (3 units)

Communications 233 Mass Communications in Modern Society (3)

Advertising courses (12 units)

Communications 350 Principles of Advertising (3)

Communications 352 Advertising Media (3)

Communications 353 Creative Strategy and Execution I (3)

Communications 451A, B or C Advertising Campaigns (3)

Electives (6 units)

Two adviser-approved courses from Communications 380, 407, 415T, 425, 450, 452, 453, 454, 455, 456 or 480.

MINOR IN JOURNALISM

The Minor in Journalism requires 21 units. Required Journalism courses for a Minor in Journalism, unlike the Minor in Advertising, must be taken in sequence. Each course builds upon the other. The three required journalism courses provide a core of information for beginning journalism students. Students can then specialize in print, broadcast or visual journalism. A stint on the Daily Titan, Communications 471 News Media Production, takes the place of an internship. However, students who will plan to purse a career in professional print journalism are encouraged - but not required - to obtain an internship before applying for a job.

Communications Core Requirements (6 units)

Communications 233 Mass Communications in Modern Society (3)

Plus three units selected from: Communications 310, 407, or 425 (3)

Journalism Concentration Requirements (9 units)

Communications 101 Writing for the Mass Media (3)

Communications 201 Reporting for Mass Media I (3)

Communications 202 Reporting for Mass Media II (3)

Electives (6 units)

Choose six units from one of the following specializations:

Print Journalism Track

Required: Communications 471 News Media Production (3)

Plus three units selected from: Communications 332, 334, 335, 380, 434, 435, 436, 437, or 438T.

Broadcast Journalism Track

Required: Communications 372 Television News Production (3)

Plus three units selected from: Communications 335, 371, 380, 435, 436, or 438T or 472.

MINOR IN PUBLIC RELATIONS

The minor in Public Relations offers students the opportunity to engage in a systematic program of study in the field of public relations, to complement their major field of study. The program requires 21 units.

Required Courses (15 units)

Communications 101 Writing for Mass Media (3)

Communications 233 Mass Communications in Modern Society (3)

Communications 361 Principles of Public Relations (3)

Communications 362 Public Relations Writing (3)

Communications 464 Public Relations Management (3)

Electives (6 units)

Two courses chosen from Communications 407, 410, 425, 465, 467, 468, 480 or 497.

MASTER OF ARTS IN COMMUNICATIONS

The degree is designed to provide advanced study in communications theory and research by integrating courses from these areas of study: advertising, entertainment, journalism and public relations.

The program prepares the graduate to apply advanced communications concepts, research and development skills, and relevant theories of communications media for a wide variety of purposes. These studies serve those whose careers involve the use of mediated messages to inform, instruct, and persuade as well as those seeking doctoral degrees. Course-work is highly applicable to a wide range of careers in business, industry, government, education, mass media, and entertainment.

Students completing the Master of Arts in Communications are eligible for journalism and communications teaching positions in community colleges.

Admission to Graduate Standing: Conditionally Classified

Normally, an applicant must meet grade-point average requirements of 3.0 in the undergraduate major and 2.75 in the last 60 semester units of undergraduate course work, meet the university requirements, and satisfactorily complete the Graduate Record Examination General Test prior to admission. Students must also submit three letters of recommendation and an essay (approximately 1,000 words) outlining reasons for pursuing the master's degree. Consult the department graduate program adviser or the department Web site for details regarding additional admission requirements.

Application Deadlines

The deadline for completing online applications is March 1st for the following fall semester and October 1 for the spring semester. Check the university graduate studies website for current information http://www.fullerton.edu/graduate/

Graduate Standing: Classified

A student admitted in conditionally classified standing may be granted classified standing upon the development of an approved study plan and satisfactory completion of prerequisite course work. Satisfactory coursework or its equivalent in the following may be taken concurrently with degree requirements if not completed prior to classification:

(a) communications writing (Communications 201, 301, 351, 362)

(b) an introductory course in communications (Communications 233, 332, 350, 361)

(c) Communications 410 Principles of Communication Research (3)

Study Plan

The student is required to complete 30 units of approved studies with a minimum grade-point average of 3.0 including 21 units in 500-level communications courses. Six of the 21 units of 500-level courses may be a thesis; three units may be a project. The remaining units may be comprised of 400-level courses appropriate to the student's area of interest.

The candidate must develop a program of study in consultation with the graduate adviser of the Department of Communications. The candidate must plan the thesis or project topic with a committee. The committee includes at least two faculty members from the Department of Communications.

Study plan requirements include the following:

Core Courses (9 units)

Communications 500 Theory and Literature of Communications (3)

Communications 508 Humanistic Research in Communications (3)

Communications 509 Social Science Research in Communications (3)

400-500 Level Courses (15-18 units)

In consultation with the graduate adviser, students design a program of study that is tailored to their educational and career goals and integrates courses in advertising, journalism, pubic relations, and entertainment. Maximum 9 units of 400-level courses are allowed.

Project or Thesis (3-6 units)

Communications 597 Project (3)

OR Communications 598 Thesis (6)

For further information and advisement, please consult the graduate program adviser or the department website.

COMMUNICATIONS COURSES

Courses are designated as COMM in the class schedule.

101 Writing for Mass Media (3)

Prerequisites: English 101 or equivalent with a grade of "C" (2.0) or better; typing ability. Principles and practices of writing for major types of mass communications media. Content, organization, conciseness, and clarity (2 hours lecture, 2 hours laboratory).

201 Reporting for Mass Media I (3)

Prerequisite: Communications 101 or equivalent. Students will develop an expertise in news reporting, including computer-assisted reporting, and writing techniques, with an emphasis on print and Web reporting and writing. Students will have an opportunity to write for the Daily Titan.

202 Reporting for Mass Media II (3)

Prerequisites: Communications 101. Students will develop an expertise in advanced news reporting and writing techniques, with an emphasis on the Web, radio, and television. Students will learn the basics of visual journalism storytelling, including basic elements of shooting videotape, recording audio, editing video and audio tape, and building news websites. Opportunities to contribute to the Daily Titan, Titan Online and/or OC News will be provided.

217 Introduction to Photography (3)

Cameras, accessories, materials, exposure, image processing, printing, finishing, composition, filters, flash, studio techniques, and special subject treatments and applications. (2 hours lecture, 2 hours activity)

233 Mass Communication in Modern Society (3)

Prerequisite: completion of General Education Category III.C.1. Newspapers, magazines, films, radio, and television; their significance as social instruments and economic entities in modern society. (CAN JOUR 4)

300 Visual Communication (3)

Prerequisite: completion of General Education Categories III.B.1 or III.B.2. A social and cultural analysis of the meaning, production, and consumption of visual information in a modern media society. Still, moving, television, graphic design, cartoon, and computer images will be analyzed in terms of technical, commercial, and cultural considerations.

301 Writing for Broadcasting and Film (3)

Prerequisites: English 101 or equivalent with a grade of "C" (2.0) or better; typing ability. Theory and principles of writing in the broadcast and film media.

310 Mass Media Ethics (3)

Prerequisite: junior standing. The study of moral and professional conduct within various communications contexts. Examines cases involved with advertising, broadcast journalism, film, photojournalism, print journalism, public relations, television and the World Wide Web.

317 Multimedia Production (3)

Prerequisite: completion of General Education Category III.B.1 or III.B.2. A convergence in film/digital photography, communication design, streaming media, and web-page production for creative visual problem solving. Students apply new media techniques to real world problems through service learning or client-based projects.

319 Photojournalism (3)

Prerequisite: Communications 217. Photography for publication in print media. News, advertising, feature, sports, lifestyle, photo essay, and documentary applications. (2 hours lecture, 3 hours laboratory)

321 Advanced Color Photography (3)

Prerequisites: junior standing and Communications 319. Positive and negative color film processing, sensitometry, and color printing. Creative and effective use of color in publications photography. (2 hours lecture, 3 hours laboratory)

326 Communications Photography (3)

Prerequisites: junior standing and Communications 321. Photographs and photographic communications produced with the large format camera for the mass media, business, education, government, industry, and science. (2 hours lecture, 3 hours laboratory)

332 Editing and Design (3)

Prerequisite: Communications 201. Principles and practice of newspaper editing: copy improvement, headline writing, news photos and cutlines, wire services, typography, copy schedules and control, page design and layout, law, and ethics. (2 hours lecture, 3 hours laboratory)

333 Mass Media Effects (3)

Prerequisite: completion of General Education Category III.C.1. The course is intended to help students discover the role mass media communications play in all human activity with heavy emphasis on the effects of mass media on the political, social, and economic fabric of America.

334 Feature Article Writing (3)

Prerequisites: Communications 101 with a grade of "C" (2.0) or better. Nonfiction writing for newspapers and magazines; sources, methods and markets.

335 Public Affairs Reporting (3)

Prerequisites: Communications 201 with a grade of "C" (2.0) or better. Communications 407 recommended. Reporting public interest news such as courts, education, finance, government, police, and urban problems.

340 Photography in Advertising and Public Relations (3)

Prerequisites: junior standing and Communications 326. Advertising and public relations photography. Materials and techniques for producing photographs with visual impact suitable for photo reproduction. Students will prepare a portfolio of photographs. (2 hours lecture, 3 hours activity)

346 Introduction to Entertainment and Tourism Studies (3)

Introduces students to the entertainment industry. Applies entertainment and persuasion theory. Offers learning about career opportunities in entertainment-related fields. Explores the tasks, skill sets, demands, and rewards associated with different entertainment professions. (Same as Theatre 346 and Business Administration 346)

350 Principles of Advertising (3)

This course explores the functions, strategies, ethics, technology, and media relevant to the advertising industry, as well as concepts in international, intercultural, and integrated marketing communication.

351 Writing for the Advertising Industry (3)

Prerequisite: English 101. This course develops written communications and critical thinking skills essential for success in all advertising related careers. Students learn to compose persuasive letters, reports, proposals, and news releases. Emphasis is placed on grammar and language skills. Students must achieve a "C" (2.0) or better to continue taking advertising courses.

352 Advertising Media (3)

Prerequisites: Communications 350 and junior standing. Planning, execution and control of advertising media programs. Basic data and characteristics of the media. Buying and selling process, techniques, and methods in media planning process. Audience measurement and media analysis.

353 Advertising Creative Strategy and Execution I (3)

Prerequisites: English 101, Communications 350, and junior standing. Writing of copy and layout of advertisements, based on study of sales appeals, attention factors, and illustrations. (2 hours lecture, 2 hours activity)

358 Graphics Communications (3)

Prerequisite: junior standing. Printing processes, publication formats, copy preparation, copy-fitting techniques, layout principles, paper selection, and distribution methods. (2 hours lecture, 2 hours activity)

361 Principles of Public Relations (3)

Prerequisite: junior standing. The social, behavioral, psychological, ethical, economic and political foundations of public relations, and the theories of public relations as a communications discipline.

362 Public Relations Writing (3)

Prerequisites: Communications 101 and 361, both with a grade of "C" (2.0) or better; junior standing; typing ability. Communications analysis, writing for business, industry and nonprofit organizations. Creating effective forms of public relations communication.

363 Desktop Publishing (3)

Prerequisite: completion of any one of Communications upper-division writing courses. Editing functions and techniques involved in creative development of publications for business, industry and nonprofit organizations and institutions, including magazines, newspapers, newsletters, and brochures.

371 Radio News Production (3)

Prerequisites: Communications 202. Writing, producing, planning, taping, editing, and evaluating radio news.

372 TV News Production (3)

Prerequisites: Communications 202. Writing, production, and evaluation of television news. Discussion of TV reporting techniques and problems. Students cover events and produce TV news in lab. (2 hours lecture, 2 hours lab)

380 Web Design and Production (3)

Prerequisite: junior standing. Underlying design concepts and production techniques for creating World Wide Web multimedia presentations for educational lessons, commercial applications, and online publications.

407 Communications Law (3)

Prerequisites: Communications 233 and junior standing. The Anglo-American concept of freedom of speech and press; statutes and administrative regulations affecting freedom of information and publishing, advertising, and telecommunication. Libel and slander, rights in news and advertising, contempt, copyright, and invasion of privacy.

409 Advanced Photojournalism (3)

Prerequisite: Communications 319. Advanced press photography. Extensive use of cameras for photographic reporting; evaluation and preparation of pictures for publication. Field/laboratory experience in black and white and color. (2 hours lecture, 3 hours laboratory)

410 Principles of Communication Research (3)

Prerequisites: Communications 233 and junior standing. Research methods used to assess the effects of print, broadcast, and film communications on audience attitudes, opinions, knowledge, and behavior. Research design and data analysis in communications research.

415T Current Issues in Advertising (3)

Prerequisites: Communications 233, 350, or 361; permission of instructor. This course presents a variety of current advertising topics in all fields of communications. Professional problems, global issues, critical analysis, and special skills are presented to supplement the curriculum, and to enhance the understanding of, and appreciation for, advertising concepts. Not available for graduate degree credit.

422 Communications Technologies (3)

Prerequisite: Communications 233. Issues surrounding communications technologies. Covered are recent developments in technology, impact of government, industry and economic factors, historical overview, and implications for social change. Exposure to technological developments. Applications to all areas of mass communications.

425 History and Philosophy of American Mass Communication (3)

Prerequisites: Communications 233 and junior standing. American mass communication; newspapers and periodicals through radio and television; ideological, political, social, and economic aspects. Not available for graduate degree credit.

426 Global Media Systems (3)

Prerequisites: Communications 233 and junior standing. Major mass communication systems, both democratic and totalitarian, and the means by which news and propaganda are conveyed internationally.

434 Magazine Industry and Production (3)

Prerequisite: Communications 334. Students in this class will produce Tusk, the magazine of Cal State Fullerton, and learn about the dynamics of magazine production and the magazine industry. Students will work together in a professional setting to produce a high quality magazine.

435 Opinion Writing (3)

Prerequisites: English 101 or equivalent with a grade of "C" (2.0) or better, upper-division writing course, and junior standing. Techniques of editorial writing and opinion writing, including personal essays, for print, broadcast, and the Internet. The role of punditry in television news and on TV and radio talks shows, and how this might affect public perceptions of the media.

436 Reporting on the Entertainment Industry (3)

Prerequisite: Communications 101. Development of expertise in reporting and writing on the entertainment industry. An understanding of the economics, business models, legal aspects, and culture of the industry.

437 Advanced Magazine Writing (3)

Prerequisite: Communications 334. Designed to give students practical experience in reporting and writing long, in-depth feature articles for professional magazines. Will cover the challenges of researching writing for specialized audiences and the business of freelancing. Includes techniques for improving clarity, brevity, cohesion and emphasis.

438T Specialized Reporting (3)

Prerequisite: Communications 201 or 202. This varied topic course is designed to teach advanced reporting and writing skills in specialized areas. It will combine an awareness of techniques and resources with an abundance of writing models and field experiences.

446 Entertainment and Society (3)

Prerequisite: Communications 233; Communications 346 or Business Admin 346 or Theatre 346. In-depth exploration of the role of entertainment in modern society. Examines audience uses, motivations, and individual preferences for entertainment. Reviews theories and research regarding the form and function of entertainment and entertainment media.

447 Tourism and Travel (3)

Prerequisites: Communications 346 or 350, or 361 or Management 339 or Marketing 351 or Theatre 200. This course examines the concepts, tools, and techniques necessary for understanding the tourism and travel industry and its promotional communications. Students explore the trends and issues of tourism and travel and the unique problems and opportunities of this field.

448T Entertainment Industry Studies (3)

Prerequisites: Communications 233; Communications 346 or Business Admin 346 or Theatre 346. Variable topics course that focuses on specific entertainment industries, issues, organizations, trends, and/or functions. May be repeated twice with a different topic.

449 Capstone in Entertainment and Tourism Studies (3)

Prerequisite: Communications 346 or equivalent. Prepares students for careers in the entertainment industry by combining theory with applied principles and analytical skills in examining and developing case studies. Students plan and execute their own campaigns and projects. (Same as Theatre 449 and Business Administration 449)

450 Advertising and Brand Communication Management (3)

Prerequisites: Communications 352 and 353. Theory and techniques for planning, directing and evaluating advertising and brand communication programs with emphasis on media-message strategies. Managerial approach with case studies to the solution of brand communications problems.

451A Advertising Campaigns – AAF Competition (3)

Prerequisites: Communications 352, 353, and consent of instructor. Advertising campaigns, including applied research, writing, and utilization of print and electronic mass media. Design of complete campaigns from idea to prediction readiness.

451B Advertising Campaigns – Local Focus (3)

Prerequisites: Communications 350, 352, 353. Advertising campaigns, including applied research, writing, and utilization of print and electronic mass media. Design of complete campaigns from idea to prediction readiness.

451C Advertising Campaigns – TitanCom Agency (3)

Prerequisites for Advertising majors – Communications 350, 352, 353; for Public Relations majors – Communications 361, 362. Advertising campaigns, including applied research, writing and utilization of print and electronic mass media. Design of complete campaigns from idea to prediction readiness.

452 Advanced Media Strategy and Tactics (3)

Prerequisite: Communications 352. This course is designed to offer students further education in advertising media. It integrates theories from related disciplines, such as communications, marketing, and psychology, to illustrate better ways to use media as a competitive tool in business.

453 Advertising Creative Strategy and Execution II (3)

Prerequisite: Communications 353. Advanced advertising projects involving application and execution of creative advertising strategies for mass media, including theory and practice of writing copy, and preparing comprehensive layouts and completed scripts. Group discussions, labs, and individual conferences.

454 Advertising Media Sales (3)

Prerequisites: Communications 350 and 353; or Communications 332 and either 217 or 358; or Marketing 351 and any 300-level graphics, layout or design course. Prepares students for careers in advertising media sales, including radio, television, newspaper, magazine, new media, and the Internet. Personal sales techniques and media sales strategies are presented for each medium.

455 Internet Advertising & Promotional Communications (3)

Prerequisites: Communications 350, 352 and 353. This course examines Internet advertising and marketing issues and ideas. Students learn to evaluate, develop, and execute Internet-based advertising and promotional campaigns.

456 Advertising Account Planning (3)

Prerequisites: Communications 353 and 410. Students learn to apply principles of research, consumer behavior and creative concept development to advertising and brand communication campaigns. Field study and case application facilitate the process of the planner's consumer advocacy function.

464 Public Relations Management (3)

Prerequisites: Communications 361, 362 and junior standing. Analysis of systems and strategies for planning public relations campaigns and solving/preventing problems. Individual, team case studies, in corporate development of proposals; actual use of tools in addition to role playing presentations to management.

465 Entertainment Public Relations (3)

Prerequisites: Communications 361, Communications 346, Business Admin 346 or Theatre 346. This seminar focuses on public relations strategies and tactics as they are used in the entertainment industry including media relations, talent relations, special events, high visibility techniques, presentation, and dealing with adverse situations.

467 Public Relations Agency Seminar (3)

Prerequisites: Communications 101, 361 and junior standing. Seminar focuses on psychology and functions of client counseling, proposal writing, new business development, agency management, servicing clients, evaluation of methods, reporting results, and legal and ethical concerns.

468 Corporate and Nonprofit Public Relations (3)

Prerequisites: Communications 101 and 361. This seminar focuses on the public relations strategies and tactics used in today's increasingly sophisticated and maturing corporate and nonprofit marketplaces. This advanced course, which relies heavily on professional guest speakers and in-class simulations/exercises, encompasses a host of specific topics, such as fund raising, corporate and social responsibility, media relations, and technology and ethical issues.

469 Crisis Communications (3)

Prerequisites: Communications 233 or Business Administration 201 and junior standing. Designed to give students practical experience in preparing for and responding to crisis situations across a wide variety of contexts. This course examines the theory and practice of organizational issue management, crisis planning and crisis response. Students explore current and future challenges of issue/crisis management.

471 News Media Production (3)

Prerequisites: Communications 201 or 319. Members of the class constitute the editorial staff of the university newspaper and receive training in print, online, and magazine-style journalism. Meets four hours per week for critiques in news reporting, writing, editing, and makeup, followed by production. (More than 9 hours laboratory)

472 Advanced Electronic News Production (3)

Prerequisite: Communications 372. Advanced news writing and production for television, radio and the web. Students will develop their electronic news production skills by working on "OC News," daily television, radio and web newscasts. (2 hours lecture, 3 hours lab.) May be repeated once for credit.

480 Persuasive Communications (3)

Prerequisites: Communications 233 and junior standing. Persuasive communications applied to mass communication. The communicator, audience, message content and structure, and social context in influencing attitudes, beliefs, and opinions.

495 Mass Media Internship (3)

Prerequisites: senior standing, communications major, 2.25 GPA overall and in major, and specific prerequisites for each concentration. Visit the website at: https://commsec.fullerton.edu/internship for further details. Supervised internship according to concentration. Selected from a wide variety of communications media, industries, agencies, and nonprofit organizations. Applications must be made through the department coordinator one semester prior to entering the program. See the department section titled "Internship Requirements" in this catalog or the internship website. (Credit/No Credit Only)

496 Student-to-Student Tutorial (1-3)

Prerequisites: consent of instructor and previous superior performance in a similar or equivalent course. Under faculty supervision, student provides tutorial assistance in a communications course. May involve small group demonstrations and discussions, individual tutoring and evaluation of student performance as appropriate. May be repeated to a maximum of four units either separately or in combination with Communications 499.

497T Event Planning and Management (3)

Prerequisite: one of Communications 346, 350, or 361 or Business Admin 301 or 346. Students learn to plan, produce and promote public events to meet communication objectives. Hands-on applications to COMM Week, film festivals or other events. May be repeated once for extra elective units only.

499 Independent Study (1-3)

Prerequisite: consent of department chair. Individually supervised mass media projects and research on campus and in the community. May involve newspaper and magazine publishers, radio and television stations, and public relations agencies. May be repeated up to a maximum of four units either separately or in combination with Communications 496.

500 Theory and Literature of Communications (3)

Prerequisite: conditional classified status. Theories and research on communication processes and effects; source, media, message, audience, and content variables; types, sources and uses of communication literature. Graduate seminar.

507 Communications Research Design and Analysis (3)

Prerequisite or co-requisite: Communications 500. This course develops a working knowledge of data collection and analysis techniques in both quantitative and qualitative research methods. The material and presentation are developed for practical application to all professional fields of communication.

508 Humanistic Research in Communications (3)

Prerequisites: Communications 410 and 500. Humanistic methods of study in communications: historical research and critical analysis applied to problems, issues, and creative works in communication. Graduate seminar.

509 Social Science Research in Communications (3)

Prerequisites: Communications 410 and 500. Social-scientific research design and analysis and the study of communication processes and effects. Graduate seminar.

515T Professional Problems in Specialized Fields (3)

Prerequisite: Communications 500. Selected topics and issues in the field of mass communications. Subjects vary each semester. May be repeated with a different topic.

516 Media Audience Behavior (3)

Communications 500. This course provides in-depth analysis of the types, attitudes, and behaviors of media audiences. Theories from psychology, marketing, anthropology, and communications are integrated for comprehensive understanding of why people consume media and performance. Appropriate for all communications disciplines.

517 Ethical Problems of the Mass Media (3)

Prerequisite: Communications 500. This course will study criticisms of specific functions of the mass media and public relations. The course will consist of three sections: the history of criticism; problem areas of the media; and practitioner response to criticism.

518 Public Relations Theory (3)

Prerequisite: Communications 500. This graduate seminar explores cutting edge communication and organizational theories and vital emerging issues influencing the field of public relations. Special focus will be on contemporary public relations models and practitioner roles. One or more sections offered online.

519 Communications and Governance in America (3)

Prerequisite: Communications 500. The course will study relationships between systems of communications, particularly new communication technologies, and governmental institutions and processes within the American setting. It will explore how technological change relates to patterns of decision-making, management, and the content and flow of information among public officials.

520A News-Editorial (3)

Prerequisites: Communications 500 and six units of study-plan courses in area of specialization; Communications 518 is an additional prerequisite for C. Under supervision of a faculty member, students plan, design, conduct, and evaluate a team project in their field of specialization.

520B TV/Film (3)

Prerequisites: Communications 500 and six units of study-plan courses in area of specialization; Communications 518 is an additional prerequisite for C. Under supervision of a faculty member, students plan, design, conduct, and evaluate a team project in their field of specialization.

520C Public Relations (3)

Prerequisites: Communications 500 and six units of study-plan courses in area of specialization; Communications 518 is an additional prerequisite for C. Under supervision of a faculty member, students plan, design, conduct, and evaluate a team project in their field of specialization.

525 Advanced Communications Management (3)

Prerequisite: Communications 500. The course is designed to provide the student with an up-to-date assessment of general management and communications management techniques, and to help equip the student for management positions in advertising, journalism, public relations, and broadcasting.

527 Politics and Mass Media (3)

Prerequisite: Communications 500. Study of the nature of the relationship between the mass media and politics. Particular attention to the role and impact of the mass media in political election campaigns and policy making.

530 Communications Technologies (3)

Prerequisite: Communications 500. Seminar in emerging communications technologies which are transforming professional practices associated with various communications industries. Course deals with recent technological developments, corporate and government policies affecting their use, and social consequences of current and projected applications. One or more sections offered online.

534 American Media History (3)

Prerequisite: Communications 500. This seminar will focus on the history of the American Mass Media from McCarthy to the present. It is a period which marked the birth of television and the maturation of investigative journalism in shaping American attitudes about government and society.

536 International Communications (3)

Prerequisite: Communications 500. Comparative examination of communications policies and practices in different national settings. The course provides future practitioners with an understanding of cross-national variations in communication policies and how they shape communication industries and practices.

541 Film Criticism (3)

Prerequisite: Communications 500. This graduate foundation course in screenwriting examines methods of evaluating and critiquing motion picture screenplays and films for a variety of Hollywood genres.

550 Advertising in Modern Society (3)

Prerequisite: Communications 500. Assessing the impact of advertising on society, the culture and economy. Philosophical rather than technical examinations of critical issues and problems such as economic and social effects of advertising, effects of value and life styles, ethics and regulation.

595 Graduate Mass Media Internship (3)

Prerequisites: Communications 500 and Communications 508 or 509, and consent of graduate adviser. Supervised practical work experience with media outlets, advertising and promotion agencies, public relations firms, film companies, etc. Involves cooperative efforts of both the departmental faculty and employers. Exposure to current and innovative techniques in research, management and creative activities while offering practical experience.

597 Project (3)

Prerequisite: Consent of graduate coordinator. Completion of creative project in a sequence beyond regularly offered course work.

598 Thesis (3 or 6)

Prerequisite: Consent of graduate coordinator. Completion of a thesis in a sequence beyond regularly offered course work.

599 Independent Graduate Research (1-3)

Prerequisite: consent of graduate coordinator. Individually supervised mass media projects or research for graduate students. May be repeated.

DEPARTMENT CHAIR

James Santucci

DEPARTMENT OFFICE

University Hall 313

DEPARTMENT WEBSITE

http://hss.fullerton.edu/comparative

PROGRAMS OFFERED

Bachelor of Arts in Religious Studies

Minor in Religious Studies

Minor in Christian Studies

Minor in Jewish Studies

FACULTY

Benjamin Hubbard, M. Zakyi Ibrahim, Paul Levesque, James Santucci, Jeanette Reedy Solano, Bradley Starr

ADVISERS

All programs: James Santucci and Paul Levesque

INTRODUCTION

Comparative Religion examines the spiritual quest of humankind, especially as it has manifested itself in the world's living religions. These include Hinduism, Buddhism, Sikhism, Judaism, Christianity, Islam, and other less familiar traditions. No other academic field looks at the origins, sacred writings, rituals, beliefs and world views of the various religions for their own sake rather than as an aspect of another field of study.

Within a public university, religion must be approached with academic objectivity and without favoritism for any one tradition. Yet, religion must also be studied with sensitivity and empathy for the millions of believers whose lives are shaped by their faith. Comparative Religion is also an interdisciplinary field which draws on the work of social scientists, historians, philosophers, and literary scholars in attempting to understand the religious quest. Hence, studying religious traditions develops habits of mind that are very important for life in our multicultural society. Furthermore, a familiarity with the world's religions is necessary for an understanding of church-state issues in America and of geo-political conflicts in South Asia, the Middle East, and elsewhere.

The Bachelor of Arts in Religious Studies is designed for those who (1) want a humanities undergraduate background focusing on religion as a preparation for further study in such fields as education, law, social work, counseling and government service; (2) wish to pursue graduate studies in religion with the aim of teaching and/or doing research in the subject; (3) are considering a career in various religious ministries or in religious education.

Because the major consists of 36 units of course work (less than some other fields), it may be possible to add a second major in, for example, Communications, History, Human Services or Philosophy. Such double majors may strengthen a student's job preparation or background for graduate studies.

Minors in religion are offered in three areas depending on a student's particular interest: Religious Studies (comparative emphasis), Christian Studies (an emphasis on Christianity in its many forms), and Jewish Studies (an emphasis on the Judaic tradition).

Mission and Goals

Mission

To describe and interpret the developments, worldviews and practices of religious traditions in a non-sectarian, academic manner for the benefit of students, faculty from other fields and the greater Orange County community.

Goals

1. To offer classes in the worlds' religions within the general Education framework and for majors ad minors;
2. To teach in a scholarly and non-sectarian manner;
3. To conduct scholarly research that contributes to an understanding of the varieties of religious thought and experience;
4. To investigate in a scholarly manner the impact of the varieties of religious thought and experience on cotemporary society.

Awards in Comparative Religion

Two graduating seniors are recognized each year with the James O'Shea/Joseph Kalir Award for Outstanding Scholarship by a graduating senior and the James Parkes/Morton Fierman Award for Student Achievement (for service to the department and university and/or for interfaith work within and outside the university). The Donald Gard Award is given annually to a

non-graduating Religious Studies major for academic achievement. In addition, the Althea and Robert McLaren Award recognizes the student (majoring or minoring in religious studies) judged to have written the outstanding essay in a Comparative Religion class in a particular year.

International Learning Opportunities in Comparative Religion

The Religious Studies major within the Department of Comparative Religion requires the study of the world's religions, thereby necessitating an examination of religion in other cultural and national settings. This is particularly true of courses dealing with Asian religions such as Hinduism and Buddhism, and a predominantly Middle Eastern faith—Islam. Moreover, the Department encourages students to study abroad. See the department chair or undergraduate adviser if interested.

Graduate Study

The department works cooperatively with the Department of Religion in the Claremont Graduate School. Please contact the chair or undergraduate adviser about specific cooperative arrangements.

BACHELOR OF ARTS IN RELIGIOUS STUDIES

The Bachelor of Arts in Religious Studies (36 units) requires a minimum of 120 units which includes courses for the major, General Education, all-University requirements, and free electives. The 27 units of core courses are required of all majors. In addition, students must take 9 units from either the Experience/Research Plan or the Streamlined Teacher Education Program (STEP) Plan. Students following the STEP Plan must meet all requirements of STEP, including an additional 15 units of designated courses, bringing the total to 135 units, leading to a B.A. in Religious Studies and completion of the Multiple Subject Credential Program. Each course counted toward the major must be completed with a grade of "C" (2.0) or higher.

Core Courses (27 units)

Lower-Division Requirements (9 units)

Introduction to the Study of Religion (3 units)

Comparative Religion 105 Religion and the Quest for Meaning (3)

Comparative Religion 110 Religions of the World (3)

Introduction to Western Religious Traditions (3 units)

Comparative Religion 200 Introduction to Christianity (3)

Comparative Religion 201 Introduction to the New Testament (3)

Comparative Religion 210 Introduction to Judaism (3)

Comparative Religion 250 Introduction to Islam (3)

Introduction to Non-Western Religious Traditions (3 units)

Comparative Religion 270T Introduction to the Asian Religions (3)

Comparative Religion 280 Introduction to Buddhism (3)

Upper-Division Requirements (18 units)

Methods and Concepts (6 units)

Comparative Religion 300 Methods of Studying Religion (3)

Comparative Religion 485T Major Religious Thinkers and Concepts (3)*

The Development of Western Religious Thought (6 units)

Comparative Religion 345A History and Development of Early Christian Thought (3)

Comparative Religion 345B History and Development of Modern Christian Thought (3)

Comparative Religion 346A History and Development of Jewish Thought: Biblical and Rabbinical Eras (3)

Comparative Religion 346B History and Development of Jewish Thought: Medieval and Modern Eras (3)

Comparative Religion 349A History and Development of Islamic Thought: The Beginning to 1258 (3)

Comparative Religion 349B History and Development of Islamic Thought: 1259 to Modern Times (3)

Comparative Religion 350T Major Christian Traditions (3)

History/Comparative Religion 405 History of the Jews (3)

History/Comparative Religion 406 The Holocaust (3)

History/Comparative Religion 417B Roman Empire (3)

History 420 The Byzantine Empire (3)

History/Comparative Religion 421A History of the Christian Church to the Reformation (1517) (3)

History/Comparative Religion 421B History of the Christian Church from the Reformation to the Present (3)

History/Comparative Religion 425B The Reformation (3)

History/Comparative Religion 466A Islamic Civilization: Arab Era (3)

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*May be taken only after completion of 15 units in Comparative Religion, including Comparative Religion 105 or 110 and 300, and junior standing.

History/Comparative Religion 466B Islamic Civilization: Imperial Age (3)

History/Comparative Religion 483 American Religious History (3)

The Development of Non-Western Religious Thought (6 units)

Afro-Ethnic/Comparative Religion 325 African American Religions and Spirituality (3)

Comparative Religion 337 American Indian Religions and Philosophy (3)

Comparative Religion 347A Hindu Tradition to 400 B.C.E. (3)

Comparative Religion 347B Hindu Tradition from 400 B.C.E. (3)

Philosophy 350 Asian Philosophy (3)

Comparative Religion 354T Topics in Buddhism (3)

Comparative Religion 370 New Religious Movements in the U.S.A. (3)

History/Comparative Religion 465A History of India (3)

History/Comparative Religion 465B History of India (3)

Plan Options (9)

Choose either Experience/Research Plan OR STEP Plan

Experience/Research Plan (9)

The Experience of Religion (6 units)

Comparative Religion 305 Contemporary Practices of the World's Religions (3)

Comp Lit/Comparative Religion 312 The Bible as Literature (3)

Comparative Religion 335 Judaism, Christianity, and Islam Compared (3)

Philosophy/Comparative Religion 348 Philosophy of Religion (3)

Comparative Religion 358 Comparative Mysticism (3)

Comparative Religion 367 Latino/a Spirituality and Religion (3)

Comparative Religion 380 Religion and Violence (3)

Comparative Religion 381 Religion and Politics in the United States (3)

Comparative Religion 397 Religion and Science (3)

Comparative Religion 400 Religion, the Media, and Contemporary Culture (3)

Sociology/Comparative Religion 458 Sociology of Religious Behavior (3)

Textual Studies (3)

Comparative Religion 330T Hebrew Scriptural Studies (3)

Comparative Religion 331T New Testament Studies (3)

Comparative Religion 401T Studies in Religious Texts (3)

Streamlined Teacher Education Plan (STEP) (9)

Diversity and Education (3)

Elem Ed 325 Cultural Pluralism in Elementary Schools (3)

World History and Literature (6)

History 100A World Civilizations to the 16th Century (3)

English/CompLit 110 Literature of the Western World from Ancient through Medieval times (3)

Writing Requirement

The course requirement of the university upper-division baccalaureate writing course is met through Comparative Religion 485T. It is highly recommended that students majoring in Religious Studies pursue the study of classical languages such as Arabic, Greek, Hebrew, Latin, and Sanskrit when such languages are offered.

MINOR IN RELIGIOUS STUDIES

Students minoring in Religious Studies are required to take 21 units in Comparative Religion, distributed as follows:

Lower-Division Requirements (9 units)

Introduction to the Study of Religion (3 units)

Comparative Religion 105 Religion and the Quest for Meaning (3)

Comparative Religion 110 Religions of the World (3)

Introduction to Western Religious Traditions (3 units)

Comparative Religion 200 Introduction to Christianity (3)

Comparative Religion 201 Introduction to the New Testament (3)

Comparative Religion 210 Introduction to Judaism (3)

Comparative Religion 250 Introduction to Islam (3)

Introduction to Non-western Religious Traditions (3 units

Comparative Religion 270T Introduction to the Asian Religions (3)

Comparative Religion 280 Introduction to Buddhism (3)

Upper Division (12 units)

Core Requirements (3 units)

Comparative Religion 300 Methods of Studying Religion (3)

Elective Courses (9 units)

Any nine units of upper-division courses in Comparative Religion. It is highly recommended that students minoring in Religious Studies pursue the study of classical languages such as Arabic, Greek, Hebrew, Latin, and Sanskrit when such courses are offered.

MINOR IN CHRISTIAN STUDIES

Students minoring in Christian Studies are required to take 21 units, distributed as follows:

Required Courses (12 units)

Comparative Religion 200 Introduction to Christianity (3)

Comparative Religion 300 Methods of Studying Religion (3)

Comparative Religion 345A History and Development of Early Christian Thought (3)

Comparative Religion 345B History and Development of Modern Christian Thought (3)

Elective Courses (9 units)

Comparative Religion 201 Introduction to the New Testament (3)

Comp Lit/Comparative Religion 312 The Bible as Literature (3)

Afro Ethnic/Comparative Religion 325 African-American Religions and Spirituality (3)

Comparative Religion 331T New Testament Studies (3)

Comparative Religion 335 Judaism, Christianity, and Islam Compared (3)

Comparative Religion 350T Major Christian Traditions (3)

Comparative Religion 358 Comparative Mysticism (3)

Comparative Religion 367 Latino/a Spirituality and Religion (3)

Comparative Religion 380 Religion and Violence (3)

Comparative Religion 381 Religion and Politics in the United States (3)

Comparative Religion 400 Religion, the Media, and Contemporary Culture (3)

Comparative Religion 401T Studies in Religious Texts* (3)

History/Comparative Religion 417B Roman Empire (3)

History 420 The Byzantine Empire (3)

History/Comparative Religion 421A History of the Christian Church to the Reformation (1517) (3)

History/Comparative Religion 421B History of the Christian Church from the Reformation to the Present (3)

History/Comparative Religion 425B The Reformation (3)

Sociology/Comparative Religion 458 Sociology of Religious Behavior (3)

History/Comparative Religion 483 American Religious History (3)

Comparative Religion 485T Major Religious Thinkers and Concepts (3)*

Comparative Religion 499 Independent Study (3)*

It is highly recommended that students minoring in Christian Studies pursue the study of classical languages such as Greek, Hebrew, and Latin when such courses are offered.

*When content pertains to the Christian tradition.

MINOR IN JEWISH STUDIES

Students minoring in Jewish Studies are required to take 21 units, distributed as follows:

Required Courses (12 units)

Comparative Religion 210 Introduction to Judaism (3)

Comparative Religion 300 Methods of Studying Religion (3)

Comparative Religion 346A History and Development of Jewish Thought: Biblical and Rabbinical Eras (3)

Comparative Religion 346B History and Development of Jewish Thought: Medieval and Modern Eras (3)

Elective Courses (9 units)

Comp Lit/Comparative Religion 312 The Bible as Literature (3)

Comparative Religion 330T Hebrew Scriptural Studies (3)

Comparative Religion 335 Judaism, Christianity, and Islam Compared (3)

Comparative Religion 358 Comparative Mysticism (3)

Comparative Religion 380 Religion and Violence (3)

Comparative Religion 381 Religion and Politics in the United States (3)

Comparative Religion 400 Religion, the Media, and Contemporary Culture (3)

Comparative Religion 401T Studies in Religious Texts* (3)

History/Comparative Religion 405 History of the Jews (3)

History/Comparative Religion 406 The Holocaust (3)

Sociology/Comparative Religion 458 Sociology of Religious Behavior (3)

History 467 The Middle East in the 19th Century (3)

History 468 The Middle East in the 20th Century (3)

Comparative Religion 485T Major Religious Thinkers and Concepts (3)*

Comparative Religion 499 Independent Study (1-3)*

*When content pertains to the Jewish tradition.

COMPARATIVE RELIGION COURSES

Courses are designated as CPRL in the class schedule.

105 Religion and the Quest for Meaning (3)

Inquiry into the nature of religious experience as the human pursuit of meaning and transcendence, exploring its central themes, phenomena, and questions; its principal types of figures and communities; and its major categories of sacred rituals, objects, seasons, and places.

110 Religions of the World (3)

An introduction to at least five religious world views from an historical and comparative perspective, with descriptive analysis of their belief system, moral code, and symbolic rituals: Judaism, Christianity, Islam, Hinduism, and Buddhism. One or more sections offered online. (Same as Philosophy 110)

200 Introduction to Christianity (3)

An overview of the Christian tradition including Orthodox, Roman Catholic and Protestant expressions. Foundational councils, creeds, scriptures, ideas, and worship styles are profiled.

201 Introduction to the New Testament (3)

Textual and historical study of the origins and content of the New Testament in the context of first-century Christianity.

210 Introduction to Judaism (3)

The Jewish tradition – its scriptures, laws, customs, holidays and world view in their historical setting.

246A Basic Hatha Yoga (2)

(Same as Kinesiology 246A)

246B Intermediate Hatha Yoga (2)

(Same as Kinesiology 246B.)

250 Introduction to Islam (3)

The religion of Islam, its background and main teachings: the rise of Islam; the caliphate; Islamic theology, teachings, mysticism and philosophy.

270T Introduction to the Asian Religions (3)

The main teachings of a major South Asian, Far Eastern, or "Oriental" religion per semester. Such religions as Jainism, Hinduism, Taoism, Shintoism, and Zoroastrianism will be discussed. May be repeated for credit with different subject matter.

280 Introduction to Buddhism (3)

Introduction to the origins and development of Buddhism. Included in the course will be a discussion of the major teachings found in all traditions of Buddhism, the three major traditions of Buddhism, and the position of Buddhism in the U.S.

300 Methods of Studying Religion (3)

Prerequisite: Comparative Religion 110. The academic study of religion to include the definition, functions and varieties of religion; the methods used to study it; and key figures who have shaped the development of this discipline.

301 Sanskrit (3)

(Same as Linguistics 301)

305 Contemporary Practices of the World's Religions (3)

Prerequisite: completion of General Education Category III.B.2. A comparative study of how the beliefs, practices and moral codes of the world's major religions influence the way nations and individuals behave in the spheres of daily life, culture, ethics, business and politics.

312 The Bible as Literature (3)
(Same as Comp Lit 312)

322 Asian Pacific Americans and Religion (3)
(Same as Asian Amer 322)

325 African-American Religions and Spirituality (3)
(Same as Afro Ethnic Studies 325)

330T Hebrew Scriptural Studies (3)
Specific areas of Hebrew Scriptures such as major and minor prophets, Psalms, values of wisdom writers, books of the Old Testament. May be repeated for credit with different subject content.

331T New Testament Studies (3)
Specific areas of the New Testament such as the Synoptic Gospels, the Pauline Corpus, the Johannine Corpus, etc. May be repeated for credit with different subject matter.

335 Judaism, Christianity and Islam Compared (3)
A comparative study of the three great monotheistic traditions, Judaism, Christianity, and Islam; their beliefs, practices, and structures.

337 American Indian Religions and Philosophy (3)
(Same as Afro Ethnic Studies 337)

345A History and Development of Early Christian Thought (3)
Prerequisite: completion of the General Education Categories III. B.1 and III.B.2. A historical study of the diversity of Christian beliefs, movements, and key figures from New Testament times to the late Middle Ages, including such topics as important creeds and councils, spiritual movements, and central figures such as Augustine and Aquinas.

345B History and Development of Modern Christian Thought (3)
Prerequisite: completion of the General Education Categories III. B.1 and III.B.2. A historical study of the diversity of Christian beliefs, movements, and key figures from the late Middle Ages to the present, including such topics as the context and thinkers of the Reformation era, post-Reformation controversies, and recent debates and trends.

346A History and Development of Jewish Thought: Biblical and Rabbinical Eras (3)
Prerequisite: completion of General Education Categories III. B.1 and III.B.2. A study of the Hebrew Scriptures in their historical context, of the development of rabbinical Judaism and the Talmud, and of Judaism in the Christian and Muslim worlds down to the close of the Spanish "Golden Age" (1150).

346B History and Development of Jewish Thought: Medieval and Modern Eras (3)
Prerequisite: completion of General Education Categories III.B.1 and III.B.2. A study of Maimonides' legacy, the impact of mysticism, the rise of anti-Semitism, the emancipation of European Jews, the Holocaust, Israel's founding and history, and the contributions of Jews to American culture.

347A Hindu Tradition to 400 B.C.E. (3)
Prerequisites: Comparative Religion/Philosophy 110 or completion of General Education Category III.B.2. Hindu thought in its earliest period. Subjects will include an overview of Vedic literature, especially its religious content and the major rituals of the early Veda; philosophical developments in the Upanisads or later Veda; and related sacred writings.

347B Hindu Tradition from 400 B.C.E. (3)
Prerequisite: Comparative Religion 105 or 110 or completion of General Education Category III.B.2. Hindu thought after the Vedic period. Subjects will include the beginnings of Hindu philosophies, classical Hindu practice, devotionalism, modern or neo-Hindu groups appearing in the nineteenth century, and the contributions of thinkers such as Ramakrishna and Gandhi.

348 Philosophy of Religion (3)
(Same as Philosophy 348)

349A History and Development of Islamic Thought: The Beginning to 1258 (3)
Prerequisites: Comparative Religion 105, 110 or 250 or equivalent. Islamic theology, law, culture, and spirituality up to the close of the classical period in 1258. Interpretation of the Qur'an, formation of Hadith literature, development of Islamic law, divisions within Islam, rise of mysticism, contributions to science and art.

349B History and Development of Islamic Thought: 1259 to Modern Times (3)
Prerequisites: Comparative Religion 105, 110 or 250 or equivalent. Islamic thought from the close of the classical period to the present, with emphasis on twentieth century developments. Emergence of modern Middle East, reform movements, Islamic response to nationalism and modernity, recent Islamic resurgence.

350T Major Christian Traditions (3)
Prerequisite: completion of General Education Category III.B.2. Catholicism, Protestantism, Eastern Christianity, or Post-Reformation Communities; historical development and self-understanding, liturgy, creeds, moral norms, canon laws and outstanding figures. May be repeated for credit with different content.

354T Topics in Buddhism (3)
Prerequisites: Comparative Religion 105, 110 or 280. A historical survey of Buddhist doctrines, schools, and practices in a particular region or regions which are: South Asia, Tibet, China, Japan, Korea, and Southeast Asia. May be repeated for credit with different content. (Same as Philosophy 354T)

358 Comparative Mysticism (3)
Prerequisite: Comparative Religion 105, 110 or equivalent. A comparative survey of mysticism as a recurring phenomenon within major religious traditions. Included are selected writings and representative male and female figures, analyzed from philosophical and psychological viewpoints. Definitions, terms, metaphors, techniques, and stages of the mystical experience.

367 Latino/a Spirituality and Religion (3)

Prerequisite: completion of General Education Category III B.2. Both national and international expressions of Latino/a religiosity – from popular religion to Marian devotion to curanderismo – are explored through film, historical documents, poetry, theology, art, sociology and ethnic studies. (Same as Chicana/o 367)

370 New Religious Movements in the U.S.A. (3)

Beliefs, history, ritual and organizational make-up of non-traditional modern religions in America, such as Scientology, the Unification Church, Hare Krishna (ISKCON) and Rajneeshism as presented by guest speakers. Discussion of "cult," "sect" and the occult will comprise portion of course.

380 Religion and Violence (3)

Prerequisites: completion of General Education Categories III.B.2. and III.C.1. Interdisciplinary exploration of major theories, developments and documents connected to the relationship between religious practices and motivations for engaging in, preventing or rejecting violent behavior.

381 Religion and Politics in the United States (3)

Prerequisite: completion of General Education Category III.C.1. An examination of the relationship of politics and religion, especially in the U.S. The colonial and constitutional experience, Supreme Court decisions on religious issues, the principal theorists of moral discourse in the public forum, contemporary issues of concern. (Same as Political Science 381)

397 Religion and Science (3)

Prerequisite: completion of the General Education Category III.A.2 and III.B.2. An examination of the historical and contemporary interaction of religion and science through a study of religious thought and scientific method. Topics will include the scientific revolution, evolutionary theory and Quantum physics as these relate to religious faith.

400 Religion, the Media, and Contemporary Culture (3)

Prerequisite: American Studies 201 or Communications 233 or History 180 or Comparative Religion 105 or 110. Religion reporting in the secular media; the religious press in America; the influence of the media, both secular and religious, on the shaping of society's values; ethical dilemmas faced by reporters.

401T Studies in Religious Texts (3)

Prerequisites: Comparative Religion 105 or 110. The study and interpretation of a selected portion of the scriptures of a particular religion, for example, the Hebrew Bible/Old Testament, the New Testament, the Qur'an, the Veda, the Pali Canon.

405 History of the Jews (3)

(Same as History 405)

406 The Holocaust (3)

(Same as History 406)

417B Roman Empire (3)

(Same as History 417B)

421A History of the Christian Church to the Reformation (1517) (3)

(Same as History 421A)

421B History of the Christian Church From the Reformation to the Present (3)

(Same as History 421B)

425B The Reformation (3)

(Same as History 425B)

458 Sociology of Religious Behavior (3)

(Same as Sociology 458)

465A History of India (3)

(Same as History 465A)

465B History of India (3)

(Same as History 465B)

466A Islamic Civilization: Arab Era (3)

(Same as History 466A)

466B Islamic Civilization: Imperial Age (3)

(Same as History 466B)

483 American Religious History (3)

(Same as History 483)

485T Major Religious Thinkers and Concepts (3)

Prerequisites: fifteen units in Comparative Religion, including Comparative Religion 105 or 110 and 300, and junior standing or approval of undergraduate adviser. Religious thinkers and concepts dealing with Western, Eastern and non-traditional religious ideas from ancient to modern times. Fulfills university upper-division baccalaureate writing requirement. May be repeated with different content.

499 Independent Study (1-3)

Supervised research projects in Comparative Religion to be taken with consent of instructor and the department chair. May be repeated for credit.

PROGRAM COORDINATOR
Susamma Barua

PROGRAM OFFICE
Engineering 100G

PROGRAM WEBSITE
http://www.fullerton.edu/ecs/cpe

PROGRAM OFFERED
Bachelor of Science in Computer Engineering

PROGRAM FACULTY
Susamma Barua, Bin Cong, Mohinder Grewal, Jesus Tuazon, and Raman Unnikrishnan

INTRODUCTION

The undergraduate program in Computer Engineering at CSUF provides students with a strong theoretical and practical background in both the computer hardware and the software aspects of computer-based systems, along with the engineering analysis, design and implementation skills necessary to work between the two. The curriculum is based on an engineering philosophy, with emphasis on hardware more than software. The topics integrated into the curriculum include digital systems, computer organization and architecture, processor interfacing techniques, VHDL design, advanced electronics and embedded system design. The 12 units of elective courses required by the program allow students to specialize in key engineering technology and computer science areas. The program also requires two semesters of multidisciplinary senior design project. The computer engineering program is designed to develop an ability to apply design and analysis knowledge to the practice of computer engineering in an effective and professional manner.

The proliferation of embedded systems in an increasing array of industrial products assures a ready market for graduates in the computer engineering discipline. Computer engineers are employed in a wide range of industries including VLSI chip design and manufacturing, autonomous systems, consumer electronics, expert systems, smart devices, digital signal processing (DSP) systems, computer manufacturing from PDAs to super computers, and automatic controls. A majority of products such as airplanes, automobiles, home appliances, consumer electronics, robots etc. use computers and employ computer engineers in their designs. Computer engineers are also needed in the design and implementation of computer networks for business, industrial, and governmental institutions.

The Computer Engineering program at CSUF meets current accreditation requirements of the Accreditation Board for Engineering and Technology (ABET).

COMPUTER ENGINEERING PROGRAM MISSION STATEMENT

The undergraduate program in Computer Engineering is committed to providing students with a strong theoretical and practical understanding in both the hardware and software aspects of computer-based systems, along with the engineering analysis, design and implementation skills necessary to solve problems using computer engineering principles and techniques. The program prepares students for productive, dynamic and rewarding careers in computer engineering and for entry into graduate programs.

PROGRAM EDUCATIONAL OBJECTIVES

The Computer Engineering program has established the following educational objectives:

1. To provide students with a strong theoretical and practical background in computer hardware and the software aspects of computer-based systems, along with the engineering analysis, design, and implementation skills necessary to work between the two.
2. To develop in our students an ability to apply design and analysis knowledge to the practice of computer engineering in an effective and professional manner.
3. To prepare students for the modern engineering work environment by developing skills for effective communication and an ability to function successfully on interdisciplinary teams.
4. To impart in students an understanding of the need for and an ability to engage in life-long learning.

5. To instill in our students an understanding of their professional, social, and ethical responsibilities.

PROGRAM OUTCOMES

The learning outcomes for the Computer Engineering program are:

1. An ability to apply knowledge of mathematics, science, and engineering to the analysis of computer engineering problems.
2. An ability to design and conduct scientific and engineering experiments, as well as to analyze and interpret data.
3. An ability to design a digital hardware system (including computers, communication systems, and embedded systems), component, or process to meet design requirements.
4. An ability to function as a member of a multidisciplinary team.
5. An ability to identify, formulate, and solve computer engineering problems.
6. An understanding of professional and ethical responsibilities of computer engineers.
7. An ability to communicate effectively through written reports and oral presentations.
8. A broad education necessary to understand the impact of engineering solutions in a global and societal context.
9. A recognition of the need for and an ability to engage in life-long learning.
10. A knowledge of contemporary technical issues.
11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

Entering freshmen should have a preparation which includes two years of algebra, geometry, trigonometry, and one year of physics. Students deficient in mathematics or physics must take special preparatory courses, i.e., Mathematics 125 or Physics 115, which will not carry credit for the degree. (See also the Undergraduate Students Section of the University Catalog for Statewide Placement Tests and requirements.)

The degree program assumes that the student has already obtained a working knowledge of personal computing fundamentals and applications, including word processing, spreadsheets, database systems, e-mail systems, the World Wide Web, and presentation graphics. Students without this knowledge may be required to take up to three additional units of course work beyond those normally required. These additional three units will not carry credit for the degree.

129 units are required for the Bachelor of Science degree in Computer Engineering. These 129 units include 59 units of required courses in computer engineering/computer science/electrical engineering/general engineering, 6 units of elective courses in computer engineering/computer science/electrical engineering, 34 units of foundation courses in mathematics and science, and 49 units of courses (30 unduplicated units) in General Education.

Courses taken toward the major or toward the requirements in related fields must be taken on a traditional (letter grade) basis, unless the course is offered only on a non-traditional (credit/no credit) basis, or if the course is passed by a challenge examination. Students must maintain at least a 2.0 grade point average, in all college-level units attempted, in all units attempted at CSUF, and in all units attempted in the major. All mathematics and physical science courses required for the degree must be completed with at least a "C minus" (1.7) grade to count as prerequisite courses to engineering courses or as credit towards the degree. All core courses in the major must be passed with a "C minus" (1.7) or better.

Placement Examination

Students with a working knowledge of a high-level programming language such as C++ are encouraged to take the Computer Science placement examination to qualify for a Comp Sci 120 waiver.

Computer Engineering Core (59 units)

Comp Sci 120 Introduction to Programming (3)

Comp Sci 121 Programming Concepts (3)

Comp Sci 131 Data Structures Concepts (3)

Comp Sci 253U Workshop in UNIX (1)

Comp Sci 332 File Structures and Database Systems (3)

Comp Sci 351 Operating Systems Concepts (3)

Comp Sci 471 Computer Communications (3)

EGCP 180 Digital Logic and Computer Structures (3)

EGCP 280 Microcontrollers (3)

EGCP 281 Designing with VHDL (2)

EGCP 371 Modeling and Simulation of Signals and Systems (3)

EGCP 381 Computer Design and Organization (4)

EGCP 401 Engineering Economics and Professionalism (3)

EGCP 441 Advanced Electronics for Computer Engineers (4)

EGCP 450 Embedded Processor Interfacing (4)

EGCP 470 Multidisciplinary Projects in Computer Engineering - I (1)

EGCP 471 Multidisciplinary Projects in Computer Engineering - II (2)

EGEE 203 Electric Circuits (3)

EGEE 203L Electric Circuits Laboratory (1)

EGEE 303 Electronics (3)

EGEE 303L Electronics Laboratory (1)

EGEE 323 Engineering Probability and Statistics (3)

Technical Electives (6 units)

The electives shall constitute a coherent body of study consistent with the student's professional and educational objectives. Students take 6 units (9 units if student receives a waiver for CPSC 120) of advisor approved elective courses. Students may choose the elective courses from a suggested list of courses in computer engineering, computer science, and electrical engineering. The electives may also include an advisor approved free elective.

Wireless Communication

Comp Sci 433 Data Security and Encryption Techniques (3)

EGEE 443 Electronic Communication Systems (3)

EGEE 460 Introduction to Cellular Mobile Communications Systems (3)

Very Large Scale Integration (VLSI) and Optics

EGEE 410 Electro-Optical Systems (3)

EGEE 455 Solid State Electronics (3)

EGEE 465 Introduction to VLSI Design (3)

EGEE 480 Engineering Optics (3)

Microprocessors and Microcomputer Systems

Comp Sci 459 Micro-Computer Software Systems (3)

EGEE 405 Firmware Engineering (3)

EGEE 414 Introduction to Parallel Processing (3)

Control Systems and Systems Engineering

EGEE 416 Feedback Control Systems (3)

EGEE 424 Computer Simulation of Continuous Systems (3)

EGEE 425 Introduction to Systems Engineering (3)

Global Positioning Systems (GPS)

EGEE 483 Introduction to Global Positioning Systems (3)

EGEE 483L Global Positioning Systems Laboratory (2)

Software Engineering

Comp Sci 362 Software Engineering (3)

Comp Sci 462 Software Design (3)

Comp Sci 463 Software Testing (3)

Comp Sci 464 Software Architecture (3)

Comp Sci 466 Software Process (3)

Database System Design

Comp Sci 431 Database and Applications (3)

Comp Sci 473 Web Programming and Data Management (3)

Comp Sci 474 Distributed Computing using Web Service and .NET Remoting (3)

Multimedia and Digital Game Development

Comp Sci 386 Introduction to Game Design and Production (3)

Comp Sci 484 Principles of Computer Graphics (3)

Comp Sci 486 Game Programming (3)

Comp Sci 487 Advanced Game Programming (3)

Intelligent Systems

Comp Sci 335 Problem Solving Strategies (3)

Comp Sci 481 Artificial Intelligence (3)

Comp Sci 483 Data Mining and Pattern Recognition (3)

EGEE 430 Fuzzy Logic and Control (3)

Current Topics

EGCP 463 Current Topics in Computer Engineering (3)

Free Elective

Adviser-approved upper division course (3)

Requirements in Related Fields (34 units)

Mathematics Requirement (19 units)

MATH 150A Calculus (4)

MATH 150B Calculus (4)

MATH 250A Multivariate Calculus (4)

MATH 250B Introduction to Linear Algebra and Differential Equations (4)

MATH 270A Mathematical Structures I (3)

Science Requirement (15 units)

Physics 225 Fundamental Physics: Mechanics (3)

Physics 226 Fundamental Physics: Electricity and Magnetism (3)

Physics 227 Fundamental Physics: Waves, Optics, and Modern Physics (3)

Physics 225L, 226L, 227L Fundamental Physics: Laboratory (1, 1, 1)

Biology 101 Elements of Biology (3)

General Education Courses

I. Core Competencies (9)

A. Oral Communication (3)
Honors 101B, Human Comm 100, or Human Comm 102

B. Written Communication (3)
English 101

C. Critical Thinking (3)
Honors 101A; Human Comm 235; Philosophy 105, 106; Psychology 110; or Reading 290

II. Historical and Cultural Foundations (9)

A. Development of World Civilization (3)
History 110A, 110B, Honors 210A, or Honors 210B

B. American History, Institutions and Values (6)

1. American History (3)
Afro Ethnic 190, American Studies 201, Chicana/o 190, History 180, 190, or Honors 201A

2. Government (3)
Honors 201B or Poli Sci 100

III. Disciplinary Learning (33)

A. Mathematics and Natural Sciences (18 units)

1. Mathematics
Mathematics 150A (4) and 270A (3)

2. Natural Sciences

a. Physical Science
Physics 225, 225L, 226 and 226L

b. Earth and Astronomical Sciences
Not applicable for engineering majors

c. Life Science
Biology 101

3. Implications and Explorations in Mathematics and Natural Sciences

   Not applicable for engineering majors

B. Arts and Humanities (9)

1. Introduction to the Arts (3)
   Art 101, 201A, 201B, 311, 312, Dance 101, Music 100, Theater 100
2. Introduction to the Humanities (3)
   Any lower-division course in this category listed in the current class schedule
3. Implications, Explorations and Participatory Experience in the Arts and Humanities (3)

   Any upper-division course in this category in the current class schedule

C. Social Sciences (6)

1. Introduction to the Social Sciences (3)
   EGCP 401
2. Implications, Explorations and Participatory Experience in the Social Sciences (3)

   Any upper-division course in this category listed in the current class schedule

IV. Lifelong Learning

This category is not applicable to computer engineering majors

V. Cultural Diversity

Take at least one star (*) course in Sections III.B.3 or III.C.2

Upper-Division Writing Requirement (0 additional units)

In addition to the Examination in Writing Proficiency (EWP), completing both of the following courses fulfills the upper-division English writing requirement:

EGCP 441 Advanced Electronics for Computer Engineers (4)

EGCP 471 Multidisciplinary Projects in Computer Engineering – II (2)

Written work for the two courses must meet professional standards. Both the courses must be passed with a grade of "C" (2.0) or better to satisfy the writing requirement.

COMPUTER ENGINEERING COURSES

Computer Engineering Courses are designated as EGCP in the class schedule.

180 Digital Logic and Computer Structures (3)

Prerequisite: Comp Sci 120 and Math 270A. Binary number system and arithmetic, computer codes, Boolean algebra, logic gates, K-map minimization, sequential circuits, memory devices, state diagram and table, computer architecture, memory, Arithmetic Logic Unit, and control unit. (2 hours lecture, 2 hours laboratory)

280 Microcontrollers (3)

Prerequisite: EGCP 180. Microcontrollers, microcontroller programming model and instruction set, assembler directives, writing and debugging microcontroller assembly language routines, microcontroller memory system, microcontroller communication systems. (1 hour lecture, 4 hours laboratory) (Same as EGEE 280)

281 Designing with VHDL (2)

Prerequisites: Comp Sci 121 and EGCP 180. Introduction to various modeling methods, timings, events, propagation delays and concurrency, the language constructs, data representations and formats, and physical attributes. (1 hour lecture, 2 hours laboratory) (Same as EGEE 281)

371 Modeling and Simulation of Signals and Systems (3)

Prerequisites: EGEE 303 and Math 250B. Modeling and simulation of physical systems, mathematical description of systems, transfer functions, poles and zeros, frequency response, continuous and discrete-time convolution, continuous and discrete Fourier transforms, Laplace and Z transforms, Fast Fourier Transforms, simulation using Matlab.

381 Computer Design and Organization (4)

Prerequisites: EGCP 281 and EGEE 303. Computer system, central processing unit (CPU)organization and design, instruction set and addressing modes, microprogrammed control unit design, cache memory, internal memory, virtual memory, input/output interfacing, parallel processors, superscalar processors (2 hours lecture, 4 hours laboratory).

401 Engineering Economics and Professionalism (3)

(Same as EGCP 401/EGEE 401)

441 Advanced Electronics for Computer Engineers (4)

Prerequisites: EGCP 281 and EGEE 303. High speed CMOS, biCMOS, CPLDs, FPGAs, A/D, D/A, transducers and optics; integration of these devices into complete systems. (2 hours lecture, 4 hours laboratory)

450 Embedded Processor Interfacing (4)

Prerequisites: EGEE 323, EGCP 381 and 441, and Comp Sc 351. Techniques of interfacing based on speed, timings, synchronization, noise, cross-talk, hazards, and race conditions. Interfacing specifications of the processor data, address, and control buses. (2 hours lecture, 4 hours laboratory)

463 Current Topics in Computer Engineering (3)

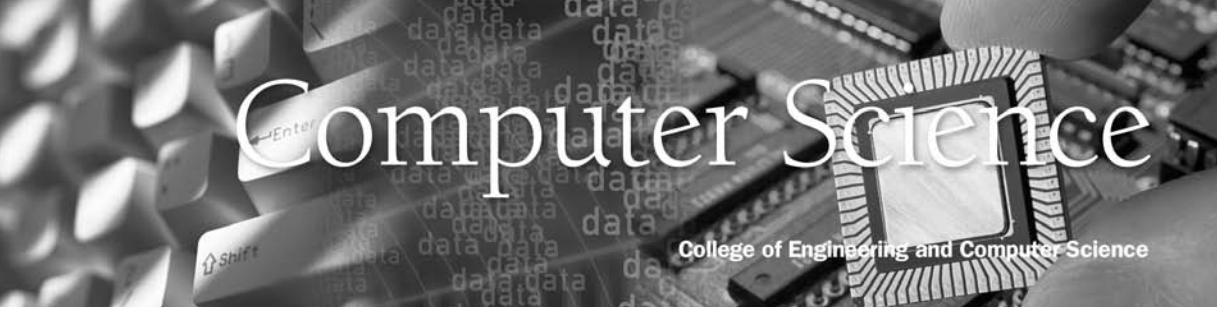
Prerequisites: Junior/Senior standing in computer engineering and consent of the instructor. Exploration of topics of contemporary interest from the perspective of current research and development in computer engineering. Lectures by guest professionals.

470 Multidisciplinary Projects in Computer Engineering - I (1)

Corequisite: EGCP 450. First course in the two-course senior design sequence. Students in teams will do a hardware/software project, from conception through implementation and testing, under an instructor's supervision. Teams first explore technology issues related to the projects and then prepare complete design proposals. (1 hour lecture)

471 Multidisciplinary Projects in Computer Engineering - II (2)

Prerequisite: EGCP 450 and 470. Second course in the two-course senior design course in which students in teams of two or more will do a hardware/software project under the supervision of the instructor. The development of design skill, based upon previous and current courses and laboratory experience, is emphasized. (4 hours laboratory)



INTRODUCTION

The undergraduate computer science program at Cal State Fullerton offers students a comprehensive foundation that will permit them to adapt to new technologies and new ideas. The program spans a wide range, from its theoretical and algorithmic foundations to cutting-edge developments in bioinformatics, communications systems, databases, robotics, intelligent systems, software engineering, and other exciting areas.

The program provides students with a comprehensive background to take on varied categories of work. They are offered the necessary theories, principles, and practices to design and implement software which permits them to take on challenging programming jobs. They have the opportunity to become well-equipped to devise new ways to use computers. Computer scientists working in research and development are striving to make robots practical aides which demonstrate some aspects of intelligence, are using databases to discover new knowledge, and are using computers to help map human DNA as well as the DNA of other animals. The theoretical background available in the program provides the background to help develop effective ways to solve computing problems. This background allows students to determine the best possible ways to store information in databases, send data over networks, and display complex images.

The bachelor's program is accredited by the Computing Accreditation Commission (CAC) of the Accreditation Board for Engineering and Technology (ABET).

MISSION

The mission of the Computer Science Department is to provide students with a strong fundamental knowledge of Computer Science and the practical skills to adapt as technology changes.

EDUCATIONAL OBJECTIVES

The Computer Science program is designed to provide the student with the foundations of the discipline as well as the opportunity for specialization. Six objectives are addressed:

- development of the ability to work effectively as an individual or as a team member to produce correct, efficient, well-organized and documented programs in a reasonable time
- development of the ability to recognize problems that are amenable to computer solutions, and knowledge of the tools necessary for solving such problems
- development of the ability to assess the implications of work performed
- development of an understanding of basic computer architecture and operations
- preparation to pursue in-depth training in one or more application areas, or further education in computer science
- development of the ability to communicate effectively

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Each Computer Science major is required to complete a minimum of 124 units including general education. The degree program assumes that the student has already obtained a working knowledge of personal computing fundamentals and applications, including word processing, spreadsheets, database systems, e-mail systems, and presentation graphics.

Computer Science Placement Examination

A Computer Science student with prior course work in computer programming should take the Computer Science Placement Examination. This exam is given three times per semester and

DEPARTMENT CHAIR

James Choi

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Mariko Molodowitch

DEPARTMENT OFFICE

Computer Science 522

DEPARTMENT WEBSITE

http://www.fullerton.edu/ecs

PROGRAMS OFFERED

Bachelor of Science in Computer Science

Master of Science in Computer Science

Minor in Computer Science

Master of Science in Software Engineering

FACULTY

Susamma Barua, Ning Chen, James Choi, Hwang Chung, Bin Cong, Spiros Courellis, David Falconer, Allen Holliday, Floyd Holliday, Chang-Hyun Jo, Barbara Laguna, Demetrios Michalopoulos, Mariko Molodowitch, Tae Ryu, and Xiong Wang

is used to assess the student's background and assure proper enrollment in the appropriate course. Students new to programming should enroll in CPSC 120.

Computer Science Core (46 units)

Lower-Division Core (18 units)

Computer Sci 120 Introduction to Programming (3)

Computer Sci 121 Programming Concepts (3)

Computer Sci 131 Data Structures Concepts (3)

Computer Sci 223H Visual Basic Programming (3)

OR Computer Sci 223J Java Programming

OR other approved language course (3)

Computer Sci 240 Computer Organization and Assembly Language (3)

Approved UNIX and Open Source Systems course (3)

Upper-Division Core (28 units)

Students must take and pass the Examination in Programming Proficiency (EPP) before taking upper-division Computer Science courses. Students who do not pass the EPP will be required to take Computer Sci 301 Programming Lab Practicum (2).

Computer Sci 311 Technical Writing for Computer Science (3)

Computer Sci 315 Social and Ethical Issues in Computing (1)

Computer Sci 323 Programming Languages and Translation (3)

Computer Sci 332 File Structures and Database Systems (3)

Computer Sci 335 Problem Solving Strategies (3)

Computer Sci 351 Operating Systems Concepts (3)

Computer Sci 362 Foundations of Software Engineering (3)

Computer Sci 440 Computer System Architecture (3)

Computer Sci 471 Computer Communications (3)

Computer Sci 481 Artificial Intelligence (3)

Elective Track Requirements (15 units)

Each student selects an Elective Track to support specific career goals.

Multimedia and Digital Game Technologies

Computer Sci 386 Introduction to Game Design and Production (3)

Computer Sci 484 Principles of Computer Graphics (3)

Computer Sci 486 Game Programming (3)

Computer Sci 487 Advance Game Programming (3)

Computer Sci 489 Game Development Project (3)

Internet and Enterprise Computing Technologies

Computer Sci 431 Database and Applications (3)

Computer Sci 473 Web Programming and Data Management (3)

Computer Sci 474 Distributed Computing Using Web Service and .NET Remoting (3)

Computer Sci 476 Java Enterprise Application Development (3)

Plus any adviser-approved 3 units of upper division Computer Science.

Software Engineering

Computer Sci 462 Software Design (3)

Computer Sci 463 Software Testing (3)

Computer Sci 464 Software Architecture (3)

Computer Sci 466 Software Process (3)

Plus any adviser-approved 3 units of upper division Computer Science.

Scientific Computing

Completing the Mathematics courses listed below also meets the requirements for a minor in Mathematics.

Math 250A Multivariate Calculus (4)

Math 250B Introduction to Linear Algebra and Differential Equations (4)

Math 340 Numerical Analysis (3)

Math 370 Mathematical Model Building (3)

Plus any adviser-approved 3 units of upper division Computer Science.

Custom

With the approval of an academic adviser, students may develop a track based on their career goals or specific academic interests or specific themes. A custom track consists of 15 units of upper division Computer Science or related courses. At least 9 units must be 400-level Computer Science courses with no more than 3 units being selected from courses numbered 490-499. In addition to courses already listed in the other tracks, students may also include the following courses:

Computer Sci 303 Multimedia Concepts (3)

Computer Sci 322L Introduction to Computer-Aided Design (3)

Computer Sci 376 Client/Server Systems with Java (3)

Computer Sci 433 Data Security and Encryption Techniques (3)

Computer Sci 459 Micro-Computer Software Systems (3)

Computer Sci 483 Data Mining and Pattern Recognition (3)

Computer Sci 491T Variable Topics in Computer Science (3)

Computer Sci 495 Internship in Computer Science (1–3)

Computer Sci 499 Independent Study (1–3)

Requirements in Mathematics and Science (30)

Mathematics Requirement (18 units)

Mathematics 150A,B Calculus (4,4)

Mathematics 270A,B Mathematical Structures (3,3)

Mathematics 338 Statistics Applied to Natural Sciences (4)

Science Requirements (12 units)

Physical Science (8 units)

One of the following combinations:

Physics 225 Fundamental Physics: Mechanics (3)

Physics 225L Fundamental Physics: Laboratory (1)

Physics 226 Fundamental Physics: Electricity and Magnetism (3)

Physics 226L Fundamental Physics: Laboratory (1)

OR Chemistry 120A General Chemistry (5)

Chemistry 125 General Chemistry for Engineers (3)

OR Geological Sci 101 Physical Geology (3)

Geological Sci 101L Physical Geology Laboratory (1)

Geological Sci 201 and 201L Earth History and Laboratory (4)

Biological Science (4 units)

Biology 101 Elements of Biology (3)

Biology 101L Elements of Biology Laboratory (1)

MINOR IN COMPUTER SCIENCE

A minor in Computer Science requires at least 15 units, including the following required courses:

Computer Sci 120 Introduction to Programming (3)

Computer Sci 121 Programming Concepts (3)

Computer Sci 131 Data Structures Concepts (3)

Computer Sci 313 The Computer Impact (3)

3 units of adviser approved upper division Computer Science.

General Education

Because of high unit requirements for a major in Computer Science, there is a 6-unit exemption in General Education. Students are strongly urged to consult with an adviser in the Academic Advising Center, UH-123 to help develop their General Education program.

Minimum Academic Requirements

Courses taken toward the core, elective track, required mathematics and science, and General Education Categories I.A, I.B, I.C, and III.A.1 must be taken on a traditional (letter grade) basis.

A grade of "C" (2.0) or better is required in courses taken in fulfillment of General Education Categories

- I.A Oral Communication
- I.B Written Communication
- I.C Critical Thinking
- III.A.1 Mathematics and for the Upper Division Writing Requirement (CPSC 311 Technical Writing for Computer Science).

Students must maintain at least a 2.0 average in all college-level units attempted, in all units attempted at CSUF, and in all units attempted in the major.

A grade of "C-" (1.7) or higher is required in all courses applied to the core. Exception: up to six units of credit with grades in the range "D-" (0.7) through "D+" (1.3) may be earned in elective track, mathematics and science courses only.

MASTER OF SCIENCE IN COMPUTER SCIENCE

Admission to Graduate Standing: Conditionally Classified

A bachelor's degree from an accredited institution with a grade-point average of at least 2.5 in the last 60 semester units attempted is required. Any deficiencies must be made up and will require six or more units of adviser-approved course work with at least a 3.0 average in addition to those required for the degree.

Application Deadlines

The deadlines for completing online applications are March 1st for the fall semester and October 1st for the spring semester (see http://www.csumentor.edu). Mailed applications need to be postmarked by the same deadlines. However, deadlines may be changed based upon enrollment projections. Check out the university graduate studies website for current information at http://www.fullerton.edu/graduate.

Classified Graduate Standing

Achievement of this status requires the following:

1. Approval of a formal study plan (see description below) by the Computer Science Graduate Committee and the Associate Vice President, Academic Programs (or designee).
2. Satisfactory completion of no more than nine units on the study plan.
3. Satisfactory completion of the following courses or equivalents including prerequisites: Computer Science 121, 131, 240, 323, 335, 351, 362 and Mathematics 270A,B, 338.
4. Competency in written communication in English must be demonstrated by a passing score on the California State University Examination in Writing Proficiency. The requirement must be satisfied before the student can be classified and before 500-level courses may be attempted. The student who fails to pass the EWP test may complete Computer Science 311 (Technical Writing for Computer Science) with a grade of "B" (3.0) or better as an alternative to the EWP requirement.

Talented professional computer scientists have traditionally come from a diversity of undergraduate preparations. The listed courses have been carefully selected to provide an adequate basis for graduate work while not unfairly precluding admission of persons without a bachelor's degree in computer science. It should be noted, however, that each of these courses has prerequisites and the student without preparation in a closely related degree may have considerable work to complete beyond the courses listed here. Reference should be made to the catalog descriptions for prerequisites of each course deficiency.

Students with knowledge equivalent to any or all of these prerequisite courses are encouraged to satisfy such prerequisites by advanced placement examinations. Consult a Computer Science graduate adviser for further information.

Study Plan

Prior to admission to classified graduate standing in Computer Science, the student with the aid of a Computer Science graduate adviser shall prepare and submit for approval by the Computer Science Department graduate committee a formal study plan consisting of a minimum of 30 units of 400 level and graduate course work.

This shall include Computer Science 440, 462, 589, 597 or 598; one of 541, 542, 543, 544, 545, 546, 547 or 548; and 15 units of electives (9 units must be at the 500 level). At least 15 units shall represent courses offered by the Department of Computer Science. Courses offered by other disciplines, not listed here, and related to the student's objectives in Computer Science may be approved by petition to the Department of Computer Science.

All course work in the study plan must be completed with a GPA of at least 3.0.

Graduate Student Advisement

The graduate program adviser provides overall supervision of the graduate program. The individual student chooses an adviser from the full-time faculty of the Computer Science Department on the basis of the student's particular interests and objectives.

COMPUTER SCIENCE COURSES

Courses are designated as CPSC in the class schedule.

Prerequisites for Computer Science courses may be waived only by department petition.

102 Introduction to Information and Multimedia Technology (2)

(Same as InfoSys/DecSci 102)

103 Introduction to Personal Computer Applications (3)

Introduction to use and application of personal computers: word processing, spreadsheets, database systems, e-mail systems and World Wide Web. Evaluation of personal computers and software. (2 hours lecture, 2 hours laboratory)

120 Introduction to Programming (3)

Co-requisite: Mathematics 125. Introduction to the concepts underlying all computer programming: design and execution of programs; sequential nature of programs; use of assignment, control, and input/output statements to accomplish desired tasks; design and use of functions. Structured and object-oriented methodologies. (1.5 hours lecture, 3.0 hours laboratory)

121 Programming Concepts (3)

Prerequisite: Computer Science 120 or passing score on Computer Science Placement Exam. Introduction to programming of digital computers; subroutines, functions, and structure of algorithms; elementary input/output; arrays; strings, and data types; documentation.

(2 hours lecture, 2 hours laboratory)

131 Data Structures Concepts (3)

Prerequisites: Computer Science 121 or sufficient score on the Computer Science Placement Exam, high school computer applications, and three years high school mathematics including trigonometry. Data structures: linked lists, stacks, queues, arrays, sequential text files, text formatting.

223H Visual BASIC Programming (3)

Prerequisite: Computer Science 131. Elements of Visual BASIC, forms and controls, properties, mouse events, multiple-document interface, processing files, accessing databases, dynamic data exchange, object linking and embedding. (2 hours lecture, 2 hours laboratory)

223J Java Programming (3)

Prerequisite: Computer Science 131. Characteristics of Java: portable, robust, secure, object-oriented, high performance; using the Java environment; server administration; types, expressions, and control flow; classes, interfaces, and packages; threads; exceptions; class libraries; Java for the Internet; tools, the Java Virtual machine. (2 hours lecture, 2 hours lab per week)

240 Computer Organization and Assembly Language (3)

Prerequisites: Computer Science 131 and either Mathematics 270A or Mathematics 280. Digital logic and architecture of a computer system, machine level representation of data, memory system organization, structure of low-level computer languages; machine, assembly, and macro language programming; principles of assembler operation, input-output programming, interrupt-exception handling. Laboratory programming assignments. (2 hours lecture, 2 hours laboratory)

253U Workshop in UNIX (1)

Prerequisite: Computer Science 121 or General Engineering 205. Workshop in the use of the UNIX operating system. Offered Credit/No Credit only. (2 hours activity)

301 Programming Lab Practicum (2)

Prerequisites: Computer Science 131 and 253U (or open source course). Intensive programming covering concepts learned in lower-division courses. Includes procedural and object oriented design, documentation, arrays, classes, file input/output, recursion, pointers, dynamic variables, data and file structures.

303 Multimedia Concepts (3)

Prerequisites: Computer Science 121 and completion of the General Education critical thinking requirements. Components and issues associated with multimedia technology, applications of multimedia and its evolution. Laboratory activities will include developing a multimedia application using a PC-based authoring tool. (2 hours lecture, 2 hours laboratory)

311 Technical Writing for Computer Science (3)

Prerequisite: English 101. Corequisite: Computer Science 301. Practice in developing documentation skills as used in the computer field. Topics include proposals, feasibility studies, user guides and manuals, business communication and technical presentation. Case studies in professional ethics. Both written and oral reports are required.

313 The Computer Impact (3)

Prerequisites: upper-division standing and one course from General Education Category III.A.1. Effect of computer use on individuals and organizations. Side effects of innovative technology and the resulting changes to organizations, social institutions, and human perceptions of events. Emphasis on personal responsibility, legal ramifications, and educational implications. Hands-on use of e-mail and the World Wide Web.

315 Social and Ethical Issues in Computing (1)

Prerequisite: Computer Science 311. The course will cover relevant issues that responsible professionals will face in a complex technological society. Issues covered are professional ethics, computer control, piracy, encryption, benefits and downside of computers, privacy and computer crimes. Both written and oral reports required.

322L Introduction to Computer Aided Design (3)

(Same as Mechanical Engineering 322L)

323 Programming Languages and Translation (Formerly 423) (3)

Prerequisites: Examination in Programming Proficiency. Basic concepts of programming languages and principles of translation. Topics include history of programming languages, various programming paradigms, language design issues and criteria, development of practical translators for modern programming languages.

332 File Structures and Database Systems (3)

Prerequisite: Examination in Programming Proficiency. Fundamental theories and design of database systems, the Structured Query Language (SQL), basic concepts and techniques of data organization in secondary storage. Topics include introduction to database systems, ER model, relational model, index structures, and hashing techniques.

335 Problem Solving Strategies (Formerly 375) (3)

Prerequisites: Examination in Programming Proficiency , Math 270B and 338. Complexity classes, including undecidable and NP-complete problems. Problem solving strategies applied to parallel and distributed processing, numerical computation, and artificial intelligence. Greedy methods, divide-and-conquer, dynamic programming, approximation, and search methods.

351 Operating Systems Concepts (3)

Corequisite: Examination in Programming Proficiency or Computer Science 301. Resource management, memory organization, input/output, control process synchronization and other concepts as related to the objectives of multi-user operating systems.

362 Foundations of Software Engineering (Formerly 461) (3)

Prerequisites: Computer Science 311, and Examination in Writing Proficiency. This course covers basic concepts, principles, methods, techniques and practices of software engineering. All aspects of the software engineering (CASE) tools are used.

376 Client/Server Systems with Java (Formerly 341) (3)

Prerequisites: Computer Science 223J and 351. This course introduces concepts and architectures of client/server systems using Java. The course covers the techniques for building client/server systems, multi-threading, and network programming.

386 Introduction to Game Design and Production (3)

Prerequisite: Computer Science 131. This course introduces the current and future technologies and market trends in game design and production. Students will also learn game technologies, basic building tools for games, and the process of game design, development, and production.

431 Database Systems (3)

Prerequisites: Computer Science 332 and Examination in Programming Proficiency. Database design and applications, database programming using SQL and other languages, query optimization, transaction management.

433 Data Security and Encryption Techniques (3)

Prerequisites: Computer Science 311, 351 and Mathematics 270B. System security and encryption. Current issues in security, encryption and privacy of computer based systems.

440 Computer System Architecture (3)

Prerequisites: Computer Science 240. Computer performance, price/performance, instruction set design and examples. Processor design, pipelining, memory hierarchy design, and input/output subsystems.

451 Advanced Operating Systems (3)

Prerequisite: Computer Science 351. The course covers internal structures of a modern operating system. The specific topics include processes, process communication, file systems, networking, and the I/O system. There will be several programming assignments which will utilize calls and other low-level interfaces.

459 Micro-Computer Software Systems (3)

Prerequisite: Computer Science 351. The design and implementation of software. Analysis of a micro-computer operating system and work on a team to implement a significant programming assignment.

462 Software Design (Formerly 361) (3)

Prerequisites: Computer Science 362. Concepts of software modeling, software process and some tools. Object-oriented analysis and design and Unified process will be covered. Some computer-aided software engineering (CASE) tools will be recommended to use for doing homework assignments.

463 Software Testing (3)

Prerequisite: Computer Science 362. This course explores software testing techniques, reporting problems effectively and planning testing projects. Students apply what they learned throughout the course to a sample application that is either commercially available or under development.

464 Software Architecture (3)

Prerequisite: Computer Science 362. Basic principles and practices of software design and architecture. High-level design, software architecture, documenting software architecture, software and architecture evaluation, software product lines, and some considerations beyond software architecture.

466 Software Process (3)

Prerequisite: Computer Science 362. This course provides practical guidance for improving the software development and maintenance process. Students will learn how to establish, maintain, and improve software processes. They will also be exposed to some common process models, such as CMM, CMMI, PSP, and TSP.

471 Computer Communications (Formerly 457) (3)

Prerequisite: Computer Science 351. An introduction to digital data communications. Terminology, networks and their components, common-carrier services, telecommunication facilities, terminals, error control, multiplexing and concentration techniques.

473 Web Programming and Data Management (Formerly 437) (3)

Prerequisites: Computer Science 332. Various techniques for developing Web-based database applications using software engineering methodology. Introduce concept and architecture of Web servers, Web database design techniques, client/server side programming, and Web applications tools and techniques.

474 Distributed Computing Using Web Service and .NET Remoting (3)

Prerequisite: Computer Science 473. This course introduces the concepts of distributed computing and Web services, the applications of XML and Web services, distributed applications development techniques with Web services and .NET Remoting.

476 Java Enterprise Application Development (3)

Prerequisite: Computer Science 223J and 351. Concepts and architecture of the J2EE platform, component technologies, platform roles, platform services, services technologies, communication technologies, Enterprise Java Beans (EJBs), and Java enterprise application development using Web logic or Web sphere.

481 Artificial Intelligence (3)

Prerequisite: Computer Science 335. Use of computers to simulate human intelligence. Topics include production systems, pattern recognition, problem solving, searching game trees, knowledge representation, and logical reasoning. Programming in AI environments.

483 Data Mining and Pattern Recognition (3)

Prerequisites: Computer Science 331. Classification techniques, discriminant functions, training algorithms, potential function theory, supervised and unsupervised learning, feature selection, clustering techniques, multidimensional rotations and rank ordering relations.

484 Principles of Computer Graphics (Formerly 465) (3)

Prerequisite: Examination in Programming Proficiency and Math 150B and 270B. Examination and analysis of computer graphics; software structures, display processor organization, graphical input/output devices, display files. Algorithmic techniques for clipping, windowing, character generation and viewpoint transformation.

486 Game Programming (3)

Prerequisite: Computer Science 386; co-requisite, Computer Science 484. Principles of game programming (2D game development techniques) and multimedia entertainment techniques (sound, animation, etc.).

487 Advanced Game Programming (3)

Prerequisite: Computer Science 486. Building on the techniques learned from the previous game development course (2D Game Development, sound, animation), students will learn more advanced game programming techniques (3D Game Development, real-time rendering, physics simulation).

489 Game and Development Project (3)

Prerequisite: Computer Science 487; co-requisite: Computer Science 481. Opportunities for students to develop realistic games based on the theories and techniques they learned from the previous classes. Students work independently (or by teams). Students will present and demonstrate their work regularly.

491T Variable Topics in Computer Science (1)

Prerequisites: junior or senior standing and consent of instructor. Lectures and/or workshop covering various current Computer Science topics. Course may be repeated for up to 3 units. Course topics may be taken only once.

495 Internship in Computer Science (1-3)

Prerequisites: Computer Science or related major and consent of instructor. Practical experience relevant to computer science in government or private agencies. Written and oral reports are required.

499 Independent Study (1-3)

Prerequisite: approval by the computer science chair. Special topic in Computer Science, selected in consultation with and completed under the supervision of instructor.

531 Advanced Database Management (3)

Prerequisite: Computer Science 431. Implementation techniques for query analysis, data allocation, concurrency control, data structures, and distributed databases. New database models and recent developments in database technology. Student projects directed to specific design problems.

541 Systems and Software Standards and Requirements (3)

Prerequisite: Computer Science 362 or equivalent work experience. This course introduces students to the SESC framework and the IEEE Software Engineering Standards. The course will cover establishing of the following standards: Software Life Cycle Processes, Work Product Standards, Process Standards, Requirement Analysis and Management, and System Integration. Additionally, the framework of CMMI will be introduced, and a number of practical lessons discussed.

542 Software Verification and Validation (3)

Prerequisite: Computer Science 362 or equivalent work experience. Theory and practice needed to ensure that a high quality software product is developed. Topics covered include a quality assessment, proof of correctness, testing, and limitations of current verification and validation methods.

543 Software Maintenance (3)

Prerequisite: Computer Science 362 or equivalent work experience.. Software creation, reuse, enhancement, adaptation and correction. Alternatives to coding, language concepts, role of standards, style, management, tools, performance analysis, regression analysis, and productivity issues.

544 Software Process Definition (3)

Prerequisite: Computer Science 362 or equivalent work experience. This course provides practical guidance for improving the software development and maintenance process with a focus on understanding and managing the software process. Students will learn how to establish an effective software process for an organization, and how to make existing process better.

545 Software Design and Architecture (3)

Prerequisites: Computer Science 362 or equivalent work experience. Development of software systems at the highest level. Systems view of software development, trade-offs between software and hardware. User interfaces, requirements analysis, techniques for development from requirements, system integration, and transition into use. Includes case studies and project.

546 Software Project Management (3)

Prerequisite: Computer Science 362 or equivalent work experience. Process considerations in software systems development. Materials and tools in software project planning. Mechanisms for monitoring and controlling software projects.

547 Software Measurement (3)

Prerequisite: Computer Science 362 or equivalent work experience. Introduction to current industry software measurement practices and systematic measurement process models. Outline major paradigms for selecting measures. Stress practitioner-based measurement: software specifications and designs, code and implementation, and test and evaluation.

548 Professional, Ethical and Legal Issues for Software Engineers (3)

Prerequisite: Computer Science 362 or equivalent work experience. This course explores professional, legal and ethical issues pertaining to software engineering. Topics include professional codes of ethics, intellectual property laws, computer privacy, and human-computer interaction. Relevant regulatory documents and their applications are studied.

551 Operating Systems Design (3)

Prerequisite: Computer Science 351. Design and evaluation techniques for controlling automatic resource allocation, providing efficient programming environments and appropriate user access to the system, and sharing the problem solving facilities.

558 Advanced Computer Networking (3)

Prerequisite: Computer Science 471. System-oriented view of computer network design, protocol implementation, networking, high-speed networking, network management, computer network performance issues.

566 Advanced Computer Graphics (3)

Prerequisite: Computer Science 484. Three dimensional: reflection models, shading techniques, rendering process, parametic representation, ray tracing, radiosity, texture, anti-aliasing, animation, color science.

583 Expert Systems Design Theory (3)

Prerequisite: Computer Science 481. Knowledge representation and search strategies for expert systems; logic programming; expert system tools. Project.

585 Artificial Neural Networks (3)

Prerequisite: Computer Science 481. Principles of neural networks; neural networks paradigms, software implementations, applications, comparison with statistical methods, use of fuzzy logic; project.

589 Seminar in Computer Science (3)

Prerequisites: one 400-level course in Computer Science and passing score on the Examination in Writing Proficiency. Research methods in computer science. Student presentations covering current topics, research advances, updating of concepts and verifications of principles of computer science. (Examples: large-scale parallelism, Internet security, design for user interfaces, computers in instruction).

597 Project (3)

Prerequisites: classified graduate standing, approval of the computer science graduate adviser and Computer Science 589.

598 Thesis (3)

Prerequisites: classified graduate standing, approval of the computer science graduate adviser and Computer Science 589.

599 Independent Graduate Research (1-3)

Prerequisites: classified graduate standing, approval of the computer science department chair and Computer Science 589. Special topic in computer science, selected in consultation with and completed under supervision of a full-time faculty member.

Counseling

College of Health and Human Development

DEPARTMENT CHAIR

Jeffrey Kottler

DEPARTMENT OFFICE

Education Classroom 405

DEPARTMENT WEBSITE

http:hdcs.fullerton.edu/Counsel/counseling.htm

PROGRAMS OFFERED

Master of Science in Counseling

Marriage and Family Therapy

MFT Licensure Preparation

FACULTY

Leah Brew, Joseph M. Cervantes, Sapna Batra Chopra, Matt Englar-Carlson, Jeffrey Kottler, Olga Mejia, Thuy Nguyen, Mary Read, David S. Shepard, and Rebekah Smart

ADVISERS

Counseling, Master of Science: Jose Cervantes

Admissions: David S. Shepard

Marriage and Family Therapy (MFT) Licensure: Mary Read

Clinical Training Director: Mary Read

Off Campus Programs: Leah Brew

Graduate Counseling Students Association: Sapna Batra Chopra

Chi Sigma Iota: Leah Brew

Alumni Association: Mary Read

INTRODUCTION

The Department of Counseling offers a program leading to the Master of Science in Counseling, with a concentration in Marriage and Family Therapy. The program is designed to prepare students to meet California State Board of Behavioral Sciences (BBS) licensure requirements as a Marriage and Family Therapist (MFT).

Our emphasis is on the training of clinicians who can serve the needs of individuals and families in their communities. We train students to provide brief and long-term counseling while maintaining professional identities as counselors and marriage and family therapists.

The program strongly emphasizes a multicultural perspective. We prepare counselors who will be sensitive to the diverse heritages, lifestyles, and special needs of individuals and families. Both our student body and our faculty encompass a wide range of backgrounds and values.

Our theoretical orientation is grounded in humanistic and integrative principles. This means that we are respectful of different counseling philosophies, flexible in our approaches depending on client and student needs, and united in our belief that relationships remain at the core of all helping encounters. We also believe that counselors can best help people by understanding the relationship of emotional distress to family dynamics and to the social and cultural contexts that shape our lives.

The curriculum comprises 60 units (61 including an optional one-unit child abuse course). The curriculum is designed so that students begin with introductory-level courses and take courses with increasing complexity as they proceed through the program. In the second half of the program, students take a year-long practicum sequence, during which they counsel clients in community mental health agencies. In the semester prior to beginning their practicum, students apply for Classified Standing. Classified students are designated as trainees by the state MFT licensing board, allowing them to provide counseling services and to accrue hours towards the 3,000 hours required for state licensure. In their final semester, students complete a final project, an original research study.

Conditionally Classified Standing

Phase I 12 units: Counseling 500, 502, 511, 518

Classified Standing

Phase II 15 units: Counseling 520, 522, 523, 524, 526

Phase III 18 units: Counseling 521, 525, 527, 528, 530, 535

Phase IV 15 units: Counseling 560, 562, 584, 590, 597

MASTER OF SCIENCE IN COUNSELING

Admission Requirements

The Department welcomes applicants from diverse academic, social, and cultural backgrounds. International and minority students are especially encouraged to apply. Preparation for the counseling profession is rigorous and multifaceted, necessitating the student's development in intrapersonal, interpersonal, and academic realms. Admission is therefore based upon indicators of the applicant's potential for becoming an effective counseling practitioner, including, but not limited to, grade point average (GPA), personal statement, departmental interview and potential for success based on personal and professional evaluation of qualifications and is at the sole discretion of the Counseling Department's Admission Committee. The following are required for consideration for admission to the program:

1. An acceptable bachelor's degree (or equivalent) from a regionally accredited institution or its equivalent.
2. A minimum GPA of 3.0 for the last 60 sequential semester units completed.
3. A minimum GPA of 3.0 in four prerequisite behavioral science courses (or their equivalents): counseling theory, statistics or research methods, abnormal psychology, and human development. At least two of the four prerequisites must be completed at the time of entrance; any remaining prerequisite(s) must be completed during the first semester of enrollment.
4. A detailed personal statement (1,500-3,000 words). This statement should inform the faculty about the following:
    a) applicant's personal and educational background, strengths and weaknesses;
    b) applicant's understanding of, motivation and suitability for entering into the counseling profession; and,
    c) applicant's long-term professional goals. This statement is very important.
5. An interview with department faculty.
6. Three letters of recommendation. These letters should address the author's assessment of your suitability for pursuing graduate studies and entering the counseling profession. At least one letter must be academic (i.e., written by a professor or an instructor). The Department understands that for some applicants, contacting former instructors is not feasible; in these situations, professional references, written by supervisors or managers who are familiar with your work, are also appropriate.

Application Procedures

Applicants must apply to the University and to the Department of Counseling.

1. University application. Applicants must apply online to the university and mail one set of official transcripts from all colleges/universities to:

    Admissions and Records
    California State University, Fullerton
    P.O. Box 6900
    Fullerton, CA 92834-6900
    The application code is MFT. The online URL is www.csumentor.edu.

2. Department application. Send three letters of recommendation, your personal statement, and a copy of all transcripts to:

    Department of Counseling, EC-405
    California State University, Fullerton
    P.O. Box 6868
    Fullerton, CA 92834-6868
    No separate department application form is required.

All required materials must be received by the University Office of Admissions and Records and by the Department of Counseling office by the deadline date. Late applications will not be reviewed.

For more information about admissions, please contact our Prospective Student Adviser, at 714-278-3042, or e-mail us at applycounseling@fullerton.edu.

All successful applicants are initially admitted as conditionally classified graduate students. They are invited to attend an orientation session before classes begin, and are encouraged to join the Graduate Counseling Students Association (GCSA).

The department recommends that students take at least six units per semester. Students working full-time are strongly advised against taking more than six units per semester because of the demanding nature of the program; however, students should be aware of time limits for completion of the degree and of the possibility that they may be unable to enroll in a specific course because of the class size limits or other factors.

Application Deadlines

Please contact the Department of Counseling at (714) 278-3042 for application deadlines or email us at applycounseling@fullerton.edu. You can also check the Department of Counseling website for information on deadlines. Our address is www.hdcs.fullerton.edu/Counsel/counseling.htm. Further information about current deadlines may be found on the university graduate studies website http://www.fullerton.edu/graduate/.

Advisement

Each student is assigned to an adviser upon admission to the department. Advisers provide academic assistance, help students develop official study plans, recommend them for classified standing and advancement to candidacy, and monitor their progress throughout the duration of enrollment.

Students should consult their adviser on a regular basis. It is especially important to initiate contact with an adviser as soon as possible during the first semester of enrollment to verify enrollment in any remaining prerequisite courses and to discuss preclassification requirements.

Classification and Advancement to Candidacy

Admission to the department as a conditionally classified student does not guarantee advancement to classified standing.

Each student undergoes a comprehensive evaluation in the semester prior to his or her beginning Practicum (Counseling 530). This evaluation determines advancement to classified standing and to candidacy. Advancement requires a 3.0 GPA and the faculty's ongoing assessment of the student's aptitude and suitability for the counseling profession, progress in skill development, interpersonal and cultural sensitivity, readiness to see clients, and ethical and professional conduct. A student who receives more than two grades below "B minus" (2.7) is automatically disqualified from the program. Students may also be placed on administrative academic probation for reasons other than cumulative and/or study plan grade-point average and may be disqualified under certain conditions. See the "Graduate Regulations" section of this catalog for details concerning advancement to classified standing, candidacy, probation and disqualification.

MARRIAGE AND FAMILY THERAPY (MFT) LICENSURE

To practice as a Marriage and Family Therapist in California, a license issued by the State Board of Behavioral Sciences (BBS) is required. Our 60-unit program with the MFT concentration is designed to prepare students to meet licensure requirements (Business and Professions Code, Section 4980.37). Students should note that licensure requirements extend beyond those of the M.S. degree and include an internship and passing official BBS examinations. It is the student's responsibility to keep informed about licensure requirements as they are subject to change from time to time. An authoritative source of information is Laws and Regulations Relating to the Practice of Marriage and Family Therapy and Licensed Educational Psychology issued by the BBS. For further information, write to the Board of Behavioral Sciences, Department of Consumer Affairs, 400 R Street, Suite 3150, Sacramento, CA 95814-6240; Tel. (916) 445-4933.

Upon graduation, students have 90 days to register with the BBS as an intern. It is advisable to write early to the BBS for a registration packet (e.g., at the beginning of the last semester).

COUNSELING COURSES

Courses are designated as COUN in the class schedule.

252 Career Exploration and Life Planning (3)

Prerequisites: introductory course in Oral Communication and English Composition. Career planning is a continual process that occurs over the lifespan. The focus is on career, personal and educational awareness as they relate to the process of career choices and the culture of work. Specific strategies include resume writing, interviewing skills and job search techniques. Exploration of personal career potentials, employment trends, decision making, goal setting and job search methods.

350 Leadership Skills and Personal Development (3)

(Same as Human Services 350)

380 Theories and Techniques of Counseling (3)

(Same as Human Services 380)

449 Seminar on Child Abuse (1)

Prerequisite: Human Services 201 or Child/Adolescent Studies 301. Presents characteristics of child abuse and a review of current laws, appropriate procedures for intervention, and methods of community networking and referral.

500 The Counseling Profession (3)

Prerequisite: graduate standing. The study of counseling as a mental health profession, including its history, current functions and future directions. Examination of the counselor as a professional, including educational goals, personal values, and cultural understandings. Opportunity to observe master counselors at work.

502 Career and Lifestyle Development (3)

Prerequisite: completion of or concurrent enrollment in Counseling 500. Survey of career and lifestyle development throughout the lifespan. Major theories and strategies in career counseling. Integration of knowledge of career development with the practice of counseling.

511 Pre-Practicum (3)

Prerequisite: completion of or concurrent enrollment in Counseling 500; or admission to the Concentration in School Nursing. Basic counseling skills, including establishing a therapeutic relationship, facilitating client self-exploration and understanding how one's values influence the counseling process. Crisis intervention also will be addressed. Extensive role play practice.

518 Human Development and Functioning (3)

Prerequisites: completion of or concurrent enrollment in Counseling 500. Integrated study of human development from infancy to old age and its effect upon individuals, couples, and family relationships. Emphasis on relevance to counseling. Role of human sexuality in lifespan development will be addressed.

520 Modes of Individual Counseling (3)

Prerequisite: Counseling 511. Advanced study of major theoretical frameworks in counseling, including models of personality, definitions of individual dysfunction and approaches to treatment. Practice in case conceptualization and application of theories to counseling.

521 Science of Human Inquiry (3)

Pre- or co-requisite: completion of or concurrent enrollment in Counseling 530 or consent of faculty. Applied research methods and program evaluation. Comparative review and synthesis of inquiry approaches. Completion of literature review for anticipated Counseling 597 project. Instructional fee required.

522 Techniques of Brief Treatment and Assessment (3)

Prerequisites: Counseling 511 and 518. Advanced study of the latest edition of the Diagnostic and Statistical Manual of Mental Health Disorders (DSM) with emphasis on detection and assessment of alcohol and substance, spousal or partner, elder, and child abuse, and human sexual dysfunction. Review of brief treatment models.

523 Counseling and Culture (3)

Prerequisite: Counseling 500 and 511. Theory, research, and techniques related to counseling people from diverse cultural backgrounds. Emphasis on role plays and skills applications.

524 Child and Adolescent Counseling (3)

Prerequisites: Counseling 500, 511, 518; and 520 concurrent. Course provides an overview of child/adolescent development theories and counseling frameworks, with emphasis on utilizing strategies, examination of ethical issues, and explores assessment techniques to evaluate the range of disruptive behaviors.

525 Psychopharmacology for Counselors (3)

Prerequisites: Counseling 500, 511, 518; and 522 concurrent. Course introduces counseling students to the biochemical basis of behavior and a general knowledge of the effects and side effects of the major classes of psychotropic drugs. Such knowledge is to make appropriate referrals and a comprehensive approach to treatment.

526 Professional, Ethical and Legal Issues in Counseling (3)

Prerequisite: Counseling 522. Ethical and legal standards as related to critical professional issues, including child abuse, spousal or partner abuse, elder abuse, and substance abuse. The relationship and integration of values for the counselor's role in practice, training, supervision, test usage, and consultation.

527 Systems of Family Counseling (3)

Prerequisite: Counseling 511. Survey of family systems models, including Adler, Satir, Bowen, Haley, Minuchin, and others.

528 Groups: Process and Practice (3)

Prerequisites: Counseling 500 and 511. Basic issues and concepts related to group process. Demonstration of group leadership skills with an emphasis on self-reflection.

530 Practicum (3)

Prerequisites: classified standing; Counseling 520, 523, 526, 527; consent of fieldwork coordinator; and completion of or concurrent enrollment in Counseling 524 and 528. Supervised clinical practice with adults, families and children in approved community agencies. A minimum of 105 contact hours of counseling required for course completion.

535 Addictions Counseling (3)

Prerequisites: Counseling 500 and 511. Addresses etiology and treatment of addictive behaviors, (e.g., substance abuse, gambling). Theories linking addiction to biological, psychological, and other factors will be evaluated critically with an emphasis on developing effective recovery and relapse prevention programs.

560 Psychological Testing For Counselors (3)

Prerequisites: Counseling 522. Theories and applications of psychological testing and other means of appraisal, as they relate to the practice of community-based counseling and marriage and family therapy.

562 Counseling Couples (3)

Prerequisite: Counseling 527. The treatment of couples, including overview of current theories, assessment, goal-setting, interventions, ethical issues, and diversity issues. Assessment and treatment of spouse abuse. Study of sexual dysfunctions and sex therapy.

584 Advanced Practicum (3)

Prerequisites: Counseling 530 and consent of Fieldwork Coordinator. Advanced supervised clinical practice wit adults, families, and children in approved community agencies. A minimum of 105 contact hours of counseling required for course completion.

590 Advanced Counseling Techniques (3)

Prerequisites: enrollment in either Counseling 530 or 584. This course focuses on case conceptualization and the integration of advanced techniques into the student's repertoire of counseling skills. Case presentations and analysis of videotaped sessions will be emphasized. Must be taken as part of the year-long practicum experience. May be repeated up to four times for credit.

597 Project (3)

Prerequisites: Counseling 521 and consent of faculty adviser. Capstone program experience; taken final semester. Student conducts original research relevant to the counseling field.

598 Thesis (1)

Prerequisites: Counseling 530; consent of graduate program adviser. Independent research culminating in a thesis. Recommended for pre-doctoral students. May be repeated for credit.

599 Independent Study (1-3)

Prerequisite: consent of instructor or graduate program adviser. Research and development in counseling pursued independently with periodic conference with instructor. May be repeated for credit.

INTRODUCTION

Criminal Justice is the study of the causes, consequences and control of crime. Like other new and developing fields, criminal justice is difficult to define as it draws from a number of different disciplines, including psychology, public administration, philosophy, political science, sociology and law.

The program leading to the Bachelor of Arts in Criminal Justice is designed to acquaint pre-service and in-service students with the principles and practices of criminal justice in America. Although the department's curriculum allows for the development of depth in one of the subject's substantive subsystems (i.e., law enforcement, courts or corrections), the overriding objective is to familiarize students with activities in all the above areas.

The department is both academic and professional in that it is an interdisciplinary attempt to relate intellectual issues and practitioner perspectives to the challenge of crime in a free society. In this regard, the department provides preparation for employment with a related agency and/or further study (e.g., law school).

ADVISEMENT

Students are urged to attend a New Major Advisement Session prior to their first semester at the university as a Criminal Justice major. This is particularly important for community college transfers. Failure to do so may delay graduation. The department's New Major Advisement Sessions are regularly and frequently scheduled. See the bulletin board or call the division office for details.

AWARDS IN CRIMINAL JUSTICE

Graduating seniors are eligible for the Academics Award, the Activities Award, the Overall Achievement Award and the William Hobbs Scholarship for outstanding law-related coursework. The Dan Byrnes Scholarship is given annually to an undergraduate who plans a career in law enforcement.

BACHELOR OF ARTS IN CRIMINAL JUSTICE

The Criminal Justice degree requires a minimum of 120 units, which includes courses for the major, General Education, all university requirements, and free electives. For the major, every student must complete the core courses (21 units) and a minimum of 12 units from the elective curriculum. In addition, each student is required to complete 9 units in a correlated curriculum. Effective Fall 2005, new Criminal Justice majors must achieve a grade of "C" (2.0) or better in all 15 courses in the curriculum to earn their bachelor's degree.

For additional information regarding the Criminal Justice program and its courses, check with the Division office in University Hall 511.

Core Curriculum (21 units)

Crim Just 300 Introduction to Criminal Justice (3)

Crim Just 310A Criminal Law: Substantive (3)

Crim Just 315 The Enforcement Function (3)

Crim Just 320 Introduction to Public Management and Policy (3)

Crim Just 330 Crime and Delinquency (3)

Crim Just 340 Criminal Justice Research Methodology (3)

Crim Just 345 Corrections (3)

DIVISION OF POLITICS, ADMINISTRATION, AND JUSTICE

DIVISION CHAIR

Phillip Gianos

DIVISION OFFICE

University Hall 511

DIVISION WEBSITE

http://hss.fullerton.edu/polisci

PROGRAMS OFFERED

Bachelor of Arts in Criminal Justice

Minor in Criminal Justice

FACULTY

Gregory (Chris) Brown, W. Garrett Capune, George M. Dery, III, Dixie Koo, James Lasley, Jarret Lovell, Stacy Mallicoat, Kevin Meehan, Jill Rosenbaum, Georgia Spiropoulos

Elective Curriculum (12 units)

Four additional courses (12 units) in Criminal Justice

Correlated Curriculum (9 units)

Courses in the related fields shall be selected by the student in consultation with an adviser. The purpose of this requirement is to allow for an awareness of the disciplines contributing to the creation of "criminal justice" as a separate subject. Upper-division courses in such fields as philosophy, political science, psychology and public administration are included. For a list of courses that can count in this regard, check with the Division office.

Writing Requirement (3 units)

One of the following courses:

Crim Just 350 Principles and Concepts of Investigation and Reporting (3)

English 301 Advanced College Writing (3)

English 365 Legal Writing (3)

For further information on these alternatives, please see a Criminal Justice adviser.

MINOR IN CRIMINAL JUSTICE

The Minor in Criminal Justice consists of a total of 18 units including three required and three elective courses to be chosen from the Criminal Justice curriculum. The required courses are:

Crim Just 300 Introduction to Criminal Justice (3)

Crim Just 310A Criminal Law: Substantive (3)

Crim Just 330 Crime and Delinquency (3)

CRIMINAL JUSTICE COURSES

Courses are designated as CRJU in the class schedule.

300 Introduction to Criminal Justice (3)

A study of the underlying ideological issues confronting America's system of criminal justice, with an emphasis on key concepts in conflict (law and order, rehabilitation vs. retribution, etc.)

310A Criminal Law: Substantive (3)

Prerequisite: Crim Just 300. The general doctrines of criminal liability in the United States and the classification of crimes as against persons, property and the public welfare. The concept of governmental sanction of the conduct of the individual.

310B Criminal Law: Procedural (3)

Prerequisite: Crim Just 300. Legal problems associated with the investigation of crime, the acquisition of evidence, the commencement of a criminal proceeding, the prosecution and defense of charges, sentencing and appeal. The development of existing procedures and examination of current efforts for reform.

315 The Enforcement Function (3)

Prerequisite: Crim Just 300. The historical and philosophical development of the enforcement function at federal, state and local levels; community controls, political pressures and legal limitations pertaining to law enforcement agencies at each level of government; police policies and problems vis-à-vis the administration of justice as a system.

320 Introduction to Public Management and Policy (3)

(Same as Political Science 320)

322 Leadership for Public Service (3)

(Same as Political Science 322)

330 Crime and Delinquency (3)

Prerequisite: Crim Just 300. This course provides an overview and analysis of the evolving and conflicting purposes and practices associated with the topics of criminology, crime and delinquency with an emphasis on contemporary strategies for the prevention, remediation and control of crime and delinquency.

340 Criminal Justice Research Methodology (3)

Prerequisite: Crim Just 300. Elementary statistics including descriptives, measurements and tests; data collection methods for effort evaluation and program prediction; systems analysis techniques.

345 Corrections (3)

Prerequisite: Crim Just 300. This course provides an overview and analysis of the evolving and conflicting purposes and practices associated with the adult corrections systems, with an emphasis upon contemporary strategies for treating/punishing offenders both while incarcerated, as well as while in the community.

350 Principles and Concepts of Investigation and Reporting (3)

Prerequisite: Crim Just 300. Principles of investigative activity practiced by police, courts and correctional subsystems. Reporting procedures and requirements. Meets classroom portion of upper-division writing requirement for Criminal Justice majors, or as an elective in the concentration curriculum.

385 Minorities and the Criminal Justice System (3)

Prerequisite: completion of General Education Category II and Category III.C.1; Crim Just 300 recommended. An introduction to the issues surrounding the charges of overt and indirect institutionalized racism in the criminal justice system. An overview of patterns of criminal behavior among minority groups in the U.S. will be discussed.

405 Criminal Justice Policy (3)

Prerequisites: Crim Just 300 and 330. Not open to students who have studied Criminal Justice policy as Crim Just 475T. The evolving purposes and practices associated with the development of criminal justice policies, principally in the United States. Particular topics, such as sentencing legislation, illustrate the development, adoption, and impact of public policy on criminal justice systems.

422 Human Resources Management (3)

(Same as Political Science 422)

425 Juvenile Justice Administration (3)

Prerequisite: Crim Just 300. Definitions of "delinquency" and the related responses of the interested institutions (police, courts and correction); the juvenile court (past and present), and prevention and correction programs (practicing and proposed).

430 Women and Crime (3)

Prerequisite: Crim Just 300 or Philosophy 302. An examination of women as criminals and victims, gender differences in criminal behavior and the role of women as professionals in the criminal justice system.

450 Organized Crime and Intelligence Analysis (3)

Prerequisite: Crim Just 300. History and development of organized crime. Current criminological strategies of control of organizational crime. Systems theories and other analytical techniques of police intelligence.

455 Gangs and the Criminal Justice System (3)

Prerequisites: Crim Just 300. Causal factors of, and legal solutions to, gang-related crime in the United States are examined. Relevance of sociological, psychological, economic, and educational deviance theories to justice intervention strategies is emphasized.

462 Crime Analysis (3)

Prerequisites: Crim Just 300 and 340. This course will examine the crime analysis function within the law enforcement organization, demonstrate how to develop, implement and operate a crime analysis unit, and discuss the nexus between crime analysis, field and investigative operations, and administrative bureaus.

465 Law, Punishment and Justice (3)

Prerequisite: Crim Just 300. Theoretical scholarship in criminal justice is increasingly concerned with law in relation to delivery of justice and practices of punishment. Students will examine the rule of law, question whether justice is different from law, and review the role punishment plays.

470 Sex, Crime and Culture (3)

Prerequisite: Criminal Just 300. Analysis of rationale for law's concern with sexual conduct, developed via discussion of selected offenses and offenders. Lectures and guest speakers also present opposing perspectives regarding the role of law enforcement, courts and correction. Research and reform will be reviewed. Field trips to be arranged.

472 The Judicial Process (3)

Prerequisites: Crim Just 300 or Political Science 375. The nature, functions and roles of courts. Roles of major participants in the American legal system, including judges, attorneys and citizens. The administration of justice as a system. (Same as Political Science 472)

475T Topics in Administration of Justice: A Seminar (3)

Prerequisite: Crim Just 300. Current social, legal and practical problems confronting police, courts and corrections. A variable topic class with specific subjects to be announced each semester. May be repeated for credit with different content up to a maximum of 9 units.

480 Courtroom Evidence (3)

Prerequisite: Crim Just 300. The rules of evidence in the context of a criminal trial in a California court. The rules, their application and their rationale. Lecture, discussion and simulated courtroom situations.

485 Search, Seizure and Interrogation I (3)

Prerequisite: Crim Just 300. Analysis of the laws that apply in common street search-and-seizure and interrogation situations in California; how they have evolved, and what developments are anticipated.

486 Search, Seizure and Interrogation II (3)

Prerequisite: Crim Just 300. An analysis of the laws that apply in some search-and-seizure and interrogation situations, such as those involving the border patrol and College officials.

492 Pre-law Internship (3)

(Same as Political Science 492)

495 Internships (3)

Prerequisites: Crim Just 300 or senior standing and consent of instructor. The criminal justice professions; eight to 20 hours per week as a supervised intern in a public agency or related organization. In addition to the job experience, interns meet in a weekly three-hour seminar.

499 Independent Study (1-3)

Prerequisites: at least 12 units of criminal justice and consent of adviser. Student selects an individual research project, either library or field. Conferences with adviser as necessary, culminating in one or more papers. May be repeated for credit.

DEPARTMENT CHAIR
Morteza Rahmatian

DEPARTMENT OFFICE
Langsdorf Hall 702

DEPARTMENT WEBSITE
www.business.fullerton.edu/economics

DIRECTOR, CENTER FOR ECONOMIC EDUCATION
Chiara Gratton-Lavoie

CENTER FOR ECONOMIC EDUCATION
Langsdorf Hall 530

PROGRAMS OFFERED

Bachelor of Arts in Business Administration
Concentration in Business Economics
Bachelor of Arts in Economics
Minor in Economics
Master of Arts in Economics
Master of Business Administration
Concentration in Business Economics

FACULTY

Naoko Akashi, Radha Bhattacharya, Victor Brajer, Nek Buzdar, Jannet Chang, Xiujian Chen, James Dietz, Vincent Dropsy, Emira Farka, Reza Fazeli, Adrian Fleissig, Andrew Gill, Chiara Gratton-Lavoie, Jane Hall, Sherif Khalifa, Emmanuel Lartey, Davina Ling, Robert Mead, Evelina Mengova, Robert Michaels, Howard Naish, Dennis Pollard, Dipankar Purkayastha, Morteza Rahmatian, Ousmane Seck, Denise Stanley, Grigor Sukiassyan, Elwin Tobing, David Wong, Feng Xiao

INTRODUCTION

A recent Wall Street Journal article titled "The Hot Major for Undergrads is Economics" stated, "In a global economy filled with uncertainty, many students see economics as the best vehicle for promising good pay and security."

As a scholarly discipline, economics is over two centuries old. The nature of economic analysis has been described by John Maynard Keynes as ". . . a method rather than a doctrine, an apparatus of the mind, a technique of thinking which helps its possessors to draw correct conclusions."

Economic issues are powerful enough to shape the world. Slowly but surely, economic issues make their way to your pocketbooks. Many pressing social issues have their roots in economics. Microeconomic principles set the foundation for business. Macroeconomic policies shape the destinies of nations. Keynes put it a little more eloquently when he said, "The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else."

Economics is a fascinating major that helps you develop analytical skills that are applicable to a wide range of jobs. Economists work in Wall Street; banking, finance and insurance, all aspects of business; multinational corporations; real estate; utility companies; non-profits; regulation, city, state and federal government agencies; international agencies like the International Monetary Fund and the World Bank; sports, health and aging; and in academia.

According to the National Association of Business Economists (NABE), "The key skills of the economic analyst compared to other business analysts is the ability to link industry/market developments to the overall economy, i.e., to see the forest as well as the trees. The broad training of economists provides a flexibility that allows them to turn their hand to a broad range of analytical problems – a critical attribute in a company experiencing a redirection of industry interests."

Students pursuing graduate degrees in many other fields, such as the social sciences, business, public administration, public health, environmental studies, urban studies, law, and journalism find that economics is their best choice for an undergraduate major or minor, given the extensive economic content of these programs. Several studies have shown that lawyers with undergraduate degrees in business economics earn more than other lawyers. [1, 2]

The Department of Economics offers both graduate and undergraduate degrees:

- Bachelor of Arts in Business Administration, Concentration in Business Economics
- Bachelor of Arts in Economics
- Minor in Economics
- Master of Arts in Economics
- Master of Business Administration, Concentration in Economics

Advisers

The Business Advising Center, Langsdorf Hall 731, provides information on admission, curriculum and graduation requirements; registration and grading procedures; residence and similar academic matters. In addition, all economics majors should see a faculty adviser in the Department of Economics for information on career opportunities and advanced study. Undergraduates should consult the undergraduate adviser, Dr. Radha Bhattacharya. Graduate students should consult the graduate adviser, Dr. Dipankar Purkayastha.

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[1] Black, D., S. Seth, and L. Taylor. "The Economic Reward for Studying Economics." Economic Inquiry, V41, n3, July 2003, 365-77

[2] Craft R.K., and J.G. Baker. "Do Economists Make Better Lawyers? Undergraduate Degree Field and Lawyer Earnings." Journal of Economics Education, Summer 2003, 263-281.

Credential Information

For students interested in a teaching credential, the Department of Economics offers courses which may be included in Subject Matter Preparation Programs and Supplementary Authorization Programs for elementary and secondary teaching.

Further information on the requirements for teaching credentials is found in the Teaching Credential Programs section of this catalog and is also available from the Department Office for Elementary and Bilingual Education and the Department Office for Secondary Education. Students interested in exploring careers in teaching at the elementary or secondary school levels should contact the Office of Admission to Teacher Education, Education Classroom 182.

Awards in Economics

Economics Outstanding Graduate Student Award

Economics Outstanding Senior Award

Economics Wall Street Journal Student Award

Formuzis-Pickersgill-Hunt Student Paper Award

Murray Wolfson Memorial Scholarship

Economics Faculty Student Achievement Award

Norman Townshend-Zellner Award

Levern Graves Award

The Emeriti Faculty and Staff Award

Stewart Long Graduate Student Study Award

Stewart Long Award for Outstanding New Graduate Student

Klein Family Awards

BACHELOR OF ARTS IN ECONOMICS

Admission to the Economics major involves two steps. Students who apply to the major are initially classified as Pre-economics. After completing the lower-division core requirements with grades of at least "C" (2.0), students may apply to the Economics major. Pre-economics students may take lower-division business and economics courses, but most upper-division courses are not open to Pre-economics students.

The Bachelor of Arts in Economics requires a minimum of 120 units which includes courses for the major, General Education, all university requirements, and free electives. All of the following requirements must be met for the degree. Students must earn a grade of at least "C" (2.0) in each course listed below. However, a "C" (2.0) average will be acceptable in the upper-division economics electives. For assistance in interpreting these requirements, contact the Business Advising Center, Langsdorf Hall 731. Students should also contact their faculty adviser in the Economics Department prior to or during their first semester.

Required Lower-Division Courses

Accounting 201A Financial Accounting (3)

Accounting 201B Managerial Accounting (3)

OR Math 150B Calculus (4)

Business Admin 201 Business Writing (3)

Econ 201 Principles of Microeconomics (3)

Econ 202 Principles of Macroeconomics (3)

InfoSys/DecSci 265 Introduction to Information Systems and Applications (3)

Math 135 Business Calculus (3)

OR Math 130 Short Course in Calculus (4)

OR Math 150A Calculus (4)

Required Upper-Division Courses

Business Admin 301 Advanced Business Communication (3)

Econ 310 Intermediate Microeconomic Analysis (3)

Econ 320 Intermediate Macroeconomic Analysis (3)

Econ 340 Economic Research Methods (3)

InfoSys/DecSci 361A Quantitative Business Analysis: Probability & Statistics (3)

Economics Electives

15 units of upper-division economics electives (6 units of which must be 400 level)

No more than 3 units of independent study may be used to meet the 400-level electives requirement.

Other Requirements, Grades and Residence

Other Requirements. Students must complete all university requirements for the bachelor's degree. A student who majors in economics can take a certain number of free electives toward the university requirements. The undergraduate adviser will guide the student in selecting courses which match a student's specific interests and career goals. These courses can be in any field of the student's interest such as (but not limited to) finance, insurance, business, public administration, urban studies, geography, statistics and mathematics. Students planning to do graduate work in economics are advised to take Math 150A,B; Econ 440 and Econ 441.

Grade-Point Average (GPA). Attain at least a 2.0 GPA ("C" average) in all university courses and in the upper-division economics electives. Earn at least a "C" (2.0) grade in each course required for the major (other than the upper-division economics electives where a "C" (2.0) average is required).

Grade Option. Take all required courses in economics, accounting and information systems/decision sciences for a letter grade (A,B,C,D,F). The credit/no credit grading option may not be used for these courses, and a grade of "CR" (credit) will not satisfy the requirements for the degree. Exception: a course in calculus may be taken under the credit/no credit grading option; however, if it is also taken to meet general education requirements, then it must be taken for a letter grade.

Residence. At least 15 units of courses must be taken in residence at the College of Business and Economics at Cal State Fullerton. Also, students must fulfill University residence requirements.

BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

See "Business Administration, Business Economics Concentration."

MINOR IN ECONOMICS

The economics minor covers the basics in the discipline of economics and gives students the opportunity to explore personal interests through electives. Note that a course in calculus (Math 135 or equivalent) is prerequisite to Econ 310, 315 and 320. Students must earn a grade of at least "C" (2.0) in each course listed below.

Required Lower-Division Courses

Econ 201 Principles of Microeconomics (3)

Econ 202 Principles of Macroeconomics (3)

Required Upper-Division Courses

Business Admin 301 Advanced Business Communications (3)

OR equivalent

Econ 310 Intermediate Microeconomics Analysis (3)

OR Econ 315 Intermediate Business Microeconomics (3)

Econ 320 Intermediate Macroeconomics Analysis (3)

and 9 units of upper-division economics electives

Required Courses for Business Administration Majors

Students with a major in business administration and a concentration other than business economics who wish to minor in economics, must take Econ 201, 202, and 310 (or 315) as part of their major.

For such students, these requirements in the minor will be waived and the minor will consist of Econ 320 and nine units of upper-division economics electives.

Students with a major in business administration and a concentration in business economics may not also minor in economics.

MASTER OF BUSINESS ADMINISTRATION

See "Business Administration, MBA."

MASTER OF ARTS IN ECONOMICS

This program provides preparation for professional careers in private industry and government and provides a foundation for further graduate work at the doctoral level. Full-time and part-time students can be accommodated. Most of the courses are scheduled in the evening.

The curriculum is designed for students with an undergraduate degree in business administration or economics and consists of 10-11 courses (30-33 units). Provided that all prerequisites have been satisfied, the program may be completed in three semesters (full time) or in six semesters (part time).

The required courses progress from economic theory through economic model building and estimation to the seminar course on current research, where students are exposed to the latest research in various areas of economics. The graduate curriculum includes four to six courses (12-18 units) of electives. Students have the option of writing a thesis (the thesis track is 30 units) or taking a comprehensive exam (the comprehensive exam track is 33 units) to earn their degrees.

Most graduate courses in the College of Business and Economics require classified "CBE status" and are open only to students with classified standing in the M.A. in Economics, M.B.A., M.S. in Accountancy, M.S. in Information Systems, or M.S. in Taxation programs.

Admission

Minimum requirements for admission to the MA program are the following:

1. A baccalaureate from an accredited institution.
2. Good standing at the last college attended.
3. Minimum grade point average of 2.5 in the last 60 semester units (or 90 quarter units) attempted.
4. A GPA of at least 3.0 in the following courses or their equivalents (corresponding CSUF courses are in parenthesis): Business Calculus (Math 135), Principles of Microeconomics (Econ 201), Principles of Macroeconomics (Econ 202), Intermediate Microeconomics (Econ 310 or Econ 315), Intermediate Macroeconomics (Econ 320), Probability and Statistics (InfoSys/DecSci 361A), and one advanced undergraduate elective in economics.
5. For international students, a score of 570 on the paper exam or 230 on the computer-based TOEFL is required.
6. 1000 points in verbal and quantitative sections in the Graduate Record Examination (GRE).
7. Three confidential letters of recommendation, a résumé and a Statement of Purpose from the applicant sent directly to the Graduate Adviser in Economics. Persons who have known the candidate professionally should write the letters of recommendation. There are no forms. The letters should be written with official letterheads, and the letters should discuss both the strengths and the weaknesses of the applicant. The statement of purpose should not exceed 750 words.

An applicant who does not meet one or more of the requirements above (including international students who score between 550 and 570 on TOEFL), may still be considered for admission, depending on the evaluation of the entire application file (the students must, however, have a GPA of 2.5 in the last 60 semester units at the time of admission). If admitted, an applicant with one or more deficiencies may be asked to take specified deficiency courses and exams. Students admitted with deficiencies are called "conditionally classified" students. Conditionally classified students can take a limited number of courses at the graduate level, subject to the approval of the graduate adviser of the department. Students are expected to advance promptly to classified standing. Classified students are eligible to take graduate courses for which they are qualified.

Application Deadlines

The deadlines for completing online applications are March 1st for the fall semester and October 1st for the spring semester (see http://www.csumentor.edu). Mailed applications need to be postmarked by the same deadlines. However, deadlines may be changed based upon enrollment projections. Check the university graduate studies website for current information at http://www.fullerton.edu/graduate.

M.A. CURRICULUM

Within one semester of admission, the students are advised to prepare a study plan. A study plan reflects a selection of approved courses that have been taken or will be taken by the student to earn the graduate degree.

Students are urged to meet as soon as possible with the graduate adviser in the Department of Economics to file a study plan and advance to classified standing.

Any study plan course in which a "C minus" (1.7) or below is received must be repeated with at least a "C" (2.0) grade, regardless of the overall grade-point average of the students. A minimum 3.0 GPA is required for graduation. Students are also required to graduate in a timely manner.

Required Courses (15 units)

Econ 441 Introduction to Mathematical Economics (3)

Econ 502 Advanced Microeconomic Analysis (3)

Econ 503 Advanced Macroeconomic Analysis (3)

Econ 504 Econometric Analysis (3)

Econ 595 Current Research in Economics (3)

OR approved 500-level substitute

Note: Econ 440, Introduction to Econometrics, is a prerequisite to Econ 504.

Area and Electives Courses (12 – 18 units)

Students may choose to focus on one of the following elective tracks:

1. Financial and monetary economics
2. Health, aging and labor economics
3. Public economics, law and industrial organization
4. International, environmental and development economics

In addition to Econ 441, only two more 400-level courses are allowed on the Study Plan.

Terminal Evaluation (0 – 3 units)

Econ 598 Thesis Research (3)

OR Comprehensive Examinations

These examinations are given at the end of each semester.

ECONOMICS COURSES

Courses are designated as ECON in the class schedule.

100 The Economic Environment (3)

The application of economics to the problems of unemployment and inflation, the distribution of income, competition and monopoly, the role of government in the economy, other policy issues. Not open to pre-business, business administration majors or minors, economics majors or minors or international business majors.

201 Principles of Microeconomics (3)

Principles of individual consumer and producer decision-making in various market structures, the price system, market performance and government policy.

202 Principles of Macroeconomics (3)

Prerequisite: Econ 201. Principles of macroeconomic analysis and policy, unemployment and inflation, financial institutions, international trade, economic growth, comparative systems.

310 Intermediate Microeconomic Analysis (3)

Prerequisites: Econ 202 and Math 135. Corequisites: Business Admin 301 and InfoSys/DecSci 361A or equivalent. Rational decision-making behavior of consumers and firms, price and output determination in markets. Primarily for economics majors, but open to all students who qualify.

315 Intermediate Business Microeconomics (3)

Prerequisites: Econ 202 and Math 135. Corequisites: Business Admin 301 and InfoSys/DecSci 361A or equivalent. Analysis of business decisions in alternative market structures with special emphasis on problem solving in a business context using economic concepts and methods. Not open to economics majors. Students may not receive credit for both Economics 310 and 315.

320 Intermediate Macroeconomic Analysis (3)

Prerequisites: Econ 202 and Math 135. Corequisites: Business Admin 301, InfoSys/DecSci 361A or equivalent. The determinants of the level of national income, employment and prices, and monetary and fiscal policies.

330 Comparative Economic Systems (3)

Prerequisite: Econ 100 or 201. Alternative economic systems; their theoretical foundations, actual economic institutions, and achievements and failures. Contrast between socialist and capitalist systems.

331 Economies in Transition (3)

Prerequisite: Econ 100 or 201. The transformation from centrally-planned to market-oriented economies in Russia and Eastern Europe. Focuses on the economic, social and political costs and benefits involved in the restructuring of economic systems.

332 Economies of the Pacific Rim (3)

Prerequisite: Econ 100 or 201. Dimensions of industrialization, agriculture, investment, human resources, and trade in economies of the Far East (including Japan and China), India, and related nations of the Pacific Rim.

333 Economic Development: Analysis and Case Studies (3)

Prerequisite: Econ 100 or 201. The processes of economic growth with references to developing areas. Capital formation, resource allocation, relation to the world economy, economic planning and institutional factors, with case studies.

334 Economics of Latin America and the Caribbean (3)

Prerequisite: Econ 100 or 201. Corequisite: Business Admin 301. Examines regional economic problems within an international context: dependence, industrialization and the international corporation; agriculture; regional cooperation; inflation; trade and debt problems.

335 The International Economy (3)

Prerequisite: Econ 100 or 201. The theory, practice and institutions of the international economy. International trade and investment, balance of payments, foreign exchange rates, multi-national enterprise, international economic policy. Current trade issues: European Community, trade with developing countries, Eastern Europe, and the states of the former Soviet Union; General Agreement on Tariffs and Trade (GATT) and other major trade agreements.

336 Economies of the Middle East (3)

Prerequisite: Econ 100 or 201. Covers economic circumstances and challenges in the Middle East. Topics include population and education, dependence on oil exports, state control of the economy, and the potential for economics growth and stability in the region.

340 Economic Research Methods (3)

Prerequisites: Econ 202, InfoSys/DecSci 361A or equivalent. This course will introduce the student to the basics of applied economic research. Students will learn how to access existing economic knowledge, locate and compile economic data, and analyze economic problems using theory and quantitative methods.

350 American Economic History (3)

Prerequisite: Econ 100 or 201. The development of American economic institutions; economic problems, economic growth and economic welfare.

351 European Economic History (3)

Prerequisite: Econ 100 or 201. The evolution of European economic institutions and their relation to the development of industry, commerce, transportation and finance in the principal European countries.

355 Economics of Gender and Work (3)

Prerequisites: Completion of General Education category III.C.1 and upper division standing. An economic analysis of demographic trends and changing gender roles and experiences in paid and unpaid work, education, earnings, and market discrimination using economic theory. International comparisons. (Same as Women's Studies 355.)

361 Urban Economics (3)

Prerequisite: Econ 100 or 201. Theory and analysis of the urban economy, urban economic problems and policy.

362 Environmental Economics (3)

Prerequisite: Economics 100 or 201. Economic analysis of environmental problems and related issues: externalities, property rights, social costs and benefits, user cost, rent and decision making under uncertainty.

410 Industrial Organization (3)

Prerequisites: Business Admin 301, Econ 310 or equivalent. Business organization, conduct and performance; the rationale and impact of public policy on business and business activities, including the regulated industries, sick industries and antitrust policy.

411 International Trade (3)

Prerequisites: Business Admin 301, Econ 310 or 315 or equivalent. Theories of international trade. Gains from trade, effects of tariff and non-tariff barriers, and conduct of commercial policy. The balance of payments, the theories of exchange rate determination, and other international economic issues.

412 Labor Economics (3)

Prerequisites: Business Admin 301, Econ 310 or equivalent. Labor supply and demand, labor force participation, employment, unemployment, human capital, wage differentials, disadvantaged labor market groups, discrimination and wage-related income transfers.

413 Law and Economics (3)

Prerequisites: Business Admin 301; Econ 310 or 315. An economic analysis of the common law – property, contract, and tort – focusing on the use of microeconomic theory to study the economic efficiency characteristics and effects of these laws. An emphasis will be placed on the analysis of specific legal cases.

415 Economics of Health (3)

Prerequisites: Satisfied upper-division baccalaureate writing requirement, Econ 340 or the equivalent, or consent of the instructor. Application of economic reasoning to the analyses of health-related issues, markets, practice, education, research, and policy within social and political contexts.

416 Benefit Cost and Microeconomic Policy Analysis (3)

Prerequisites: Business Admin 301; Econ 310 or equivalent. Application of microeconomic models and welfare economics to public policy. Concepts of economic efficiency, economic surplus and equity. Measurement of policy effects, including benefit-cost analysis, with applications to selected policy areas such as education and environmental programs.

417 Public Finance (3)

Prerequisites: Business Admin 301, Econ 310 or equivalent. Government finance at the federal, state, and local levels; the impact of taxation and spending on resource allocation, income distribution, stabilization and growth.

420 Money and Banking (3)

Prerequisites: Business Admin 301, Econ 320 or equivalent. The money supply process and the impact of monetary policy on economic activity.

421 Monetary and Fiscal Policy (3)

Prerequisites: Business Admin 301, Econ 320 or equivalent. The techniques of monetary and fiscal policy and their relative roles in promoting economic stability and growth.

431 International Macroeconomics and Growth (3)

Prerequisites: Business Admin 301 and Econ 320. Macro-economic analysis of the open economy: the impact of stabilization policies in a global economy, the role of the balance of payments, the international monetary system and growth in less developed countries.

433 The Less Developed Countries and the World Economy (3)

Prerequisites: Econ 310, 315, or 515 and Econ 320 or 521. In-depth analytical study of development and underdevelopment in the poorer countries in the context of a changing international economic order. Both the neo-classical and the political economy approaches will be discussed. Includes case studies from Asia, Africa, and Latin America.

440 Introduction to Econometrics (3)

Prerequisites: Business Admin 301, Econ 340, InfoSys/DecSci 361A or equivalent. Economic measurement: specification and estimation of econometric models; statistical methods in economic research.

441 Introduction to Mathematical Economics (3)

Prerequisites: Business Admin 301, Econ 202 and Math 135 or equivalent. Economic theory from microeconomics and macroeconomics. Content varies; constrained optimization problems and rational decision-making.

450 History of Economic Thought (3)

Prerequisites: Business Admin 301 and Econ 310 or 320. Major schools of thought and of leading individual economists as they influenced economic thought and policy.

461 Ecological Economics (3)

Prerequisites: Business Admin 301 and Econ 310 or 315 or equivalent. The application of economic concepts and methods to understanding the ways in which human economic behavior contributes to environmental and ecosystem degradation; the use of economic approaches to evaluate and manage these impacts; the design of sustainable economic policies.

462 Natural Resource Economics (3)

Prerequisites: Business Admin 301 and Econ 310 or 315 or equivalent. Concepts and principles in the application of economics to issues in natural resource economics. Issues will include uncertainty and risk in investment, depletion over time, cartelization, the role of technological innovation and government intervention related to fuels, water, land, etc.

495 Internship (1-3)

Prerequisites: Economics major with Business Admin 301, InfoSys/DecSci 361A, Econ 310 or 320 or the equivalents; or international business major with Econ 202 and 335, InfoSys/DecSci 361A or the equivalents; consent of the department internship adviser; at least junior standing; 2.5 GPA and one semester in residence at the university. Planned and supervised work experience. May be repeated for a total of six units' credit. Credit/No Credit grading only.

499 Independent Study (1-3)

Prerequisites: Economics major or concentration, Business Admin 301, Econ 310 and 320 or the equivalents, senior standing, and consent of department chair. Directed independent inquiry. May be repeated for credit. Not open to students on academic probation.

502 Advanced Microeconomic Analysis (3)

Prerequisite: Econ 441. An advanced treatment of rational decision-making behavior of consumers and firms, the price system, and resource allocation in partial and general equilibrium settings. Topics include preference theory, welfare economics, gains from trade, monopoly power, external costs and benefits, public goods, factor markets, intertemporal decisions, risk and uncertainty.

503 Advanced Macroeconomic Analysis (3)

Prerequisites: Econ 320 or equivalent and classified graduate status in Economics. The determination of employment, fluctuations of real and money income, and the forces underlying economic growth.

504 Econometric Analysis (3)

Prerequisites: Econ 440 or equivalent and classified graduate status in economics. Contemporary methods used in econometric research with a focus or methods used in regression analysis, cross-section and panel data methods, and advanced topics of non-linear models, simulations and limited dependent variables.

505 Economic Models and Forecasting (3)

Prerequisites: Econ 440 and classified graduate status in economics. Statistical methods of econometric estimation and forecasting. Practical solutions to problems in model specification, estimation by regression, time series analysis and forecasting.

506 Economics of Aging (3)

(Same as Gerontology 506)

515 Microeconomic Perspective for Managers (3)

Prerequisites: Classified CBE status and Math 135 or the equivalent. Individual economic agents – demand side consumers and supply side producers. Investigation of market structures ranging from perfect competition to monopoly. Emphasis on features of organizational architecture: the assignment of decision rights within organizations; the reward system; and the performance-evaluation system. (Not open to M.A. Economics candidates.)

516 Economics and Benefit-Cost Analysis (3)

Prerequisites: Econ 201 and classified graduate status in Economics, or Environmental Studies or Public Administration. Economics and benefit-cost analysis of public projects. Consumer demand and the estimation of benefits; the nature of cost in a market economy; price controls, unemployment and inflation; and criteria for choice, for multi-year projects. For elective credit in the M.S. Environmental Studies or Master of Public Administration.

521 Macroeconomic Perspective for Managers (3)

Prerequisites: Econ 310 or 515 or equivalent and classified CBE status. Managerial use of local, national and global macroeconomic trends and data to make decisions. Impact that changes in taxes, government spending and Federal Reserve Bank monetary policy have on business, real estate and financial markets. (Not open to M.A. Economics candidates or students with credit for Economics 320.)

528 Financial Economics (3)

(Same as Finance 528)

531 International Economics (3)

Prerequisites: Econ 310 or 315 or 515 or equivalent and classified CBE status, and Econ 320 or 521. Analysis of theories and current issues in international trade, finance, macroeconomics and growth, with an emphasis on business applications.

590 Topics in Economic Analysis and Policy (3)

Prerequisites: Econ 310 and 320 or equivalent; classified graduate status in economics. Contemporary research in areas such as: resource economics; history of economic thought; international monetary systems; forecasting; economics of planning; trade and development; human resource economics. May be repeated for credit.

595 Current Research in Economics (3)

Prerequisites: classified graduate status in economics or Econ 440 and permission of the instructor. Students attend the departmental research seminars where faculty and outside speakers present papers dealing with recent and ongoing research. Students read material relevant to presentations and write analytical reports covering selected seminar meetings.

598 Thesis Research (3)

Prerequisites: Econ 502, 503 and classified graduate status in economics. Corequisite: Econ 505. Selection and approval of topic; outline; methodology; literature survey; data collection and analysis; presentation of results. Award of the grade is contingent upon the completion and acceptance of the thesis.

599 Independent Graduate Research (1-3)

Prerequisites: Econ 440, 502 and 503; classified graduate status; and consent of instructor and Department Chair (or designee). Directed advanced independent inquiry. May be repeated for credit. Not open to students on academic probation.