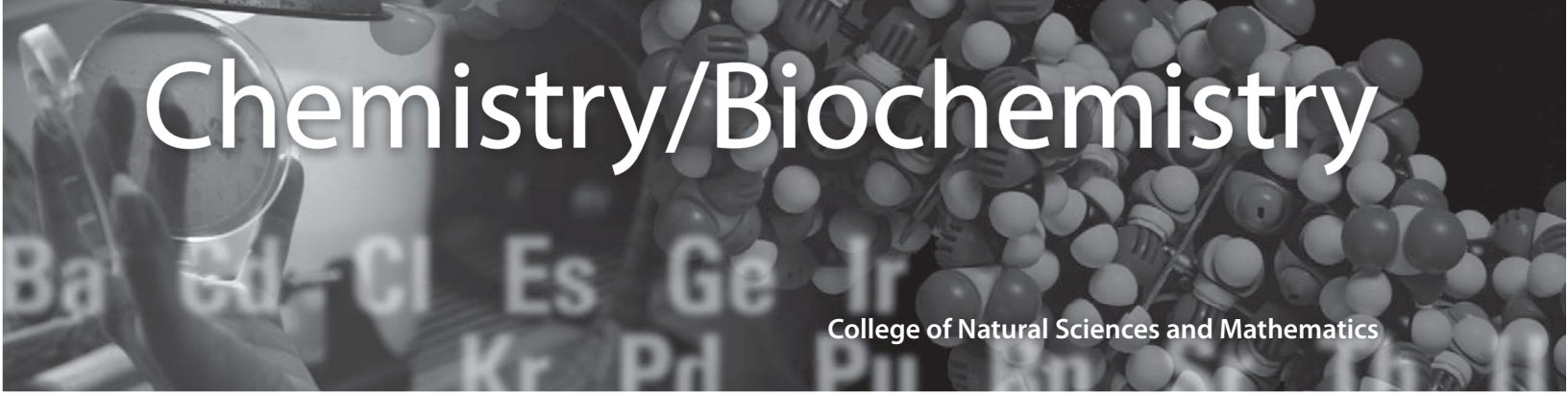

Chemistry/Biochemistry

College of Natural Sciences and Mathematics

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.

Learning Goals and Student Learning Outcomes

The following goals and learning outcomes have been established for students pursuing a degree in chemistry or biochemistry:

Concepts

- Understand the concept that all matter is composed of atoms whose inherent periodic properties determine their interactions and combinations into compounds with specific molecular structure, chemical function and physical properties
- Understand and apply fundamental thermodynamic laws and kinetics to chemical reactions in equilibrium and nonequilibrium systems
- Demonstrate literacy in concepts underlying fundamental analytical instrumentation and instrumentation techniques used in chemistry and biochemistry
- Understand the various ways that chemists represent and test chemical knowledge in models, theories, mathematical relationships and symbolic notations
- Understand the principles of safe practices in the laboratory across the subdisciplines of the chemical sciences.

Skills and processes

- Demonstrate the ability to generate data and information through designing and safely implementing experiments using contemporary methods and techniques

DEPARTMENT CHAIR
Maria C. Linder

DEPARTMENT OFFICE
McCarthy Hall 580

DEPARTMENT WEBSITE
http://chemistry.fullerton.edu

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

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, Franklin Ow, Madeline Rasche, Kereen Monteyne, Harold Rogers, Karn Sorasaenee, Chandra Srinivasan, Jonathan Stoddard, Fu-Ming Tao

ADVISERS
Undergraduate: Richard Deming
Graduate: Peter de Lijser

- Collect, analyze and interpret data and information
- Retrieve appropriate scientific literature and data
- Communicate data, concepts, skills and processes to experts and nonexperts in the field.

Attitudes

- Demonstrate the safe and ethical use of scientific knowledge, materials and procedures, and be able to explain their impact on a diverse society
- Deliberately employ methods of scientific inquiry to collect, analyze and interpret evidence to solve problems while recognizing the tentative nature of scientific knowledge
- Work effectively, independently and cooperatively
- Pursue career objectives that make use of the baccalaureate degree.

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 CREDENTIAL

The Bachelor's Degree in Chemistry may be effectively combined with subject matter studies necessary for the Single Subject Teaching Credential in science. Science teachers are in great demand, and candidates may qualify for scholarships and paid teaching internships while completing their credential. Undergraduates are encouraged to contact the Center for Careers in Teaching (657-278-7130, www.fullerton.edu/cct) and the Science Education Programs Office (657-278-2307, http://nsm.fullerton.edu/scied/) for early advisement and to plan efficient course selections for general education, the major and credential program coursework. Postbaccalaureate and graduate students should contact the Science Education Programs Office (657-278-2307 or http://nsm.fullerton.edu/scied/). Additional information is found under Science Education Programs in the University Catalog as well as at http://mast.wikispaces.com.

BACHELOR OF SCIENCE IN BIOCHEMISTRY

The Bachelor of Science 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, pharmacy and health science schools. Students who complete this program and include Inorganic 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 Courses (48 units)

Chemistry 120A,B General Chemistry (10)

Chemistry 210 Computational Tools for Chemical Sciences (1)*

Chemistry 301A,B Organic Chemistry (6)

Chemistry 302 Organic Chemistry Laboratory (2)
OR Chemistry 306A Organic Chemistry Laboratory (2)

Chemistry 315 Theory of Quantitative Chemistry (3)

Chemistry 316 Quantitative Chemistry Laboratory (1)

Chemistry 340 Writing for the Chemical Sciences (3)
OR English 301 Advanced College Writing (3)
OR English 360 Scientific and Technical Writing (3)

Chemistry 361A,B Introduction to Physical Chemistry (6)
OR Chemistry 371A,B Physical Chemistry (6)

Chemistry 390 Career Options in Chemistry and Biochemistry (1)

Chemistry 410A Introduction to Computational Genomics (1)

Chemistry 423A,B General Biochemistry (6)

Chemistry 422 Biochemistry Laboratory (2)

Chemistry 477 Advances in Biotechnology (3)

Chemistry 495/499 Senior Research/Independent Study (3)

* Students who pass Multivariable Calculus (Math 250A, 4 units) are exempt from Chemistry 210.

Related Courses (26 units)

Physics 211, 212 Elementary Physics (6)

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

Math 150A,B Calculus (8)

Biology 172 Cellular Basis of Life (5)

Biology 273 Genetics and Molecular Biology (5)

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 Courses (48 units)

Chemistry 120A,B General Chemistry (10)

Chemistry 210 Computational Tools for Chemical Sciences (1)*
OR (for students electing Environmental Chemistry Emphasis)
Math 338 Statistics Applied to Natural Sciences (4 units)

Chemistry 301A,B Organic Chemistry (6)

Chemistry 306A,B Organic Chemistry Laboratory (4)

Chemistry 315 Theory of Quantitative Chemistry (3)

Chemistry 316 Quantitative Chemistry Laboratory (1)

Chemistry 325 Inorganic Chemistry (3)

Chemistry 340 Writing for the Chemical Sciences (3)
OR English 301 Advanced College Writing (3)
OR English 360 Scientific and Technical Writing (3)

Chemistry 355 Physical Chemistry Laboratory (3)

Chemistry 371A,B Physical Chemistry (6)

Chemistry 390 Careers in Chemistry and Biochemistry (1)

Chemistry 410C Introduction to Computational Chemistry (1)

Chemistry 495/499 Senior Research/Independent Study (3)

Upper-division elective (3)

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*Students who pass Multivariable Calculus (Math 250A, 4 units) are exempt from Chemistry 210.

Related Courses (25 units)

Physics 225, 226, 227 Fundamental Physics (7)

Physics 225L, 226L Fundamental Physics Laboratory (2)

Math 150A,B Calculus (8)

Math 250A Multivariate Calculus (4)

Math 250B Linear Algebra and Differential Equations (4)

Note: For students planning to pursue a graduate degree, Physics 227L (1 unit) is highly recommended.

Career Breadth (9)

Note: Career Breadth requirements is satisfied by taking 9 units of upper-division coursework directly related to the student's career plans in chemistry and approved by the undergraduate adviser.

BACHELOR OF ARTS IN CHEMISTRY

The Bachelor of Arts in Chemistry degree 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, science writing, chemical patent law and forensic sciences. The B.A. in Chemistry requires 45 units of Chemistry courses, and 16 units of related courses.

Basic Courses (45 units)

Chemistry 120A,B General Chemistry (10)

Chemistry 210 Computational Tools for Chemical Sciences (1)*

Chemistry 301A,B Organic Chemistry (6)

Chemistry 306 A,B Organic Chemistry Laboratory (4)

Chemistry 315 Theory of Quantitative Chemistry (3)

Chemistry 316 Quantitative Chemistry Laboratory (1)

Chemistry 325 Inorganic Chemistry (3)

Chemistry 340 Writing for the Chemical Sciences (3)
OR English 301 Advanced College Writing (3)
OR English 360 Scientific and Technical Writing (3)

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

Chemistry 390 Career Options in Chemistry (1)

Chemistry 410C Introduction to Computational Chemistry (1)

Chemistry 411 A,B,C or G Instrumental Analysis (1)

Chemistry 421 Biological Chemistry (3)

Chemistry 495/499 Senior Research/Independent Study (2)

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*Students who pass Multivariable Calculus (Math 250A, 4 units) are exempt from Chemistry 210.

Related Courses (16 units)

Physics 211, 212 Elementary Physics (6)

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

Math 150A,B Calculus (8)

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

The 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 Minor in Chemistry 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 their 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)

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

Chemistry 477 Advances in Biotechnology (3)

Biology 412 Principles of Gene Manipulation (3)

EMPHASIS IN ENVIRONMENTAL CHEMISTRY

This emphasis provides a concentration in chemistry with respect to the environment. The coursework 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 435 Chemistry of Hazardous Materials (3)

Chemistry 436 Atmospheric Chemistry (3)

Chemistry 437 Environmental Water Chemistry (3)

Chemistry 438 Environmental Biochemistry (3)

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

Chemistry 411A Optical Spectroscopy (1)

Chemistry 411C Separations (1)

Chemistry 411G Mass Spectrometry (1)

Math 338 Statistics Applied to the Natural Sciences (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 657-278-5637 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
2. At least a 2.75 GPA in science courses
3. For students holding undergraduate degrees from non-U.S.-accredited institutions, the GRE subject examination (Chemistry or Biochemistry), with scores reported to the department.

Application Deadlines

The deadlines for completing online applications are March 1 for the fall semester and Oct. 1 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.

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 the appropriate courses with a grade of "B" (3.0) or better. 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, organic, biochemistry, as well as either physical or biology.

A student may take each placement examination two times within the first year of enrolling in the graduate program. A student who does not pass the placement examinations within the first year 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 coursework completed with a minimum grade of "B" in all coursework 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.

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 nonscience 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)

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).

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 (5)

Prerequisites: Intermediate algebra with a grade of "C" (2.0) or better. One year of high school chemistry or a passing score on the placement test for general chemistry or completion of introductory general chemistry (Chemistry 115 or equivalent) with a "C" (2.0) or better strongly advised. 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 activity)

210 Computational Tools for Chemical Sciences (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 (G.E.) 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 G.E. 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 G.E. 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 G.E. 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 G.E. 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 G.E. 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. Corequisite: 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. 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. 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)

(Same as Biology 472A)

472B Advances in Biotechnology Laboratory (3)

Prerequisite: Biology/Chemistry 472A. Second semester exploring biotechnology techniques for gene product analysis: DNA sequencing, site-directed mutagenesis, predicting amino acid changes, protein overproduction, enzyme function assays, protein identification/preparation by gel techniques, immunoblotting. (1 hour discussion, 6 hours laboratory) (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, or substituted for Chem 495, with permission. 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 (6 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.

542 Nucleic Acid Biochemistry (3)

Prerequisites: Chemistry 423A and B, or equivalent, and a biochemistry lab course (Chemistry 422 or equivalent). The course covers biochemistry of nucleic acids in living systems at the molecular level. Advances and techniques used in nucleic acid research are also covered. A strong emphasis is placed on critical reading, analysis, and presentation of primary literature.

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 biosynthetic 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.

Chicana and Chicano Studies

College of Humanities and Social Sciences

INTRODUCTION

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

Great Credentials

The department has 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.

Outstanding Faculty

Our faculty members are internationally recognized scholars who 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 secondary school teaching (7-12). Undergraduate majors are encouraged to work closely with the CSUF Center for Careers in Teaching at 657-278-7130. Working closely and collaboratively with the center will help speed majors toward obtaining their credentials in a straightforward and efficient manner. With careful planning, it may be possible to enter 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 657-278-3352 to obtain information on attending an overview presentation.

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,

ADVISERS
All full-time faculty

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, law officers, community organizers, and work in various local, state and federal agencies. Alumni have also gone 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 students learn more about the extraordinary opportunities that await them as a Chicana/o Studies major at California State University, Fullerton.

BACHELOR OF ARTS IN ETHNIC STUDIES OPTION IN CHICANO STUDIES

The Bachelor 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)

Chicana/o 106 Intro to Chicano Studies (3)

Chicana/o 220 Mexican Heritage (3)

30 Additional Units

Required Courses (9 units), 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)

Upper-Division Writing Requirement (3 units)

Chicana/o 307 Research and Writing in Ethnic Studies (3)

OR English 301 Advanced College Writing (3)

Electives (18 units minimum)

Courses to be selected from remaining Chicana/o Studies curriculum, of which only six units maximum of lower-division elective courses may apply.

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 coursework in lower- and upper-division classes that are selected in consultation with the department 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)

Basic communication skills, including oral and written expression. A unit on the mechanics of writing and reporting on a term paper is included as part of the course.

106 Introduction to Chicano Studies (3)

Prerequisite: completion of General Education (G.E.) Category III.C.1. Role of the Chicano in the United States. The Chicano's cultural values, social organization, urbanization patterns, and the problems in the areas of education, politics and legislation. One or more sections offered online.

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. Fulfills Title V, Statutory Requirements.)

220 Mexican Heritage (3)

Basic characteristics of the Mexican, especially the Chicano, society and culture from 1519 to present. Emphasizes arts, literature and history of Mexico and the Chicano in the United States.

302 Ancient Mexican Culture (3)

Historical and cultural survey of principal pre-Columbian cultures of Mexico and their significance to Mexican society.

303 Cultural Differences in Mexico and the Southwest (3)

Prerequisite: completion of G.E. Category III.C.1. Cultural conflicts in Mexico and the Southwest as seen by the intellectual 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's development as an American social institution. Historical, cross-cultural perspectives, and the social and psychological dynamics of the Chicano family are discussed.

306 Barrio Studies (3)

Prerequisite: Chicana/o Studies 220. Major characteristics of the barrio. Supervised fieldwork in the barrio is required. Analysis of the barrio or an agency within the barrio 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 G.E. Category III.C.1. Cultural influences that the family, religion, economic status and community play upon the lifestyles, values and roles held by Chicanas. One or more sections offered online. (Same as Women's Studies 313)

315 Chicano/Latino Theater (3)

Prerequisite: completion of G.E. Category III.B.1. or III.B.2. Analysis of contemporary Chicano/Latino theater in relation to its historical evolution. Emphasizes 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 of Mexico. Pre-Cortesian period to the present in Mexico and Southwestern United States.

330 The Evolution of Mexican Literature (3)

Prerequisite: completion of the G.E. Category III.B.2. Survey and analysis of the Nahautl, Mexican and Chicano literature from pre-Columbian period to present.

331 The Chicano Child (3)

Prerequisite: completion of G.E. Category III.C.1. The Chicano child from preschool through grade six. Emphasizes motor, physical, social, intellectual, emotional growth and development and their effect on school adjustment and achievement. Field observation of preschool and grade school children required.

332 The Chicano Adolescent (3)

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

333 Mexican Literature Since 1940 (3)

Literature of Mexico since 1940: Carlos Fuentes, Rodolfo Usigli, Xavier Villarrutia, Juan Jose Arreola, Octavio Paz, Laura Esquivel and Juan Rulfo. Other contemporary authors may be included.

336 Main Trends in Spanish-American Literature (3)

Main currents of Spanish-American literature emphasizing contemporary works. Relation between the artistic expression and the ideological values of the period.

337 Contemporary Chicano Literature (3)

Prerequisite: Chicana/o Studies 106 or 220. Modern Chicano writers in the United States: Alurista, Corky Gonzales, Octavio Romano, El Teatro Campesino and major Chicano magazines and newspapers. Other contemporary writers may be included.

340 Mexican/Chicano Intellectual Thought (3)

Prerequisite: completion of G.E. Category III.B.2. Emergence of the Chicano movement dealing with political, economic and sociological facets. Writings 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 G.E. 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 G.E. Category III.C.1. 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)

Relationship between Chicanos and the legal and judicial system, including the administration of justice, Chicano-police relations and prison system.

367 Latino/a Spirituality and Religion (3)

(Same as Comparative Religion 367)

450 The Chicano and Contemporary Issues (3)

Socioeconomic and political problems confronting the Chicano, including proposed solutions. 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 study independently under the guidance of the faculty on a subject of special interest and approved by instructor.

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. The major also prepares students for graduate study in disciplines such as child development, counseling, developmental psychology and social work.

LEARNING GOALS AND STUDENT LEARNING OUTCOMES

The following goals and learning outcomes have been established for students pursuing a degree in Child and Adolescent Development:

Understanding of theories, concepts and research findings

- Describe and/or explain relevant theories, concepts and related research findings
- Differentiate typical from atypical development
- Describe individual, cultural and environmental differences
- Identify the purpose and structure of community and government systems

Information literacy and research analysis skills

- Identify, access, analyze and synthesize relevant sources
- Critically analyze research studies

Communication skills

- Write in APA style and effectively take purpose and audience into account
- Make effective oral presentations, taking purpose and audience into account

DEPARTMENT CHAIR

Kari Knutson Miller, Ph.D.

DEPARTMENT OFFICE

Education Classroom 105

DEPARTMENT WEBSITE

http://hhd.fullerton.edu/cas

PROGRAMS OFFERED

Bachelor of Science in Child and Adolescent Development

Options in:

- Early Childhood Development
- Elementary School Settings
- Adolescent/Youth Development
- Family and Community Contexts

Minor in Child and Adolescent Development

FACULTY

Katherine Bono, Ioakim Boutakidis, Nathalie Carrick, Jacqueline Coffman, Leslie Grier, Diana Wright Guerin, Leigh Hobson, Janna Kim, Kari Knutson Miller, Pamella Oliver, James Rodriguez, Mark Runco, Sharon Seidman, Sharon Willmer, Shelli Wynants, Shu-Chen Yen

Professional, ethical and reflective practice with diverse populations

- Apply theories, concepts and research findings to promote child well-being
- Identify relevant ethical and legal issues and the impact of possible actions in real-world situations

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 degree in Child and Adolescent Development requires the successful completion of a minimum of 51 units in the major. The Child and Adolescent Development major consists of a 9-unit basic core completed by all majors and 42 units in one of the following four options: (1) Early Childhood Development, (2) Elementary School Settings, (3) Adolescent/Youth Development, and (4) Family and Community Contexts. The option will be posted on students' transcripts following the successful completion of required coursework.

A grade of "C" (2.0) or better is required in all courses applied to the major. Course prerequisites are strictly enforced.

Basic Core Courses (9 units)

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

Child/Adolescent Studies 201 Child, Family and Community (3)

Special Ed 371 Exceptional Individual (3)

BACHELOR OF SCIENCE IN CHILD AND ADOLESCENT DEVELOPMENT: OPTION IN EARLY CHILDHOOD DEVELOPMENT (42 UNITS)

The option in Early Childhood Development is designed for students pursuing careers working with young children and their families. In keeping with the National Association for the Education of Young Children's professional standards for bachelor's programs and the education requirements of the California Child Development Permit Matrix, the coursework emphasizes children's early development and learning; strategies to engage in developmentally appropriate practices; creation of early childhood environments rich in language, literacy, and other foundational skills; observation and assessment of young children and their environments; and effective work with diverse populations.

Option-Specific Core Courses (18 units)

Child/Adolescent Studies 215 Observations in Early Childhood Settings (3)

Child/Adolescent Studies 305 Advanced Assessment in Early Childhood (3)

Child/Adolescent Studies 321 Infant/Toddler Development (3)

Child/Adolescent Studies 322 Preschool-Age Development (3)

Child/Adolescent Studies 323 Primary-Age Development (3)

Child/Adolescent Studies 491 Leadership Seminar in Early Childhood (3)

Practicum Courses (6 units)

Child/Adolescent Studies 140/L Introduction to Early Childhood//Practicum (3)

Child/Adolescent Studies 464/L Practicum Seminar/Practicum in Early Care and Education (3)

Topical Developmental Courses (18 units)

Child/Adolescent Studies 341 Working with Parents of Young Children (3)

Child/Adolescent Studies 346 Modern Culture and Early Childhood (3)

Nursing 306 Health and Safety for Early Childhood (3)

Special Ed 400 Early Childhood Special Education (3)

And one class from each cluster

1. Language and Literacy: CAS 351 Language and Literacy Development in Early Childhood (3), READ 340 Promoting Language and Literacy Readiness in Young Children – Reading (3), or SPED 436 Literacy for Early Childhood Special Education Specialists (3)
2. Curriculum: CAS 352 Numeracy and Science in Early Childhood (3), CAS 353 Learning and Motivation in Early Childhood (3), ART 380 Art and Child Development (3), BIOL 453 Life Science Concepts (3) , GEOL 410 Physical Earth/Space Systems (3), MUS 433 Music in Childhood (3), or approved alternate.

BACHELOR OF SCIENCE IN CHILD AND ADOLESCENT DEVELOPMENT: OPTION IN ELEMENTARY SCHOOL SETTINGS (42 UNITS)

The option in Elementary School Settings (ESS) is designed for students interested in teaching at the elementary school level and emphasizes an understanding of cognitive, physical, and socio-emotional development, subject-matter knowledge, and consideration of pedagogical strategies and programs that promote academic achievement as well as other positive developmental outcomes for elementary school children.

Option-Specific Core Courses (18 units)

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 Age 8 (3)

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

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

Fieldwork Courses (6 units)

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

Child/Adolescent Studies 474/L Practicum Seminar/Practicum in Development in School Settings (3)

Topical Developmental Courses (18 units)

One class from each cluster:

1. Arts: ART 380 Art and Child Development (3), DANC 471 Creative Dance for Children (3), MUSC 433 Music in Childhood (3), THTR 402A Dramatic Activities for Children (3)
2. Kinesiology: KNES 386 Movement and the Child (3)
3. Language Arts: ENGL 341 Children's Literature (3) or THTR 311 Oral Interpretation of Children's Literature (3)
4. Math: MATH 303A Fundamental Concepts of Elementary Mathematics (3)
5. Science: BIOL 453 Life Science Concepts (3) or GEOL 410 Physical Earth/Space Systems (3)
6. Developmental Elective: CAS 326 Optimizing Development of School Age Children (3), CAS 340 Parenting in the 21st Century (3), CAS 345 Child and Adolescent Development in Diverse Family Contexts (3), or 2nd CAS 490T Topical Senior Seminar (3)

MULTIPLE SUBJECT TEACHING CREDENTIAL PREPARATION

A Multiple Subject 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.

BACHELOR OF SCIENCE IN CHILD AND ADOLESCENT DEVELOPMENT: OPTION IN ADOLESCENT/YOUTH DEVELOPMENT (42 UNITS)

The option in Adolescent/Youth Development (AYD) provides advanced understanding of cognitive, physical and socio-emotional development during the adolescent age period. It is designed for students who intend to work with youth in community-based settings and/or to pursue graduate studies related to adolescent development.

Option-Specific Core Courses (18 units)

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 Age 8 (3)

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

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

Fieldwork Courses (6 units)

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

Child/Adolescent Studies 484/L Practicum Seminar/Practicum in Adolescent and Youth Services (3)
OR Child/Adolescent Studies 494/L Practicum Seminar/ Practicum in Youth and Families in Community Settings (3)

Topical Developmental Courses (18 units)

One class from each cluster:

1. Family and Parenting: CAS 340 Parenting in the 21st Century (3) or CAS 345 Child and Adolescent Development in Diverse Family Contexts (3)
2. Interpersonal Issues: HCOM 220 Interpersonal Conflict Management (3) or SOCI 341 Social Interaction (3)
3. Recreation and Health: CAS 360 Adolescents and the Media (3) or KNES 387 Movement and the Adolescent (3)
4. Diversity and Identity: CHIC 332 The Chicano Adolescent (3), EDSC 340 Diversity in Secondary Schools (3), or SOCI 354 Gender, Sex and Society (3)
5. Adolescents at Risk: CAS 365 Adolescent Pregnancy and Parenting (3), CAS 490T At-Risk Adolescents (3), CRJU 425 Juvenile Justice Administration (3), CRJU 455 Gangs and the Criminal Justice System (3), HESC 321 Drugs and Society (3), or SOCI 413 Juvenile Delinquency (3)

6. Program Planning and Evaluation/Statistics. HUSR 385 Program Design and Proposal Writing (3), POSC 320 Introduction to Public Management and Policy (3), PSYC 201 Elementary Statistics (3), or SOCI 303 Statistics for the Social Sciences (3)

BACHELOR OF SCIENCE IN CHILD AND ADOLESCENT DEVELOPMENT: OPTION IN FAMILY AND COMMUNITY CONTEXTS (42 UNITS)

The option Family and Community Contexts (FCC) is designed for students planning to work with children, adolescents, and their families in community-based settings and/or preparing for graduate studies in human/child development, counseling, social work or related fields.

Option-Specific Core Courses (18 units)

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 Age 8 (3)

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

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

Fieldwork Courses (6 units)

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

Child/Adolescent Studies 494/L Practicum Seminar/Practicum in Youth and Families in Community Settings (3)

Topical Developmental Courses (18 units)

One class from each cluster:

1. Abnormal Behavior. PSYC 341 Abnormal Psychology (3) or SOCI 466 Deviant Behavior (3)
2. At-Risk Issues. CAS 365 Adolescent Pregnancy and Parenting (3), HESC 321 Drugs and Society (3), HUSR 415 Treatment Issues in Drug Addiction (3), HUSR 430 Child Abuse and the Human Services (3), SOCI 385 Family Violence (3), or SOCI 408 Sexual Abuse in American Society (3)
3. Biology. BIOL/KNES 210 Human Anatomy and Physiology, BIOL 305 Human Heredity and Development (3), or PSYC 306 Biopsychology (3)
4. Family Systems. CAS 340 Parenting in the 21st Century (3), CAS 345 Child and Adolescent Development in Diverse Family Contexts (3), or SOCI 351 Sociology of Families (3)
5. Measurement/Statistics. PSYC 201 Elementary Statistics (3) or SOCI 303 Statistics for the Social Sciences (3)
6. Theoretical Perspectives. HUSR/COUN 380 Theories and Techniques of Counseling (3), HCOM 407 Language Development for Educators (3), PSYC 431 Theories of Personality (3), PSYC 481 Survey of Clinical Psychology (3), or SOCI 300 Social Work (3)

MINOR IN CHILD AND ADOLESCENT DEVELOPMENT

A minor in Child and Adolescent Development requires 21 units. A minimum of 12 units of coursework for the minor must be distinct from coursework that is applied to the student's major. No more than 6 units of lower-division coursework may be applied to the minor.

Core Courses (9 units)

One developmental survey course (3)

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

Child/Adolescent Studies 312 Human Growth and Development (3)

Child/Adolescent Studies 315 Child Development (3)

One developmental context course (3)

Child/Adolescent Studies 201 Introduction to Child, Family, and Community (3)

One developmental depth course (3)

Child/Adolescent Studies 321 Infant/Toddler Development (3)

Child/Adolescent Studies 326 Optimizing development of School Aged Children (3)

Child/Adolescent Studies 330 Adolescence and Early Adulthood (3)
OR approved alternate

Research Methods (3 units)

Child/Adolescent Studies 301 Inquiry and Methodology in Development (3)
OR CAS 305 Advanced Assessment in Early Childhood (3)
OR approved alternate

Electives (9 units)

Nine units selected in consultation with department adviser.
May include CAS 394/L Practicum Seminar/Practicum in Child and Adolescent Development (3)

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.

140 Introduction to Early Childhood (2)
Prerequisite: concurrent enrollment in Child/Adolescent Studies 140L. Learn about and plan developmentally appropriate activities in early childhood settings for children ages 0-8 and their families.

140L Introduction to Early Childhood Practicum (1)

Prerequisite: concurrent enrollment in Child/Adolescent Studies 140. First of a year-long practicum sequence for Child and Adolescent Development majors pursuing the Early Childhood Development Option. How to implement developmentally appropriate activities in early childhood settings. Minimum of four hours per week for a total of 60 hours required for the semester. Credit/no credit grade option only.

141 Intermediate Seminar in Early Childhood (2)

Prerequisites: Child/Adolescent Studies 140, 140L. Corequisite, 141L. Builds on an introductory practicum as students learn about and plan developmentally appropriate activities to early childhood settings for children 0-8 and their families.

141L Intermediate Practicum Early Childhood (1)

Prerequisites: Child/Adolescent Studies 140, 140L. Corequisite, 141. Supervised field experience in early childhood setting for children 0-8 and their families. Implementation of developmentally appropriate activities. Minimum of four hours per week for a total of 60 hours required for the semester. Credit/no credit grade option only.

201 Child, Family and Community (3)

Overview of interpersonal relationships between child, family and community members; the interaction among systems, influences of age, gender, diverse abilities, culture, race, ethnicity, socio-economic and public policy factors, and community resources available to support family systems.

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.

215 Observations in Early Childhood Settings (3)

Prerequisite: Child/Adolescent Studies 101. Introduces the appropriate application and limits of a variety of observation methods for use with young children and in early childhood settings; several assessment tools will be studied. Hands-on observations will focus on children, interactions, and environments.

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)

305 Advanced Assessment in Early Childhood (3)

Prerequisite: Child/Adolescent Studies 101. Facilitates student understanding of relevant literature, observation and assessment strategies, research design and data analysis as relevant to young children. Effective oral and written communication for diverse audiences found in early childhood settings.

310 Assessing and Observing Development (3)

Prerequisites: Child/Adolescent Studies 101, 201, 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 offered online.

315 Child Development (3)

Prerequisite: completion of the General Education (G. E.) Category III.C.1. Major concepts, principles, theories and research related to cognitive, linguistic, social, emotional and physical development from birth through adolescence; emphasizes developmentally appropriate practices.

321 Infant and Toddler Development (3)

Prerequisite: Child/Adolescent Studies 101. Normative and atypical physical, social, emotional and cognitive development for children 0-3 years of age and implications of infant and toddler child care services with an emphasis on developmentally appropriate practices.

322 Preschool-Age Development (3)

Prerequisites: Child/Adolescent Studies 101, 321. Normative and atypical physical, social, emotional and cognitive development for children 3-6 years of age and implications on child care services provided for preschool-aged children with an emphasis on developmentally appropriate practices.

323 Primary-Age Development (3)

Prerequisite: Child/Adolescent Studies 322. Normative and atypical physical, social, emotional and cognitive development for primary-aged children and implications of after-school program services with an emphasis on developmentally appropriate practices.

325A Conception through Age 8 (3)

Prerequisites: Child/Adolescent Studies 101, 201, 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, 201, 300, 301, 325A. Research, theories and their application to biological/physical, socio-emotional, and cognitive development from age 9 through adolescence.

326 Optimizing Development of School Age Children (3)

Prerequisite: Child/Adolescent Studies 101 or equivalent. Conditions that impact and facilitate development during middle childhood. These include external (e.g., appropriate support and empowerment across various contexts) and internal assets (e.g., social competence and commitment to learning). Highlights strategies that promote development.

330 Adolescence and Early Adulthood (3)

Prerequisite: Psychology 101. 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 G. E. Category III.C.1 course. 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.

341 Working with Parents of Young Children (3)

Prerequisites: Child/Adolescent Studies 305, 321. Responsibilities and influences of diverse family systems, from the transition to parenting through children completing primary grades. Effective collaboration and communication with parents during early childhood years with the goal of optimizing children's development.

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

Prerequisites: Child/Adolescent Studies 300, 301. 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.

346 Modern Culture and Early Childhood (3)

Prerequisites: Child/Adolescent Studies 305, 322. Impact of cultural diversity, media, family practices and related education policies on young children's development, including cognitive and social skills, and the application of the information in early childhood settings.

351 Language and Literacy Development in Early Childhood (3)

Prerequisites: Child/Adolescent Studies 305, 322. Integrates a deep understanding of early language and literacy development with theory, research and practical strategies for facilitating children's mastery of these skills. Developmental norms, individual and cultural variations, and curricular strategies are addressed.

352 Numeracy and Science in Early Childhood (3)

Prerequisites: Child/Adolescent Studies 305, 323. Theory and research on children's scientific inquiry and numeracy development. Integrates science and mathematics in early childhood settings through interdisciplinary thematic units.

353 Learning and Motivation in Early Childhood (3)

Prerequisites: Child/Adolescent Studies 305, 321, 322. Building on the foundation developmental classes, this class examines theory and research on children's learning, cognition and motivation with an emphasis on practical applications in early childhood settings. Developmental norms, individual and cultural variations, and curricular strategies.

360 Adolescents and the Media (3)

Prerequisite: completion of G. E. Category III.C.1. Summarizes current social, cultural and behavioral research on adolescents and mass media. 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 G. E. Category III.C.1. Reviews current knowledge base on adolescent pregnancy and the developmental implications for parent and child. Social, educational and health implications of early parenting, and articulates the resources, skills and supports needed to foster success in parenting.

370 Development of African American Children and Youth (3)

Prerequisite: completion of G. E. Category III.C.1. Understanding cognitive and socio-emotional development of African American children and youth is facilitated through comprehensive examinations of significant African and African American cultural and historical experiences; and social influences including families, schools, socioeconomic status, neighborhoods and American society. (Same as Afro 370)

394 Practicum Seminar in Child and Adolescent Development (2)

Prerequisites: Child/Adolescent Studies 101, 201. 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 four 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 Advanced Practicum Seminar in Early Care and Education (2)

Prerequisites: Child/Adolescent Studies 101, 140, 140L, 201, 215, 305, 321, 322 . 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, including adult supervision.

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 four 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)

Prerequisites: Child/Adolescent Studies 101, 201, 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 four 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, 201, 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 four 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, 201, 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.

491 Leadership Seminar in Early Childhood (3)

Prerequisites: Child/Adolescent Studies 305, 323, 346, 351, 352, 353. Capstone course examining leadership, assessment and funding for early childhood programs. Prepares students to use their knowledge of data, theory and literature to promote the well-being of young children and families through advocacy, fundraising and professional activities.

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

Prerequisites: Child/Adolescent Studies 101, 201, 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 four 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 three total units of credit. Only three 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 nine units of credit. Only six units may be taken in a single semester.

Civil and Environmental Engineering

College of Engineering and Computer Science

DEPARTMENT CHAIR
M. Prasada Rao

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, Uksun Kim, Jeff Kuo, George Lin, Mallela Prasada Rao, Chandrasekhar Putcha, Binod Tiwari

ADVISERS
Undergraduate advisers:
Pinaki R. Chakrabarti
M. P. Prasada Rao, Uksun Kim, Binod Tiwari
Graduate adviser:
Pinaki R. Chakrabarti

MISSION, VISION, PROGRAM EDUCATIONAL OBJECTIVES AND OUTCOMES OF THE CIVIL AND ENVIRONMENTAL DEPARTMENT

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

Program Educational Objectives

1. Technical Growth: Graduates will be successful in modern engineering practice, integrate into the local and global workforce, and contribute to the economy of California and the nation.
2. Professional Skills: Graduates will continue to demonstrate the professional skills necessary to be competent employees, assume leadership roles, and enjoy career success and satisfaction.
3. Professional Attitude and Citizenship: Graduates will become productive citizens with high ethical and professional standards, make sound engineering or managerial decisions, and have enthusiasm for the profession and professional growth.

Program Outcomes

After completing the Civil engineering program, graduates should have the following attributes:

1. An ability to apply knowledge of mathematics, science and engineering to design and conduct experiments as well as to analyze and interpret data
2. An ability to design a multidisciplinary system, component or process to meet the desired needs
3. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice

4. An ability to communicate effectively, have knowledge of contemporary issues and be able to recognize the need for engaging in life long learning

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 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, often 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 owner of the project.

"Engineering Mechanics" courses offered in this area 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 architects and engineers, or to work on his own in designing structures that combine strength and beauty.

"Construction engineering and management" is a wide-ranging specialization that uses technical and management skills to plan and build public and private projects and manage 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 and globally sensitive problems.

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

High School Preparation

The entering freshman's preparation should include two years of algebra, geometry, trigonometry, and one year of physics or chemistry. Students deficient in mathematics or chemistry must take special preparatory courses, 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 Bachelor of Science in Civil Engineering is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700. The undergraduate program requirements for the Bachelor of Science in Civil Engineering comprise 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 elective courses.

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 (grade Option 1). All mathematics and physical science courses required for the degree must be completed with at least a "C-" (1.7) grade, except Math 150A, which must be completed with at least a "C" (2.0) grade, to count towards the degree. Graduate courses are not open to undergraduate students without approval of the program coordinator.

Mathematics and Science Courses (34)

Biology 101 Elements of Biology (3)

Chemistry 115 Introductory General Chemistry (4)

Mathematics 150A Calculus (4)

Mathematics 150B Calculus (4)

Mathematics 250A Multivariate Calculus (4)

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

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

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

EGCE 308 Engineering Analysis (3)

Introductory Engineering Courses (9)

EGCE 201 Statics (3)

EGCE 302 Dynamics (3)

EGEE 401 Engineering Economics and Professionalism (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. 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)

CIVIL ENGINEERING

Mathematics and Science Courses (34 units)

Introductory Engineering Courses (9 units)

Civil Engineering Core Courses (42 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 Analysis and Design in Civil Engineering (3)

EGCE 441 Environmental Engineering (3)

EGCE 468 Engineering Construction (3)

EGCE 494 Design of Civil Engineering Structures (3)**

EGCE 494L Civil Engineering Structural Laboratory (1)**

**Corequisites.

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 481 Solid Waste Technology and Management (3)

EGCE 482 Liquid Waste Technology and Management (3)

EGCE 493 Structural Systems Emphasis on Highrise Structures (3)

EGCE 497 Senior Projects (1-6)

EGCE 499 Independent Study (1-6)

Chemistry 125 General Chemistry for Engineers (3)*

EGEE 203 Electric Circuits (3)*

EGME 304 Thermodynamics (3)*

Geological Sciences 376 Engineering Geology (3)*

* Need chair approval.

CIVIL ENGINEERING WITH ARCHITECTURAL ENGINEERING EMPHASIS

Students wishing to earn an Architectural Engineering Emphasis must fulfill the requirements for the Bachelor of Science in Civil Engineering, in addition to the following:

EGCE 496 Architectural Design (3)

EGCE 463 Precast and Prestressed Concrete Design (3)

AND/OR EGCE 493 Structural Systems for Buildings (3)

Plus five to eight units from: EGCE 411, 431L, 435, 436, 463, 463L, 465, 466, 481, 482, 497, 499, Chemistry 125*, EGEE 203*, EGME 304*, Geological Sciences 376*

* Need chair approval.

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 Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700
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 chair 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 should refer to the Admission Requirements section of this catalog for additional international student requirements..

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

Application Deadlines

Refer to: www.fullerton.edu/ecs for application information.

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 "B-"(2.7) or better. Students must complete all deficiency courses before starting graduate courses (unless approved by the chair)
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 to prepare a study plan that must be approved by the department chair 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 that is equivalent to a course satisfying the CSUF Upper-Division Writing Requirement. Equivalency must be certified by the department chair
   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 chair. A grade of "C" (2.0) or better is required

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).

Course Tracks (15 units)

Students are required to select a minimum of 15 units in Civil Engineering. These units may be 400- (subject to approval by the department chair) and 500-level courses and are selected according to each student's area of interest. Coursework may focus on the following areas: Engineering Mechanics; Geo-technical Engineering; Hydraulics/ Hydrology; Structural Engineering; and Construction Engineering and Management. Upon graduation, students will receive a Masters degree in Civil Engineering. Environmental Engineering track students will receive a Masters degree in Civil Engineering with a concentration in Environmental Engineering.

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
2. EGCE 598 Thesis
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. Completing study plan coursework with a minimum overall GPA of 3.0
3. Successfully completing 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 and Management (3)

EGCE 482 Liquid Waste Technology and 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.

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 measuring 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: 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. 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 and 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. 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)

(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. Footings and retaining walls design. 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 measuring 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 Analysis and Design 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 controlling 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. Designing 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. (2 hours lecture and 3 hours laboratory)

463L Precast and Prestressed Concrete Design Lab (1)

Prerequisites: EGCE 408 and EGCE 463 or equivalent. Behavior of prestressed and reinforced concrete members subjected to the different types of loadings. Observing elastic and ultimate strength behavior, deflection crack propagation and collapse. Observing 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.

493 Structural Systems Emphasis on Highrise Structures (3)

Prerequisite: EGCE 408 or 430. Corequisite: EGCE 418. Structural concepts and systems for buildings and complex structures and their behavior under loads. Roof, floor, wall systems. Characteristics and design concepts of complex structures and highrise buildings. Design project. Latest building codes and computer application. Sustainability and green building. (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. Applying 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. Formulating finite elements for analyzing plane stress and strain problems, axisymmetric bodies, plates and shells. Conforming and nonconforming 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. 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. Comparing 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 constructing 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 constructing foundations, highways, airfields, bridges, ports, harbors, dams, nuclear power plants and industrial facilities. Quality control and construction failures.

539 Preconstruction Design Evaluation (3)

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

546 Coastal Pollution Engineering (3)

Prerequisite: 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)

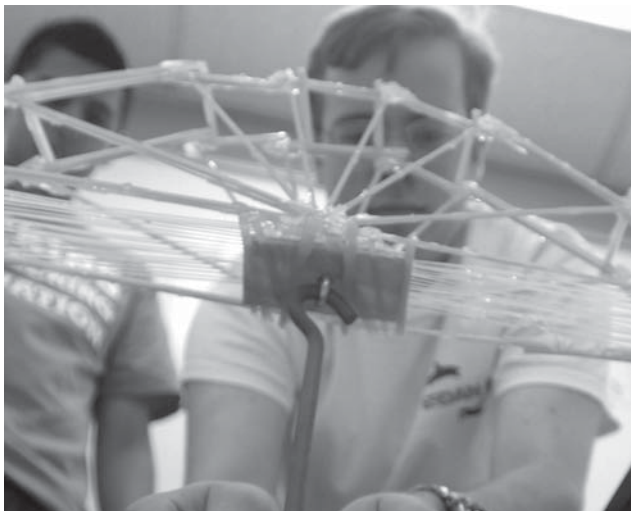
Prerequisite: EGCE 465 or equivalent. Management and cost control of large capital projects. Capital cost estimation, value prediction and control, cost and schedule control and management of mega projects.

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, developing required environmental 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. Designing 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. Selecting, optimizing and analyzing 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)

Prerequisite: EGCE 441. Formation and control of air pollutants. Provides a strong foundation for designing and developing 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.

Communications

College of Communications

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
- Concentrations:
  - Professional Communications
  - Mass Communications Research and Theory

FACULTY

Carol Ames, Assaf Avni, Genelle Belmas, Jeff Brody, Pamela Caldwell, Thomas Clanin, Carolyn Coal, David DeVries, Beth Evans, Olan Farnall, Tony Fellow, Brent Foster, Dennis Gaschen, xtine Burrough, 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
- 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 coursework 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 coursework to be sure they meet these requirements.

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

1. An average based on all units attempted, including those attempted at other institutions
2. An average based on all units attempted at CSUF
3. 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 coursework:

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 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 coursework 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, industry trends and practices, and the social implications of entertainment and tourism. The concentration is designed to prepare students for career opportunities in entertainment communication and management in a growing range of sectors in the entertainment industry and communication field.

Communications 101 Writing for Mass Media (3)

Communications 346 Introduction to Entertainment and Tourism 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*, 436, 447, 448T, 465, 497T

*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 to: (1) provide experience in writing various types of news stories, and to develop skills in reporting and news gathering techniques; (2) develop critical acumen necessary to check news stories for accuracy and correctness; (3) develop skills in graphics or photography that complement the journalistic writing skills; (4) provide actual on-the-job experience by working on the campus newspaper and through an internship; and (5) 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, 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 Visual Reporting (3)

Communications 380 Interactive Media Design (3)

Communications 409 Advanced Visual Reporting (3)

Communications 471 News Media Production (3)

Plus six units from: Communications 332, 380, 436, 438T

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 Visual Reporting (3)

Communications 321 Studio Photography (3)

Communications 495 Mass Media Internship (3)

Plus six units from:

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

Plus one of the following:

Communications 301, 334 or 362

PUBLIC RELATIONS CONCENTRATION

The 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, 471

Plus three (3) units from:

Communications 410*, 465, 467, 468, 469 or 497T

Plus three (3) units from:

Communications 317, 346, 350, 358, 363, 380, 410*, 434, 437, 446, 465, 467, 468, 469 or 497T.

*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 coursework 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, 436, 438T or 471. Students must earn a "C" (2.0) or better in the course that 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, 353

Recommended: Communications 358

Entertainment Studies

Required: Communications 346, 446

Journalism

Required: Communications 471 or 372

Recommended: Communications 334, 335

Photocommunications

Required: Communications 217, 319, 321.

Recommended: Communications 326 or 409.

Public Relations

Required: Communications 361, 362.

Recommended: Communications 358, 363, 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 or broadcast journalism. A stint on the Daily Titan, Communications 471 News Media Production, takes the place of an internship. However, students who plan to pursue 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 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 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 from: Communications 335, 371, 380, 435, 436, 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 from Communications 407, 410, 425, 465, 467, 468, 469, 480, 497T.

MASTER OF ARTS IN COMMUNICATIONS

The Master of Arts in Communications is designed to provide advanced study in communications theory and research, and offers an opportunity to integrate all aspects of the field into a single degree. Students select courses from advertising, entertainment and tourism, journalism, public relations and television-film, as well as related courses outside the department. The program prepares the student to apply advanced communication concepts, research development skills and theories relevant to the use of communications media for a wide variety of purposes.

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. Coursework is highly applicable to a wide range of careers in business, industry, government, education, mass media and entertainment. Graduates who complete the Master of Arts in

Communications are eligible for journalism and communications teaching positions in community colleges.

Students enter one of two concentrations: the M.A. in Communications with a Concentration in Professional Communications or the M.A. in Communications with a Concentration in Mass Communications Research and Theory. The purpose of the Concentration in Professional Communications is to enable student mastery of appropriate knowledge of communications theory and application to support future career objectives. This program is designed for students who want a professional orientation and provides curricular specialization through additional coursework. Students complete the degree through an applied project or comprehensive examinations at the end of their coursework. The purpose of the Concentration in Mass Communications Research and Theory is to develop scholarly research abilities and knowledge of communications theory and application to support future teaching and scholarship objectives. It includes two research methods courses, as well as a proposal, development and oral defense of master's thesis.

Prerequisite Courses

All graduate students need the following prerequisite courses or their equivalents taken at CSUF or another accredited university. Sufficient and appropriate professional experience may be substituted for one or more of these prerequisite courses. Such determinations are made by the graduate coordinator.

- Communications writing (Comm 201, 301, 351 or 362)
- Introductory course in communications or area of specialty (Comm 233, 332, 350 or 361)
- Comm 410, Principles of Communication Research

These prerequisite courses are to be completed before taking graduate coursework to provide the necessary background.

MASTER OF ARTS IN COMMUNICATIONS CONCENTRATION IN MASS COMMUNICATIONS RESEARCH & THEORY

Admission Requirements:

1. Baccalaureate from a four-year accredited institution
2. Minimum undergraduate GPA of 3.0 for last 60 units of study
3. Minimum GRE score to meet university requirements with minimum of 500 on verbal portion
4. If preparatory work was in a language other than English, a minimum TOEFL score of 550 (paper) or 213 (computer) or 79-80 (Internet-based)

The following courses or their equivalents must be completed before undertaking graduate courses:

- Communications Writing (Comm 201, 301, 351 or 362)
- Introductory course in communications or area of specialty (Comm 233, 332, 350 or 361)
- Comm 410 Principles of Communication Research

Note: Undergraduate prerequisite courses must be completed and do not count toward the graduate degree.

University writing requirements must be met as described on the Graduate Studies Web site: http://www.fullerton.edu/graduate/general.htm

A study plan must be filed before the first 9 units of coursework are completed.

MASTER OF ARTS IN COMMUNICATIONS CONCENTRATION IN PROFESSIONAL COMMUNICATIONS

Admission Requirements:

1. Baccalaureate from a four-year accredited institution
2. Minimum undergraduate GPA of 2.75 for last 60 units of study with 3.0 in major
3. Minimum GRE score to meet university requirements with minimum of 500 on verbal portion
4. If preparatory work was in a language other than English, a minimum TOEFL score of 550 (paper) or 213 (computer) or 79-80 (Internet-based)
5. At least one year of professional experience related to the field of communications

The following courses or their equivalents must be completed before undertaking graduate courses:

- Communications Writing (Comm 201, 301, 351 or 362)
- Introductory course in communications or area of specialty (Comm 233, 332, 350 or 361)
- Comm 410 Principles of Communication Research

Note: Undergraduate prerequisite courses must be completed and do not count toward the graduate degree.

University writing requirements must be met as described on the Graduate Studies Web site: http://www.fullerton.edu/graduate/general.htm

A study plan must be filed before the first 9 units of coursework are completed.

Normally, an applicant must meet grade-point average requirements listed above, meet the university requirements, and satisfactorily complete the Graduate Record Examination General Test and TOEFL (if appropriate) 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 at Cal State Fullerton. A resume is required of applicants to the professional concentration. Consult the department graduate program adviser or the department Web site at http://communications.fullerton.edu/graduate/comm. for details regarding additional admission requirements.

Application Deadlines

The deadline for completing online applications: For Fall admission: Feb. 1 of the same year; for Spring admission: Nov. 1 of

the preceding year. 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 coursework. Satisfactory coursework or its equivalent in the following may be taken concurrently with degree requirements if not completed prior to classification:

1. Communications writing (Comm 201, 301, 351 or 362)
2. An introductory course in communications (Comm 233, 332, 350 or 361)
3. Comm 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. A maximum of nine units may comprise 400-level courses appropriate to the student's area of interest.

The candidate must develop a program of study in consultation with Department of Communications graduate adviser. The candidate must plan the thesis (6 units) or project (3 units) with a committee. The committee includes at least two faculty members from the Department of Communications.

Study plan requirements include the following:

CONCENTRATION IN MASS COMMUNICATIONS RESEARCH AND THEORY

Core Courses (9 units)

Comm 500 Theory and Literature of Communications (3)

Comm 508 Humanistic Research in Communications (3)

Comm 509 Social Science Research in communications (3)

Elective Courses (15-21 Units)

A total of 15 units consisting of

- A minimum of 1 unit and maximum of 3 units of Comm 599, Independent Study
- A minimum of 6 units of 500-level courses (including Comm 599) and maximum of nine units of 400-level courses

Note: 400-level courses are optional. All courses may be 500-level. Undergraduate prerequisite courses must be completed and do not count toward the graduate degree.

Graduate students must complete at least one additional assignment beyond that required of undergraduate students in 400-level courses.

Exit Option

Comm 598 Thesis (2 semesters)

Three units of independent work leading to the successful development and oral defense of a thesis proposal, and three units of independent work leading to the successful completion and oral defense of a scholarly thesis.

CONCENTRATION IN PROFESSIONAL COMMUNICATIONS

Core Courses (9 units)

Comm 500 Theory and Literature of Communications (3)

Comm 507 Communication Research Design and Analysis (3)

Comm 508 Humanistic Research in Communications (3)
OR Comm 509 Social Science Research in Communications (3)
OR Comm 525 Advanced Communications Management (3)
OR Comm 534 American Media History (3)

A total of 15-21 units (depending on exit option) consisting of a minimum of six units of 500-level courses and maximum of nine units of 400-level courses.

Note: 400-level courses are optional. All courses may be 500-level. Undergraduate prerequisite courses must be completed, and do not count toward the graduate degree. Graduate students must complete at least one additional assignment beyond that required of undergraduate students in 400-level courses.

Exit Options:

Comm 597 Project
One 3-unit course leading to the successful completion and presentation of an applied project and one 3-unit 500-level elective course.
OR Comprehensive Examination
Six hours written essay exams and two three-unit 500-level elective courses.

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: Comm 101 or equivalent. Develop 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)

Prerequisite: Comm 101. Develop expertise in advanced news reporting and writing techniques, with an emphasis on the Web, radio and television. Learn 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 (G.E.) Category III.C.1. Newspapers, magazines, films, radio and television; their significance as social instruments and economic entities in modern society. One or more sections offered online

300 Visual Communication (3)

Prerequisite: completion of G.E. Categories III.B.1 or III.B.2. 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. (2 hours discussion, 1 hour activity)

310 Mass Media Ethics (3)

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

317 Digital Foundations (3)

Prerequisite: completion of G.E. Category III.B.1 or III.B.2. Convergence of the basic principles and practices of digital photography, digital imaging, graphic design and webpage production for creative visual problem solving.

319 Visual Reporting (3)

Prerequisite: Comm 317. Image creation for publication in print and/or screen media. Convergence of the basis principles and practices of digital photography, digital imaging, graphic design and webpage production for journalism-based visual problem solving. (2 hours lecture, 3 hours laboratory)

321 Studio Photography (3)

Prerequisite: Comm 317. Creative and effective use of images in print and/or screen publications within advertising, public relations, entertainment studies and other commercial, persuasive communication contexts. (2 hours lecture, 3 hours laboratory)

326 Advanced Studio Photography (3)

Prerequisite: Comm 321. Students will prepare an advanced portfolio of images for print and/or screen publications that demonstrates their ability to produce professional quality illustrative assignments within advertising, public relations, entertainment studies and other commercial, persuasive communication contexts. (2 hours lecture, 3 hours laboratory)

332 Editing and Design (3)

Prerequisite: Comm 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 G.E. Category III.C.1. 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)

Prerequisite: Comm 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)

Prerequisite: Comm 201 with a grade of "C" (2.0) or better. Comm 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 Comm 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)

Introduction to the entertainment industry. Apply entertainment and persuasion theory. Learn about career opportunities in entertainment-related fields. Explore tasks, skill sets, demands and rewards associated with different entertainment professions. (Same as Theatre 346)

350 Principles of Advertising (3)

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. Develop written communications and critical thinking skills essential for success in all advertising-related careers. Compose persuasive letters, reports, proposals and news releases. Grammar and language skills. Students must achieve a "C" (2.0) or better to continue taking advertising courses.

352 Advertising Media (3)

Prerequisites: Comm 350 and junior standing. Plan, execute and control 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, Comm 350, and junior standing. Write copy and lay out 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. 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: Comm 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 Comm 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)

Prerequisite: Comm 202. Writing, producing, planning, taping, editing and evaluating radio news.

372 TV News Production (3)

Prerequisite: Comm 202. Writing, production and evaluation of television news. Discussion of TV reporting techniques and problems. Cover events and produce TV news in lab. (2 hours lecture, 2 hours lab)

380 Interactive Media Design (3)

Prerequisite: Comm 317. Underlying design concepts and production techniques for creating interactive multimedia presentations for educational lessons, commercial applications and online publications.

407 Communications Law (3)

Prerequisites: Comm 233 and junior standing. 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. One or more sections offered online.

409 Advanced Visual Reporting (3)

Prerequisite: Comm 319. Advanced visual reporting. Extensive use of cameras for photographic reporting; evaluation and preparation of pictures for publication for both print and screen media.. Field/laboratory experience in digital photography and processing. (2 hours lecture, 3 hours laboratory)

410 Principles of Communication Research (3)

Prerequisites: Comm 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: Comm 233, 350 or 361; permission of instructor. 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 enhance the understanding of, and appreciation for, advertising concepts.

422 Communications Technologies (3)

Prerequisite: Comm 233. Issues surrounding communications technologies. Recent developments in technology, impact of government, industry and economic factors, historical overview and implications for social change. Technological developments. Applications to all areas of mass communications.

425 History and Philosophy of American Mass Communication (3)

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

433 Working in the Magazine Industry (3)

Prerequisite: Comm 233. Overview of the inner working of the magazine industry. How the magazine industry functions and what is involved in the creation and production of magazines.

434 Magazine Editing and Production (3)

Prerequisite: Comm 334. Students produce Tusk, the magazine of Cal State Fullerton, and learn about the dynamics of magazine production and the magazine industry. Students 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 Internet. 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: Comm 101. Developing expertise in reporting and writing on the entertainment industry. Understanding the economics, business models, legal aspects and culture of the industry.

437 Advanced Magazine Writing (3)

Prerequisite: Comm 334. Practical experience in reporting and writing long, in-depth feature articles for professional magazines. Challenges of researching and writing for specialized audiences and the business of freelancing. Techniques for improving clarity, brevity, cohesion and emphasis.

438T Specialized Reporting (3)

Prerequisite: Comm 201 or 202. Varied topic course designed to teach advanced reporting and writing skills in specialized areas. Combine an awareness of techniques and resources with an abundance of writing models and field experiences.

446 Entertainment and Society (3)

Prerequisites: Comm 233; Comm/Business Admin/Thtr 346 . In-depth exploration of the role of entertainment in modern society. Audience uses, motivations and individual preferences for entertainment. Theories and research regarding the form and function of entertainment and entertainment media.

447 Tourism and Travel (3)

Prerequisites: Comm 346, 350, 361, Management 339, Marketing 351 or Theatre 200. Concepts, tools and techniques necessary for understanding the tourism and travel industry and its promotional communications. Trends and issues of tourism and travel and the unique problems and opportunities of this field.

448T Entertainment Industry Studies (3)

Prerequisites: Comm 233; Comm/Business Admin/Thtr 346. Variable topics course focusing 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: Comm 346 or equivalent. Prepares 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. One or more sections offered online. (Same as Theatre 449)

450 Advertising and Brand Communication Management (3)

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

451C Advertising Campaigns – TitanCom Agency (3)

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

452 Advanced Media Strategy and Tactics (3)

Prerequisite: Comm 352. Further education in advertising media. Integrate 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)

Prerequisites: Comm 353 and 358. 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: Comm 350 and 353; or Comm 332 and either 217 or 358; or Marketing 351 and any 300-level graphics, layout or design course. Prepares 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 and Promotional Communications (3)

Prerequisites: Comm 350, 352 and 353. Internet advertising and marketing issues and ideas. Evaluate, develop and execute Internet-based advertising and promotional campaigns.

456 Advertising Account Planning (3)

Prerequisites: Comm 353 and 410. 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: Comm 361, 362 and junior standing. Analyze 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: Comm 361, Comm/Business Admin/Thtr 346. Public relations strategies and tactics as 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: Comm 101, 361 and junior standing. 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: Comm 101 and 361. 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 fundraising, corporate and social responsibility, media relations, and technology and ethical issues.

469 Crisis Communications (3)

Prerequisites: Comm 233 or Business Admin 201 and junior standing. Practical experience in preparing for and responding to crisis situations across a wide variety of contexts. Theory and practice of organizational issue management, crisis planning and crisis response. Current and future challenges of issue/crisis management.

471 News Media Production (3)

Prerequisites: Comm 201, 319, 321 or 380. Class members 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: Comm 372. Advanced news writing and production for television, radio and web. Students 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: Comm 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.

481 Advanced Interactive Media Design (3)

Prerequisite: Comm 380. Interactive media design for various platforms and design topics such as interactive narratives, experience design, usability and accessibility and productive interaction. Students will learn to use current interactive media protocols to develop projects for interactive audiences.

495 Mass Media Internship. (3)

Prerequisites: senior standing; communications major; 2.25 GPA overall and in major; and Comm 319, 321 or 380. Visit the website at: https://commrtvfinternship.fullerton.edu/commAndRtvfStudents.htm 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, 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 for a maximum of four units either separately or in combination with Comm 499.

497T Event Planning and Management (3)

Prerequisite: one of the following: Comm 346, 350, 361, Business Admin 301 346. 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 Comm 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)

Pre- or corequisite: Comm 500. Develops a working knowledge of data collection and analysis techniques in both quantitative and qualitative research methods. Material and presentation are developed for practical application to all professional fields of communication.

508 Humanistic Research in Communications (3)

Prerequisites: Comm 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: Comm 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: Comm 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)

Prerequisite: Comm 500. 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: Comm 500. Criticisms of specific functions of the mass media and public relations. Consists of three sections: history of criticism; problem areas of the media; and practitioner response to criticism.

518 Public Relations Theory (3)

Prerequisite: Comm 500. Cutting edge communication and organizational theories and vital emerging issues influencing the field of public relations. Special focus on contemporary public relations models and practitioner roles. One or more sections offered online.

519 Communications and Governance in America (3)

Prerequisite: Comm 500. Relationships between systems of communications, particularly new communication technologies, and governmental institutions and processes within the American setting. 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: Comm 500 and six units of study plan courses in area of specialization. Under supervision of a faculty member, plan, design, conduct and evaluate a team project in their field of specialization.

520B TV/Film (3)

Prerequisites: Comm 500 and six units of study plan courses in area of specialization. Under supervision of a faculty member, plan, design, conduct and evaluate a team project in their field of specialization.

520C Public Relations (3)

Prerequisites: Comm 500, 518 and six units of study plan courses in area of specialization. Under supervision of a faculty member, plan, design, conduct and evaluate a team project in their field of specialization.

525 Advanced Communications Management (3)

Prerequisite: Comm 500. Up-to-date assessment of general management and communications management techniques, and helps equip for management positions in advertising, journalism, public relations and broadcasting.

527 Politics and Mass Media (3)

Prerequisite: Comm 500. 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: Comm 500. Emerging communications technologies that are transforming professional practices associated with various communications industries. 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: Comm 500. History of American mass media, from McCarthy to the present – a period that marked the birth of television and the maturation of investigative journalism in shaping American attitudes about government and society.

536 International Communications (3)

Prerequisite: Comm 500. Comparative examination of communications policies and practices in different national settings. 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: Comm 500. Graduate foundation course in screenwriting that examines methods of evaluating and critiquing motion picture screenplays and films for a variety of Hollywood genres.

550 Advertising in Modern Society (3)

Prerequisite: Comm 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: Comm 500, and Comm 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 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 coursework.

598 Thesis (3 or 6)

Prerequisite: consent of graduate coordinator. Completion of a thesis in a sequence beyond regularly offered coursework.

599 Independent Graduate Research (1-3)

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

Comparative Religion

College of Humanities and Social Sciences

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 that 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 coursework (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 and 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 contemporary 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 requires a minimum of 120 units, which includes courses for the major, General Education, all university requirements and free electives. Each course counted toward the major must be completed with a grade of "C" (2.0) or higher.

The religious studies major requires a total of 36 units distributed as follows:

Lower-Division Requirements (9 units)

1. Introduction to the Study of Religion (3 units), one of the following:

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

Comparative Religion 110 Religions of the World (3)

2. Introduction to Western Religious Traditions (3 units), one of the following:

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)

3. Introduction to Non-Western Religious Traditions (3 units), one of the following:

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

Comparative Religion 280 Introduction to Buddhism (3)

Upper-Division Requirements (27 units)

4. Methods and Concepts (6 units), both of the following:

Comparative Religion 300 Methods of Studying Religion (3)

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

5. The Development of Western Religious Thought (6 units), two of the following:

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)

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

History/Comparative Religion 483 American Religious History (3)

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

6. The Development of Non-Western Religious Thought (6 units), two of the following:

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)

7. The Experience of Religion (6 units), two of the following:

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 375 Conceptions of the Afterlife (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)

8. Textual Studies (3), one of the following:

Comparative Religion 330T Hebrew Scriptural Studies (3)

Comparative Religion 331T New Testament Studies (3)

Comparative Religion 401T Studies in Religious Texts (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), one of the following:

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), one of the following:

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), one of the following:

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), each of the following:

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), three of the following:

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 375 Conceptions of the Afterlife (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), each of the following:

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), three of the following:

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)

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)

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)

Overview of the Christian tradition, including Orthodox, Roman Catholic and Protestant expressions. Foundational councils, creeds, scriptures, ideas and worship styles. One or more sections offered online.

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)

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)

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. 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: Comp Religion 110. 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 (G. E.) Category III.B.2. 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, Pauline Corpus, Johannine Corpus, etc. May be repeated for credit with different subject matter.

335 Judaism, Christianity and Islam Compared (3)
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)
Prerequisites: completion of the G. E.Categories III.B.1 and III.B.2. 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)
Prerequisites: completion of the G. E. Categories III.B.1 and III.B.2. 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)
Prerequisites: completion of G. E. Categories III.B.1 and III.B.2. 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)
Prerequisites: completion of G. E. Categories III.B.1 and III.B.2. Maimonides' legacy, the impact of mysticism, rise of anti-Semitism, emancipation of European Jews, the Holocaust, Israel's founding and history, and contributions of Jews to American culture.

347A Hindu Tradition to 400 B.C.E. (3)
Prerequisite: Comp Religion/Philosophy 110 or completion of G. E. 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. One or more sections offered online.

347B Hindu Tradition from 400 B.C.E. (3)
Prerequisite: Comp Religion 105 or 110 or completion of G. E. 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 19th 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: Comp 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: Comp Religion 105, 110 or 250 or equivalent. Islamic thought from the close of the classical period to the present, with emphasis on 20th 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 G. E. 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: Comp Religion 105, 110 or 280. 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)

Prerequisites: Comp Religion 105, 110 or equivalent. 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 G. E. Category III B.2. 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.

375 Conceptions of the Afterlife (3)

Prerequisite: completion of the G. E. Category III.B.2; Comp Religion 110 recommended. How selected religious traditions have sought to answer the question "What happens when I die?" Resurrection, reincarnation, immorality of the soul, heaven and hell will be discussed.

380 Religion and Violence (3)

Prerequisite: completion of G. E. 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 G. E. Category III.C.1. 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 G. E. Category III.A.2 and III.B.2. 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 Comp 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)

Prerequisite: Comp Religion 105 or 110. 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)

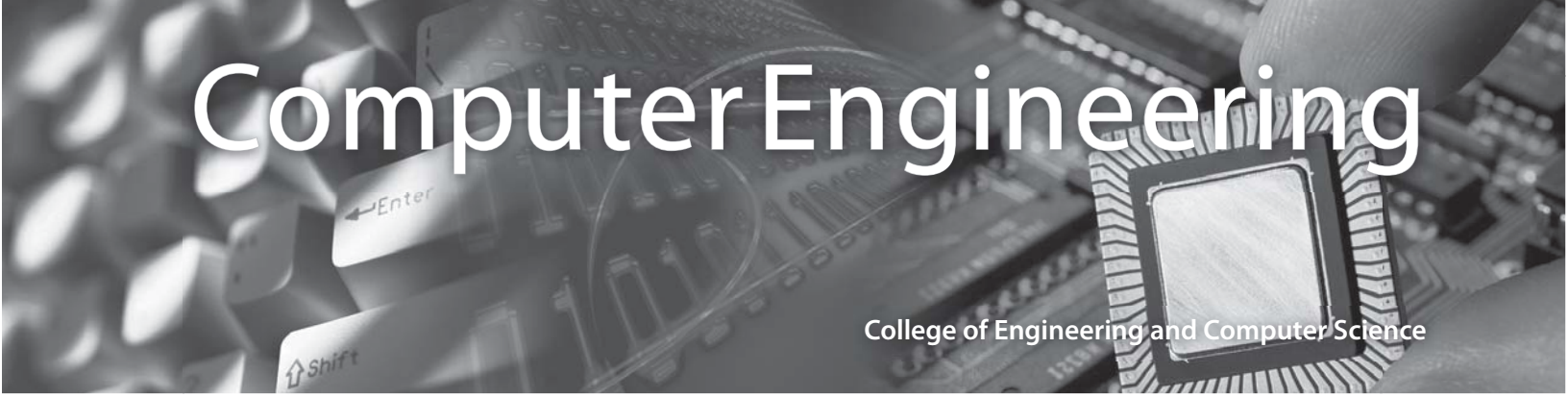
(Same as History 483)

485T Major Religious Thinkers and Concepts (3)

Prerequisites: 15 units in Comp Religion, including Comp 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.



Computer Engineering

College of Engineering and Computer Science

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, Kiranraj George, 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 the computer hardware and 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. Topics integrated into the curriculum include digital systems, computer organization and architecture, processor interfacing techniques, VHDL design, advanced electronics and embedded system design. 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.

COMPUTER ENGINEERING PROGRAM MISSION STATEMENT

The undergraduate program in Computer Engineering is committed to providing students with a strong theoretical and practical understanding in 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 Program Educational Objectives:

1. Technical Growth: Graduates will be successful in modern engineering practice, integrate into the local and global workforce, and contribute to the economy of California and the nation
2. Professional Skills: Graduates will continue to demonstrate the professional skills necessary to be competent employees, assume leadership roles, and enjoy career success and satisfaction
3. Professional Attitude and Citizenship: Graduates will become productive citizens with high ethical and professional standards, make sound engineering or managerial decisions, and have enthusiasm for the profession and professional growth

PROGRAM OUTCOMES

The learning outcomes for the Computer Engineering program are:

1. An ability to apply knowledge of mathematics, science and engineering
2. An ability to design and conduct experiments, as well as to analyze and interpret data
3. An ability to design a system, component or process, to meet desired needs within realistic constraints, such as economic, environmental, social, political, ethical, health and safety, manufacturability and sustainability
4. An ability to function on multidisciplinary teams
5. An ability to identify, formulate and solve computer engineering problems
6. An understanding of professional and ethical responsibility
7. An ability to communicate effectively
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context
9. A recognition of the need for, and an ability to, engage in, lifelong learning
10. A knowledge of contemporary 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 that 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 coursework beyond those normally required. These additional three units will not carry credit for the degree.

The Bachelor of Science degree in Computer Engineering requires 129 units. These 129 units include 59 units of required courses in computer engineering/computer science/electrical engineering/general engineering, six 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. Mathematics 150A and Math 270A must be completed with at least a "C" (2.0) grade. All other 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/EGEE 280 Microcontrollers (3)

EGCP/EGEE 281 Designing with VHDL (2)

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

EGCP 381 Computer Design and Organization (4)

EGCP/EGCE/EGEE 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 six units (nine units if student receives a waiver for CPSC 120) of adviser-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 adviser-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 Microelectronics and Nano Devices (3)

EGEE 465 Introduction to VLSI Design (3)

EGEE 480 Optical Engineering and Communications (3)

Microprocessors and Microcomputer Systems

Comp Sci 459 Micro-Computer Software Systems (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 (GPS) (3)

EGEE 483L Global Positioning Systems Laboratory (2)

Software Engineering

Comp Sci 362 Foundations of 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)

Comp Sci 489 Game Development Project (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 or 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 listed in the current class schedule

C. Social Sciences (6)

1. Introduction to the Social Sciences (3)
   EGCP/EGCE/EGEE 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

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 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)

Prerequisites: 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: EGEE 245 or 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 120 or 121; and EGEE 245 or 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 EGCE 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: EGCP 280, 381, 441, EGEE 323 and CPSC 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 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)

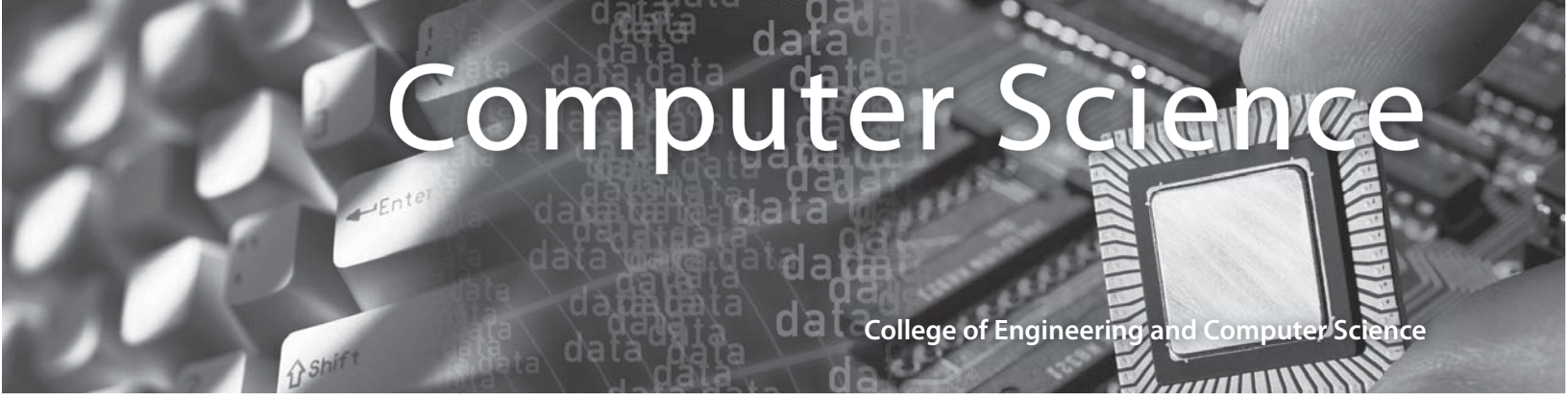
Corequisite: EGCP 450. First course in the two-course senior design sequence. Student teams develop a hardware/software project, from conception through implementation and testing, under an instructor's supervision. Teams first explore technology issues related to the projects and then prepare complete 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 student teams develop a hardware/software project under the supervision of the instructor. Emphasizes development of design skill, based upon previous and current courses and laboratory experience. (4 hours laboratory)

499 Independent Study (1-3)

Prerequisite: application for independent study approved by the instructor and the Computer Engineering Program Coordinator. Independent study or research under the direction of a full-time faculty member. May be repeated for a maximum of three units of credit.



Computer Science

College of Engineering and Computer Science

DEPARTMENT CHAIR
James Choi

VICE CHAIR
Mariko Molodowitch

DEPARTMENT OFFICE
Computer Science 522

DEPARTMENT WEBSITE
http://cs.fullerton.edu

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, Bin Cong, Spiros Courellis, David Falconer, Allen Holliday, Floyd Holliday, Chang-Hyun Jo, Barbara Laguna, Demetrios Michalopoulos, Mariko Molodowitch, Tae Ryu, Michael Shafae, Xiong Wang

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 that 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 that demonstrate some aspects of intelligence, using databases to discover new knowledge, and using computers to help map human DNA, as well as the DNA of other animals. The theoretical foundations 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 of Science degree in Computer Science is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: 410-347-7700.

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 coursework in computer programming should take the Computer Science Placement Examination. This exam is given two times per semester and 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 Computer Sci 223N C# Programming (3)

Computer Sci 240 Computer Organization and Assembly Language (3)

Computer Sci 254 UNIX and Open Source Systems (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 Science 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 three 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 three 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 three 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 nine units must be 400-level Computer Science courses with no more than three units 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 485 Computational Bioinformatics (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)

Three units of adviser-approved upper-division Computer Science.

General Education

Because of high unit requirements for a major in Computer Science, there is a six-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 coursework 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 1 for the fall semester and Oct. 1 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.

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 for Graduate Studies and Research (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 coursework.

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 (nine 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 coursework 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.

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)

Corequisite: Math 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 Sci 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 Sci 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 Sci 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 Sci 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)

223N C# Programming (3)

Prerequisite: Computer Sci 131. Characteristics of C#, object-oriented design concepts, control structures, methods, arrays, classes, objects, inheritance, polymorphism, exception handling, graphical user interfaces, multithreading, characters, strings, files, streams. Rudiments of the Unified Modeling Language. Software development assignments. (2 hours lecture, 2 hours laboratory)

240 Computer Organization and Assembly Language (3)

Prerequisites: Computer Sci 131 and either Math 270A or 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 Sci 121 or General Engineering 205. Workshop in the use of the UNIX operating system. Offered Credit/No Credit only. (2 hours activity)

254 UNIX and Open Source Systems (3)

Prerequisite: Computer Sci 131. UNIX operating systems, various open source applications and systems, open source programming languages and open source software development techniques.

301 Programming Lab Practicum (2)

Prerequisites: Computer Sci 131 and 253U (or 254). Intensive programming covering concepts learned in lower-division courses. 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 Sci 121 and completion of the General Education (G.E.) critical thinking requirement. Components and issues associated with multimedia technology, applications of multimedia and its evolution. Laboratory activities 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 Sci 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. Written and oral reports required.

313 The Computer Impact (3)

Prerequisites: upper-division standing and one course from G.E. 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. 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 Sci 311. Relevant issues that responsible professionals will face in a complex technological society. Professional ethics, computer control, piracy, encryption, benefits and downside of computers, privacy and computer crimes. Written and oral reports required.

322L Introduction to Computer Aided Design (3)

(Same as Mechanical Engineering 322L)

323 Programming Languages and Translation (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: Computer Sci 131. 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 (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 (3)

Prerequisites: Computer Sci 311 and Examination in Programming Proficiency. 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 (3)

Prerequisites: Computer Sci 223J and 351. Concepts and architectures of client/server systems using Java. Techniques for building client/server systems, multi-threading and network programming.

386 Introduction to Game Design and Production (3)

Prerequisite: Computer Sci 131. Current and future technologies and market trends in game design and production. Game technologies, basic building tools for games and the process of game design, development and production.

431 Database Systems (3)

Prerequisites: Computer Sci 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 Sci 311, 351 and Math 270B. System security and encryption. Current issues in security, encryption and privacy of computer based systems.

440 Computer System Architecture (3)

Prerequisite: Computer Sci 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 Sci 351. Internal structures of a modern operating system. 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 Sci 351. Design and implementation of software. Analysis of a micro-computer operating system and working on a team to implement a significant programming assignment.

462 Software Design (3)

Prerequisite: Computer Sci 362. Concepts of software modeling, software process and some tools. Object-oriented analysis and design and Unified process. Some computer-aided software engineering (CASE) tools will be recommended to use for doing homework assignments.

463 Software Testing (3)

Prerequisite: Computer Sci 362. 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 Sci 362. Practical guidance for improving the software development and maintenance process. How to establish, maintain and improve software processes. Exposure to some common process models, such as CMM, CMMI, PSP and TSP.

471 Computer Communications (3)

Prerequisite: Computer Sci 351. 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 (3)

Prerequisite: Computer Sci 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 Sci 473. 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)

Prerequisites: Computer Sci 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 Sci 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)

Prerequisite: Computer Sci 335. 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 (3)

Prerequisites: 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.

485 Computational Bioinformatics (3)

Prerequisites: upper-division standing, Biology 101 and Computer Sci 131. Algorithmic approaches to biological problems. Specific topics include motif finding, genome rearrangement, DNA sequence comparison, sequence alignment, DNA sequencing, repeat finding and gene expression analysis.

486 Game Programming (3)

Prerequisite: Computer Sci 386; corequisite, Computer Sci 484. Principles of game programming (2D game development techniques) and multimedia entertainment techniques (sound, animation, etc.).

487 Advanced Game Programming (3)

Prerequisite: Computer Sci 486. Building on the techniques learned from the previous game development course (2D Game Development, sound, animation), students learn more advanced game programming techniques (3D Game Development, real-time rendering, physics simulation).

489 Game and Development Project (3)

Prerequisite: Computer Sci 487; corequisite: Computer Sci 481. Develop realistic games based on the theories and techniques learned from the previous classes. Work independently (or by teams). Students will present and demonstrate their work regularly.

491T Variable Topics in Computer Science (1-3)

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 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 Sci 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 Sci 362 or equivalent work experience. SESC framework and the IEEE Software Engineering Standards. Covers establishing the following standards: Software Life Cycle Processes, Work Product Standards, Process Standards, Requirement Analysis and Management and System Integration. Framework of CMMI introduced, and a number of practical lessons discussed.

542 Software Verification and Validation (3)

Prerequisite: Computer Sci 362 or equivalent work experience. How to ensure that a high quality software product is developed. Theory and practice of software verification and validation (V&V), such as Software integrity levels, Minimum V&V tasks for each software integrity level, walkthroughs, inspections and Cleanroom. Software testing topics: white- and black-box testing, boundary value analysis, equivalence class partitioning, unit testing, functional testing and how to create test plans.

543 Software Maintenance (3)

Prerequisite: Computer Sci 362 or equivalent work experience. Theory and practice of maintaining large-scale software and how to construct maintainable software. Maintenance framework, along with maintenance process, process management and maintenance measures. Topics include fundamentals of software change, implications of software change, maintenance process models, program understanding, reusability for maintenance, reverse engineering, maintenance testing, software configuration management and tools in maintenance.

544 Advanced Software Process (3)

Prerequisite: Computer Sci 362 or equivalent work experience. Advanced guidance for defining and improving the software development process. Concepts of software maturity framework, principles of process improvement and software process assessment. Current topics such as CMMI and SCAMPI.

545 Software Design and Architecture (3)

Prerequisite: Computer Sci 362 or equivalent work experience. Advanced software design and architecture principles focusing a software engineering approach to the development process. Topics include architecture business cycle, quality attributes, attribute-driven design method, architectural styles, design patterns, software product lines and component-based design.

546 Modern Software Management (3)

Prerequisite: Computer Sci 362 or equivalent work experience. Modern project management methodologies and techniques. Software development process. Planning, estimating, organizing, directing, monitoring, controlling software projects and managing risks. Other related software management issues, such as infrastructure, quality software development, project and product metrics, and external factors.

547 Software Measurement (3)

Prerequisite: Computer Sci 362 or equivalent work experience. Current software measurement practices. Topics include: how to establish an effective software metrics program in a software organization; how to measure software product, project and process; how to apply Statistical Process Control and other statistical techniques in software development process. High maturity concepts defined in CMMI model will be discussed. Stresses a practitioner-based approach.

548 Professional, Ethical and Legal Issues for Software Engineers (3)

Prerequisite: Computer Sci 362 or equivalent work experience. 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.

551 Operating Systems Design (3)

Prerequisite: Computer Sci 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 Sci 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 Sci 484. Three-dimensional: reflection models, shading techniques, rendering process, parametric representation, ray tracing, radiosity, texture, anti-aliasing, animation, color science.

572 Survey of Pharmaceutical and Medical Devices Technology (3)

Prerequisites: enrollment in the Program for Applied Biotechnology Studies (PABS) Master of Biotechnology (MBt) degree program or consent of instructor, and MGMT 540. Corequisites: concurrent enrollment in two other PABS MBt degree survey courses: Survey Molecular Biology and Pharmacology/Toxicology (BIOL 570) and Survey Mathematical Modeling and Bioinformatics (BIOL 571). Technologies involved in the development of drug and medical devices, factors considered in designing medical devices, characteristics of good drug manufacturing practices and validation processes necessary to meet regulatory requirements. Students will work collaboratively to solve problems. (Same as Biology 572)

583 Expert Systems Design Theory (3)

Prerequisite: Computer Sci 481. Knowledge representation and search strategies for expert systems; logic programming; expert system tools. Project.

585 Artificial Neural Networks (3)

Prerequisite: Computer Sci 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 Sci 589.

598 Thesis (3)

Prerequisites: classified graduate standing, approval of the computer science graduate adviser and Computer Sci 589.

599 Independent Graduate Research (1-3)

Prerequisites: classified graduate standing, approval of the computer science department chair and Computer Sci 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
Leah Brew

DEPARTMENT OFFICE
Education Classroom 405

DEPARTMENT WEBSITE
http://hhd.fullerton.edu/counsel

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
Graduate Adviser: Jose Cervantes
Admissions: David S. Shepard
Marriage and Family Therapy (MFT) Licensure: Mary Read
Clinical Training Director: Mary Read
Off Campus Programs: David S. Shepard
Graduate Counseling Students Association: Sapna Batra Chopra
Chi Sigma Iota: Jeffrey Kottler
Alumni Association: Mary Read

INTRODUCTION

The Department of Counseling offers a program leading to the Master of Science in Counseling emphasizing community counseling. The program is approved by the California State Board of Behavioral Sciences (BBS) to meet the educational requirements preparing students for state licensure as Marriage and Family Therapists (MFT). We are also nationally accredited by The Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Our emphasis is on training 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 faculty encompass a wide range of backgrounds and values.

Our theoretical orientation is grounded in humanistic, relational 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 their lives.

MASTER OF SCIENCE IN COUNSELING

Admission Requirements

The Department of Counseling accepts students once a year for its on-campus and every two years for its off-campus programs. The Department welcomes applicants from diverse academic, social and cultural backgrounds. International, minority, underrepresented and older students, and students with disabilities are encouraged to apply.

Preparation for the counseling profession is rigorous and multifaceted, necessitating the student's development in interpersonal, self-reflective 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), letters of reference, personal statement, departmental interview and potential for success based on personal and professional evaluation of qualification, and is at the sole discretion of the Counseling Department's Admissions Committee.

Admission is not based upon any single factor but on a composite assessment of all factors. The following are required for consideration to the program:

1. An acceptable bachelor's degree (or equivalent) from a regionally accredited institution
2. A minimum GPA of 3.0 for the undergraduate degree
3. A minimum GPA of 3.0 in four prerequisite behavioral science courses (or equivalents): counseling theory, research methods or statistics, 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. Three letters of recommendation. These letters should address the author's assessment of the applicant's 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 he student's work, are also appropriate
5. An interview with department faculty
6. The GRE is not required
7. A detailed personal statement (1,500-3,000 words). This statement should inform the faculty about the applicant's
   - educational background
   - personal biography and its relevance to the goal of becoming a counselor
   - strengths and weaknesses
   - understanding of the counseling profession, and motivation and suitability for entering it
   - long-term professional goals
   - This statement is very important because it enables the faculty to make informed decisions regarding admission

Application Procedures

Applicants must apply to the University and to the Department of Counseling.

1. University application. 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 codes are: For on-campus program: COUNSELING (MARRIAGE FAMILY THERAPY)

   For off-campus program: COUNSELING (GARDEN GROVE CENTER) The online URL is www.csumentor.edu.

2. Department of Counseling application. Send three letters of recommendation, personal statement and a copy of all transcripts to:

   Department of Counseling
   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 657-278-3042, or e-mail us at applycounseling@fullerton.edu.

Application Deadlines

Applications are due March 1 for the fall semester on-campus program and Nov. 1 for the spring semester off-campus program. For further information, contact the Department of Counseling at 657-278-3042 or email us at applycounseling@fullerton.edu. Also check the Department of Counseling website for information on deadlines: http://hhd.fullerton.edu/counsel.

Advisement

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).

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.

The department requires 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 completing the degree and the possibility that they may be unable to enroll in a specific course because of class size limits or other factors.

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-" (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 GPA and may be disqualified under certain conditions, including failure to demonstrate a level of

professional competence or fitness commensurate with the standards of the counseling discipline. See the "Graduate Regulations" section of this catalog for details concerning advancement to classified standing, candidacy, probation and disqualification.

Curriculum

The curriculum comprises 60 units (plus an optional one-unit child abuse workshop required for licensure). Full-time students typically take three to four courses during the fall and spring semesters, and one or two summer courses. Part-time students typically take two to three courses during fall and spring semesters and one course in the summer. In the semester prior to beginning their first practicum, students apply for Classified Standing. Classified students are designated trainees by the state MFT licensing board, and begin to provide counseling services and accrue hours toward the 3,000 hours required for state licensure.

COUN 500 The Counseling Profession (3)

COUN 502 Career Counseling (3)

COUN 511 Pre-Practicum (Basic Counseling Skills) (3)

COUN 518 Human Development and Functioning (3)

COUN 520 Modes of Individual Counseling (3)

COUN 521 Research in Counseling (3)
(first half of the final research project)

COUN 522 Techniques of Brief Treatment and Assessment (3)

COUN 523 Counseling and Culture (3)

COUN 524 Child and Adolescent Counseling (3)

COUN 525 Psychopharmacology (3)

COUN 526 Professional Ethical and Legal Issues in Counseling (3)

COUN 527 Systems of Family Counseling (3)

COUN 528 Groups: Process and Practice (3)

COUN 530 Beginning Practicum (3)
(fieldwork in a community agency)

COUN 535 Addictions (3)

COUN 560 Appraisal in Counseling (3)

COUN 562 Couples Counseling (3)

COUN 584 Advanced Practicum (3)

COUN 590 Advanced Counseling Techniques (3)

COUN 597 Final Project (3)
(second half of the final research project)

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 Statutes and Regulations Relating to the Practice of Marriage and Family Therapy, Licensed Clinical Social Work, and Licensed Educational Psychology issued by the Board of Behavioral Sciences and available on the BBS website, http://www.bbs.ca.gov.

For further information, write to the Board of Behavioral Sciences, Department of Consumer Affairs, 400 R Street, Suite 3145, Sacramento, CA 95814-6240, or call them at 916-445-4933.

Students are designated trainees by the BBS and can accrue licensing hours after they have been classified by the department and begin their fieldwork practicum. A student can count psychotherapy received after they have begun their first semester in the program (maximum of 100 hours of psychotherapy equals 300 hours towards the 3,000 required to take the MFT license examination). Upon graduation, students have 90 days to register with the BBS as an intern. It is advisable to write to the BBS for a registration packet early (e.g., at the beginning of the last semester).

COUNSELING COURSES

Courses are designated as COUN in the class schedule.

252 Career and Life Planning (3)

Prerequisite: introductory course in Oral Communication and English Composition. Career planning is a continual process that occurs over the lifespan. Focus is on career, personal and educational awareness. Strategies include integrating skills, abilities, interests and values into the career search. Emphasis on decision-making and goal setting.

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 and 511. 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 Research in Counseling (3)

Pre- or corequisite: 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)

Prerequisites: 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. Corequisite, 522. 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. Pre- or corequisite, Counseling 523. 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, 524, 526, 527; consent of fieldwork coordinator; and completion of or concurrent enrollment in Counseling 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 Appraisal in Counseling (3)

Prerequisite: 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 Couples Counseling (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 spousal abuse. Study of sexual dysfunctions and sex therapy.

584 Advanced Practicum (3)

Prerequisites: Counseling 530 and consent of Fieldwork Coordinator. Advanced supervised clinical practice with adults, families, and children in approved community agencies. A minimum of 105 contact hours of counseling required for course completion.

590 Advanced Counseling Techniques (1-3)

Prerequisites: classified standing; completion of Counseling 530. 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 taken four times for credit.

597 Research Project (3)

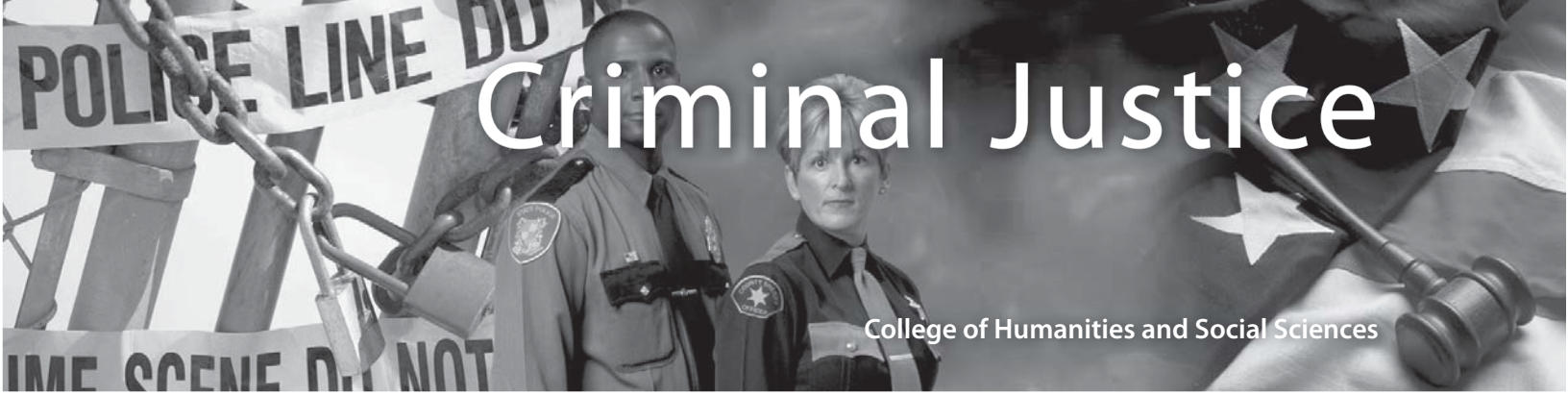
Prerequisites: Counseling 521 and consent of faculty adviser. Capstone program experience; taken final semester. Student conducts original research relevant to the counseling field.

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.



Criminal Justice

College of Humanities and Social Sciences

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, Activities Award, Overall Achievement Award and 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 nine 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.

DIVISION OF POLITICS, ADMINISTRATION, AND JUSTICE

DIVISION CHAIR

Raphael J. Sonenshein

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, Amy Cass, George M. Dery, III, Christine Gardiner, Dixie Koo, James Lasley, Jarret Lovell, Stacy Mallicoat, Kevin Meehan, Jill Rosenbaum, Georgia Spiropoulos

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)

Elective Curriculum

Twelve 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 Writing for Criminal Justice (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)

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.) One or more sections offered online.

310A Criminal Law: Substantive (3)

Prerequisite: Crim Just 300. General doctrines of criminal liability in the United States and the classification of crimes as against persons, property and the public welfare. 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, acquisition of evidence, commencement of a criminal proceeding, prosecution and defense of charges, sentencing and appeal. Development of existing procedures and examination of current efforts for reform.

315 The Enforcement Function (3)

Prerequisite: Crim Just 300. 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. 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. 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 while incarcerated, as well as while in the community.

350 Writing for Criminal Justice (3)

Prerequisite: Crim Just 300. Principles of research and writing in criminal justice, including framing and clarifying research questions, using and assessing research resources and developing writing skills for criminal justice research. Meets upper-division writing requirement for Criminal Justice majors, or concentration elective.

385 Minorities and the Criminal Justice System (3)

Prerequisite: completion of General Education Category II and Category III.C.1; Crim Just 300 recommended. Introduction to the issues surrounding the charges of overt and indirect institutionalized racism in the criminal justice system. Overview of patterns of criminal behavior among minority groups in the U.S. will be discussed.

404 Capital Punishment (3)

Prerequisites: Crim Just 300 and upper division standing. Introduction to the issues relating to the use of capital punishment in the U.S., and focuses on the arguments in support of and opposition to the death penalty. (Same as Political Science 404)

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. 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. 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. Relevance of sociological, psychological, economic and educational deviance theories to justice intervention strategies.

462 Crime Analysis (3)

Prerequisites: Crim Just 300 and 340. Crime analysis function within the law enforcement organization; 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. Examines the rule of law, questions whether justice is different from law and reviews the role punishment plays.

470 Sex, Crime and Culture (3)

Prerequisite: Crim 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.

472 The Judicial Process (3)

Prerequisites: Crim Just 300 or Political Science 375. Nature, functions and roles of courts. Roles of major participants in the American legal system, including judges, attorneys and citizens. 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. 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. Rules of evidence in the context of a criminal trial in a California court. Rules, their application and 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. 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.

Economics

Mihaylo College of Business and Economics

DEPARTMENT CHAIR
Morteza Rahmatian

DEPARTMENT OFFICE
Steven G. Mihaylo Hall 3313

DEPARTMENT WEBSITE
www.business.fullerton.edu/economics

DIRECTOR, CENTER FOR ECONOMIC EDUCATION
Chiara Gratton-Lavoie

CENTER FOR ECONOMIC EDUCATION
Steven G. Mihaylo Hall 3357

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, James Dietz, Vincent Dropsy, Emira Farka, Adrian Fleissig, Andrew Gill, Chiara Gratton-Lavoie, Jane Hall, Larry Howard, Hao Jia, Sherif Khalifa, Emmanuel Lartey, Davina Ling, Robert Mead, Evelina Mengova, Robert Michaels, Howard Naish, Dipankar Purkayastha, Morteza Rahmatian, Jared Rubin, Ousmane Seck, Denise Stanley, Grigor Sukiassyan, 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]

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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.

The Department of Economics offers 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, Steven G. Mihaylo Hall 1201, 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. Andrew Gill.

Credential Information

For students interested in a teaching credential, the Department of Economics offers courses that 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 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, Steven G. Mihaylo Hall 1201. 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)

Econ 490 Economics Capstone

InfoSys/DecSci 361A Quantitative Business Analysis: Probability and Statistics (3)

Economics Electives

Fifteen units of upper-division economics electives (six of which must be 400-level).

No more than three 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 that 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 complete 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 Mihaylo 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 nine 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- 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). 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 Mihaylo College of Business and Economics require classified "MCBE status" and are open only to students with classified standing in the M.A. in Economics, MBA, 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 on official letterhead, 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 1 for the fall semester and Oct. 1 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.

Study Plan

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-" (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)

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. One or more sections offered online.

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. One or more sections offered online.

320 Intermediate Macroeconomic Analysis (3)

Prerequisites: Econ 202 and Math 135. Corequisites: Business Admin 301, InfoSys/DecSci 361A or equivalent. 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. Transformation from centrally planned to market-oriented economies in Russia and Eastern Europe. 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. 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. 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. 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. 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. Introduces basics of applied economic research. 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. Development of American economic institutions; economic problems, economic growth and economic welfare.

351 European Economic History (3)

Prerequisite: Econ 100 or 201. 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. 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: Econ 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; 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. Balance of payments, 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. 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. Analysis of specific legal cases.

415 Economics of Health (3)

Prerequisites: Econ 340 or equivalent, or consent of 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; 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. Money supply process and impact of monetary policy on economic activity.

421 Monetary and Fiscal Policy (3)

Prerequisites: Business Admin 301; Econ 320 or equivalent. 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: impact of stabilization policies in a global economy, role of the balance of payments, international monetary system and growth in less developed countries.

433 The Less Developed Countries and the World Economy (3)

Prerequisites: Econ 310 or 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. Neo-classical and political economy approaches. 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. 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 include uncertainty and risk in investment, depletion over time, cartelization, the role of technological innovation and government intervention related to fuels, water, land, etc.

490 Economics Capstone (3)

Prerequisites: Econ 310, 320 and 340. Capstone experience for Economics majors. Students demonstrate facility with economic theory and quantitative methods by presenting teaching topics, summarizing news reports and scholarly journal articles, writing policy briefs on selected economic topics and replicating empirical findings from economics literature.

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 of 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. 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. 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 for analyzing micro-economic data, with a focus on instrumental variables estimation, probit, logit and tobit models, models of sample selection and panel data methods.

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 MCBE status and Math 135 or the equivalent. Individual economic agents – demand side consumers and supply side producers. Market structures ranging from perfect competition to monopoly. 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 MCBE 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 MCBE 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 read, present and replicate scholarly research published in peer-reviewed journals covering a variety of topics in economics. They receive guidance as to research methodology, composition of a research paper and professional presentation. Attendance at departmental research seminars required.

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.