

Information Systems and Decision Sciences

Mihaylo College of Business and Economics

DEPARTMENT CHAIR

Barry A. Pasternack

DEPARTMENT OFFICE

Steven G. Mihaylo Hall 4113

DEPARTMENT WEBSITE

www.business.fullerton.edu/isds

PROGRAMS OFFERED

Bachelor of Arts in Business Administration
Concentration in Information Systems
Concentration in Management Science
Minor in Information Systems
Master of Business Administration
Concentration in Information Systems
Concentration in Management Science
Master of Science in Information Systems
Concentration in E-Commerce
Concentration in Decision Sciences
Master of Science in Information Technology

FACULTY

Rahul Bhaskar, Shu-Jen Chen, Tammy Drezner, Zvi Drezner, Nicholas Farnum, Zvi Goldstein, Seyed Hanizavareh, Pawel Kalczynski, Bhushan Kapoor, Malini Krishnamurthi, Mabel Kung, William Lau, John Lawrence, Laura Marcoulides, Do Le Minh, Michael Newby, Barry Pasternack, David Petrie, Sorel Reisman, Sagnika Sen, Joseph Sherif, Sohan Sihota, Ram Singhania, Daniel Soper, Ronald Suich, Ofir Turel, Samuel Yang, Dawit Zerom, Yi "Jenny" Zhang

INTRODUCTION

The Information Systems and Decision Sciences Department offers courses in Information Systems, Management Science, Statistics and Logistics.

Information systems are computer-based systems that aid management in making decisions and assist in implementing and controlling management policies. Information systems are used in business, industry and government operations. Applications include airline reservations, banking transactions, crime prevention networks, election returns, real estate assessment, tax records, newspaper databases, sports statistics and computer assisted learning.

Information systems incorporate the use of data processing equipment, such as computers and their peripherals. Computer software is used to create, maintain and retrieve information. Techniques include mathematical modeling and statistics, integrated with modern computer technology. These methods are applied to systems management, programming design, analysis of information flow, decision support, database organization, small business problems, data communication networking and distributed processing.

Management science (also known as operations research) is the application of the scientific method to decision-making in business and government. In practice, nearly all management science problems involve solutions using computers. Operations research uses mathematical and simulation models to provide decision-makers with quantitative information pertaining to complex business situations. Statistics assists decision-makers by using techniques designed to draw inferences from experimental and sampling data.

Situations that require operations research techniques arise in all areas of business: accounting, finance, production, marketing, and research and development. Among the problems addressed by operations research techniques are the determination of inventory strategies, the allocation of scarce resources and the design of service systems. Others include bidding in competitive environments, selecting equipment replacement strategies and scheduling the completion of large projects.

The statistician is often involved in activities such as sales forecasting, quality control and financial analysis. Statistics is also concerned with model building and the design of experiments dealing with product testing, surveys and sampling.

Logistics is concerned with the movement of materials and finished goods. It encompasses such areas as inventory control, transportation, purchasing, warehouse management and information support systems. Logistical control is an important component of the success of most manufacturing and service enterprises. It is also used extensively in complex organizations such as airline companies and the military.

ADVISERS

The Business Advising Center, Steven G. Mihaylo Hall 1201, provides information on admissions, curriculum and graduation requirements; registration and grading procedures; residence and similar academic matters.

In addition, the Information Systems and Decision Sciences Department provides advising about curriculum content and career opportunities:

Graduate Program: Barry Pasternack

Information Systems: Rahul Bhaskar, Pawel Kalczynski, Bhushan Kapoor, Mabel Kung, Sorel Reisman, Sagnika Sen, Joseph Sherif, Ram Singhania, Daniel Soper, Ofir Turel, Samuel Yang, Yi “Jenny” Zhang

Management Science: Shu-Jen Chen, Zvi Drezner, Zvi Goldstein, Seyed Hanizavareh, William Lau, John Lawrence, Do Le Minh, Barry Pasternack, Joseph Sherif

Statistics: Nicholas Farnum, Sohan Sihota, Ronald Suich, Dawit Zerom

Logistics Management: Zvi Drezner, Zvi Goldstein, Barry Pasternack, Joseph Sherif

CREDENTIAL INFORMATION

For students interested in a teaching credential, the Department of Information Systems and Decision Sciences offers courses that may be included in the Subject Matter Preparation Program for the Single Subject Teaching Credential.

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 of 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 207.

AWARDS IN MANAGEMENT SCIENCE/INFORMATION SYSTEMS

David S. Stoller Outstanding Management Science Undergraduate Award

Dr. Wen Chow Outstanding ISDS Undergraduate Award

Klein Family Excellence Award for ISDS 361B

Outstanding Management Information Systems Undergraduate Award

Outstanding Management Science Graduate Student Award

Russell Utterberg Memorial Scholarship

BACHELOR OF ARTS IN BUSINESS ADMINISTRATION MINOR IN INFORMATION SYSTEMS

MASTER OF BUSINESS ADMINISTRATION

For information on the minor in Information Systems, as well as the Information Systems and Management Science concentrations within the B.A. and MBA, please refer to the “Business Administration” programs section of this catalog.

MASTER OF SCIENCE IN INFORMATION SYSTEMS

The Master of Science in Information Systems program provides the conceptual understanding and technical competence for careers in information systems, E-commerce, statistics, operations research and logistics. Concentrations include E-commerce and Decision Sciences. These techniques are widely used in both private business and public enterprise. Employment opportunities include

positions such as management analyst, data processing manager, statistician, forecaster and logistical support manager.

The M.S. in Information Systems program is scheduled especially for students who are employed full time. Courses are offered during the late afternoon and evening. The curriculum should appeal to students with undergraduate degrees in business administration, computer science, mathematics, engineering or science. For students with an undergraduate degree in business administration with a concentration in information systems, the 10-course (30-unit) curriculum may be completed in 1 1/2 years (full time) or 2 1/2 years (part time). The curriculum includes information systems applications, electives and a capstone course, which includes a terminal project. Students with a bachelor’s degree in a field other than business administration are eligible to apply; however, such students will be required to complete additional courses or demonstrate proficiency as described under the Curriculum requirements.

Cal State Fullerton is the only university in Orange County accredited by the AACSB International at both the undergraduate and graduate level for both accounting and business administration. This assures a rigorous program, a well-qualified faculty, high standards for students and access to an extensive library system. The qualifications of the M.S. in Information Systems faculty include advanced degrees in information systems, operations research, statistics and applied mathematics; extensive computer experience; and practical experience in business, industry and government.

Most graduate courses in the Mihaylo College of Business Administration and Economics require “classified MCBE status” and are open only to students with classified standing in the M.S. in Information Systems, M.S. in Taxation, M.A. in Economics, MBA or M.S. in Accountancy programs.

Admission Requirements

Admission is competitive. Applicants will be evaluated based on the following:

1. Acceptable bachelor’s degree from an appropriately accredited institution.
2. Minimum grade point average of at least 2.5 in the last 60 semester units attempted and in good standing at the last college attended.
3. Satisfactory score on the Graduate Management Admission Test (GMAT). Students must score in the top 50 percent on the verbal, quantitative and analytical writing areas.
4. A bachelor’s degree with a major in business administration equivalent to the degree as offered at CSUF with at least an overall cumulative grade point average of 3.0 (B). The degree must include calculus and software applications equivalent to passing Mathematics 135, Business Calculus and ISDS 265, Introduction to Information Systems and Applications, with grades of at least “C” (2.0). Courses in the major that are more than seven years old must be evaluated/validated for currency. Courses with grades lower than “C” (2.0) must be repeated.

5. For international students, a minimum TOEFL score of 570 on the paper exam, 230 on the computer-based exam or 90 on the internet based (iBT) is required.
6. Recommendation from the ISDS Admission Committee based upon a review of the above requirements, the student's "Statement of Purpose" and prior work experience. Additional coursework may be required of conditionally admitted students who holistically satisfy the criteria but are weak in one of the above areas.

Application Deadlines

The deadlines for completing online applications are March 1 for the fall semester and October 1 for the spring semester (Students may apply online through <http://www.csumentor.edu>). Mailed applications should be postmarked by the same deadlines. However, deadlines may be changed based upon enrollment projections.

Curriculum

The M.S. in Information Systems curriculum requires 30 semester units of coursework beyond the baccalaureate degree. At least 21 of the 30 units required for the degree must be at the 500 level. In lieu of the Information Systems study plan, students may choose a concentration in either E-commerce or Decision Sciences.

An overall 3.0 (B) GPA is required in study plan courses and all applicable coursework. Any study plan course with a grade lower than "C" (2.0) must be repeated with at least a "C" (2.0) grade.

Students admitted with a bachelor's degree in a field other than business administration will be required to complete the following additional course requirements or their equivalent (either prior to or during their residency at CSUF):

- Math 135 Business Calculus (3)
- ISDS 265 Introduction to Information Systems and Applications (3)
- ISDS 309 Introduction to Operating Systems and Programming (3)
- ISDS 361A Quantitative Business Analysis: Probability and Statistics (3)
OR ISDS 513 Statistical Analysis (3) with grades of at least "C" (2.0); and the following business foundation courses:
- Accounting 510 Financial Accounting (3)
- Economics 515 Microeconomic Perspective for Managers (3)
OR Management 339 Principles of Management and Operations (3)
- Finance 320 Business Finance (3)
- ISDS 514 Decision Models for Business and Economics (3)
- Management 518 Legal and Ethical Environment of Business (3)
OR Marketing 351 Principles of Marketing (3)

These courses must be completed with at least a 3.0 (B) overall grade point average and with grades of "C" (2.0) or better in each course.

INFORMATION SYSTEMS STUDY PLAN

ISDS 309 (or equivalent) is a prerequisite to many courses and should be taken prior to the beginning of the program.

Required Core Courses (12 units)

- ISDS 550 Business Data Communications (3)
- ISDS 551 Information Resources Management (3)
- ISDS 552 Systems Analysis, Design and Development (3)
- ISDS 555 Business Databases: Design and Processing (3)

Electives (15 units)

Five courses (15 units) to be selected in consultation with and approved by the student's adviser. Additional electives to those below may be available. Students should contact the department office for a current listing. Note that students who do not have an undergraduate degree in Information Systems must take ISDS 411 as an elective.

No more than nine units of electives may be at the 400 level.

- ISDS 411 Business Application Design (3)
- ISDS 415 Principles of Business Intelligence (3)
- ISDS 418 Privacy and Security (3)
- ISDS 431 Enterprise Systems Implementation, Configuration and Use (3)
- ISDS 433 Enterprise Systems Administration (3)
- ISDS 435 Integrated Enterprise Information Systems (3)
- ISDS 437 Enterprise Networks for Information Systems (3)
- ISDS 442 Business Modeling Using Spreadsheets (3)
- ISDS 474 Data Mining for Managers (3)
- ISDS 521 Revenue Management Modeling (3)
- ISDS 553 Electronic Commerce: Analysis and Evaluation (3)
- ISDS 554 E-Commerce: Technological Perspective (3)
- ISDS 556 Data Warehousing and Foundations of Business Intelligence (3)
- ISDS 557 Issues in Business Information Systems and Global Telecommunications (3)
- ISDS 558 Advanced Software Development with Web Applications (3)
- ISDS 563 Geographic Information Systems for Business (3)
- ISDS 565 Wireless Information Systems (3)
- ISDS 568 Information Systems for Knowledge Management (3)
- ISDS 576 Business Modeling and Simulation (3)

Students may use one applied management science course and one applied business course as electives. The applied management science course may be selected from the following:

- ISDS 526 Forecasting, Decision Analysis and Experimental Design (3)
- ISDS 560 Advanced Deterministic Models (3)
- ISDS 561 Advanced Probabilistic Models (3)

The applied business course elected may be selected from the following:

- Accounting 511 Seminar in Managerial Accounting (3)
- Economics 502 Advanced Microeconomic Analysis (3)
- Finance 517 Managerial Finance (3)
- Management 444 Project Management (3)

Terminal Evaluation (3 units)

ISDS 577 Seminar in Information Systems Implementation (3)

Students must complete the individual project in ISDS 577 with a grade of “B” (3.0) or better. In exceptional cases, a thesis (Business Admin 598) may serve as an option to the individual written project. See the departmental graduate adviser for details.

E-COMMERCE CONCENTRATION

The E-Commerce concentration is designed to provide students with the technical skills in information technology as applied to the Internet and E-Commerce. Additionally, the program includes courses in small business management/entrepreneurship, marketing and logistics, as this knowledge base is essential for an individual who would like to create an E-commerce operation. Background prerequisites for this concentration are the following courses or equivalent: ISDS 309 and 371.

Required Core courses (12 units)

ISDS 516 Introduction to Logistics Analysis Techniques (3)

ISDS 550 Business Data Communications (3)

ISDS 552 Systems Analysis, Design and Development (3)

ISDS 555 Business Databases: Design and Processing (3)

Required Electives (15 units)

ISDS 553 Electronic Commerce: Analysis and Evaluation (3)

ISDS 554 E-Commerce: Technological Perspective (3)

ISDS 558 Advanced Software Development with Web Applications (3)

Management 540 New Venture Leadership and Management (3)

Marketing 455 Strategic Internet Marketing (3)

Terminal Evaluation (3 units)

ISDS 577 Seminar in Information Systems Implementation (3)

Students must complete the individual project in ISDS 577 with a grade of “B” (3.0) or better. In exceptional cases, a thesis (Business Admin 598) may serve as an option to the individual written project. See the departmental graduate adviser for details.

Learning Goals and Student Learning Outcomes

The following goals and learning outcomes have been established for students pursuing a master’s degree in information systems study plan or e-commerce concentration:

Telecommunications

- Assess the telecommunications needs of an organization
- Supervise the development of a local or wide-area data and communications network
- Use the Internet in support of operations
- Select the appropriate telecommunications hardware and software
- Managerial
- Be familiar with the terminology and basic principles of business information systems and the Internet

- Understand ethical, global, political, social, legal, regulatory, environmental and technology issues
- Understand the impact of demographic diversity on organizations

Systems development process

- Analyze the information systems needs of an organization
- Design an information system to serve the needs of an organization
- Data needs
- Design a database system to serve the needs of an organization
- Select appropriate software to operate a database system

Programming concepts

- Select a particular computer language for a programming application
- Write a computer program using the fundamental concepts of programming
- Document a program

Collaboration

- Work productively in a team or collaborative setting to achieve common goals

Research

- Conduct, evaluate and synthesize research and apply theoretical ideas to practical settings

Communications

- Effectively present ideas in a logical framework in a variety of forms with proper language structure and mechanics

DECISION SCIENCES CONCENTRATION

Required Courses (9 units)

ISDS 415 Principles of Business Intelligence (3)

ISDS 526 Forecasting, Decision Analysis and Experimental Design (3)

ISDS 560 Advanced Deterministic Models (3)

OR ISDS 561 Advanced Probabilistic Models (3)

Statistics Course (3 units minimum)

One or more of the following:

ISDS 422 Surveys and Sampling Design and Applications (3)

ISDS 461 Statistical Theory for Management Science (3)

ISDS 467 Statistical Quality Control (3)

ISDS 472 Design of Experiments (3)

ISDS 473 Applied Business Forecasting (3)

ISDS 474 Data Mining for Managers (3)

ISDS 475 Multivariate Analysis (3)

ISDS Electives (15 units maximum)

ISDS Electives

ISDS 465 Linear Programming in Management Science (3)

ISDS 490 Queuing and Stochastic Models in Management Science (3)

- ISDS 516 Introduction to Logistics Analysis Techniques (3)
- ISDS 551 Information Resources Management (3)
- ISDS 552 Systems Analysis, Design and Development (3)
- ISDS 553 Electronic Commerce: Analysis and Evaluation (3)
- ISDS 555 Business Databases: Design and Processing (3)
- ISDS 560 Advanced Deterministic Models (3)
OR ISDS 561 Advanced Probabilistic Models (3)
- ISDS 563 Geographic Information Systems for Business (3)

Electives Outside ISDS (6 units maximum)

- Accounting 511 Seminar in Managerial Accounting (3)
- Economics 502 Advanced Microeconomic Analysis (3)
- Finance 517 Managerial Finance (3)
- Management 524 Seminar in Organizational Behavior and Administration (3)
- Management 535 Production and Operations Management (3)

Terminal Evaluation (3 units)

- ISDS 576 Business Modeling and Simulation (3)

Students must complete the individual project in ISDS 576 with a grade of “B” (3.0) or better. In exceptional cases, a thesis (Business Admin 598) may serve as an option to the individual written project. See department graduate adviser for details.

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

The Master of Science in Information Technology is designed to afford a quality graduate education in a growing technological field to individuals who may not be able to get to campus to take classes in a traditional format. The objective of the program is to serve the needs of those working in the field of information technology who wish to advance their managerial and technical skills in areas critical for success, as well as for those individuals who have suitable business experience and wish to enter the field of information technology.

Subject areas required by the program are programming, accounting, data communications, management of an IT organization, systems analysis and design, e-commerce and database development. Students who graduate from the program will be able to understand and develop code for computer programs, prepare and analyze financial statements and management reports, have the ability to assess how data is communicated (both in local and wide area networks), implement managerial concepts associated with good leadership, implement the managerial and technical aspects of e-commerce, be able to design an information system and be able to set up a database system.

Admission Requirements

Applicants will be evaluated based on the following:

1. Acceptable bachelor’s degree from an appropriately accredited institution.
2. Minimum grade-point average of at least 2.5 in the last 60 semester units attempted and in good standing at the last college attended.

3. Minimum of 2 years practical experience in a functional area of business.
4. Minimum average score of 530 on the GRE or a total scaled score of 530 on the GMAT.
5. Submission of a written self-assessment explaining why they believe they would be a good candidate for the program.
6. Successful passage of a phone or face-to-face interview designed to assess their level of technology knowledge, skills and abilities to be an online learner.
7. Proficiency in office productivity tools using a personal computer and knowledge and experience in utilizing Internet-based systems.
8. For international students, a score of 570 on the paper exam or 230 on the computer based TOEFL is required.

Application Deadlines

The deadline for completing an online application is March 1 for the following fall semester (see: www.csumentor.edu). Mailed applications need to be postmarked by the same deadline. However, the deadline may be changed based upon enrollment projections.

Curriculum

The MS in Information Technology curriculum requires 30 semester units of coursework beyond the baccalaureate degree. Each student is required to attend and successfully complete an on-campus orientation session for new students and maintain a GPA of 3.0. If circumstances force a student to fall out of the original cohort schedule, the student will be permitted to continue in the program, but will default to the next cohort cycle, provided the student remains in good academic standing.

INFORMATION TECHNOLOGY STUDY PLAN

Required Courses (21 units)

- Accounting 509 Accounting for Information Technology (3)
- ISDS 405 Programming Concepts for Information Technology (3)
- ISDS 550 Business Data Communications (3)
- ISDS 551 Information Resource Management (3)
- ISDS 552 Systems Analysis, Design and Development (3)
- ISDS 553 Electronic Commerce: Analysis and Evaluation (3)
- ISDS 555 Business Databases: Design and Processing (3)

Elective Courses (6 units)

- Accounting 507 Seminar in Accounting Information Systems (3)
- ISDS 435 Integrated Enterprise Information Systems (3)
- ISDS 518 Quantitative Tools for Information Technology Management (3)
- ISDS 521 Revenue Management Modeling (3)
- ISDS 554 E-Commerce: Technological Perspectives (3)
- ISDS 556 Data Warehousing and Foundations of Business Intelligence (3)
- ISDS 558 Advanced Software Development with Web Applications (3)

Required Capstone Course (3 units)

ISDS 577 Seminar in Information Systems Implementation (3)

INFORMATION SYSTEMS AND DECISION SCIENCES COURSES

Courses are designated as ISDS in the class schedule.

102 Introduction to Information and Multimedia Technology (2)

A hands-on course covering information resources and multimedia tools available to students at CSUF. Topics include: e-mail, the World Wide Web, Internet search engines, computerized library resources and developing electronic presentations using software such as Power Point. (Same as Computer Sci 102).

161 Discovering Business through Decision Science (1)

How businesses operate through tours of a number of manufacturing and service facilities. Emphasizes how businesses use quantitative analysis to improve operations.

162 Introduction to Excel Spreadsheets (1)

Introduction to the Excel spreadsheet with emphasis on business applications. Topics include how to enter data, formulas, functions and enhancing the worksheet to create graphs and databases. Students who take ISDS 265 cannot receive credit for ISDS 162.

163 Electronic Research of Business Enterprises (1)

How to utilize electronic and non-electronic resources to research the history of a business. The resulting history will be published on the World Wide Web.

165 Navigating the Information Superhighway (1)

A hands-on course surveying information resources available through the Internet. Topics include e-mail, the World Wide Web, Internet search engines and computerized library resources.

166 Developing Computer Based Presentations (1)

Introduces concepts, principles and techniques for developing computer-based presentations. Create presentation outlines, use masters and templates, work with graphs and organization charts, and develop electronic slides and transparencies.

167 Practical Approach to Database Systems (1)

Hands-on methods to plan, create and maintain databases. Create customized forms and queries, as well as develop professional looking reports. Students who take ISDS 265 cannot receive credit for ISDS 167.

168 Mastering the World Wide Web (1)

How the World Wide Web works and how one can set up a website and author web pages. Topics include: web browsers, design of a website, HTML, multimedia, interactive techniques, CGI, security and site promotion.

262 Visual Basic for Excel (1)

Prerequisite: ISDS 162 or equivalent. Introduction to the Visual Basic programming language that is a subset of the Excel spreadsheet. Students who take ISDS 265 cannot receive credit for ISDS 262.

265 Introduction to Information Systems and Applications (3)

Introduction to information systems, hardware, software, information systems concepts in business; telecommunications; e-commerce; enterprise systems; system development/acquisition; ethics, crime and security; microcomputer applications and hands-on exercises in the business arena.

309 Introduction to Operating Systems and Programming (3)

Prerequisite: ISDS 265. Structured programming principles; operating systems; shell commands and scripts; preparing and maintaining disks; managing files and processes; fundamental programming constructs; conditional processing; arrays; subroutines; parameter passing; file processing.

310 Systems Analysis and Design (3)

Prerequisite: ISDS 265 or equivalent. Systems analysis and design for business information systems; systems development methodologies; managing changes to system parameters; systems process and data models; case tool types and their use; structured vs. object oriented analysis and design.

352 Advanced Data and Information Analysis in Business (3)

Prerequisites: Finance 320 and Marketing 351. Advanced spreadsheet topics for professional business, downloading of databases into spreadsheets and database packages and statistical analyses for decision support; database concepts and design; querying and report writing; applications to financial/ marketing forecasting models.

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

Prerequisites: Math 135 and ISDS 265 or equivalents. Corequisite: Business Admin 301. 2.5 cumulative GPA for online section registration. Probability concepts; expectations; descriptive statistics; discrete and continuous random variables; sampling; estimation; hypothesis testing; simple and multiple regression; nonparametric statistics.

361B Quantitative Business Analysis: Statistics and Management Science (3)

Prerequisites: ISDS 361A; 2.5 cumulative GPA for online section registration. Quantitative methods and their application to business and economic problems. Forecasting, ANOVA, quality control, decision analysis, mathematical modeling, optimization, PERT/CPM, inventory.

371 C++ For Business Applications (3)

Prerequisites: ISDS 309. C++ syntax, structured programming, table handling, design standards, object oriented programming.

372 Java Programming for Business Applications (3)

Prerequisites: ISDS 309. Java syntax and structure. Object oriented programming: classes, objects, association, inheritance, polymorphism. Business applications of Java. Use of Java packages. Web applications: applets and threads.

405 Programming Concepts for Information Technology (3)

Prerequisite: admission to the Master of Science in Information Technology program. Application programming fundamentals for IT systems; structured and object-oriented programming, accessing and management of database tables and external files; layout design and data extraction for advanced output; testing, debugging and analysis tools.

408 Database Management Systems (3)

Prerequisites: Business Admin 301 and ISDS 309. Essential concepts, principles and methods for analysis, design and implementation of database management systems; covers theory and practice; emphasizes the relational model; examines issues and problems associated with developing single and multiple user applications both today and in the future; project required.

409 Business Telecommunications for Information System Design (3)

Prerequisites: Business Admin 301, ISDS 309 and 310. Essential concepts for developing a data communication architecture to support Information Systems for a business enterprise. Requires students to undertake a group project to design a LAN.

411 Business Application Design (3)

Prerequisites: Business Admin 301 and ISDS 309. Contemporary issues in the design and development of integrated, graphical user interface-based business applications.

414 Internet Technologies and Applications (3)

Corequisites: ISDS 408. Contemporary Internet technologies and Web applications: Internet infrastructures, development of Web sites and dynamic Web pages, Web databases, business applications. Not applicable to graduate degree requirements.

415 Principles of Business Intelligence (3)

Prerequisites: Business Admin 301, ISDS 309. Principles and procedures related to the design and use of expert systems and decision support systems principles in management decision making; development of expert systems using shells.

418 Privacy and Security (3)

Corequisites: Business Admin 301 and ISDS 409. Security and privacy problems associated with the use of computer systems; ways to minimize risks and losses.

422 Surveys and Sampling Design and Applications (3)

Prerequisites: Business Admin 301, ISDS 361A. Principles for designing business and economic surveys. Applications in accounting, marketing research, economic statistics and the social sciences. Sampling; simple random, stratified and multistage design; construction of sampling frames; detecting and controlling non-sampling errors.

431 Enterprise Systems Implementation, Configuration and Use (3)

Prerequisite: Mgmt 339. Methodology and tools for configuring an ERP system to support critical business processes. Topics include system modules, implementation tools and data settings. Focuses on configuring the system to support a variety of business scenarios.

433 Enterprise Systems Administration (3)

Prerequisite: ISDS 310 or ISDS 552. Technical administration practices required to manage the day-to-day operations of an Enterprise Resource Planning (ERP) system. Topics include system architecture, security, system performance and installation of upgrades.

435 Integrated Enterprise Information Systems (3)

Prerequisites: Mgmt 339. Application programming fundamentals for ERP systems; accessing and management of ERP database tables and external files; layout design and data extraction for advanced output; testing, debugging and analysis tools; security issues in an ERP system.

437 Enterprise Networks for Information Systems (3)

Prerequisite: ISDS 409 or ISDS 550. Placing the network in perspective within the overall enterprise that it serves, and the issues involved in constructing, updating and managing the networks which make up the infrastructure of those information systems.

440 Integrative Decision Tools for Business Operations (3)

Prerequisites: Business Admin 301, ISDS 361B. Intermediate management science modeling and solution techniques, including topics in linear and non-linear programming, integer programming, dynamic programming, Markov processes, queuing theory and inventory models.

442 Business Modeling Using Spreadsheets (3)

Prerequisite: ISDS 361B or equivalent. Microsoft Excel will be used to implement business models. Excel will be used to effectively organize, analyze and present information. Examples include operations, production, marketing and finance. Macros, goal seek, solver, simulation and data tables are covered.

454 Senior Project: Information Systems Development (3)

Prerequisites: Business Admin 301, ISDS 408 and 409. Integrates information systems development concepts of analysis, design and implementation. Students will develop an information system from concept to completion. Individual and team effort.

461 Statistical Theory for Management Science (3)

Prerequisites: Business Admin 301, ISDS 361A. Review of mathematical topics needed for statistical theory. Distribution theory, moment generating functions, central limit theorem. Estimation theory, maximum likelihood. Hypothesis testing, Neyman-Pearson Lemma, likelihood ratio tests. Use of statistical software packages.

465 Linear Programming in Management Science (3)

Prerequisites: Business Admin 301; ISDS 361B or Math 250B. Mathematical and theoretical foundations for linear programming; geometric and linear algebraic approaches and proofs; simplex method, duality, sensitivity and parametric analyses, extensions to specialized algorithms and large-scale models; practical and computer based applications will be discussed.

467 Statistical Quality Control (3)

Prerequisites: Business Admin 301 and ISDS 361A. Control charts for variables, percent defective and defects. Tolerances, process capacity; special control charts, acceptance sampling and batch processing problems. Bayesian aspects of process control.

472 Design of Experiments (3)

Prerequisites: Business Admin 301 and ISDS 361A. Corequisite: ISDS 440. Fundamentals of experimental design. Analysis of variance, factorial experiments, nested designs, confounding and factorial replications.

473 Applied Business Forecasting (3)

Prerequisites: Business Admin 301 and ISDS 361A. Forecasting methods applied to problems in business and industry; practical multiple regression models with computer solutions; basic techniques in time-series analysis of trend, cyclical and seasonal components; correlation of time-series and forecasting with the computer.

474 Data Mining for Managers (3)

Prerequisite: ISDS 361A or equivalent. Introduction to the fundamentals of data mining. Topics may include association, classification, clustering, decision trees, statistical modeling and visualization. Motivation for the applications of data mining techniques. Use of data mining software suites on data sets.

475 Multivariate Analysis (3)

Prerequisites: Business Admin 301 and ISDS 361A. The least squares principle; estimation and hypothesis testing in linear regression; multiple and curvilinear regression models; discriminant analysis; principle components analysis; application of multivariate analysis in business and industry.

490 Queuing and Stochastic Models in Management Science (3)

Prerequisites: Business Admin 301 and ISDS 361B or Mathematics 335. Probabilistic models in management science; theoretical foundation and model development for Poisson process models, birth-death models, Markovian and general queuing situations and Markov chains; renewal theory and/or reliability models; practical business applications.

495 Internship (1-3)

Prerequisites: Business Admin 301; at least junior standing, 2.5 GPA and one semester in residency at the university; and consent of internship adviser. For Information Systems concentration, ISDS 309; for Management Science concentration, ISDS 361BI; for International Business concentration, ISDS 309 or ISDS 361B. Planned and supervised work experience. May be repeated for credit up to a total of six units. Credit/No credit grading only.

499 Independent Study (1-3)

Prerequisites: Business Admin 301, ISDS 361B, senior standing and approval by the Department Chair. Open to qualified students desiring to pursue directed independent inquiry. May be repeated for credit. Not open to students on academic probation.

513 Statistical Analysis (3)

Prerequisites: Math 135, ISDS 265 (or equivalents) and classified MCBE status. Basic probability and descriptive statistics; sampling techniques; estimation and hypothesis testing; simple and multiple regression, correlation analysis; computer packages and other optional topics.

514 Decision Models for Business and Economics (3)

Prerequisites: ISDS 513 and classified MCBE status. Linear programming; inventory; PERT-CPM; queuing; computer simulation; time-series forecasting; and other optional topics.

516 Introduction to Logistics Analysis Techniques (3)

Prerequisites: ISDS 514 and classified MCBE status. Scope of logistics; external and internal environment; analysis of demand, analysis of cost, commodity and transportation rates; structure of transport industry, inventory management, merchandise storage and warehousing; framework of regional analysis; methods of location analysis.

518 Quantitative Tools for Information Technology Management (3)

Quantitative tools that are useful in management of an IT organization. Topics include review of probability concepts, linear programming, network modeling, project management, decision analysis, forecasting, queuing theory and simulation. Students may not receive credit for both ISDS 514 and 518.

521 Revenue Management Modeling (3)

Prerequisite: ISDS 514 or equivalent. Corequisite: Economics 515. Revenue management deals with how prices are set in organizations. Provides analytical tools and a conceptual framework to determine optimal price recommendations. Reinforces concepts student may have learned in other business courses such as marketing or economics.

526 Forecasting, Decision Analysis and Experimental Design (3)

Prerequisites: ISDS 514 and classified MCBE status. Time series analysis. Trend, cyclical and seasonal components. Statistical decision theory. Fundamental principles of experimental design; interaction. Software packages.

550 Business Data Communications (3)

Essential concepts for developing a data communication architecture for a business enterprise. Issues of transmission media, speed, efficiency, protocols, security in a variety of network architectures such as LAN, WAN, VPN, leading to "the state of the art" wireless networks. Concludes with a discussion on the technical implications of doing business on the Internet.

551 Information Resources Management (3)

Prerequisite: admission to MCBE graduate program. Expanding role of information systems in the overall strategy and management of organizations. Topics include strategic value of information systems, management of the information systems development and procurement process, E-commerce and integrated enterprise systems.

552 Systems Analysis, Design and Development (3)

Prerequisite: admission to MCBE graduate program. Systems analysis and design concepts, life cycle and prototyping; planning and managing projects; systems evaluation, selection and development. Interface design with controls, object-oriented design concepts and tools, including the use of cases and UML.

553 Electronic Commerce: Analysis and Evaluation (3)

Electronic commerce. Understanding the technical infrastructure, which enables E-commerce. Organizational challenge for developing an appropriate business model for emergence of the electronic business. Social economical impact of electronic commerce.

554 E-Commerce: Technological Perspective (3)

Corequisite: ISDS 555. Expanding role of the Internet in the overall strategy, implementation and management of enterprise-wide information systems. Topics include organizational utilization of electronic information resources, as well as Internet application planning, development, implementation and control.

555 Business Databases: Design & Processing (3)

Internet and multi-user databases; accessing Web servers; data warehouse, structured query language, client-server database systems and programming; object-oriented databases.

556 Data Warehousing and Foundations of Business Intelligence (3)

Prerequisites: ISDS 552 and 555. Introduces basic concepts, architectures and development strategies of data warehousing, issues in managing data as organizational assets and its potentials for competitive advantages in dynamic business environments.

557 Issues in Business Information Systems & Global Telecommunications (3)

Prerequisite: Management 515. Advanced concepts of global networks, advanced communications design and management, global information security and privacy, global communications protocol and applications to industry, government and commercial sectors.

558 Advanced Software Development with Web Applications (3)

Prerequisites: ISDS 552, 555 and 411 or equivalent programming course. Advanced client/server software development techniques with specific emphasis on the Internet. Topics include file structure, managing relational databases with data control and SQL and ActiveX components and objects.

560 Advanced Deterministic Models (3)

Prerequisites: ISDS 514. Advanced linear programming, dynamic programming, integer programming, non-linear programming, business applications. Software packages and computer-utilization.

561 Advanced Probabilistic Models (3)

Prerequisites: ISDS 514 and classified MCBE standing. Stochastic processes, Markov processes, advanced queuing and inventory models; reliability. Software packages and computer utilization.

563 Geographic Information Systems for Business (3)

Prerequisite: ISDS 555. Use of Geographic Information Systems in support of business applications such as site location, scheduling, marketing and real estate. Students will develop GIS applications for local businesses.

565 Wireless Information Systems (3)

Prerequisite: ISDS 550. Contemporary wireless technologies; wide-area and local-area wireless infrastructures; design, planning and operation of wireless communication systems; 3G and next-generation wireless architectures. Wireless spectrum and regulatory issues.

568 Information Systems for Knowledge Management (3)

Knowledge management systems are useful for businesses to leverage their intellectual capital. The course covers how knowledge is created, captured, represented, stored and used to solve business problems. Software demonstrations and case studies will be used for illustrations.

576 Business Modeling and Simulation (3)

Prerequisite: ISDS 514. Theory and application of modeling and simulation methodology. Probabilistic concepts in simulation; arrival pattern and service times; simulation languages and programming techniques; analysis of output; business applications. Requires projects. The individual project will fulfill the terminal degree requirement.

577 Seminar in Information Systems Implementation (3)

Prerequisite: to be taken in the last semester or with completion of at least seven ISDS courses in the program. Integrates the development concepts of project management, analysis, design and implementation with telecommunications, database design, programming, testing and system integration issues. Students will develop information systems from concept to completion through individual and team effort. Requires projects. Individual project will fulfill the terminal degree requirement.

578 Seminar in Logistics Models (3)

Prerequisites: ISDS 516, 526 and Marketing 519. Integrates the concepts of logistics to systematically analyze a distribution system. Students will perform a complete analysis of an existing distribution system to investigate the value added role of logistics in distribution. Includes article analysis, case analysis, a research project, individual and group reports and oral and written presentations. Requires projects. Individual project will fulfill the terminal degree requirement.

597 Project (3)

Prerequisite: classified MCBE status. Directed independent inquiry. Not open to students on academic probation.

599 Independent Graduate Research (1-3)

Prerequisites: classified MCBE status and consent of Department Chair and Associate Dean. May be repeated for credit. Not open to students on academic probation.

Instructional Design and Technology

College of Education

INTRODUCTION

The Master of Science in Instructional Design and Technology is an interdisciplinary program housed within the College of Education and draws upon a team of outstanding faculty with expertise, training and experience in instructional technology and design with applications for teaching, learning, training and curriculum development.

Benefits of the program include:

- The degree represents a comprehensive, high quality, affordable program staffed by a team of outstanding and dedicated faculty with expertise and experience in instructional technology and educational practice, backed up with strong program and administrative support.
- The program is completed in 21 months (2 courses per term segment – 15 weeks).
- The coursework in the program is 100 percent online, with 2 required on-campus Saturday meetings (two on-campus trips for a total of 2 days).
- The program promotes collaboration, professional networking and team-building among peers, faculty, staff and other professionals.
- Graduates of the program will gain valuable knowledge and skills in the development, design, evaluation and implementation of a wide variety of instructional technologies applicable to a wide range of training and learning settings (K-12, postsecondary education, military, business/industry). Furthermore, graduates will obtain expertise in the enhancement of teaching and learning based on sound and current educational research, theory and practice and will be well positioned as a professional in a competitive job market in educational or business/corporate settings. An active alumni association provides mentoring opportunities while in the program, and professional networking upon completion (www.msidaa.org).

ADMISSION AND PROGRAM REQUIREMENTS

New students are admitted once a year for the fall term segment that begins in August. Deadline for completing on-line applications www.csumentor.edu is March 1 as is the postmark deadline for mailed applications. However, this deadline may be changed based upon enrollment projections. Please check the program website for current information at <http://msidt.fullerton.edu>.

Minimum state and program requirements for admission to conditional classified standing in the program include the following:

1. Hold a baccalaureate from an accredited institution of higher education,
2. Have earned a minimum grade-point average of 3.0 in the last 60 semester units attempted as documented by two official copies of transcripts from all higher education institutions attended
3. Good standing at the last college attended

PROGRAM COORDINATOR

JoAnn Carter-Wells

PROGRAM OFFICE

College Park 570

PROGRAM WEBSITE

<http://msidt.fullerton.edu>

PROGRAM OFFERED

Master of Science in Instructional Design and Technology (online offering only)

PROGRAM COUNCIL

Shariq Ahmed (Information Technology)

JoAnn Carter-Wells (Reading)

Cynthia Gautreau (Elementary and Bilingual Education)

Karen Ivers (Elementary and Bilingual Education)

Barbara Glaeser (Special Education)

Joyce Lee (Educational Leadership)

Chris Street (Secondary Education)

4. For international students from countries where English is not the official language, have a TOEFL score of 575.
5. Submission of a written self-assessment essay. Students must submit a written essay on issues such as why they would be good candidates for the program, including their experience in online learning environments and curriculum development or training; time management skills, their level and types of technology skills, their technology access, ability to work independently and professional goals.
6. Successful passage of a phone or face-to-face interview designed to assess their level of technology knowledge, skills, abilities to be an online learner and professional goals.
7. Technology requirements may be found on the program website, <http://msidt.fullerton.edu>.
8. Knowledgeable in the use of a personal computer (PC or Macintosh), including the ability to demonstrate the following skills and knowledge, which will be ascertained through a phone or face-to-face interview:
 - a. Locate, create, move, copy, delete, name, rename and save file and folders on hard drives and on secondary storage devices such as floppy disks
 - b. Use a word-processing program that runs on a PC or Macintosh computer to create, edit, format, store, retrieve and print documents
 - c. Use an electronic mail system to receive, create, edit, print, save, and send an e-mail message with and without an attached file
 - d. Use an Internet browser to search the World Wide Web, conduct research through CSUF library resources; and
 - e. Use databases, spreadsheets and multimedia applications.

Continuation and completion of the program requires:

9. Registration, attendance and successful completion of the on-campus "Boot-Up Camp" and the Midpoint Symposium (program requisites).

If circumstances force a student to fall out of their original cohort schedule, they will be permitted to continue in the program, but will default to the next cohort cycle provided they remain in good academic standing.

Special accommodations for disabled students will be made on an individual student, as-needed basis in compliance with the CSUF online catalog (<http://www.fullerton.edu/disabledservices/handbook/SupportiveServices.htm>). Please contact the instructor and Program Coordinator if this applies to you.

STUDY PLAN REQUIREMENTS

The Master of Science in Instructional Design and Technology requires 30 units of approved graduate courses and takes a total of five term segments, (21 months) to complete. The schedule runs year-round as follows:

August

On-Campus Boot-Up Camp (1 day/Saturday)

Session 1: *September through December*

IDT 505 Hardware and Authoring Environments in Instructional Contexts (3)

IDT 510 Research Practices in Instructional Design and Technology (3)

Session 2: *January through early May*

IDT 520 Instructional Design Issues for Technology-based Instruction (3)

IDT 525 Instructional Approaches in Learning and Cognition (3)

Session 3: *May through August*

IDT 530 Planning, Designing and Evaluating Technology-based Instruction (3)

IDT 535 Instructional Strategies for Pre-K through Adulthood (3)

October

On-Campus Midpoint Symposium (1 day/Saturday)

Session 4: *September through December*

IDT 540 Web-based Teaching and Learning (3)

IDT 545 Emerging Technology and Issues in Instruction (3)

Session 5: *January through early May*

IDT 550 Practicum in Instructional Design and Technology (3)

IDT 597 Project (3)

INSTRUCTIONAL DESIGN AND TECHNOLOGY COURSES

Courses are designated as IDT in the class schedule.

505 Hardware and Authoring Environments in Instructional Contexts (3)

Prerequisite: successful completion of summer on-campus orientation (Boot-Up Camp). Necessary understanding of operating systems, hardware and networking environments to develop instructional tools and products using a multimedia authoring tool.

510 Research Practices in Instructional Design and Technology (3)

Prerequisite: completion of orientation program for M.S. in Instructional Design and Technology (IDT). Survey course on terms and accepted procedures in qualitative and quantitative inquiry as they apply to instructional design and technology. Students conduct controlled portions of IDT research and prepare preliminary proposals for larger projects.

520 Instructional Design Issues for Technology-based Instruction (3)

Prerequisite: IDT 505. Systematic design of instructional courseware, including analysis, media selection, design, development and evaluation. Topics include learning principles, learner characteristics, instructional strategies, screen design, response analysis, feedback and interactivity.

525 Instructional Approaches in Learning and Cognition (3)

Prerequisites: IDT 510 and concurrent enrollment in IDT 520. Behavioral, cognitive, constructivist learning theories, related concepts and their implications for designing instruction. Develops critical thinking about desirable cognitive outcomes when designing educational experiences.

530 Planning, Designing, Developing and Evaluating Technology-based Instruction (3)

Prerequisite: IDT 520. Application of computer-based instructional design principles to develop new methods and materials for technology-based instruction. Topics include computer-based instruction, project management, planning, assessment, design principles and development tools. Students will design multimedia courseware.

535 Instructional Strategies for Pre-K through Adulthood (3)

Prerequisites: IDT 525 and concurrent enrollment in IDT 530. Training in instructional strategies for Pre-K through adulthood. Emphasizes current research on instructional strategies and assistive technologies in a variety of instructional contexts.

540 Web-based Teaching and Learning (3)

Prerequisites: IDT 530 and successful completion of Midpoint Symposium. Design, development and implementation of Web pages and sites for instructional purposes. Emphasizes issues surrounding using the World Wide Web for instruction.

545 Emerging Technologies and Issues in Instruction (3)

Prerequisites: IDT 530, IDT 535 and concurrent enrollment in IDT 540. Theoretical basis, issues and strategies for improving teaching and learning through the use of emerging technologies.

550 Practicum in Instructional Design and Technology (3)

Prerequisites: concurrent enrollment in IDT 597 and consent of Program Coordinator. Strategies for effectively implementing and evaluating instructional design and technology to improve learning; includes significant field work assignments in work-related settings.

597 Project (3)

Prerequisites: concurrent enrollment in IDT 550 and consent of Program Coordinator. Individual research on an empirical project, with conferences with the instructor, culminating in a project.

International Business

Mihaylo College of Business and Economics

PROGRAM COORDINATOR

Irene Lange

PROGRAM WEBSITE

[http://business.fullerton.edu/
Undergraduate/intlbus.htm](http://business.fullerton.edu/Undergraduate/intlbus.htm)

PROGRAM OFFICE

Steven G. Mihaylo Hall 5214

PROGRAM OFFERED

Bachelor of Arts in International Business

Concentrations in:

Chinese
French
German
Japanese
Portuguese
Spanish

ADVISERS

The Business Advising Center, Steven G. Mihaylo Hall 1201, provides information on admissions, curriculum and graduation requirements, registration and grading procedures, residence and similar academic matters. Additional advising on curriculum content and career opportunities is available from the International Business Program:

International

Business	Irene Lange
Chinese	Jinghui Liu
French	Fanny Daubigny
German	Jan Eyring/ Marjorie Tussing
Japanese	Setsue Shibata
Portuguese and Spanish	Josefina Hess

INTRODUCTION

The international business curriculum covers the fundamentals of business administration, with an emphasis on international business. Foreign language courses are required and stress the use of the applied language. The program also includes an internship with an international business. This curriculum prepares students for entry level positions. Opportunities exist in contracts, distribution and sales and may lead to general management positions. Since Southern California is a major international business center, there are career opportunities with internationally oriented firms in this area. Other career opportunities may involve international travel or overseas assignments.

Language concentrations are offered in Chinese, French, German, Japanese, Portuguese and Spanish. Other concentrations may be developed in the future. The program is offered jointly by the Mihaylo College of Business Administration and Economics and the Department of Modern Languages and Literatures.

Scholarship In International Business

Friends of International Marketing

Preparation For The Major

Students who expect to complete this program in the usual four-year period should realize that the total requirements, including general education courses and prerequisites, can exceed 120 semester units. Intermediate to advanced competency in a foreign language is a prerequisite to the required concentration courses. Students are strongly encouraged to complete a minimum of three years of foreign language study while in high school. Similarly, algebra and geometry are necessary for many required business courses. The equivalent of three years of high school mathematics, including a second course in algebra, is the prerequisite for the required Math 135, Business Calculus. Students without the necessary background will need to enroll in Math 115, College Algebra.

BACHELOR OF ARTS IN INTERNATIONAL BUSINESS

Admission to the International Business major involves two steps. Students who apply to the major are initially classified as pre-international business. After completing the lower-division core requirements with grades of at least "C" (2.0) and demonstrating satisfactory progress toward intermediate competency in a foreign language, students may apply to the international business major. Pre-international business students may take lower-division business courses, but most upper-division courses are not open to pre-international business students.

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 in the major. The International Business degree requires a minimum of 120 units. Students must fulfill all requirements for the major, General Education, all other University requirements and free electives.

Required Lower-Division Core Courses

- Accounting 201A Financial Accounting (3)
- Accounting 201B Managerial Accounting (3)
- Business Admin 201 Business Writing (3)
- Econ 201 Principles of Microeconomics (3)
- Econ 202 Principles of Macroeconomics (3)
- Management 246 Business and Its Legal Environment (3)
- InfoSys/DecSci 265 Introduction to Information Systems and Applications (3)
- Math 135 Business Calculus (3)
 - OR Math 130A Short Course in Calculus (4)
 - OR Math 150A Analytic Geometry and Calculus (4)

Intermediate foreign language competency is a prerequisite to the concentrations in Chinese, French, German, Japanese, Portuguese and Spanish. Students in international business should consult an adviser in the Department of Modern Languages and Literatures as soon as possible in order to assess individual proficiency levels. Students may be required to take additional prerequisite courses.

Required Upper-Division Core Courses

- Business Admin 301 Advanced Business Communication (3)
- Econ 335 International Economy (3)
- Finance 320 Business Finance (3)
- Finance 370 International Business Finance (3)
- Management 339 Principles of Management and Operations (3)
- Management 340 Organizational Behavior (3)
- InfoSys/DecSci 361A Quantitative Business Analysis: Probability and Statistics (3)
- Marketing 351 Principles of Marketing (3)
- Marketing 445 International Marketing Strategies (3)

Required Capstone Core Course

After completing all lower- and upper-division core courses, take Management 480 Global Strategic Management (3).

Required Concentration

Choose one of the following concentrations:

Concentration in Chinese

- Chinese 310 Chinese in the Business World (3)
- Chinese 311 Chinese for International Business (3)
- Chinese 315 Introduction to Chinese Civilization (3)
- Chinese 325 Contemporary Chinese Culture (3)

Concentration in French

- French 310 French in the Business World (3)
- French 311 French for International Business (3)
- French 315 Origins of Modern France (3)
- French 325 Contemporary French Civilization (3)

Concentration in German

- German 310 German in the Business World (3)
- German 311 German for International Business (3)
- German 315 Introduction to German Civilization (3)
- German 325 Current Trends in Culture of German-Speaking Peoples (3)

Concentration in Japanese

- Japanese 310 Japanese for Business (3)
- Japanese 311 Japanese for International Business (3)
- Japanese 315 Introduction to Japanese Civilization (3)
- Japanese 316 Modern Japan (3)

Concentration in Portuguese

- Portuguese 310 Portuguese in the Business World (3)
- Portuguese 317 Advanced Conversation and Composition (3)
- Portuguese 320 Introduction to Luso-Brazilian Culture and Civilization (3)
- Portuguese 325 Contemporary Brazilian Civilization (3)

One of the following courses may be substituted for Portuguese 320 or 325:

- Spanish 310 Spanish in the Business World (3)
- Spanish 311 Spanish for International Business (3)

Concentration in Spanish

- Spanish 310 Spanish in the Business World (3)
- Spanish 311 Spanish for International Business (3)
- Spanish 315 Introduction to Spanish Civilization (3)
- Spanish 316 Introduction to Spanish-American Civilization (3)

One of the following may substitute one of the following for Spanish 315 or 316:

- Spanish 415 Contemporary Spanish Culture (3)
- Spanish 416 Contemporary Spanish-American Culture (3)

Collateral Requirement (3 units)

Complete at least one approved collateral elective. It is recommended that students take up to 12 units of electives, if possible. The list of approved courses is available in the Business Advising Center, Steven G. Mihaylo Hall 1201, or the International Business Program Office, Steven G. Mihaylo Hall 5214.

Internship Requirement

Internships outside the United States: Students who successfully arrange an internship in a country where the language of their concentration is used, will enroll for three units in a language internship and three units in a business internship. During this experience, students are expected to spend a minimum of four months in full-time employment with a faculty-approved firm. Simultaneous enrollment in the two internships is expected and students normally will not engage in any other academic activity.

Internships in the United States

Students who complete internships locally must arrange a business internship that involves some aspects of international operations. In addition, these students must complete an additional pre-approved three-unit upper-division foreign language course. The course must increase students' understanding of the language and culture of their concentration. If students are expected to use their foreign language on a daily basis as part of their business internship work activity, students may complete a foreign language internship rather than the course. Approval for this option must be obtained prior to enrollment in the business internship and written evidence of language use must be provided at the completion of the language internship.



Internship Courses

Accounting 495 Internship (3)

Economics 495 Internship (3)

Finance 495 Internship (3)

InfoSys/DecSci 495 Internship (3)

Management 495 Internship (3)

Marketing 495 Internship (3)

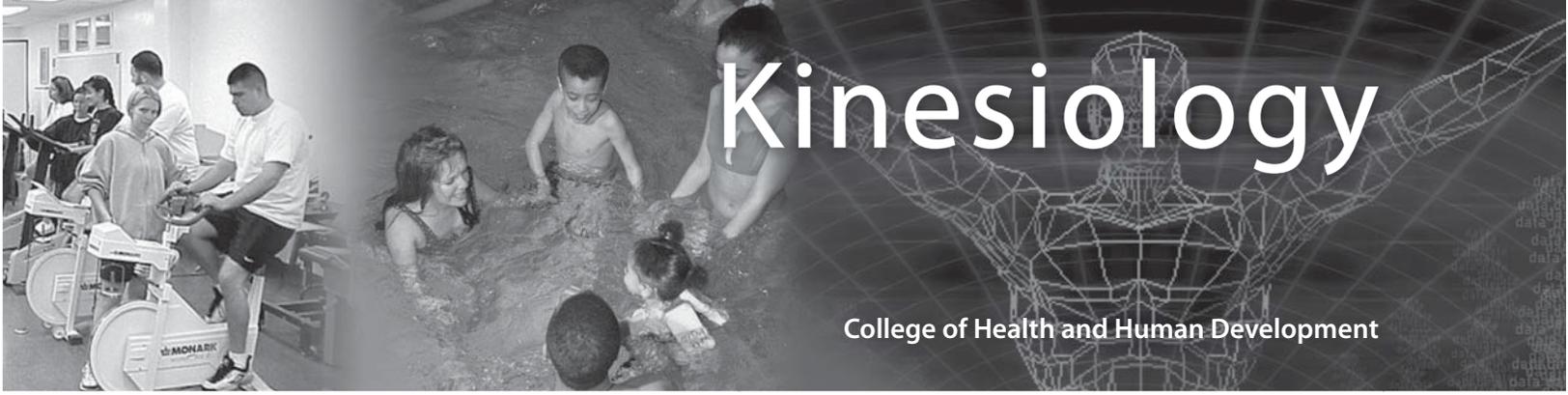
Modern Language 495 Internship (3)

Other Requirements

Grade Point Average (GPA): Attain at least a 2.0 GPA ("C" average) in all university courses and in the concentration courses. Earn at least a "C" (2.0) grade in each course required for the major.

Grade Options: Take all required core and concentration courses 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 of the degree. Exceptions: Calculus (Math 130, 135 or 150A) and Internship may be taken under the credit/no credit option, although courses taken to meet general education requirements must be taken for a letter grade.

Residence: At least 12 units of upper-division core courses, 6 units of upper-division concentration courses and 6 units of internships must be taken in residence at CSUF.



Kinesiology

College of Health and Human Development

INTRODUCTION

The Department of Kinesiology advances the understanding and practice of human movement principles across the lifespan in response to the needs of a diverse and changing society. The Bachelor and Master of Science degrees in Kinesiology offer students a variety of professional focus areas, including Clinical Exercise Science, Fitness and Health Promotion, Gerokinesiology, Sport Studies, Teacher Education and Pedagogical Studies (MS only). An undergraduate Minor in Kinesiology is also available. The Department also offers a Bachelor of Science Degree in Athletic Training that meets the requirements of the Commission on the Accreditation of Athletic Training Education. Completing the B.S. in Athletic Training as part of the Athletic Training Education Program prepares students to take the national board examination to become certified athletic trainers (ATC).

Degrees in Kinesiology offer advanced study and research opportunities in one or more of the sub-disciplines of Kinesiology: Biomechanics, Exercise Physiology, Motor Control/Learning, Sport and Exercise Psychology, Socio-cultural Perspectives and Philosophical Perspectives.

The intra-disciplinary focus of the Department's curriculum fosters the development of diverse values and skills important to a liberal arts education: critical thinking, problem solving, leadership, verbal and written communication, and technological competency.

The Department provides general education courses and university-wide opportunities for developing skills and knowledge leading to lifelong enjoyment of physical activity, health and well-being. Internships, independent study and scholarly outreach provide opportunities for collaboration with and service to the community.

Student Awards/Scholarships

Awards and scholarships are presented each year to outstanding undergraduate and graduate students. Additional information is available in the Kinesiology Department office.

Advisement

Entering students interested in Kinesiology should contact the Kinesiology Academic Advising Center in KHS 161A prior to their first semester at Cal State Fullerton to receive appropriate advisement materials. Students transferring coursework from other colleges and universities should provide official transcripts of all prior coursework to the Kinesiology Academic Advising Center.

Transfer students and students seeking advisement related to completion of General Education requirements, should visit the Academic Advisement Center located in University Hall 123.

BACHELOR OF SCIENCE IN ATHLETIC TRAINING

The Department of Kinesiology offers a Bachelor of Science in Athletic Training through its Athletic Training Education Program (ATEP), which is nationally accredited by the Commission on the Accreditation of Athletic Training Education

DEPARTMENT CHAIR

Stephan Walk

DEPARTMENT OFFICE

KHS 121A

DEPARTMENT WEBSITE

<http://hhd.fullerton.edu/knes>

PROGRAMS OFFERED

Bachelor of Science in Athletic Training
Bachelor of Science in Kinesiology
Minor in Kinesiology
Subject Matter Preparation Program in
Physical Education for the Single
Subject Credential
Master of Science in Kinesiology

FACULTY

Michele Barr, William Beam, Andrea Becker, Lee Brown, David Chen, Jared Coburn, Barbie Gil-Alviso, Daniel Judelson, Robert Kersey, Patricia Laguna, Julie Max, Guillermo Noffal, Debra Patterson, Karen Perell, Kenneth Ravizza, Debra Rose, Daniela Rubin, Clay Sherman, Traci Statler, Stephan Walk, Kathy Webster, Lenny Wiersma

(CAATE). Upon successful completion, students earn a B.S. in Athletic Training and are eligible to take the Board of Certification (BOC) exam to become a certified athletic trainer (ATC). Please refer to the program web site (<http://hhd.fullerton.edu/at/>) for the most current ATEP information.

Certified athletic trainers are healthcare professionals, educated and experienced in the prevention, assessment, management and rehabilitation of active and/or athletic individuals with injuries or illnesses. The certified athletic trainer functions as an integral member of the healthcare team in secondary schools, colleges and universities, professional sports teams, as well as in sports medicine clinics, industrial settings and other healthcare venues.

The ATEP is an arduous, pre-professional experience for future certified athletic trainers. The Athletic Training (AT) major involves a minimum of 123 units, including five semesters of clinical rotations. Competence will be gained in each of the 12 athletic training domains as outlined by the National Athletic Trainers' Association.

ADMISSIONS POLICIES AND PROCEDURES

CSUF admission does not guarantee admission into the AT major. Competitive admission is based on the applicant's academic history, athletic training experiences, professional recommendations and communication skills. The AT Selection Committee includes AT-related faculty, staff and students. Minimal academic, clinical, professional and technical standards are required to enter and remain in the ATEP. Ongoing assessments determine appropriateness for dismissal, probation, retention or completion.

Application Packet

ATEP application packets are available online (<http://hhd.fullerton.edu/at/>). A completed application and required support materials must be submitted to the ATEP director by the stated deadline (see website).

Course Prerequisites

Applicants must pass (C or better) these courses or their equivalent prior to entering the Athletic Training degree program:

Chemistry or Physics (choose from G.E. category IIIA2a)

Psychology 101 Introductory Psychology

Health Science 101 Personal Health

KNES 200 Introduction to Athletic Training

BIOL 361 Human Anatomy or KNES 191A Int. Human Anatomy & Physiology

Grade Prerequisites

Applicants MUST have a minimum overall college GPA of 2.5 (4.0 scale).

Clinical Prerequisites

All ATEP applicants must complete and document 100 hours of clinical experience under the supervision of a Certified Athletic Trainer.

Support Materials

Applicants must submit the following:

1. Three Recommendation Forms (ATEP Application Packet) from individuals knowledgeable about the applicant's ability to succeed in the ATEP (athletic trainers, physicians, coaches, professors, etc.)
2. Personal Statement (<500 words). This document should briefly detail the candidate's reasons for pursuing athletic training, previous experiences, expectations of the ATEP and future professional goals
3. Transcripts of all college credits
4. Proof of current Professional Rescuer CPR

ATEP STANDARDS

AT students must achieve and maintain Academic, Professional, Clinical and Technical standards. Failure to comply may result in probation or dismissal. Once admitted, all students shall meet or exceed the following ATEP Standards:

Academic Standards

Minimally achieve and maintain:

- Fulltime CSUF student status
- 2.5 overall GPA
- 3.0 Athletic Training Core GPA (no grade below "C")
- 2.5 Athletic Training Foundation GPA
- 2.0 individual semester GPA

Clinical Standards

Minimally demonstrate:

- Compliance with the clinical site policies and procedures
- Effective and efficient time management skills
- Complete 200-300 clinically supervised hours per semester
- Complete and/or comply with:
 - ATEP First Responder Policy
 - ATEP Student Health Screening
 - ATEP Clinical Practice Policy
 - ATEP Communicable Disease Policy

Professional Standards

Minimally achieve and maintain:

- A valid Professional Rescuer CPR Certification
- A positive and professional attitude
- Patient confidentiality
- Positive leadership
- Professional communication
- Professional appearance
- Respect for the property and rights of all others

Technical Standards

Achieve and maintain ATEP Technical Standards as described in the ATEP Handbook and the website (<http://hhd.fullerton.edu/at/>).

Additional

All AT students must clearly understand the following:

- Successful completion of the B.S. in Athletic Training does NOT guarantee certification as a Certified Athletic Trainer
- To take the BOC exam as a CSUF graduate, one must successfully complete the AT major as described. CSUF will not sponsor any graduate who does not meet ALL ATEP Standards.
- Failure to meet any of these standards may result in probation or dismissal from the California State University, Fullerton – Athletic Training major

TRANSFER STUDENTS

Transfer students must meet the same admissions requirements as other students, and should enter CSUF as a Kinesiology major. Upon ATEP admission, individuals will then change their major to Athletic Training.

ATEP COSTS

ATEP students provide their own transportation (and any costs incurred) to and from clinical sites. Some clothing requirements will also be the responsibility of the student. The ATEP will provide liability insurance, medical kits and supplies, and most specialized clothing.

REQUIREMENTS FOR THE MAJOR (ADDITIONAL TO G.E. REQUIREMENTS)

Athletic Training Foundation (31-32 units)

KNES 191B Integrated Human Anatomy and Physiology (4)

OR BIOL 310 Human Physiology (3)

ENGL 301 Advanced College Writing (3)

KNES 260 Movement Anatomy (3)

KNES 300 Principles of Human Movement (3)

KNES 348 Physiology of Exercise (3)

KNES 348L Physiology of Exercise Lab (1)

KNES 349 Measurements & Statistics in Kinesiology and Health (3)

KNES 350 Nutrition (3)

KNES 351 Principles of Strength and Conditioning (3)

KNES 371 Human Motor Control and Learning (3)

KNES 383 Psychology of Sport & Physical Activity (3)

Athletic Training Core (40 units)

KNES 200 Introduction to Athletic Training & Sports Medicine (3)

KNES 365 Prevention & Care of Athletic Injuries (3)

KNES 367 Clinical Proficiencies in Athletic Training I (2)

KNES 368 Clinical Proficiencies in Athletic Training II (2)

KNES 369 Clinical Proficiencies in Athletic Training III (2)

KNES 373 Advanced Injury Assessment-Lower Extremity (3)

KNES 374 Advanced Injury Assessment-Upper Extremity (3)

KNES 375 Management of Athletic/Exercise Emergencies (3)

KNES 377 Therapeutic Exercise in Rehabilitation (3)

KNES 378 Therapeutic Modalities in Rehabilitation (3)

KNES 451 Sports Medicine (3)

KNES 463 Biomechanics of Musculoskeletal Injury (3)

KNES 465 Administration & Leadership in Athletic Training (3)

KNES 468 Clinical Proficiencies in Athletic Training IV (2)

KNES 469 Clinical Proficiencies in Athletic Training V (2)

BACHELOR OF SCIENCE IN KINESIOLOGY

The Department of Kinesiology offers the Bachelor of Science in Kinesiology for students preparing for professional careers or for graduate work in fields related to exercise, sport, movement and wellness.

The degree consists of 120 units with 51 units required for the major. Within the major, students must complete nine units of foundation courses, an 18-unit disciplinary core, a three-unit writing course and a 21-unit advising track in one of the following focus areas: Athletic Training, Clinical Exercise Science, Fitness and Health Promotion, Gerokinesiology, Sport Studies or Teacher Education. With adviser approval, students also have the option of developing a “Special Studies” advising track if their interests lie outside these designated areas. The Special Studies plan must include a rationale statement, 21 units of upper-division coursework, and must be approved by a faculty adviser and the Department Chair. Students are required to seek advising from Department faculty in planning careers, selecting advising tracks and choosing elective courses.

Each course counted toward the major, including prerequisites, must be completed with a grade of “C” (2.0) or higher. All courses counted toward the major must be taken on an Option 1 (letter grade) basis.

Prerequisite Requirements

Prerequisite requirements for the major include three units of anatomy/physiology (Biology/Kinesiology 210 or equivalent) and six units of performance classes, representing the following performance areas: Fitness, Martial Arts/Combatives, Aquatics, Individual Sports, Racquet Sports, and Team Sports. Four of the six performance courses must be completed prior to enrollment in Kinesiology 300 Principles of Movement. All performance courses must be completed prior to completion of the Disciplinary Core Courses.

Prerequisite Performance Courses (6 units)

Fitness

KNES 100 Physical Conditioning (1)

KNES 102A Beginning Jogging (1)

KNES 103 Fitness Walking (1)
KNES 106A Cardio Spinning(1)
KNES 143 Dance Aerobics (1)
KNES 144 Aerobic Exercise and Weight Control (1)
KNES 145 Cardio Kick Boxing* (1)
KNES 146 Weight Training (1)

Aquatics

KNES 110A Beginning Swimming (1)
KNES 110B Intermediate Swimming (1)
KNES 111 Water Polo* (1)
KNES 112A Beginning Surfing* (1)
KNES 112B Intermediate Surfing* (1)
KNES 214A Basic Scuba* (3)
KNES 214B Intermediate Scuba* (2-3)

Martial Arts/Combatives

KNES 145 Cardio Kick Boxing* (1)
KNEX 150 Wrestling (1)
KNES 151A Beginning Aikido (1)
KNES 151B Intermediate Aikido (1)
KNES 152A Beginning Karate (1)
KNES 153 Wushu: Chinese Martial Arts (1)
KNES 154 Self-Defense (1)
KNES 155 Fencing* (1)
KNES 156 Tai Chi* (1)

Individual Sports

KNES 112A Beginning Surfing* (1)
KNES 112B Intermediate Surfing* (1)
KNES 114A Beginning Rock Climbing (1)
KNES 117A Beginning Bowling (1)
KNES 117B Intermediate Bowling (1)
KNES 119A Beginning Golf (1)
KNES 119B Intermediate Golf (1)
KNES 119C Advanced Golf (1)
KNES 120A Beginning Gymnastics (1)
KNES 120B Intermediate Gymnastics (1)
KNES 120C Advanced Gymnastics (1)
KNES 155 Fencing* (1)
KNES 156 Tai Chi* (1)
KNES 214a Basic Scuba* (3)
KNES 214B Intermediate Scuba* (3)
KNES 246A Basic Hatha Yoga (2)
KNES 246B Intermediate Hatha Yoga (2)

Racquet Sports

KNES 130A Beginning Badminton (1)
KNES 130B Intermediate Badminton (1)
KNES 131A Beginning Tennis (1)
KNES 131B Advanced-Beginning Tennis (1)
KNES 131C Intermediate Tennis (1)
KNES 131D Advanced Tennis (1)
KNES 132A Beginning Racquetball (1)
KNES 132B Intermediate Racquetball (1)

Team Sports

KNES 111 Water Polo* (1)
KNES 160 Ultimate Frisbee (1)
KNES 161A Beginning Slow Pitch Softball (1)
KNES 161B Intermediate Slow Pitch Softball (1)
KNES 164A Beginning Volleyball (1)
KNES 164B Intermediate Volleyball (1)
KNES 164C Advanced Volleyball (1)
KNES 165A Beginning Soccer (1)
KNES 165B Intermediate Soccer (1)
KNES 167A Beginning Basketball (1)
KNES 167B Intermediate Basketball (1)
KNES 167C Advanced Basketball (1)

* May only be used in one performance area.

REQUIREMENTS FOR THE MAJOR Foundation Courses (9 units)

KNES 202 Introduction to Kinesiology (3)
KNES 260 Movement Anatomy (3)
KNES 349 Measurement and Statistics in Kinesiology (3)

Disciplinary Core Courses (18 units)

KNES 300 Principles of Human Movement (3)
KNES 348 Physiology of Exercise (3)
KNES 371 Human Motor Control and Learning (3)
KNES 380 History and Philosophy of Human Movement (3)
KNES 381 Sports, Games and Culture (3)
KNES 383 Psychology of Sport and Physical Activity (3)

Upper-Division Writing Course (3 units)

English 301 Advanced College Writing (3)

Advising Track Requirement (21 units)

Courses are to be selected from one of the following advising track focus areas: Athletic Training, Clinical Exercise Science, Fitness and Health Promotion, Gerokinesiology, Sport Studies, Teacher

Education or Special Studies. See descriptions and specific course requirements below. With adviser approval, these courses can be modified to better meet student needs/interests.

CLINICAL EXERCISE SCIENCE (CES) ADVISING TRACK (21 UNITS)

The Clinical Exercise Science advising track provides students with background knowledge and practical experience in preparing for careers in a variety of settings where exercise is used in conjunction with other therapeutic modalities (such as clinical exercise physiology, geriatric pathokinesiology, and sports healthcare) and/or for further study leading to a variety of healthcare professions (e.g., physical/ occupational therapy, medicine, physician assistant, etc.*). This advising track also prepares students for advanced study in clinical exercise science.

**Note:* Students taking coursework in preparation for admission to a specific professional program, such as physical or occupational therapy, should check the entry requirements for the specific program at the institution to which they intend to apply. These students should also seek advising from the Health Professions Office in UH-223. Through careful planning students can maximize the number of courses that meet CSUF General Education and Kinesiology degree requirements, as well as the entry requirements for other programs of interest.

CES Advising Track Recommendations (12 units)

Kinesiology 377 Therapeutic Exercise (3)
Kinesiology 451 Sports Medicine (3)
Kinesiology 461 Biomechanics (3)
Kinesiology 495 Internship (3)

CES Advising Track Electives (9 units)

Select nine units from:

Kinesiology 351, 354, 364, 365, 373, 374, 375, 378, 432, 453, 454, 455, 457, 463, 471, Health Science 401, 405

FITNESS AND HEALTH PROMOTION (FHP) ADVISING TRACK (21 UNITS)

The Fitness and Health Promotion advising track provides students with background knowledge and experience supporting careers in areas such as personal training, fitness instruction, corporate fitness/worksite health promotion and older adult fitness/wellness. This advising track also prepares students for advanced study in fitness and health promotion, as well as provides opportunities for personal enrichment and growth.

FHP Advising Track Recommendations (12 units)

Kinesiology 350 Nutrition (3)
Kinesiology 351 Principles of Strength and Conditioning (3)

Kinesiology 354 Cardiovascular Exercise Testing and Prescription (3)
OR Kinesiology 352 Principles of Teaching Group Fitness (3)
Kinesiology 495 Internship in Kinesiology (3)

FHP Advising Track Electives (9 units)

Select nine units from:

Kinesiology 342, 348L, 352, 354, 406, 432, 451, 453, 454, 455, 457;
Health Science 400, 405, 440, 460, 461

GEROKINESIOLOGY (GK) ADVISING TRACK (21 UNITS)

The Gerokinesiology advising track provides students with the background knowledge and skills necessary to develop and teach a variety of fitness and physical activity classes and/or personalized training programs for older adults. This advising track also prepares students for advanced study in geriatric pathokinesiology, and meets national recommendations for preparing senior fitness instructors.

GK Advising Track Recommendations (12 units)

Kinesiology 352 Principles of Teaching Group Fitness (3)
Kinesiology 454 Physical Dimensions of Aging (3)
Kinesiology 455 Functional Perform Assess Program for Older Adults (3)
Kinesiology 495 Internship in Kinesiology (3)

GK Advising Track Electives (9 units)

Select nine units from:

Kinesiology 342, 350, 351, 352, 354, 364, 375, 377, 378, 432, 451, 457, 463, 471; Health Sciences 440, 450; Psychology 362

SPORT STUDIES (SS) ADVISING TRACK (21 UNITS)

The Sport Studies advising track provides coursework for students interested in careers related to youth sports programs, athletic coaching and/or sports performance enhancement. In consultation with an adviser, students choose electives that allow for further study of various aspects of sports performance, including physiological performance enhancement (biomechanics, exercise physiology, motor control and learning, and strength and conditioning), psychological performance enhancement, athletic coaching, community/ youth physical activity and sports program, and the study of sport (history, philosophy and sociology). Students may also choose electives in preparation for advanced study in one or more of the subdisciplines of kinesiology.

SS Advising Track Recommendations (12 units)

Kinesiology 325 Techniques of Coaching (3)
Kinesiology 351 Principles of Strength and Conditioning (3)
Kinesiology 365 Prevention/Care of Athletic Injuries (3)
Kinesiology 385 Instructional Analysis of Human Movement (3)

SS Advising Track Electives (9 units)

Select nine units from:

Kinesiology 350, 384, 386, 387, 410, 414, 430, 432, 461, 463, 480, 495

TEACHER EDUCATION (TE) ADVISING TRACK (21 UNITS)

The Teacher Education advising track is designed for students interested in completing the Bachelor's Degree in Kinesiology while focusing their elective units on preparation for entering the teaching profession. Students completing the coursework below meet only some of the requirements for the Subject Matter Preparation Program in Physical Education (SMPP-PE) which is designed to prepare students to enter a Single Subject Credential Program in Physical Education. Specifically, students completing this advisement track must complete additional units to fulfill California state-mandated subject matter competencies for pursuit of the single-subject teaching credential. Students interested in the SMPP-PE should see the program description below. Coursework in the Teacher Education advising track may help students qualify for teaching and coaching positions in the public schools, provide background knowledge and experiences for advanced study in pedagogy, and provide personal enrichment in the art and the science of human movement.

TE Advising Track Requirements: (21 units)

- Kinesiology 242 Teaching Lifetime Physical Activity (3)
- Kinesiology 325 Techniques of Coaching (3)
- Kinesiology 363 Developmental Adaptations of the Atypical (3)
- Kinesiology 364 Motor Development (3)
- Kinesiology 385 Instructional Analysis of Human Movement (3)
- Kinesiology 386 Movement and the Child (3)
- Kinesiology 387 Movement and the Adolescent (3)

In addition to the 51-unit requirement for the Kinesiology degree and the Teacher Education advising track, students who wish to fulfill California state-mandated subject matter competencies (i.e., the Subject Matter Preparation Program) for pursuit of the single-subject teaching credential in physical education must also complete the requirements described below.

SUBJECT MATTER PREPARATION PROGRAM (FOR OBTAINING SINGLE SUBJECT TEACHING CREDENTIAL IN PHYSICAL EDUCATION)

The Kinesiology Department offers coursework as part of the Subject Matter Preparation Program in Physical Education (SMPP-PE) for obtaining a Single Subject Credential (K-12) in Physical Education. In place of the six-unit performance course requirements within the major, students in the teacher education advising track must take Kinesiology 240 Teaching Team Sports (3) and Kinesiology 241 Teaching Nontraditional Team Sports (3), in addition to one unit in the Martial Arts/Combatives category and one unit from the racquet Sports category required by the Kinesiology Major. In addition to the requirements for a major in Kinesiology (which includes the Teacher Education advising track described above), all credential candidates must complete the following courses with a minimum grade of "C" (2.0). A grade-point average of 3.0 in the major and 2.75 cumulative is highly recommended for admission to the fifth-year teacher education program.

Additional Requirements: Subject Matter Preparation Program in Physical Education (21 units)

- Ed Sec 304 Personal Proficiency in Educational Technology for Secondary Teachers (3)
- Ed Sec 310 The Teaching Experience: Participation (3)
- Ed Sec 320 Adolescence and Education (3)
(May count as a General Education Category IV)
- Ed Sec 330 Developing Literacy in Secondary Schools (3)
- Ed Sec 340 Diversity in Secondary Schools (3)
- Kinesiology 120 Gymnastics (1)
- Kinesiology 494 Practicum (2)
- Dance 101 Introduction to Dance (3)
- Current CPR/First Aid Certificate

Advisement

The department offers guidance for students considering a teaching career. Prospective students should consult with the Teacher Education Coordinator as early as possible in order to plan and acquire needed experiences prior to entry into the Teacher Education Program. The university program for meeting basic requirements for the teaching credential with a specialization in Physical Education can be found elsewhere in this catalogue (see Teaching Credential Programs).

Admission to Teacher Education

In addition to the requirements set forth in the Teaching Credential Programs and in the Department of Secondary Education, the Department of Kinesiology requires candidates to complete the SMPP-PE and submit an application. A screening committee evaluates candidates' qualifications based on Kinesiology GPA, cumulative GPA, required SMPP-PE coursework, experiences with children and adolescents, and having passed the California Basic Education Skills Test (CBEST). In addition, the candidate must be available for a personal interview by the Kinesiology Teacher Education Committee. Applications to the Teacher Education Program must be submitted by Feb. 28 each year.

Acceptance into the program allows the candidate to enroll in the following Fall-Spring semester sequence:

Fall semester (15 units):

- Ed Sec 410, 440S, 440F; Kinesiology 442, 449E

Spring semester (16 units):

- Ed Sec 460; Kinesiology 449I and 449S

MINOR IN KINESIOLOGY

A kinesiology minor consists of 24 units of approved coursework. All courses for the minor must be taken for a letter grade and completed with "C" (2.0) or better. Students are required to meet with the Kinesiology General Adviser for assistance in developing a cohesive set of courses that would best support their educational, career, or personal goals.

Performance Courses (3 units)

Three courses (1 unit each) must be taken from any three of the following areas: Fitness, Martial Arts/Combatives, Aquatics, Individual Sports, Team Sports, or Racquet Sports.

Required Courses (9 units)

Kinesiology 202 Introduction to Kinesiology (3)

Kinesiology 210 Human Anatomy and Physiology (3)

Kinesiology 260 Movement Anatomy (3)

Upper-Division Electives (Select 12 units)

Kinesiology 300 Principles of Human Movement (3)

Kinesiology 325 Theories of Coaching (3)

Kinesiology 348 Physiology of Exercise (3)

Kinesiology 351 Principles of Strength and Conditioning (3)

Kinesiology 353 Physical Activity and Lifelong Well-being (3)

Kinesiology 371 Human Motor Control and Learning (3)

Kinesiology 380 History and Philosophy of Human Movement (3)

Kinesiology 381 Sport, Games and Culture (3)

Kinesiology 383 Psychology of Sport and Physical Activity (3)

Kinesiology 386 Movement and the Child (3)

Kinesiology 387 Movement and the Adolescent (3)

MASTER OF SCIENCE IN KINESIOLOGY

The graduate program in Kinesiology provides a broad, comprehensive study of the varied aspects of human movement. Movement across the entire lifespan is observed and studied from mechanical, physiological, psychological, sociocultural, behavioral, instructional, and professional points of view.

The coursework for the degree is designed to: (1) provide students with background knowledge and experience for professional careers in a variety of areas including clinical exercise science, fitness and health promotion, gerokinesiology, pedagogical studies, and sport studies; and/or (2) to prepare students for further graduate study in one or more of the sub-disciplines of kinesiology: biomechanics, exercise physiology, motor control/learning, philosophical perspectives, sport psychology or sociocultural perspectives.

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.

Admission Requirements

All graduate degree applicants must meet the university requirements for admission, which include a baccalaureate degree from an accredited institution with a grade-point average of at least 2.5 in the last 60 semester units attempted. To be admitted into the graduate program in Kinesiology, a student must further submit

to the Kinesiology graduate program: (1) transcripts showing an undergraduate degree in Kinesiology, Exercise Science, or Physical Education with a grade-point average of at least 3.0 in upper-division major coursework; (2) Graduate Record Exam scores general test; (3) a 500-word essay describing the applicant's academic preparation and goals in the area of intended study within the degree program; and (4) two letters of recommendation. Screening of fall semester applicants begins March 1; screening of spring semester applicants begins Nov. 1.

Students who meet the general university requirements, but do not meet the Kinesiology degree requirements, may apply to the university for postbaccalaureate-unclassified standing. Any student without an undergraduate degree in Kinesiology, Exercise Science, Physical Education, or a related field must complete a prescribed set of undergraduate coursework (usually about 12 units) with a grade-point average of at least 3.0. Any student with a grade-point average deficiency must complete additional undergraduate coursework as specified by the Kinesiology graduate program adviser. Once all admission requirements are subsequently met, a change of program may be requested from postbaccalaureate-unclassified standing to conditionally classified in Kinesiology.

Classified Standing

Classified standing requires the development of a study plan (see below) approved by the faculty adviser, graduate studies committee, kinesiology graduate program adviser, and office of graduate studies. No more than nine units of graduate work taken before classification may be included on the study plan. Any changes to the study plan after classified standing is granted must be approved in advance, in writing, by the Kinesiology graduate program.

Advancement to Candidacy

Advancement to candidacy is attained by requesting a graduation check in the semester prior to graduation (see class schedule for deadlines) and receiving subsequent approval from the graduate studies adviser on the grad check completion review form, mailed by the Graduate Studies Office. Students not completing requirements by the graduation date specified on the original graduation check must contact the Graduate Studies Office.

Graduate Advisement

Students should consult with the Kinesiology graduate studies adviser for general information regarding the program. Upon acceptance to the program, students choose or are assigned a faculty adviser who assists in developing the study plan. Thesis/project advisers are selected in consultation with the student, faculty adviser, and potential thesis/project chair. Students may not register for thesis/project without the consent of the thesis/project chair.

GRADUATE STUDY PLAN

The graduate degree in Kinesiology consists of a total of 30 units, at least 18 units of which must be 500 level. Once accepted into the program, each student must create an adviser-approved

study plan before completing nine units of work. With adviser approval, up to nine units of 400/500-level coursework may be included on the study plan that was taken at another university or in another department at Cal State Fullerton.

The study plan must include Kinesiology 508 and Kinesiology 510 (which fulfills the graduate level writing requirement), and at least two advanced study courses—one in the students major academic area of interest and one in a minor or supporting academic area. The study plan also must include 15 units of electives selected from one of six advisement tracks: clinical exercise science, fitness and health promotion, gerokinesiology, pedagogical studies, performance enhancement/sport psychology/sport studies, or special studies. Finally, the study plan must include one of three culminating experience options: a thesis, a project, or a comprehensive examination.



Core Course Requirements (9 units)

Kinesiology 508 Statistical Methods in Kinesiology (3)

Kinesiology 510 Research in Kinesiology (3)

Kinesiology 597/598 Project/Thesis (3) or Comprehensive Examination*

*Students who select the Comprehensive Examination shall be required to complete an additional adviser-approved 500-level course in Kinesiology (3 units).

Advisement Track Requirements (21 units)

The remaining 21 units of coursework are to be selected from one of the following six advisement tracks: (1) Clinical Exercise Science, (2) Fitness and Health Promotion, (3) Gerokinesiology, (4) Teacher Education/Pedagogical Studies, (5) Sport Studies, or (6) Special Studies. Advanced study courses are required within each track, as well as recommended electives.

KINESIOLOGY COURSES

Courses are designated as KNES in the class schedule.

Students may sign up for only one section of a given performance activity in any semester. This applies to Kinesiology 100 through 167, 214A, 214B, and 246A. Thus a student may take Kinesiology 102A Beginning Jogging and Kinesiology 112B Intermediate Surfing since jogging and surfing are different activities; however, signing up for multiple tennis courses, for example, is not permitted.

100 – 167 Performance Courses (1)

100 Physical Conditioning; 102A Beginning Jogging; 102B Intermediate Jogging (1); 103 Fitness Walking; 106A Cardio Spinning (1); 110A Beginning Swimming; 110B Intermediate Swimming; 110C Advanced Swimming; 111 Water Polo; 112A Beginning Surfing; 112B Intermediate Surfing; 114A Beginning Rock Climbing (1); 117A Beginning Bowling; 117B Intermediate Bowling; 119A Beginning Golf; 119B Intermediate Golf; 119C Advanced Golf; 120A Beginning Gymnastics; 120B Intermediate Gymnastics; 120C Advanced Gymnastics; 130A Beginning Badminton; 130B Intermediate Badminton; 131A Beginning Tennis; 131B Advanced-Beginning Tennis; 131C Intermediate Tennis; 131D Advanced Tennis; 132A Beginning Racquetball; 132B Intermediate Racquetball; 143 Dance Aerobics (1); 144 Aerobic Exercise and Weight Control; 145 Cardio Kick-Boxing; 146 Weight Training; 150 Beginning Wrestling; 151A Beginning Aikido; 152A Beginning Karate; 153 Wushu: Chinese Martial Arts; 154 Self Defense; 155A Beginning Fencing; 156 Tai Chi; 160 Ultimate Frisbee; 161 Slow Pitch Softball; 161B Intermediate Slow Pitch Softball; 164A Beginning Volleyball; 164B Intermediate Volleyball; 164C Advanced Volleyball; 165A Beginning Soccer; 165B Intermediate Soccer; 167B Intermediate Basketball; 167C Advanced Basketball.

Performance courses are instructional. Beginning, intermediate and advanced sections are offered for most performance courses. Students who already possess proficiency in an activity should consider the course chosen from the standpoint of the level of skill development that may be encountered, standards of proficiency expected and their own ability level. Initial assessment and determination will be made by the course instructor. May be taken for credit up to six times.

170 – 189 Intercollegiate Sports (2)

Prerequisite: consent of coach. An intercollegiate activity in individual or team sports in an educational setting under the direction of a coach.

170 Gymnastics – Women Only; 172 Cross Country – Men and Women; 174 Track-Field – Men and Women; 175 Tennis – Women Only; 176 Wrestling – Men Only; 177 Fencing – Men and Women; 178 Basketball – Men and Women; 179 Baseball – Men Only; 180 Soccer – Men and Women; 185 Volleyball - Women Only; 186 Softball – Women Only. May be repeated for credit. Offered Credit/No Credit only.

190 Team Management (2)

Prerequisites: consent of coach and department chair. Field experience in managing an intercollegiate sport. May be repeated for maximum of eight units of credit. (Credit/No Credit only)

191A Integrated Human Anatomy and Physiology (4)

Integrated introduction to human anatomy and physiology. Structure and function of the musculoskeletal, nervous and cardio-respiratory systems. For nursing majors and students interested in allied health professions; no credit toward Biological Science major. (3 hours lecture, 3 hours laboratory) (Same as Biology 191A)

191B Integrated Human Anatomy and Physiology (4)

(Same as Biology 191B)

200 Introduction to Athletic Training (3)

Practical skills acquisition for the treatment, prevention and care of sports-related injuries. Basic required course for all students admitted to the Athletic Training Education Program. (2 hours lecture, 2 hours activity)

202 Introduction to Kinesiology (3)

Prerequisite: declared Kines major or minor. Study of human movement, including its role in daily life, its place in higher education and professional career opportunities in areas related to sport, movement, exercise and fitness. Multiple ways of knowing and studying human movement with a focus on the subdisciplines within kinesiology.

210 Human Anatomy and Physiology (3)

(Same as Biology 210)

214A Basic Scuba (3)

Prerequisites: ability to swim 400 yards, tread water one minute and swim 25 yards underwater. Skin and scuba diving, theory of diving, safety procedures and ocean environment. Open Water Basic Scuba Certification earned with successful completion. (1 hour lecture, 4 hours pool activity/ocean dives)

214B Intermediate Scuba (3)

Prerequisite: Open Water Scuba Certification. Application of scuba diving, including photography, navigation, salvage, game hunting, night diving and others. Advanced Scuba Certification for successful completion. (1 hour lecture, 4 hours pool activity/ocean dives)

240 Teaching Team Sports (3)

Provides knowledge of the team sports of volleyball, basketball, soccer, softball and football, including histories, skills, rules, teach progressions and sport-specific teaching strategies. Appropriate teaching strategies are intended to promote active participation and experiential learning. (2 hours lecture, 2 hours activity)

241 Teaching Nontraditional Team Sports (3)

Prepares pre-service teachers (e.g., future Physical Education teachers) with knowledge of nontraditional team sports, including histories, fundamental skills, teaching progressions, sport-specific teaching strategies, sport rules, and officiating. (2 hours lecture, 2 hours activity)

242 Teaching Lifetime Physical Activity (3)

Provides knowledge, skills and experiences necessary to lead young people in gaining the skills, knowledge, attitudes and behaviors required to lead physically active lifestyles. Appropriate teaching strategies are used to promote active participation and experiential learning. (2 hours lecture, 2 hours activity)

246A Basic Hatha Yoga (2)

Basic Yoga postures, breathing and relaxation techniques, and beginning meditation techniques from theoretical and experiential perspectives. Awareness, concentration and breathing patterns that accompany the movements of Hatha Yoga. (1 hour lecture, 2 hours activity) (Same as Comparative Religion 246A)

246B Intermediate Hatha Yoga (2)

Prerequisites: Kines/Comp Religion 246A. Intermediate and advanced yoga sequences, including postures, breathing practices, meditation techniques and guided relaxation. Yoga philosophy and movement based on various Hatha yoga traditions. (1 hour lecture, 2 hours activity.) (Same as Comp Religion 246B)

247 Yoga Instructor Preparation (3)

Prerequisites: one year of yoga experience or completion of Kines 246A. Recommended: concurrent enrollment in Kines 246B. Preparation for teaching Hatha Yoga techniques and philosophies to the general public. Instruction on yogic lifestyle and advanced yoga practices. (2 hours lecture, 2 hours activity)

250 Mental Skills for Sport Performance (3)

Understanding of the mental aspects of sport performance and learning mental skills that can be used to enhance sport performance. (Credit/No Credit only)

256 Advanced Tai Chi (2)

Prerequisite: Kines 156. Improving understanding of history and philosophy of Tai Chi and deepening the practice of Tai Chi for greater health benefits. Lectures, discussions. Tai Chi, and related meditative practices. (1 hour lecture, 2 hours activity)

260 Movement Anatomy (3)

Prerequisite: Kines /Bio 210 or equivalent. Pre- or corequisite: Kines 202. Muscular-skeletal system and its function in human movement. Movement in sports skills and the muscles involved.

300 Principles of Human Movement (3)

Prerequisites: Kines 260. Pre- or corequisite: Kines 202 and four of required six units of approved performance courses. General movement patterns as applied to sport and human movement.

325 Techniques of Coaching (3)

Factors related to coaching strategies and techniques: philosophy, ethics, legal issues, gender, multicultural and equity issues, leadership, motivation, team management, budget, recruiting, equipment purchase, skill acquisition, season planning, conditioning, nutrition and drugs.

342 Stress Management (3)

Kinesiology majors may count this course either for the major or for General Education. (Same as Health Science 342)

348 Physiology of Exercise (3)

Prerequisites: Kines 210 or a human physiology course or equivalent. Pre- or corequisite: Kines 202. Physiological processes in physical activities and the effect of training upon performance.

348L Physiology of Exercise Laboratory (1)

Prerequisite: prior completion or concurrent enrollment in Kines 348. Laboratory techniques in physiology of exercise. (3 hours laboratory)

349 Measurement and Statistics in Kinesiology (3)

Pre- or corequisite: Kines 202. Study of measurement theory and statistics used in the evaluation of health and human performance, with special focus on the analysis and interpretation of data in different environments. One or more sections offered online.

350 Nutrition (3)

(Same as Health Science/Nursing 350)

351 Principles of Strength and Conditioning (3)

Prerequisites: Kines 260 and 348; Kines 300 recommended. Conditioning for those who plan to coach or supervise fitness programs. Circuit training, nutrition, motivation, weight control and kinesiology factors.

352 Principles of Teaching Group Fitness (3)

Prerequisites: Kines 210. Provide content knowledge and practical experience concerned with teaching group fitness. Teaching principles, techniques and safety. Variety of exercise formats.

353 Physical Activity and Lifelong Well-Being (3)

Prerequisites: one course from General Education (G.E.) Category III. Integration of physiological, psychological and sociological understandings of the human being in relationship to physical activity as a lifelong pursuit. Topics include physical fitness, nutrition, stress reduction, socialization, and individual differences in human behavior. Kinesiology and Health Science majors may count this course either for the major or for G.E. One or more sections offered online. (Same as Health Science 353)

354 Cardiovascular Exercise Testing and Prescription (formerly 452) (3)

Prerequisites: Kines 348 and 348L; Kines 351 recommended. Methods of graded exercise testing in the apparently healthy adult. Guidelines for aerobic exercise prescription. Cardiovascular disease and identification of risk factors.

363 Developmental Adaptations of the Atypical (3)

Prerequisites: Kines 300, 348 and 364. Study of the disabled whose unique needs in motor development determine their least restrictive environment in physical activity. Programs of games, sports and exercise in diversified settings; legally mandated regulations.

364 Motor Development (3)

Prerequisites: Kines 260. Life span motor development: age, sex, ethnic, cultural and perceptual components, their implications and the main course of action needed in developmental strategies for optimal motor behavior development.

365 Prevention and Care of Athletic Injuries (3)

Prerequisites: Kines 202. Immediate observation and examination of injuries. Special emphasis on the etiology, pathology, signs, symptoms and complications related to injuries sustained by athletes.

367 Clinical Proficiencies in Athletic Training I (1)

Prerequisites: Kines 202 and admission to Athletic Training Education Program. Develop a cognitive understanding and a practical knowledge of the various clinical skills required in a first-semester athletic training student.

368 Clinical Proficiencies in Athletic Training II (1)

Prerequisites: Kines 367. Knowledge and develop clinical skills related to athletic training, including environmental safety, protective equipment, surface anatomy, palpation skills, special and functional tests, fitness testing techniques, etc.

369 Clinical Proficiencies in Athletic Training III (1)

Prerequisites: Kines 368. Knowledge and develop clinical skills related to athletic training, including environmental safety, protective equipment, surface anatomy, palpation skills, special and functional tests, fitness testing techniques, etc.

371 Human Motor Control and Learning (3)

Prerequisite: Kines 210 or a human anatomy course. Pre- or corequisite: Kines 202. Neural, musculoskeletal and psychological mechanisms underlying the control and learning of movement skills across the lifespan.

373 Advanced Injury Assessment of the Lower Extremity (3)

Prerequisites: Kines 365. Develop knowledge and clinical skills related to the recognition, evaluation and assessment of pathologies to the lower extremity and lumbar spine.

374 Advanced Injury Assessment for the Upper Extremity (3)

Prerequisites: Kines 365. Develop knowledge and clinical skills related to the recognition, evaluation, and assessment of pathologies to the upper extremity and cervical spine

375 Management of Sport/Exercise Emergencies (3)

Prerequisite: Kines 202. Theoretical, practical and clinical basis for the recognition, treatment and management of medical emergencies and catastrophic situations involving the physically active individuals, including athletes.

377 Therapeutic Exercise in Rehabilitation (3)

Prerequisite: Kines 202. Theoretical and clinical basis for therapeutic exercise in rehabilitation. Therapeutic exercises as they relate to injury rehabilitation will be developed for student syntheses and understanding.

378 Therapeutic Modalities in Rehabilitation (3)

Prerequisite: Kines 202. Theoretical, clinical, and practical basis for the use of therapeutic modalities in rehabilitation. Develop physical agents and biophysics, indications, contraindications, physiological effects, and applications.

380 History and Philosophy of Human Movement (3)

Prerequisites: completion of G.E. Category II.A and III.B.2. Pre- or corequisite: Kines 202. Historical development of thought and practice in athletics, sport, kinesiology, play, dance, and other human movement forms from ancient Greeks to the present. Philosophical theories of human movement relative to personal identity, reality, being, values, and nature of competition.

381 Sports, Games and Culture (3)

Prerequisites: one course from G.E. Category III Pre- or corequisite: Kines 202. Human movement in the cultural milieu. Historical and contemporary interpretations of the role of play, games, sports, dance and recreation in human life.

383 Psychology of Sport and Physical Activity (3)

Pre- or corequisite: Kines 202. Introduction to theory and research of psychological processes that influence human performance in numerous movement settings including sport, exercise, and rehabilitation. Topics include individual difference variables (e.g., personality, arousal/anxiety, and motivation), social psychological variables (e.g., aggression, leadership, and group dynamics), and assessment and intervention (e.g., goal setting, cognitive techniques, and behavioral change strategies).

384 Sport Sociology (3)

Prerequisite: Kines 381. Sport and social institutions and social processes. Understanding sport as a social phenomenon.

385 Instructional Analysis of Human Movement (3)

Prerequisites: completion of all six units of kinesiology performance classes in specified areas (i.e., fitness, aquatics, combatives, individual sports, court/racquet sports, team sports) and Kines 300. Variables and principles that contribute to effective observation, analysis and instruction of human movement skills across the life span.

386 Movement and the Child (3)

Prerequisite: completion of G.E. Categories III.A.2 and III.C.1; corequisite, Kines 494 for teacher education kinesiology majors only. Characteristics of the child; physical growth and development; basic mechanical principles related to human movement and motor learning; and concepts related to the design of physical activity programs that are appropriately challenging for children at various developmental levels.

387 Movement and the Adolescent (3)

Corequisite: Kines 494 for teacher education kinesiology majors only. Implement physical education programs at the secondary level. Cognitive, affective and psychomotor development; structure, concepts and principles related to human movement and motor learning; concepts related to the design of secondary school movement programs.

396 Physical Education Tutorial (1)

Prerequisite: consent of instructor and tutorial adviser. Supervised experience in performance or laboratory situations through tutoring or assisting in instruction. May be repeated for six units of credit. A maximum of three units may be applied toward the major.

405 Worksite Injury Prevention and Rehabilitation (3)

(Same as Health Sci 405)

406 Principles of Sport and Exercise Management (3)

Broad overview of sport/ exercise management enterprise, including school, facility, professional, commercial, industrial, corporate management and specialists in marketing, print/electronic media. Job descriptions, professional preparation and placement opportunities are detailed. Portfolio development.

410 Issues in Youth Sports (3)

Prerequisite: Kines 381. Recommended prerequisite: Child/ Adolescent Studies 312. Interdisciplinary examination of trends and issues in youth sport, focusing on non-school based community programs. Structural characteristics of sport and physical activity programs as they pertain to proper development of children and adolescents.

414 Legal Issues in Kinesiology (3)

Prerequisites: graduate or upper-division standing; and Kines 202 or Communications 346. Introduction to the legal system and the law as applied to sport and exercise settings, which includes the areas of sports, fitness and healthcare, and recreational activities, with an emphasis on understanding the concepts of ethics, negligence and risk management.

430 Applied Sport Psychology (3)

Prerequisites: Kines 383. Application of principles from sport psychology literature to enhance athletes' and coaches' performance.

432 Applied Exercise Psychology (3)

Prerequisites: Kines 383. Understanding and applying the principles from exercise psychology to enhance competencies and skills related to preventive and rehabilitative exercise programs.

442 Teaching Physical Education (3)

Prerequisite: admission to Teacher Education. Objectives, methods and materials of teaching Physical Education K-12. Required before student teaching. Part of the 12-unit education block and may not be taken separately. Credit/No Credit only. Requires "B" (3.0) or better for credit.

449E Externship in Secondary Teaching (3)

To be taken concurrently with Kines 442. See description under Secondary Education. (Credit/No Credit only. Requires "B" (3.0) or better for credit.)

449I Internship in Secondary Teaching (10)

See description under Secondary Education. Credit/No Credit only. Requires "B" (3.0) or better for credit.

449S Seminar in Secondary Teaching (2)

See description under Secondary Education. Credit/No Credit only. Requires "B" (3.0) or better for credit.

451 Sports Medicine (3)

Prerequisites: Kines 348 and 348L. Alterations in human movement, anatomy and physiology that are caused by such factors as injury, drugs and environment.

453 Clinical Exercise Physiology (3)

Prerequisites: Kines 348 and 354. Kines 354 recommended. Application of exercise physiology concepts to clinical/pathological situations in order to determine the therapeutic and functional benefits of physical activity.

454 Physical Dimensions of Aging (3)

Prerequisites: minimum of six units of upper-division kinesiology courses completed or six units from the gerontology minor. Scientific evidence concerning the relationship between level of physical activity and one's physical, mental and psychological well-being during aging.

455 Functional Performance Assessment and Programming for Older Adults (3)

Prerequisites: Kines 349 and Kines 353, 371 or 454. Development of technical and personal skills related to functional performance assessment and to the development and implementation of physical activity programs for healthy and frail older adults.

456 Environment Exercise Physiology (3)

Prerequisite: Kines 348. Interrelationship between the physical environment and the human while exercising under different states of fitness and acclimatization.

457 Practice of Personal Training (3)

Prerequisites: Kines 260, 348, 351, 354 and junior or senior standing; Kines 300 recommended. Physiological responses and adaptations associated with strength and aerobic training to design fitness programs across the lifespan. Scientific foundation, client evaluation, exercise technique, safety and legal issues, program design and special populations.

460 Worksite Health Promotion (3)

(Same as Health Science 460)

461 Biomechanical Analysis of Human Movement (3)

Prerequisites: Kines 300, Physics 211 recommended. Analytical approach to mechanics of human motion. Quantitative video analysis techniques are introduced and applied to select movement analysis projects.

463 Biomechanics of Musculoskeletal Injury (3)

Prerequisites: Kines 300. Biomechanical analysis of bone, joint cartilage and collagenous tissue, and of forces and moments acting at the major joints of the human body with specific interest on how these forces contribute to musculoskeletal injuries.

465 Administration and Leadership in Athletic Training (3)

Prerequisites: Kines 365. Theoretical, legal, moral, ethical, technical and practical aspects of administration and leadership in sports healthcare programs, including those in athletic training.

468 Clinical Proficiencies in Athletic Training IV (1)

Prerequisites: Kines 369. Develop a cognitive understanding and a practical knowledge of various clinical skills required of a fourth-semester athletic training student.

469 Clinical Proficiencies in Athletic Training V (1)

Prerequisites: Kines 468. Develop a cognitive understanding and a practical knowledge of various clinical skills required of a fifth-semester athletic training student.

471 Motor Control and Movement Dysfunction (3)

Prerequisites: Kines 371. Contemporary motor control theories and how they are applied to the development of therapeutic exercise programs for children and adults with balance and movement disorders caused by disease and/or trauma to the neurological system.

480 Gender Issues and Sport (3)

Prerequisites: Kines 381 or completion of G.E. Category III.C. Multidimensional focus of influences impacting women's competitive and non-competitive sport participation with emphasis on access, inclusion, adherence, benefits/liabilities and lifelong well being.

494 Practicum (1-3)

Prerequisites: consent of faculty sponsor, field supervisor, fieldwork coordinator and department chair. Planning, preparing, coaching, teaching in public school, college or community physical education or recreation programs. May be repeated for a maximum of six units of credit. Credits not applicable toward major or fifth year work. (Credit/No Credit only)

495 Internship in Kinesiology (3)

Prerequisites: minimum of 12 units of upper-division kinesiology coursework completed, faculty sponsor, field supervisor, fieldwork coordinator and department chair consent. Seminar for analysis of field experiences, including appropriate theory, skills and techniques, in addition to supervised experience in an approved fieldwork location agency. Internship must be specific to the discipline of kinesiology. Minimum of 120 hours per semester. Application forms must be completed and approved prior to enrollment. May not be repeated for credit toward the major.

499 Independent Study (1-3)

Prerequisite: minimum of 15 upper-division kinesiology courses completed. Topics based on a study plan prepared in cooperation with a faculty supervisor. Culminates in a paper, project, comprehensive examination or performance. Application forms must be completed and approved prior to enrollment. Maximum of three units in any one semester; may be repeated once.

508 Statistical Methods in Kinesiology (3)

Prerequisites: graduate status, Kines 349. Statistical theory, data collection procedures, techniques for analysis and interpretation of data.

510 Research Methods in Kinesiology (3)

Prerequisites: graduate status, Kines 508. Fundamental tools of research. Types of research, process of scientific inquiry and critical analysis of research. Topic selection and development of a research proposal.

516 Advanced Study of the Philosophical Perspective of Human Movement (3)

Prerequisites: graduate status, Kines 380. Methods of the philosophical process of human movement.

550 Graduate Internship (3)

Prerequisites: graduate status, consent of faculty sponsor, field supervisor, field coordinator and chair. On-the-job training experiences supervised by a fully trained practitioner. Minimum of 120 hours per semester plus conferences with faculty sponsor. Application forms must be completed and approved prior to enrollment. Upon completion of the internship, a written evaluation must be submitted. Not open to students on, or subject to, academic probation.

551 Advanced Study in Physiology of Exercise (3)

Prerequisites: graduate status, Kines 348 and 348L. Current issues and research in physiology of exercise with emphasis on physiological control during acute exercise. Includes written, oral and laboratory assignments.

555 Applied Strength and Conditioning (3)

Prerequisites: graduate status, Kines 351 and 551. Anatomical and physiological bases for programs that develop physical fitness and performance.

557 Instructional Strategies in Physical Education and Sport (3)

Prerequisites: graduate status, Kines 371 or 383. Theoretical concepts, models and research on instructional strategies for Physical Education, sport and related professional setting. Highly recommended for graduate students in all concentrations in Physical Education.

558 Advanced Study in Teaching Human Movement (3)

Prerequisites: graduate status, Kines 300 or 371 or consent of the instructor. Historical perspectives and current trends in pedagogical research and the resultant principles that undergird the science of teaching human movement.

561 Advanced Study in Biomechanics (3)

Prerequisites: graduate status, Kines 461. Advanced methods and concepts associated with the quantification of human movement. Biomechanical analysis of force plate and three-dimensional video data.

571 Advanced Study in Human Motor Control and Learning (3)

Prerequisites: graduate status, Kines 371. In-depth study of contemporary trends and issues in motor control/learning research. Application of research to practice.

580 Advanced Study in Sport and Exercise Psychology (3)

Prerequisites: graduate status, Kines 383. Current issues and research in sport and exercise psychology. Topics include motivation, personality, leadership and group dynamics, attention/concentration, exercise adherence/compliance, sport and exercise injury, and behavioral change strategies.

581 Consultation in Applied Sport Psychology (3)

Prerequisites: Kines 383, 430 and graduate standing. Factors related to effective consultation for enhancing athletic performance. Knowledge of consultation issues will be derived from the existing best practices and literature with the purpose of drawing practical applications for the new professional. May be repeated for a maximum of six units credit.

582 Advanced Study in Sociocultural Perspectives of Human Movement (3)

Prerequisites: graduate status and Kines 384. In-depth study of theories and methods of the sociocultural perspective and their application to the study of human movement phenomena.

597 Project (3)

Prerequisites: graduate classified status, Kines 510, successful completion of an oral presentation of the project, and signature of all committee members on or before the census date of the semester in which the student elects to enroll. Directed independent inquiry. Not open to students on, or subject to, academic probation.

598 Thesis (3)

Prerequisites: graduate classified status, Kines 510, successful completion of an oral presentation of the thesis, and signatures of all committee members on or before the census date of the semester in which the student elects to enroll. Student will select and have approved a research proposal, conduct the research, and prepare a formal analysis and report. May be repeated. Not open to students on, or subject to, academic probation.

599 Graduate Independent Research (1-3)

Prerequisites: graduate status, Kines 510, and consent of the faculty adviser and chair. Student research in a specific area of human movement studies. Application forms must be completed and approved prior to enrollment. Upon completion of the research, a written report must be submitted. Not open to students on, or subject to, academic probation. Maximum of three units in any one semester; may be repeated once.



Latin American Studies

College of Humanities and Social Sciences

PROGRAM COORDINATOR

Sandra M. Pérez-Linggi

PROGRAM OFFICE

Humanities 420A

WEBSITE

<http://hss.fullerton.edu/latinamerican>

PROGRAMS OFFERED

Bachelor of Arts in Latin American Studies

Minor in Latin American Studies

PARTICIPATING FACULTY

Robey Callahan (Anthropology), Isaac Cardenas (Chicana/o Studies), James Dietz (Economics), Dagoberto Fuentes (Chicana/o Studies), Tricia Gabany-Guerrero (Anthropology), Juan Carlos Gallego (Modern Languages), Ana Garza (Education), Joanne Gass (English), Ron Harmon (Modern Languages), James Hussar (Modern Languages), Juan Ishikawa (Modern Languages), David Kelman (English), Irene Lange (Marketing), Elisa Mandell (Art), Valerie R. O'Regan (Political Science), Patricia Perez (Chicana/o Studies), Denise Stanley (Economics), Robert Voeks (Geography), Carl Wendt (Anthropology), Phillippe Zacair (History)

ADVISER

Sandra M. Pérez-Linggi

INTRODUCTION

Latin America is our closest neighbor and a developing region with vast potential. Countries range in size from the Dominican Republic to resource-rich Brazil, which is larger than the continental United States.

By pursuing a broad, yet in-depth course of study, Latin American Studies students are well equipped to enter many fields and occupations as teachers in the United States or Latin America, as business people sensitive to Latin American history and culture, or as journalists, lawyers and doctors where contact with Latin America or Latin Americans in the United States is important.

The Latin American Studies major is designed to provide an in-depth, interdisciplinary understanding of Latin America. Majors develop language proficiency in Spanish and Portuguese, and have a broad range of courses from which to choose in anthropology, art, Chicana/o studies, economics, history, geography, political science, and modern languages and literatures. The major is well-suited for: (1) students who wish to pursue careers that require residence in or knowledge of Latin America (e.g., business, journalism, government); (2) those who plan to teach Spanish and/or social sciences in the secondary schools; and (3) students who wish to pursue graduate work in Latin American studies or other disciplines where a Latin American specialization would be helpful (e.g., political science, economics, history).

BACHELOR OF ARTS IN LATIN AMERICAN STUDIES

The Bachelor of Arts in Latin American Studies requires a minimum of 120 units, which includes courses for the major, General Education, all university requirements, and free electives.

Prior to graduation, each student must demonstrate a critical and in-depth understanding of Latin America from an interdisciplinary perspective reflected in the courses that make up the major. The student must complete either a capstone experience through one of the 400-level elective courses offered, or the capstone course (once approved and offered). Students completing the capstone experience will identify and complete a project under the supervision and guidance of the instructor of the 400-level course (e.g., research paper, Power Point presentation, poster, community service project) that must have a writing component. Once the capstone project is completed, the student should submit a copy of the written portion of the project to the Program Coordinator. When offered, students may enroll in the variable topic Latin American Studies Capstone Course as an option in fulfilling the requirement.

Foundation Courses

All majors should develop a language proficiency level equivalent to Spanish 204 and Portuguese 102. Students with no language background should take:

Spanish 101 Fundamental Spanish - A (5)

Spanish 102 Fundamental Spanish - B (5)

Spanish 203 Intermediate Spanish - A (3)

Spanish 204 Intermediate Spanish - B (3)

Portuguese 101 Fundamental Portuguese - A (4)
(usually offered in the Fall)

Portuguese 102 Fundamental Portuguese - B (4)
(usually offered in the Spring)

A student with knowledge of Spanish and/or Portuguese may be able to meet part or all of the foundation course requirements after evaluation by the Department of Modern Languages and Literatures.

Required Fields of Study

Upper-Division Writing Requirement (3 units)

English 301 Advanced Composition (3)

Language (3 units)

Spanish 301 Advanced Grammar and Composition (3)
OR Portuguese 317 Advanced Conversation and Composition (3)

History and Culture (9 units)

Spanish 316 Introduction to Spanish American Civilization (3)
OR Portuguese 325 Contemporary Brazilian Civilization (3)

Latin Amer Studies 300 Topics in Latin America (3)

Three units in upper-division Latin American History (3)

Social Science (6 units) selected from two departments

Anthropology 325 Peoples of South America (3)

Anthropology 329 Peoples of the Caribbean (3)

Anthropology 423 The Ancient Maya (3)

Anthropology 424 The Aztecs and Their Predecessors (3)

Economics 333 Economic Development: Analyses and Case Studies (3)

Economics 334 Economics of Latin America and the Caribbean (3)

Geography 333 Latin America (3)

Upper-division Latin American Political Science courses when offered.

Elective Fields of Study

Twelve units selected from three or more of the following groupings chosen in consultation with the program coordinator:

Culture

Anthropology 325 Peoples of South America (3)

Anthropology 329 Peoples of the Caribbean (3)

Anthropology 423 The Ancient Maya (3)

Anthropology 424 The Aztecs and Their Predecessors (3)

Chicana/o 302 Ancient Mexican Culture (3)

Chicana/o 303 Cultural Differences in Mexico and the Southwest (3)

Chicana/o 353 Mexico Since 1906 (3)

Comparative Religion/Chicana/o 367 Latino Spirituality and Religion (3)

Geography 452 Ecotourism (3)*

Latin Amer Studies/Chicana/o 350 Mexican Life and Culture (3)
(offered only as part of CSUF La Paz program.)

Portuguese 317 Advanced Conversation and Composition (3)
OR Spanish 301 Advanced Grammar and Composition (3)

Portuguese 320 Introduction to Luso-Brazilian Culture and Civilization (3)

Portuguese 325 Contemporary Brazilian Civilization (3)
OR Spanish 316 Introduction to Spanish-American Civilization (3)

Spanish 416 Contemporary Spanish-American Culture (3)

Fine Arts and Literature

Art 460 Pre-Columbian Art (3)

Art 462 Latin American Art from 1800 to the 1950s (3)

Art 480T Selected Topics in Art History (3)*

Chicana/o 304 Music of Mexico (3) (Same as Music 304)

Chicana/o 330 Evolution of Mexican Literature (3)

Chicana/o 333 Mexican Literature Since 1940 (3)

Chicana/o 336 Main Trends in Spanish-American Literature (3)

Spanish 440 Spanish-American Literature to Modernismo (3)

Spanish 441 Spanish-American Literature Since Modernismo (3)

Spanish 466 Spanish Phonology and Dialectology (3)

Spanish 485T Senior Seminar: Topics in Spanish-American Literature (3)

History and Politics

History 350 History of Latin American Civilization (3)

History 449 Race, Ethnicity and Gender in Latin America (3)

History 451 Colonial Period of Latin America (3)

History 452 20th-Century Brazil (3)

History 453A History of Mexico Pre-Columbian (pre-1521)
through 1821 (3)

History 453B History of Mexico from Independence to
Modern Day (3)

History 454 19th Century Latin America: Era of Nation Building (3)

History 455 Latin America Since 1945 (3)

Political Science 437 Latin American Politics (3)

Upper-division Latin American Political Science courses when offered.*

Geography and Economics

Economics 333 Economic Development: Analyses and Case Studies (3)

Economics 334 Economics of Latin America and the Caribbean (3)

Geography 333 Latin America (3)

Latin American Studies

Latin American Studies 399 Directed Studies (1-3)

MINOR IN LATIN AMERICAN STUDIES

The minor in Latin American studies is designed to complement other majors for which a focus on Latin America can be beneficial (e.g., history, international business, communications, Spanish, economics and political science). Prospective secondary teachers may find this minor particularly attractive. The minor requires proficiency in either Spanish or Portuguese, as defined above for the major; three units of cultural history (Latin Amer Studies 300, History 350 or Spanish 316 or Portuguese 325); and nine units of approved electives from at least two departments listed below; or from the Latin American Studies "Elective Fields of Study" list.

- Anthropology 423 The Ancient Maya (3)
- Anthropology 424 The Aztecs and Their Predecessors (3)
- Anthropology 325 Peoples of South America (3)
- Anthropology 329 Peoples of the Caribbean (3)
- Art 460 Pre-Columbian Art (3)
- Art 462 Latin American Art from 1800 to the 1950s (3)
- Art 480T Selected Topics in Art History (3)*
- Chicana/o 302 Ancient Mexican Culture (3)
- Chicana/o 303 Cultural Differences in Mexico and the Southwest (3)
- Chicana/o 304 Music of Mexico (3) (Same as Music 304)
- Chicana/o 330 The Evolution of Mexican Literature (3)
- Chicana/o 333 Mexican Literature Since 1940 (3)
- Chicana/o 336 Main Trends in Spanish-American Literature (3)
- Chicana/o 340 Mexican Intellectual Thought (3)
- Chicana/o 353 Mexico Since 1906 (3)
- Economics 333 Economic Development: Analysis and Case Studies (3)
- Economics 334 Economics of Latin America and the Caribbean (3)
- Geography 333 Latin America (3)
- History 451 Colonial Period of Latin America (3)
- History 452 20th-Century Brazil (3)
- History 453A History of Mexico Pre-Columbian (pre-1521) through 1821 (3)
- History 453B History of Mexico from Independence to Modern Day (3)
- History 454 19th Century Latin America: Era of Nation Building (3)
- History 455 Latin America Since 1945 (3)
- Upper-division Latin American Political Science courses when offered*
- Political Science 437 Latin American Politics (3)
- Portuguese 310 Portuguese in the Business World (3)
- Portuguese 317 Advanced Conversation and Composition (3)
- Portuguese 320 Introduction to Luso-Brazilian Culture and Civilization (3)
- Portuguese 325 Contemporary Brazilian Civilization (3)
- Spanish 301 Advanced Grammar and Composition (3)
- Spanish 310 Spanish in the Business World (3)

- Spanish 316 Introduction to Spanish-American Civilization (3)
- Spanish 416 Contemporary Spanish-American Culture (3)
- Spanish 440 Spanish-American Literature to Modernismo
- Spanish 441 Spanish-American Literature Since Modernismo (3)
- Spanish 466 Spanish Phonology and Dialectology (3)
- Spanish 485T Senior Seminar: Topics in Spanish-American Literature (3)

*Latin American focus only.

LATIN AMERICAN STUDIES COURSES

Course are designated as LTAM in the class schedule.

300 Topics in Latin America (3)

Prerequisite: completion of General Education Category III.C.1. Interdisciplinary examination and discussion of the history, geography, peoples, and major issues of Latin America from pre-Colonial times to the present.

350 Mexican Life and Culture (3)

Prerequisite: completion of General Education Category III.C.1. Introduction to Mexican culture and civilization. Contemporary Mexican society with focus on social, political, environmental, cultural and historical issues. Requires travel to La Paz, Baja California, Mexico and will only be offered in summer or intersession. Letter grade or credit/no credit. (Same as Chicana/o 350)

399 Directed Study (1-3)

Prerequisite: approval of program coordinator. Supervised individual or small group study as an elective. May be repeated for credit with different content.

Liberal Studies

College of Humanities and Social Sciences

INTRODUCTION

Liberal Studies is an interdisciplinary department that integrates concepts from the humanities and arts, the natural sciences and the social sciences. Some core courses trace the historical development of these areas of knowledge in their intellectual and cultural context. The broad framework of these courses will enable students to see the whole range of human knowledge. Other core courses compare and contrast the methods and underlying assumptions of the humanities and arts, the natural sciences and the social sciences, and explore the ways in which these disciplines communicate. The critical thinking and communication skills these courses develop provide students with the self-confidence that comes from being able to express one's ideas clearly and effectively both orally and in writing. The core courses use a combination of lecture, discussion and seminar to make the student not only a well-rounded, well-educated person, but also a more independent thinker and a more creative human being.

The major in Liberal Studies is designed for students who desire the broadest possible liberal education: (1) as preparation for teaching all subjects in the elementary school classroom; (2) as an alternative approach to careers in business; (3) as preprofessional preparation for entry into professional schools in the health sciences, law, ministry, etc.; (4) as a means of obtaining specific occupational requirements that cannot be met from coursework in a single department; (5) and as a source of personal growth and development.

AWARDS IN LIBERAL STUDIES

The Outstanding Elementary Education Plan Student Award and the Outstanding Thematic Plan Student Award go to the outstanding graduating senior in each plan.

MULTIPLE SUBJECT CREDENTIAL PROGRAM

In addition to completing their B.A. in Liberal Studies, students seeking a Multiple Subject (Elementary) Credential need to enter a state-approved Multiple Subject Credential Program.

The Bachelor's Degree in Liberal Studies may be effectively combined with subject matter studies necessary for the multiple subject teaching credential (K-8). Undergraduates are encouraged to work with the Center for Careers in Teaching (657-278-7130) as early as possible in their academic careers to plan efficient course selections for general education, the major and electives. With careful planning, it may be possible to enter the credential program in the senior year of the bachelor's degree. 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.

STREAMLINED TEACHER EDUCATION PROGRAM

Designed for freshmen planning to be teachers, students in the Streamlined Teacher Education Program (STEP) combine their bachelor's degree requirements with credential program courses to earn both the degree and the preliminary credential in an

DEPARTMENT CHAIR

James R. Hofmann

DEPARTMENT OFFICE

Humanities 214

DEPARTMENT WEBSITE

<http://hss.fullerton.edu/liberal>

PROGRAMS OFFERED

Bachelor of Arts in Liberal Studies
Minor in Liberal Studies

FACULTY

Emily Bonney, April Bullock, Ronald Clapper, Mark Fischer, Margaret Garber, Joseph Gonzalez, James Hofmann, Kevin Lambert, Rachel Lindheim, Edward Maine, Craig McConnell, Andrea Patterson, Angeles Sancho-Velazquez, Bradley Starr, Saul Tobias

ADVISERS

Emily Bonney, April Bullock, Ronald Clapper, James Hofmann, Craig McConnell, Bradley Starr

efficient, well-planned program. For a special education credential, one additional semester is required. Students in STEP complete the requirements for the bachelor's degree in Child and Adolescent Development or Liberal Studies, and the requirements for a Professional (preliminary) Multiple Subject Credential (for teaching elementary school) and/or an Education Specialist Credential (for teaching special education).

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

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

For further information about STEP, please visit the Center for Careers in Teaching (CCT) website at www.fullerton.edu/cct or visit the CCT directly in H113.

BACHELOR OF ARTS IN LIBERAL STUDIES

The Bachelor of Arts in Liberal Studies requires a minimum of 120 units, which includes courses for the major, General Education, all university requirements and free electives. The 27 units of core courses are required of all majors. In addition, students must take the 24-unit option under the Elementary Education Plan or the Interdisciplinary Thematic Plan. Each course counted for the major must be completed with a grade of "C" (2.0) or higher.

Core Courses (27 units)

- Liberal Studies 300 Introduction to Liberal Studies (3)
- Liberal Studies 301 Inquiry and Composition in Liberal Studies (3)*
- History/Liberal Studies 302A Historical Dimension of Liberal Studies (3)
- History/Liberal Studies 302B Historical Dimension of Liberal Studies (3)
- Liberal Studies 303 Liberal Studies in the Humanities and Arts (3)
- Liberal Studies 304 Liberal Studies in the Sciences (3)
- Liberal Studies 305 Liberal Studies in the Social Sciences (3)
- Liberal Studies/Philosophy 401 Knowledge in the Arts and Sciences (3)

*Fulfills the course requirement of the university upper-division baccalaureate writing requirement for Liberal Studies majors.

One of the following Senior Seminars:

- Liberal Studies 485 Senior Seminar in Cultural Diversity (3)
- Liberal Studies 486 Senior Seminar in Humanities and Arts (3)
- Liberal Studies 487 Senior Seminar in Evolution and Creation (3)
- Liberal Studies 488 Senior Seminar in Environmental Studies (3)
- Liberal Studies 489 Senior Seminar in Gender Issues (3)
- Liberal Studies 490 Senior Seminar in Great Books (3)
- Liberal Studies 491 Senior Seminar in Literature and Science (3)

Sequence of Core Courses

Because the core curriculum is designed as an integrated whole and builds upon the student's general education, there is an order in which these courses need to be taken and there are certain prerequisites for them. Introduction to Liberal Studies (Liberal Studies 300) and the Historical Dimension of Liberal Studies come first. The only prerequisite for Introduction to Liberal Studies is the completion of General Education Category I. The Historical Dimension of Liberal Studies 302A requires completion of General Education Category II.A. The Historical Dimension of Liberal Studies 302A, with a grade of at least "C" (2.0), is a prerequisite for The Historical Dimension of Liberal Studies 302B.

The Historical Dimension of Liberal Studies 302B and Liberal Studies 301 Inquiry and Composition in Liberal Studies, are prerequisites for Liberal Studies 303, 304 and 305 because Liberal Studies in the Humanities and Arts, Liberal Studies in Science, and Liberal Studies in the Social Sciences pick up the historical developments where Liberal Studies 302B leaves off. Since the courses in these three areas also integrate what the student has learned from general education, completion of General Education Category III.B.1 and 2 is required for Liberal Studies 303; completion of General Education Category III.A.1 and 2 is required for Liberal Studies 304; and completion of III.C.1 is required for Liberal Studies 305.

Knowledge in the Arts and Sciences and the Senior Seminar come last. Liberal Studies 401 or Philosophy 401 requires the completion of Liberal Studies 304 and either Liberal Studies 303 or 305. The Senior Seminar requires senior standing, the completion of 90 units of college work. Some of the senior seminars have additional prerequisites. Students may take whichever senior seminar they prefer.

The Elementary Education Plan (24 units)

The Elementary Education Plan, which is designed for students seeking an elementary or multiple subject teaching credential, provides academic preparation in many of the subject areas taught in the elementary school.

English 303 The Structure of Modern English (3)**

OR English/Linguistics 206 Language Structure and Language Use (3)

*One of the following:***

English 110 Literature of the Western World from Ancient through Medieval Times (3)

English 111 Literature of the Western World from the Renaissance through the 19th Century (3)
 English 211 British Literature to 1760 (3)
 English 212 British Literature from 1760 (3)
 English 221 American Literature to Whitman (3)
 English 222 American Literature from Twain to the Moderns (3)
 Comparative Literature 324 World Literature to 1650 (3)*
 Comparative Literature 325 World Literature from 1650 (3)*
 English 341 Children's Literature (3)*
 OR Theatre 311 Oral Interpretation of Children's Literature (3)*
 Mathematics 303A,B Fundamental Concepts of Elementary Mathematics (3,3)**
 Geology 410 Physical Science Concepts (3)
 OR Biology 453 Life Science Concepts (3)
 One of the following courses in Cultural Diversity in the Social Sciences*: Afro-Ethnic 304, 310, 311; American Studies 301, 320, 395; Anthropology 350, Asian American Studies 300, 340, 342; Chicano 305, 331; Geography 332; Human Comm 320; Sociology 357; Women's Studies 302.
 One of the following courses in Visual and Performing Arts: Art 380, Dance 471, Music 433, Theatre 402A.

*These courses will also count toward meeting the upper-division requirement for general education.

**In exceptional cases substitutes may be made with the approval of the department chair.

The Interdisciplinary Thematic Plan (24 units)

The Interdisciplinary Thematic Plan (ITP) is designed for students who have broad interests that expand beyond the confines of a single department. For these students, the ability to construct their own area of interdisciplinary study by taking advanced coursework in several disciplines may be more beneficial than restricting their study to one of the various majors offered by the university. The Interdisciplinary Thematic Plan does not duplicate any existing major, and does not consist of a random collection of courses. It is a well-thought-out, highly individualized group of courses that, even though they come from various departments, have a common subject, focus or interest.

ITP students may center their coursework on an academic interest or may select courses that prepare them for later professional training or for specific careers.

The Personalized Coordinated Program (21 units)

ITP students are allowed to select, in consultation with a liberal studies adviser, 21 units of upper-division coursework from various departments for the purpose of pursuing an interdisciplinary problem, theme or issue.

To ensure breadth of knowledge, ITP students are allowed to take: (a) no more than nine units from a single department; and (b) no

more than 15 units from a single area of knowledge (humanities and arts, science, social sciences). ITP students should have their study plan approved by a liberal studies adviser prior to taking coursework.

The Senior Project (3 units)

To integrate and synthesize knowledge acquired through their Personalized Coordinated Program, ITP students must complete a senior project (such as a thesis or a creative work relevant to the theme of their Personalized Coordinated Program) by enrolling in three units of Independent Study (499) with a professor of their choice. During the semester prior to their enrollment in Independent Study (499), ITP students must attain the consent of a CSUF faculty member to supervise their Senior Project and must also get written approval of their Senior Project Proposal from a Liberal Studies adviser. Developed in close collaboration with the project supervisor, the proposal shall include a clear statement of the topic, a well-defined approach to the project, a preliminary list of sources and a specific schedule for the completion of the project, including realistic due dates for drafts or other indications of progress. Written approval of the proposal by both the project supervisor and a Liberal Studies adviser must be achieved before the student will be permitted to enroll in Independent Study (499).

As part of the project approval process, all ITP students are required to attend at least one short Senior Project Workshop during the semester prior to their enrollment in Independent Study (499). Senior Project Workshops will feature presentations by ITP students currently completing their projects as well as a faculty-taught module on techniques and procedures for the successful completion of a research paper or similar project. The workshops provide opportunities for ITP students to learn and gain support from their peers and faculty. No Senior Project Proposal will be approved without proof of the student's attendance at a Senior Project Workshop. In order to graduate, all ITP students are required to present a brief summary of their Senior Project at one of the Senior Project Workshops scheduled during their final semester.

MINOR IN LIBERAL STUDIES

Students who wish to minor in Liberal Studies must complete the following 15 units:

- History/Liberal Studies 302A* The Historical Dimension of Liberal Studies (3)
- History/Liberal Studies 302B The Historical Dimension of Liberal Studies (3)
- Liberal Studies 303 Liberal Studies in the Humanities and Arts (3)
- Liberal Studies 304 Liberal Studies in the Sciences (3)
- Liberal Studies 305 Liberal Studies in the Social Sciences (3)

A grade of "C" (2.0) or better is required in each course.

*Prior completion or concurrent registration in Liberal Studies 300, although a requirement for Liberal Studies majors, is not a requirement for Liberal Studies minors.

Students who minor in Liberal Studies are expected to attain a general understanding of significant concepts, themes and figures in the three general subject areas covered by the major: the arts and humanities, the social sciences and the natural sciences. Students learn to analyze, evaluate, and apply significant concepts, themes and arguments from the three general subject areas of Liberal Studies. Students should be able to recognize interdisciplinary connections among the three subject areas and synthesize parallel interdisciplinary connections among the three subject areas and synthesize parallel developments within them. They also learn to communicate effectively, in particular by being able to: (1) write clearly and correctly, and (2) analyze and present ideas and subject material coherently.

LIBERAL STUDIES COURSES

Courses are designated as LBST in the class schedule.

100 Introduction to the Humanities (3)

Interdisciplinary introduction to the humanities as a set of related disciplines that apply conceptual, critical, historical and linguistic analyses to advance our understanding of what it means to be human.

101 Introduction to the Social Sciences (3)

Major topics in the social sciences in order to understand their systematic study of human behavior, to realize the connections among particular issues and approaches, and to reflect critically on modern life.

300 Introduction to Liberal Studies (3)

Prerequisite: completion of General Education (G. E.) Category I. The natural world as theme, introductory exploration of values and modes of inquiry and expression in the arts and humanities, natural and social sciences.

301 Inquiry and Composition in Liberal Studies (3)

Prerequisite: completion of G. E. Category I. Selected thematic interconnections between the arts and humanities, sciences and social sciences through reading, discussion and composition. Satisfies the upper-division writing course requirement for majors in Liberal Studies.

302A Historical Dimension of Liberal Studies (3)

(Same as History 302A)

302B Historical Dimension of Liberal Studies (3)

(Same as History 302B)

303 Liberal Studies in the Humanities and Arts (3)

Prerequisites: Music 101 or equivalent, History 302B, Liberal Studies 301, and completion of G. E. Category III.B.2. Interdisciplinary approach to the humanities and arts that examines their purposes, structures and major developments in this century.

304 Liberal Studies in the Sciences (3)

Prerequisites: History 302B, Liberal Studies 301, and completion of G. E. Categories III.A.1. and III.A.2. Interdisciplinary introduction to the character and aims of 20th-century science, current theories and knowledge, and the role of science and technology in contemporary society.

305 Liberal Studies in the Social Sciences (3)

Prerequisites: History 302B, Liberal Studies 301, and completion of G. E. Categories III.C.1. Interdisciplinary introduction to modern social science in which major thinkers, ideas, movements and problems will be approached historically, comparatively and analytically.

310 The California Experience (3)

Prerequisite: completion of G. E. Category III.C.1. Seven themes in California studies. Explores the California experience through readings, films and music, and three writing assignments that ask them to research one topic each in the arts/humanities, social sciences and natural sciences in California. (Same as History 310)

325 Science on the Silver Screen (3)

Prerequisite: completion of G. E. Categories III.A.1. and III.A.2. Representations of science in film. Issues include images of scientists, the nature of science and science as problem solving. Readings and film will emphasize the variety of interactions between science and its depiction on the silver screen.

333 Evolution and Creation (3)

(Same as Philosophy 333)

401 Knowledge in the Arts and Sciences (3)

Prerequisites: Liberal Studies 304 and either Liberal Studies 303 or 305. Philosophical analysis and comparison of how the natural sciences, the social sciences, and the arts and humanities apply epistemological or aesthetic criteria to assess scientific and artistic activities. Discussion of the evolution of these criteria in their social and ideological context. (Same as Philosophy 401)

485 Senior Seminar in Cultural Diversity (3)

Prerequisites: senior standing, Liberal Studies 301 and 305, and completion of G. E. cultural diversity category. Intensive interdisciplinary study of the historical and cultural experiences of racial and ethnic groups in America. Emphasizes student-led discussions.

486 Senior Seminar in Humanities and Arts (3)

Prerequisites: senior standing and Liberal Studies 301 and 303. Intensive interdisciplinary study of selected topics in the humanities and arts. Integrates and builds upon previous classes in Liberal Studies and emphasizes student-led discussions.

487 Senior Seminar in Evolution and Creation (3)

Prerequisites: senior standing, Liberal Studies 301 and History 302B. Interdisciplinary examination of the relationship between evolutionary biology and the theology of divine creation. Traces the development of both perspectives from the pre-Darwinian period to the modern era. Emphasizes critical reading of texts and student-led discussions.

488 Senior Seminar in Environmental Studies (3)

Prerequisites: senior standing, Liberal Studies 301 and Liberal Studies 304 or 305. Interdisciplinary seminar involving the examination and analysis of environmental problems from the perspectives of the natural sciences and the social sciences. Students participate in class discussions and write papers on environmental topics.

489 Senior Seminar in Gender Issues (3)

Prerequisites: senior standing and Liberal Studies 301 and 305. Intensive interdisciplinary study of gender issues in the modern period. Emphasizes student-led discussions.

490 Senior Seminar in Great Books (3)

Prerequisites: senior standing, Liberal Studies 301, and History 302B. Intensive study of important books from early civilization to the present. Develops critical reading of texts, clear expression of ideas and integration of knowledge. Emphasizes student-led discussions.

491 Senior Seminar in Literature and Sciences (3)

Prerequisites: senior standing, Liberal Studies 301, and History 302B. Interdisciplinary examination of the relationships between literary and scientific communities, and of literature as a forum for the critique, appraisal, and assessment of science in culture.

499 Independent Study (1-3)

Prerequisites: consent of instructor and approval by Liberal Studies department chair. Individually supervised studies and/or projects. May be repeated once for credit.



Linguistics

College of Humanities and Social Sciences

PROGRAM COORDINATOR

Franz Mueller

PROGRAM OFFICE

University Hall 323

DEPARTMENT WEBSITE

<http://hss.fullerton.edu/linguistics>

PROGRAMS OFFERED

Bachelor of Arts in Linguistics

Minor in Linguistics

Master of Arts in Linguistics

FACULTY

Juan Carlos Gallego (Modern Languages), Angela Della Volpe (English), Janet Eyring (Modern Languages), Reyes Fidalgo (Modern Languages), Thomas P. Klammer (English), Edith C. Li (Human Communication), Franz Mueller (English), James Santucci (Comparative Religion), Setsue Shibata (Modern Languages) Kazuha Watanabe (Modern Languages)

ADVISERS

Undergraduate: Franz Mueller

Graduate: Franz Mueller

INTRODUCTION

Linguistics is the study of language. Like other rapidly developing fields, linguistics resists simple classification into one of the traditional categories of academic disciplines. As one of the humanities, linguistics is concerned with the historical development of a particular language or language family. As a social science, linguistics may be related to anthropology in describing language as part of culture; it may even be considered a natural science, related to the physical science of acoustics and the biological sciences of anatomy and physiology. As an applied science, linguistics has found many applications in fields as far apart as language pedagogy, speech therapy and computer programming. Finally, linguistics may be considered a formal science in its own right, related to mathematics and logic.

The interdisciplinary aspects of linguistic study are reflected in the organization of the program, which offers a core of general linguistics courses and draws upon linguistically related courses in other departments.

Graduates use the major in linguistics for a liberal arts base in language-related fields. With advanced work, they enter teaching, language research, translation and linguistic field work, as well as such professional fields as law or teaching English as a second language.

The Bachelor of Arts is for students with an exceptional interest in and aptitude for the study of language. The essential relationships between language and thought and language and culture, the structure of modern languages, including English, the historical study of language, and formal techniques and methodologies are the theoretical foundations of linguistic analysis.

The M.A. in Linguistics builds upon a foundation of undergraduate study in linguistics and allied areas, such as foreign languages, English language, anthropology, human communication and related areas in psychology and philosophy. The program emphasizes strong preparation in general linguistics and offers the opportunity to specialize in one of several areas.

The relationship between linguistics and other disciplines and the application of its techniques, findings and insights to such activities as language teaching are treated in interdisciplinary courses and seminars.

Student Awards

Each year the program honors an outstanding undergraduate student with the Award for Excellence in Undergraduate Linguistics. The Patricia Bruner Memorial Award is awarded annually to a student in the M.A. program in recognition of a distinguished graduate project or academic record.

BACHELOR OF ARTS IN LINGUISTICS

The B.A. in Linguistics requires a minimum of 120 units, which includes courses for the major, General Education, all university requirements and free electives. A grade of "C" (2.0) or better is required in all courses applied to the major.

Language Requirement

Linguistics majors are required to take two progressive semesters of any two languages or four progressive semesters of any one language.

Core Requirements (15 units)

Linguistics 351 Introduction to Linguistic Phonetics and Phonology (3)

Linguistics 406 Descriptive Linguistics (3)

Linguistics 408 Syntax (3)

Linguistics 412 Sociolinguistics (3)

Linguistics 430 Historical Linguistics (3)

Electives (18 units)

Two must be from linguistics upper-division courses other than those listed as required above; and four may be selected from linguistics upper-division courses or from the courses listed below:

Child Development 312 Human Growth and Development (3)

English 303 The Structure of Modern English (3)

Modern Languages, any upper-division course (3)

Philosophy 368 First Course in Symbolic Logic (3)

Psychology 415 Cognitive Processes (3)

Students must consult with an adviser in linguistics before establishing their individual programs of study. Other courses in the university may be taken as electives with the permission of the adviser.

MINOR IN LINGUISTICS

The minor in linguistics provides a solid introduction to the scientific study of language for students in a related major field. Students are required to take: Linguistics 106, Linguistics 351 and Linguistics 406. In addition, 12 units in elective courses, selected with the approval of the undergraduate adviser, are required. It is thus possible to tailor the minor to individual needs in rounding out a course of study in the student's major area of specialization. A grade of "C" (2.0) or better is required in all courses applied to the minor.

MASTER OF ARTS IN LINGUISTICS

Application Deadlines

The deadlines for completing online applications are March 1 for the fall semester and Oct. 1 for the spring semester (see www.csumentor.edu). Mailed applications need to be postmarked by the same deadlines. However, deadlines may be changed based upon enrollment projections.

Admission to Graduate Standing: Conditionally Classified

Requirements include a bachelor's degree from an accredited institution and a minimum grade-point average of 2.5 in the last 60 semester units attempted.

Graduate Standing: Classified

Classified graduate standing requires a bachelor's degree in Linguistics or a related field from an accredited institution with at least 3.0 GPA in the major courses provided that a minimum of 24 units of upper-division coursework is included.

If the student holds a bachelor's degree in a major other than Linguistics, 24 units of upper-division coursework in Linguistics with a minimum of 3.0 GPA must have been completed.

Included among the 24 units of coursework must be the following courses or their equivalents:

Linguistics 351 Introduction to Linguistic Phonetics and Phonology (3)

Linguistics 406 Descriptive Linguistics (3)

Linguistics 408 Syntax (3)

Linguistics 412 Sociolinguistics (3)

Linguistics 430 Historical Linguistics (3)

A student who has not completed one or more of the preceding four courses may enroll in the required course(s) concurrently with graduate coursework in the program.

If the student lacks the prerequisite number of linguistics courses, they must be made up before commencing the master's degree program, with at least a 3.0 GPA in such makeup coursework. In the event that the student's GPA in prerequisite Linguistics courses is less than 3.0, six to nine units of probationary, adviser-approved coursework may be assigned. If the GPA in these probationary courses is 3.0 or better, the student may be classified. Some courses taken to make up qualitative deficiencies may be credited toward the M.A. if completed with a grade of "B" (3.0) or better, and if applicable to the student's particular study plan. Courses taken to remove quantitative deficiencies may not be applied to the M.A. program.

Knowledge of one foreign language is required (equivalent of Modern Languages 317 course). Students without coursework in a foreign language may demonstrate proficiency by a score of average or better on the MLA-ETS Proficiency Examination for Advanced Students. Work toward fulfillment of this requirement may be taken concurrently with graduate work in linguistics.

Modifications of certain prerequisite requirements may be permitted in exceptional circumstances.

A study plan must be developed and approved for admission to classified graduate standing.

M.A. STUDY PLAN REQUIREMENTS

Descriptive and Historical Linguistics (15 units)

Linguistics 501 Research Methods and Bibliography (3)

Linguistics 505 Phonological Analysis (3)

Linguistics 507 Grammatical Analysis (3)

Linguistics 508 Theories of Syntax (3)

Linguistics 530 Graduate Seminar: Historical Linguistics (3)

Specialized Electives (9 units)

Coursework selected from any one of the following five areas of specialization, including other courses in the university with the approval of the adviser:

Applied Linguistics

English 303 Structure of Modern English (3)

French 466 Introduction to French Linguistics (3)
 French 599 Independent Graduate Research (1-3)
 German 466 Introduction to German Linguistics (3)
 German 599 Independent Graduate Research (1-3)
 Linguistics 305 The English Language in America (3)
 Linguistics 307 Speech/Language Development (3)
 Linguistics 416 Anthropological Linguistics (3)
 Linguistics 599 Independent Graduate Research (1-3)
 Spanish 466 Spanish Phonology and Dialectology (3)
 Spanish 467 Spanish Morphology and Syntax (3)
 Spanish 468 Spanish/English Bilingualism and Language Contact (3)
 Spanish 599 Independent Graduate Research (1-3)
 TESOL 509 Advanced Principles of TESOL: Listening/Speaking (3)
 TESOL 510 Advanced Principles of TESOL: Reading and Writing (3)
 TESOL 515 Pedagogical Grammar in TESOL (3)
 TESOL 527 Second Language Acquisition (3)
 TESOL 532 Technology and Second Language Learning (3)
 TESOL 560 Second Language Assessment (3)

Anthropological Linguistics

Anthro 599 Independent Graduate Research (1-3)
 Linguistics 416 Anthropological Linguistics (3)
 Linguistics 599 Independent Graduate Research (1-3)
 TESOL 500 Fundamentals in TESOL (3)

Analysis of Specific Language Structures

English 599 Independent Graduate Research (1-3)
 French 466 Introduction to French Linguistics (3)
 French 500 Graduate Seminar: Advanced Structure and Style (3)
 French 530 Graduate Seminar: Historical Linguistics (3)
 French 599 Independent Graduate Research (1-3)
 German 466 Introduction to German Linguistics (3)
 German 500 Graduate Seminar: Advanced Structure and Style (3)
 German 530 Graduate Seminar: Historical Linguistics (3)
 German 599 Independent Graduate Research (1-3)
 Japanese 466 Introduction to Japanese Linguistics (3)
 Japanese 468 Japanese-English Contrastive Analysis (3)
 Linguistics 599 Independent Graduate Research (1-3)
 Spanish 466 Spanish Morphology and Dialectology (3)
 Spanish 500 Graduate Seminar: Advanced Structure and Style (3)
 Spanish 530 Graduate Seminar: Historical Linguistics (3)
 Spanish 599 Independent Graduate Research (1-3)

Communication and Semantics

Anthro 599 Independent Graduate Research (1-3)
 Human Comm 599 Independent Graduate Research (1-3)
 Linguistics 416 Anthropological Linguistics (3)
 Linguistics 417 Psycholinguistics (3)
 Linguistics 442 Changing Words: History, Semantics and Translation (3)
 Linguistics 599 Independent Graduate Research (1-3)

Disorders of Communication

Human Comm 461 Audiology and Audiometry (3)
 Human Comm 472 Voice and Craniofacial Disorders (3)
 Human Comm 475 Fluency Disorders (3)
 Human Comm 599 Independent Graduate Research (1-3)
 Linguistics 307 Speech/Language Development (3)
 Linguistics 369 Language, Sex Roles, and the Brain (3)
 Linguistics 417 Psycholinguistics (3)
 Linguistics 599 Independent Graduate Research (1-3)

Linguistics or a Related Field Elective (3 units)

Linguistics 597 Project (3 units)

A minimum of 15 units in 500-level courses is required. Satisfactory completion of a written comprehensive examination is required at the conclusion of the program. The examination may be repeated only once. A reading list for the examination and specifications for the project are available in the program office.

For further information, consult the graduate adviser.

LINGUISTICS COURSES

Courses are designated as LING in the class schedule.

106 Language and Linguistics (3)

Nature of language, its origin and development; language in culture, the structure of language and its systems of writing and transcription, and its application to other areas of humanistic and scientific knowledge.

108 Linguistics and Minority Dialects (3)

Sounds, meanings and vocabulary of African-American, Chicano and other English dialects and their historical origin. (Same as Chicana/o Studies 108 and Afro-Ethnic Studies 108)

206 Introduction to Language Structure and Language Use (3)

(Same as English 206)

301 Sanskrit (3)

Introduction to the Devanagari script, as well as the phonology, morphology and syntax of the Sanskrit language. A reading knowledge of Sanskrit will be the main goal of the course. (Same as Comp Religion 301)

305 The English Language in America (3)

(Same as English 305)

307 Speech/Language Development (3)

(Same as Human Comm 307)

351 Introduction to Linguistic Phonetics and Phonology (3)

Nature and structure of sound systems in language. Thorough investigation of the International Phonetic Alphabet as applied to many different languages, including English. Language Acquisition (L1) and Language Learning (L2); analytic methods and techniques.

360 Nonverbal Communication (3)

Prerequisite: Ling 106 or Human Comm 100. Physical actions, gestures and changes in the physiognomy that occur together with language and paralinguistics in human communication; substitutions for language and modifications of it in varying cultures. (Same as Human Communication 360)

369 Language, Sex Roles, and the Brain (3)

How gender socialization is reflected in the structure and use of language and whether gender differences in language are biologically based or a consequence of sex roles.

406 Descriptive Linguistics (3)

Sounds (phonology), forms and meanings (morphology), and syntax of languages. Examples and problem-solving in various languages. (Same as Anthropology 406)

408 Syntax (3)

Prerequisite: one of the following: Ling 106, 406 or Engl 303. Sentence structure in human language. Practice in syntactic analysis in a variety of languages.

412 Sociolinguistics (3)

Prerequisite: Ling 406 or equivalent. Social dialects in relation to the surrounding communities. Social stratification, acculturation, language maintenance, standardization, language planning and language change.

416 Anthropological Linguistics (3)

(Same as Anthropology 416)

417 Psycholinguistics (3)

(Same as Psychology 417)

430 Historical Linguistics (3)

Prerequisite: Ling 406 or its equivalent. Comparative method in diachronic linguistic methodology and theory, graphemics, glottochronology, language families, dialect geography and internal reconstruction. Fulfills the course requirement of the university upper-division baccalaureate writing requirement for linguistics majors.

442 Changing Words: History, Semantics, and Translation (3)

Prerequisite: Ling 351 or 430. Etymology, related problems of lexicography and translation. Recent developments in theory of semantic change as related to cultural shifts. Emphasizes words, collocations, idioms. (Same as English 442)

492 Linguistic Fieldwork (3)

Prerequisite: Ling 351 or 406. Methodology and practice of linguistic analysis and language description as practiced in the field. Data collection and processing of a non-Indo-European linguistic structure using native informants. May be repeated for credit.

499 Independent Study (1-3)

Supervised projects with consent of program coordinator. Topic varies with the student. May be repeated for credit.

501 Research Methods and Bibliography (3)

Prerequisites: graduate standing and Ling 406 or equivalent. Principal books, periodicals and collections in general linguistics, specific languages and related fields; techniques of preparing research papers and field reports in linguistics. Must be taken prior to Linguistics 597.

505 Phonological Analysis (3)

Prerequisites: Ling 351 and 406. Phonological systems that occur in languages; emphasizes terminology used to describe changes in the system and processes affecting it; problem solving of selected language data.

507 Grammatical Analysis (3)

Prerequisite: Ling 406. Word formation in a variety of languages with emphasis on the terminology used to describe morphological representation on various levels; problem solving of selected language data. (Same as Anthropology 507)

508 Theories of Syntax (3)

Prerequisite: Ling 408 or equivalent. Contemporary theories of grammar, such as transformational-generative, with emphasis on theoretical problems in the analysis of language structure.

530 Graduate Seminar: Historical Linguistics (3)

Prerequisite: Ling 430 or its equivalent. History of language, including principles and techniques for the historical study and classification of individual languages and language families, writing systems, lexicostatistical methods and linguistic geography.

597 Project (3)

Prerequisite: Ling 501. Preparation and completion of an approved project.

599 Independent Graduate Research (1-3)

Prerequisites: graduate standing and consent of program coordinator. May be repeated for credit.



Management

Mihaylo College of Business and Economics

MANAGEMENT DEPARTMENT CHAIR

Ellen Dumond

DEPARTMENT OFFICE

Steven G. Mihaylo Hall 5313

DEPARTMENT WEBSITE

www.business.fullerton.edu/management

PROGRAMS OFFERED

Bachelor of Arts in Business Administration
Concentration in Entertainment and Tourism
Concentration in Entrepreneurship
Concentration in Management
Master of Business Administration
Concentration in Entrepreneurship
Concentration in Management

FACULTY

Farouk Abdelwahed, Thomas Apke, Gerard Beenen, Peng Chan, Paul Choi, Ellen Dumond, Harold Fraser, Adelina Gnantlet, Gamini Gunawardane, Thomas Johnson, Wayne Jones, Dmitry Khanin, Casey Kleindienst, Brian Kleiner, Elliot Kushell, David Leibsohn, Gus Manoochchri, Thomas Mayes, Lori Muse, Richard Parry, Sean Pichler, Goli Sadri, Thomas Schwarz, Paula Silva, Charles Smith, Don Smith, Hamid Tavakolian

INTRODUCTION

Managers are needed in a wide variety of different types of organizations – business and non-business, large and small, foreign and domestic. In all of these organizations, managers need technical, human and conceptual skills to help achieve organizational goals.

Management courses are designed to teach the fundamental principles underlying organizations, to emphasize education that will improve students' thought processes, provide familiarity with the analytical tools of management and develop in the student, an ability to use the techniques involved in analyzing and evaluating managerial problems and making sound decisions.

Students may pursue a wide variety of academic and career interests through four different management emphases. These emphases include: (1) general management; (2) human resources management; (3) operations management; and (4) legal studies. The entrepreneurship concentration and entertainment and tourism concentration are also housed in the management department.

Advisers

The Business Advising Center, Steven G. Mihaylo Hall 1201, provides information on admissions, curriculum and graduation requirements; registration and grading procedures; and residence and similar academic matters. In addition, the Management Department provides advising on career opportunities within the Management, Entrepreneurship and Entertainment and Tourism Concentrations:

Business Law	Richard Parry
Entertainment and Tourism	Harold Fraser/Kim Tarantino
Entrepreneurship	Wayne Jones
General Management	Farouk Abdelwahed/Don Smith
Human Resources	Paula Silva/Lori Muse
Operations Management	Adelina Gnantlet/Don Smith
Graduate Program	Ellen Dumond

Credential Information

For students interested in a teaching credential, the Management Department offers courses which may be included in the Subject Matter Preparation and Supplementary Authorization Programs for 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 of 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 (657-278-3352).

Awards in Management

The Gus Berger Award/Operations Management
The H. Peter Guertin/APICS Orange County Chapter Scholarship

Outstanding Management Student Award
Human Resource Management Scholarship

BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

See “Business Administration Degrees, Concentrations in Entrepreneurship, Entertainment and Tourism, and Management.”

MASTER OF BUSINESS ADMINISTRATION

See “Business Administration, MBA”

MANAGEMENT COURSES

Courses are designated as MGMT in the class schedule.

246 Business and Its Legal Environment (3)

Laws and regulations affecting the business environment and managerial decisions, including the legal system and methods of dispute resolution. Topics include torts, crimes, contracts, product liability, business organization, employment, antitrust, environmental protection; incorporates ethical considerations and international perspectives. Uses case studies.

335 Family Business Dynamics (3)

Prerequisite: completion of lower-division business core. Unique issues faced by family-owned and operated businesses. Textbooks, lecture and outside real-world projects explore the business, personal and interpersonal issues associated with family-owned businesses.

339 Principles of Management and Operations (3)

Corequisites: Business Admin 301 and InfoSys/DecSci 361A. Integrates selected general management concepts with operations management concepts and techniques. Emphasizes the development of competencies required for effective planning, designing, operating, controlling and improving processes that produce and deliver quality goods and services.

340 Organizational Behavior (3)

Prerequisite: General Education in Social Sciences; corequisites: Business Admin 301 and InfoSys/DecSci 361A. Social and cultural environments of business. Business ethics. Communication, leadership, motivation, perception, personality development, group dynamics and group growth. Human behavior and organizational design and management practice in American and world wide business.

343 Human Resource Management (3)

Prerequisites: Business Admin 301 and Mgmt 340 or equivalent. Human resource management functions in organizations. Topics include selection, recruiting, training, compensation and performance appraisal.

346 International Law for Business (3)

Prerequisite: Mgmt 246 or equivalent. International legal environment in which firms operate. Case studies in the areas of treaties and laws, EU, NAFTA, international contracts, regulation of imports, exports and competition, government policies, enforcement of property rights and issues involving ethical responsibilities.

348 Commercial Law (3)

Prerequisite: Mgmt 246 or equivalent. Philosophy, institutions and role of law and ethical considerations in commercial transactions. Case studies in sales, storage and shipment of goods, commercial paper, debtor and creditor rights and remedies, bankruptcy, secured transactions and suretyship.

349 Law for Small Business (3)

Prerequisites: Business Admin 301 and Mgmt 246. Philosophy, institutions and role of law and their practical applications in the areas of interest to the small-business person. Product liability, consumer rights, workers' compensation and other topics.

350 International Business and Management (3)

Prerequisite: Mgmt 339 or 340. Fundamental course in international business and international management. Overview of international business, and emphasizes a managerial approach that involves examining the various roles of managers in an international setting.

365 Entertainment Business (3)

Prerequisites: Mgmt 246 and Business Admin 301. Examines the management facets of businesses designed to divert and amuse consumers during their leisure time, collectively known as the entertainment industry. Business and economic aspects of the industry and its enterprises. Various professions within entertainment.

421 Operations and Systems Design (3)

Prerequisite: Mgmt 339. Key management methodologies for designing high-performing service and manufacturing organizations. Achieving competitiveness and profitability through excellent management of service and product design, process analysis and reengineering, capacity and facility planning, work systems and technology management.

422 Operations Planning and Control (3)

Prerequisite: Mgmt 339. Concepts and techniques to plan output, schedule product and employees, manage inventory and coordinate activities to better meet customer demand. Discusses use of ERP systems. Uses cases, research projects and/or computer software.

423 Purchasing and Supply Management (3)

Prerequisite: Mgmt 339. Operational and strategic role of purchasing/supply management in organizations. Develops skills and knowledge in supplier selection/evaluation, negotiation, cost/price analysis, contract management, global sourcing, commodity analysis, value analysis. Exercises, cases, guest speakers.

425 Quality Management and Improvement (3)

Prerequisite: Mgmt 339. Measurement and improvement of productivity and quality in organizations. Problem-solving and process management tools. Case analyses and research projects address issues of people and technology. How to improve your organization: manufacturing or service, department or company.

426 Global Operations (3)

Prerequisite: Mgmt 339. Managerial issues related to the “international division of labor” and the resulting operational challenges in the generation and exchange of goods and services across international borders. Issues discussed include outsourcing, benchmarking, facilities and partnerships.

427 Management of Technology and Innovation (3)

Prerequisite: Mgmt 339. Strategic and operational management of technology and innovation decisions, activities, interfaces, policies and programs in contemporary organizations. Discusses issues such as technology development/deployment, innovation dynamics and strategic/economic payoffs.

430 Integrated Supply Chain Management (3)

Prerequisites: Mgmt 339 (or equivalent) and Marketing 351. Studies managing materials, capital and information flows throughout multiple organizations in a supply chain from acquisition of materials to delivery of finished goods and services to the final customers. Presentation and case studies on various issues in supply chain management.

432 Staffing (3)

Prerequisite: Mgmt 343 or equivalent. Theories and techniques related to employee staffing. Topics include planning, legal issues, job analysis, measurement, internal and external recruitment and selection, and decision-making.

433 Current Issues in Human Resource Management (3)

Prerequisite: Mgmt 343. Contemporary concepts and procedures in compensation and staffing. Current topics and controversial issues of critical importance to human resource management.

434 Compensation (3)

Prerequisite: Mgmt 343 or equivalent. Development of equitable compensation and benefit programs in order to retain a productive workforce. Topics include job analysis and evaluation, pay structures, salary survey, individual compensation, incentive systems and benefits.

435 Management of Service Organizations (3)

Prerequisite: Mgmt 339. Presents a highly focused set of concepts required for the successful management of service organizations. Subjects include service concepts, service delivery processes, strategic positioning, service personnel and technologies, global/regulatory issues, work and quality systems, and performance metrics.

436 Training and Development (3)

Prerequisite: Mgmt 343. Theoretical and practical issues involved in designing and implementing training and development programs in work organizations. Topics include planning and assessment, design and delivery of training initiatives to meet organizational needs and evaluation of training effectiveness.

440 Emerging Issues in Management (3)

Prerequisites: Mgmt 339 and 340. For upper-division and graduate students. Business and management in America. Interrelationships of technological, economic, political and social forces with the business enterprises and their ethical obligations to owners, employees, consumers and society at large. Open to nonbusiness majors.

441 Labor-Management Relations (3)

Prerequisite: Mgmt 340. Impact of labor-management relations upon labor, management and the public. Proper grievance procedure, collective bargaining and settlement of disputes.

443 Team Leadership Skills (3)

Prerequisites: Mgmt 339 and 340 or equivalent. Managerial skills in group dynamics as they relate to team performance. Cultural diversity, including value differences and perception. Leadership: problem solving, idea generation, communications and conflict management. Organization change and designs that enhance team effectiveness.

444 Project Management (3)

Prerequisite: Mgmt 339. Principles and techniques of effective project management. Managerial, organizational and behavioral concepts, as well as effective tools, techniques and software for planning, communications, coordination and control of the project.

445 Employment Law (3)

Prerequisite: Mgmt 246. Corequisite: Mgmt 343. Legal and ethical issues of the employment relationships and environment. Case studies in the areas of agency, independent contractors, responsibilities of managing offers, the hiring process, discrimination, wages, hours and benefits, termination, OSHA, workers compensation and other regulations affecting employment. International implications of employment.

446 Entertainment Business Law (3)

Prerequisite: Mgmt 246. Legal/business issues of the entertainment industry. Topics include copyright, trademark, publicity and privacy rights, artistic credit, defamation, entertainment contracts, creator control, moral rights, entertainment guilds, business and legal representation of artists, performing rights societies and government regulation.

447 Internet Legal Issues (3)

Prerequisites: Mgmt 246; junior, senior or graduate standing in Business Admin. Legal and ethical issues relating to the Internet and information technology. Case studies in the areas of intellectual property, e-commerce, online contracting, taxation, securities, privacy, obscenity, defamation, information security, network crimes and global issues.

449 Seminar in Strategic Management (3)

Prerequisites: Business Admin 301; all other Mihaylo College of Business and Economics (MCBE) core courses. Integrative cases from top management viewpoint. Administrative processes, ethical-legal-economic implications of business decisions, international applications; organization theory and policy formulation. Individual and team efforts.

455 Cross-Cultural Management (3)

Prerequisite: Mgmt 339 or 340. Develop a more comprehensive understanding of the ways in which culture affects management decisions. Not available for graduate degree credit.

461 Entrepreneurial Management (3)

Prerequisites: Accounting 201B and Mgmt 339 for MCBE students. Accounting 201A and Business Admin 301 for non-MCBE students. How to plan organize and control new ventures. Setting up business level strategy and corresponding systems to improve venture performance. Casework, research and fieldwork with selected local businesses. Not applicable for graduate degree credit.

464 Entrepreneurial Leadership (3)

Prerequisite: Mgmt 340 for MCBE students. Leadership roles, organizational development and human resource management of new ventures. Setting up systems to improve venture performances that comply with related laws and regulations. Casework, research and fieldwork with selected local businesses. Not applicable for graduate degree credit.

465A New Venture Creation and Funding (3)

Prerequisites: Mgmt 461, Marketing 462, Accounting 463, Mgmt 464. How to develop product and service concepts for new ventures, test the concepts, set business strategy, design operating systems and develop financial forecasts, while complying with related laws and regulations. Venture teams will prepare business plans and make funding presentations.

465B New Venture Launch (3)

Prerequisite: Mgmt 465A. Venture teams will launch new ventures. New ventures may be start up businesses or new profit centers within existing businesses. Final report and oral presentation on venture results.

470 Media Entertainment Business (3)

Prerequisites: Mgmt 339, 340, 365. Apply management theory in the area of entertainment that uses physical media for its delivery, including film, ancillary markets, broadcast television and music. Examines organizations and business operations in these fast paced, high profile industries. Not applicable for graduate degree credit.

471 Live Entertainment Business (3)

Prerequisites: Mgmt 339, 340, 365. Learn to manage in the fast paced segments of live entertainment, e.g., amusement/theme parks, concerts/plays/shows, gaming/wagering and special event management (conferences, conventions, etc.); Organizations, jobs and business operations in these complex, high profile industries. Not applicable for graduate degree credit.

480 Global Strategic Management (3)

Prerequisites: Business Admin 301, completion of all other International Business core courses. Conceptualization, formulation and implementation of successful global business strategies. Other topics include managing cultural differences, strategic alliances and strategies for the Pacific Rim and Europe.

495 Internship (1-3)

Prerequisites: six units of upper-division management courses including Mgmt 339; concentration in management or international business; consent of 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 credit up to a total of six units. Credit/No Credit only.

499 Independent Study (1-3)

Prerequisites: senior standing and approval by the department chair. Open to qualified students desiring to pursue directed independent inquiry. May be repeated for credit. Not open to students on academic probation.



515 Management of Information in the Corporate Environment (3)

Prerequisite: classified MCBE status. Review and application of management information systems in business. System planning, system design and analysis, use of files, decision support systems, expert systems and implementation of management information systems.

516 Operations Management (3)

Prerequisites: classified MCBE status, InfoSys/DecSci 513 (may be taken concurrently), Role of the operations management function in the modern manufacturing and service organization and its interaction with the other functions. Formulation of operations strategy consistent with organizational strategy, operations planning, organization, directing and control activities. Long term and short term decision areas in operations management and decision-making tools and techniques. Global, environmental and ethical issues.

518 Legal and Ethical Environment of Business (3)

Prerequisite: classified MCBE status. The legal system and case studies in areas of contracts, torts, products liability, employment, business organizations and trade regulation, with consideration of ethical theories and implications as they apply to business practices.

520 International Legal Environment of Business (3)

Prerequisite: classified MCBE status. International legal environment in which firms operate. Case studies in the areas of treaties and laws. World Trade Organization, EU, NAFTA, international contracts, dispute resolutions, regulation of imports, export and competition, government policies, enforcement of property rights and issues involving ethical responsibilities.

524 Seminar in Organizational Behavior and Administration (3)

Prerequisites: classified MCBE status, Management 516 and 518 or equivalent. Human behavior in organizations, studies in organizational theories and administrative action.

525 Seminar in Team Leadership Skills (3)

Prerequisite: Mgmt 524 or equivalent (with instructor's consent). Graduate seminar and workshop to develop hands-on leadership skills to manage high-performance work teams. Topics include methods for self-awareness, making oral presentations, interviewing, stress management, supportive communication, problem solving, influencing and motivating others, managing conflict, empowering, delegating and team building.

535 Production/Operations Management (3)

Prerequisites: Mgmt 516 and InfoSys/DecSci 514. In-depth study of selected POM topics. Operations function role and its importance, identification of the problem areas and reviewing of the related concepts and techniques, including computer applications. Emphasizing the current POM topics of interest to top management.

539 Supply Chain Management: Making E-Business Happen (3)

Prerequisite: Mgmt 516 or equivalent. Introduces the mechanics and impact of E-business and then focuses on the development of the E-supply chain, a key component of E-business. Strategic design of E-business and the supply chain, methods of integration throughout the supply chain and the means by which to develop differentiation of competitive advantage through the supply chain. Uses articles and cases from both services and manufacturing.

540 New Venture Leadership and Management (3)

Prerequisite: Management 516. Coverage of leadership roles, organizational development and human resource management, planning and control issues for new ventures. Setting up operations, and engaging human resources, to better serve customers and improve venture performance. Casework, research and fieldwork with selected local businesses.

542 Labor and Employment Relations Seminar (3)

Prerequisites: classified MCBE status, Mgmt 516 and 518. Exploration and review of traditional labor relations, as well as the developing issues in employment relations involving non-union employees, with a special focus on the various ways of resolving both labor and employment disputes. Collective bargaining, bargaining by objectives, dispute resolution methods in both interest and rights disputes: arbitration, mediation and fact-finding of both traditional labor disputes involving salaried and professional employees.

543 Seminar in Human Resource Management (3)

Prerequisites: classified MCBE status, Management 516 and 518. Cases, problems and significant personnel administration literature in personnel administration and human relations.

547 Comparative Management (3)

Management practices and processes in five geographical areas; market-structures and management characteristics different from those in the United States. Constraints that vary between countries because of cultural, legal, economic and/or political differences.

582 Organizational Development and Change (3)

(Same as Political Science 582)

599 Independent Graduate Research (1-3)

Prerequisites: classified MCBE status, consent of instructor, consent of the department chair and associate dean. May be repeated for credit. Not open to students on academic probation.



Marketing

Mihaylo College of Business and Economics

INTRODUCTION

Marketing is a basic business function covering a wide range of activities. It includes studying markets, planning products, pricing them, promoting them, selling them and then delivering these products to customers. People in wholesaling, retailing, advertising agencies, research firms and transportation companies are all working in the marketing area. Any firm that is reviewing its product policies needs marketers to identify the market, choose the products, find where they can be sold and decide on a price for them.

Credential Information

For students interested in a teaching credential, the Department of Marketing offers courses that may be included in the Subject Matter Preparation Program for secondary teaching.

Further information on the requirements for teaching credentials is found in the Teaching Programs section of the catalog and is also available from the Department of 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.

Scholarships and Awards in Marketing

- The Michael T. Ashton Memorial Leadership Award
- The Robert M. Olsen Outstanding Marketing Major Award
- Honors Networking Program Outstanding Student Award
- Anaheim/Orange County Visitor & Convention Bureau Scholarship
- Enterprise Rent-A-Car Scholarship

BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

See "Business Administration, Marketing Concentration."

MASTER OF BUSINESS ADMINISTRATION DEGREE

See "Business Administration, Marketing Concentration."

MARKETING COURSES

Courses are designated as MKTG in the class schedule.

351 Principles of Marketing (3)

Prerequisite: Econ 202; corequisites: Business Admin 301, InfoSys/DecSci 361A. Application of current theories and concepts in effectively marketing goods and services to define target customers from a domestic and global perspective. Includes market research, identifying target customers, developing product offers, branding, pricing, marketing communications and distribution channels. Marketing is critically examined from the perspective of the consumer, economy, technology, legal/political issues and ethical/social responsibility.

DEPARTMENT CHAIR

Irene Lange

DEPARTMENT OFFICE

Steven G. Mihaylo Hall 5214

DEPARTMENT WEBSITE

www.business.fullerton.edu/marketing

PROGRAMS OFFERED

- Bachelor of Arts in Business Administration
- Concentration in Marketing
- Master of Business Administration
- Concentration in Marketing

FACULTY

Christopher Anicich, Catherine Atwong, Ray Benedictus, Thomas Boyd, S. Allen Broyles, Susan Cadwallader, Howard Forman, Neil Granitz, Katrin Harich, Chiranjeev Kohli, Christopher Kondo, Matthew Lancellotti, Irene Lange, Aubrey LeBard, Sunil Thomas

ADVISERS

The Business Advising Center, Steven G. Mihaylo Hall 1201, provides information on admissions, curriculum and graduation requirements, registration and grading procedures, residence and similar academic matters. In addition, the Marketing Department provides advising on curriculum content and career opportunities.

353 Marketing Information Technology (3)

Prerequisites: Business Admin 301, InfoSys/DecSci 361A, Mktg 351. Information sources, databases and tools applied by marketers to transform data into useful formats for the strategic decision-making process. Includes segmentation, target marketing and positioning, media selection, market share, break-even analysis, pricing, sales forecasting and profit scenario analysis. Extensive use of Excel spreadsheets, the Internet and other technology resources.

370 Consumer Behavior (3)

Prerequisite: Business Admin 301; corequisite: Mktg 351. Consumer buying patterns, motivation and search behavior. The consumer decision-making process. Inter-disciplinary concepts from economics, sociology, psychology, cultural anthropology and mass communications. Case analyses and research projects.

379 Marketing Research Methods (3)

Prerequisites: Business Admin 301, Mktg 351 and InfoSys/DecSci 361A. Marketing research process. Problem formulation, identifying data sources, data collection, analysis techniques, preparing research reports and application of these concepts to marketing research projects.

401 Professional Selling (3)

Prerequisite: Mktg 351. Steps of the sales cycle as an interpersonal influence process. Selling skills and techniques based on communication and buyer behavior concepts. Written sales projects and oral presentations are expected.

405 Advertising and Promotions Strategy (3)

Prerequisite: Mktg 351. How to develop and implement advertising, sales promotion, public relations, direct marketing, sponsorship marketing and personal selling strategies that convey a single voice to a firm's customers' attention with effective and efficient communications program; how to develop and use analytical and creative skills that successfully communicate a firm's messages in both domestic and international markets.

415 Managing the Sales Force (3)

Prerequisite: Mktg 351. Sales manager's role in organizing and deploying a field sales force, developing effective sales training programs, designing complete motivation and compensation plans, asserting strong leadership and evaluating sales people's performance. Relies heavily on case studies and group discussion.

425 Retail and Marketing Channel Strategies (3)

Prerequisite: Mktg 351. Evolution of retailing into a global, high technology industry; developing integrated marketing and financial strategies. Strategically positioning the retail offer to establish and maintain relationship with target customers. Evolving market conditions, buying behavior, retail venues, channel relationships, information, communication and decision support systems and merchandise management.

430 Sports Marketing (3)

Prerequisite: Mktg 351. Develops understanding of Sports Marketing, its role in business and society. Develops understanding of different functional areas. Develops ability to apply theories and knowledge to solve problems faced by Sports Marketers.

445 International Marketing (3)

Prerequisites: Business Admin 301 and Mktg 351. Theories of international trade and role of marketing decisions across national boundaries and markets. Concepts and principles of marketing strategies in organizations from recognition of environmental differences, market assessments, entry alternatives, positions of global interdependence, marketing problems and critical implications. Integrative cases, individual and team efforts emphasized.

455 Strategic Internet Marketing (3)

Prerequisite: Mktg 351. Marketing of goods, services and ideas on the Internet. Integrating e-commerce into a total marketing strategy for businesses ranging from entrepreneurial to multinational corporations. History and emergence of e-commerce, utility of the Internet as a tool to increase effectiveness, efficacy and competitiveness. Designing effective Web pages.

462 Marketing for Entrepreneurs (3)

Prerequisites: Accounting 201B and Mktg 351. Coverage of market analysis for new products and services, competitive analysis, alternatives for entering markets, associated costs and launch feasibility. Casework, research and fieldwork with selected local businesses.

465 Managing Services Marketing (3)

Prerequisite: Mktg 351. Unique marketing needs and challenges faced by service firms in an increasingly challenging global environment. Specific strategies for marketing services in a variety of industries including entertainment, tourism, hospitality, health care and financial services. Also includes strategies used by manufacturing firms using service as a competitive strategy.

475 Export/Import Marketing Strategies (3)

Prerequisite: Mktg 351. Export and import strategies, including international logistics. In-depth knowledge of the export and import process for both large companies and small international businesses. Logistics planning and choosing the best incoterms, the export process and the evaluation of alternative export strategies. Understanding import process including outsourcing and other government regulatory requirements and documentation.

489 Developing Marketing Strategies (3)

Prerequisites: Mktg 351, 353, 370, 379 and senior standing. Development of marketing strategies involving products as well as services. Relies heavily on the case analysis and group interaction. Students will finalize and present portfolio of projects and internships completed over the duration of marketing program.

495 Internship (3)

Prerequisites: six units of upper-division marketing courses, including Mktg 351, concentration in marketing or in international business, consent of department chair, at least junior standing, 2.5 GPA and one semester in residence at Cal State Fullerton. Planned and supervised work experience. May be repeated for credit up to a total of six units. Credit/No Credit only.

499 Independent Study (1-3)

Prerequisites: senior standing and approval by the department chair. Open to undergraduate students desiring to pursue directed independent inquiry. May be repeated for credit. Not open to students on academic probation.

519 Marketing Management (3)

Prerequisites: Accounting 510, Econ 515, InfoSys/DecSci 513, 514, Management 516, 518 (may be taken concurrently) and classified MCBE status. Key marketing concepts and their applications to marketing research, segmentation, selecting target markets, product development, pricing, promotion and distribution. Develops senior-level executive decision-making skills from global, ethical and socially responsible perspectives. Requires understanding and application in a major project.

535 Marketing New Ventures (3)

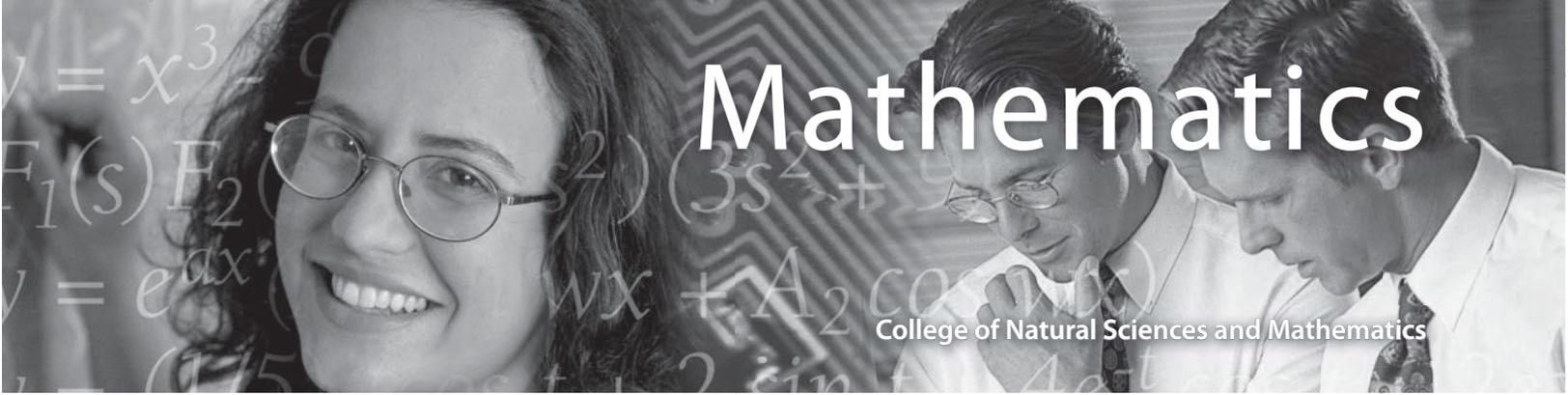
Prerequisite: Mktg 519. Coverage of market analysis for new products and service, competitive analysis, alternatives for entering markets, associated costs and launch feasibility. Casework, research and fieldwork with selected local businesses.

596T Contemporary Topics in Marketing (3)

Prerequisites: Mktg 519 or equivalent and classified MCBE status. Framework for customer-focused management; how to increase satisfaction and retention through service strategies to measure service quality and calculate customer lifetime value and profitability. May be repeated three times for credit.

599 Independent Graduate Research (1-3)

Prerequisites: classified MCBE status, consent of instructor and approval by the Department Chair and Associate Dean. May be repeated for credit. Not open to students on academic probation.



Mathematics

College of Natural Sciences and Mathematics

DEPARTMENT CHAIR

Paul De Land

VICE CHAIR

Martin Bonsangue

DEPARTMENT OFFICE

McCarthy Hall 154

DEPARTMENT WEBSITE

<http://math.fullerton.edu>

PROGRAMS OFFERED

Bachelor of Arts in Mathematics

Pure Mathematics Concentration

Applied Mathematics Concentration

Probability and Statistics Concentration

Teaching Mathematics Concentration

Minor in Mathematics

Minor in Mathematics for Teacher

Education

Master of Arts in Mathematics

Teaching Option

Applied Mathematics Option

Special Topics Program

Subject Matter Preparation Program
for the Single Subject Credential

FACULTY

Alfonso Agnew, Gulhan Alpargu, Scott Annin, George Arthur, Sam Behseta, Martin Bonsangue, Alain Bourget, Todd CadwalladerOlsker, Cherlyn Converse, Paul De Land, Harriet Edwards, Nicole Engelke, Gerald Gannon, William Gearhart, Stephen Goode, Zair Ibragimov, Mortaza Jamshidian, Margaret Kidd, Patrick Kimani, Vuryl Klassen, Stephen Lancaster, Charles H. Lee, Kathy Lewis, HeeJeong Lim, Armando Martinez-Cruz, Tyler McMillen, A. Loc Nguyen, David Pagni, John Pierce, Angel Pineda, Maijian Qian, Nashat Saweris, Harris Shultz, Ernie Solheid, Bogdan Suceava, Hassan Yousefi

INTRODUCTION

The Department of Mathematics offers a standard undergraduate major program in mathematics with concentrations in pure mathematics, applied mathematics, probability and statistics and teaching mathematics. Courses are provided to satisfy the needs of:

- Students planning graduate study in mathematics
- Students planning to use mathematics in a career in business, industry or government
- Students planning to teach at the elementary or secondary level
- Students majoring in a discipline using mathematics as an analytic or descriptive tool
- All major programs are designed to give sufficient breadth and depth in the study of mathematics to prepare students for subsequent graduate study in mathematics or related areas.

BACHELOR OF ARTS IN MATHEMATICS

The requirements for the Bachelor of Arts in Mathematics consist of:

- The core mathematics courses for the major (28 units).
- Courses in one of four possible concentrations: Pure Mathematics, Applied Mathematics, Probability and Statistics or Teaching Mathematics (18-20 units). The Pure Mathematics concentration is designed for students planning on graduate study. The Applied and the Probability and Statistics concentrations provide the mathematics needed for certain careers in industry and government. For students interested in teaching in elementary or secondary schools, the Teaching concentration may be combined with programs leading to a teaching credential to meet both university degree requirements and California credential law.
- A computer programming course selected from Mathematics 320 Introduction to Mathematical Computation, Computer Science 120 Introduction to Programming or Comp Sci 121 Programming Concepts (3 units).
- Courses in one of nine cognates selected from the disciplines of Actuarial Science, Chemistry, Civil Engineering, Computer Science, Economics, Information Systems and Decision Sciences, Mathematics, Physics or Research (9-11). Students selecting the Computer Science cognate are required to take Computer Science 120 or 121. Students may not double count Mathematics 320 for the Mathematics cognate and the programming requirement.
- Math 380 the History of Mathematics, which fulfills the University's upper division writing requirement (3 units).
- Total units needed to complete the B.A. in Mathematics are 120, which include the 61-66 units required for the major, 51 units required for general education and units earned in elective courses (3-8 units). Each course required for the major must be completed with a grade of "C" (2.0) or better, and may not be taken on a credit/no credit basis. Courses required for the major may not be challenged by examination.

During their first year of study, each student will develop an individual study plan in consultation with an academic adviser in the Mathematics Department. Normally,

mathematics majors take Mathematics 150A and 150B in their first year. In the second year mathematics majors normally take Mathematics 250A, 250B and 280. Mathematics 150A may also be used to satisfy the general education requirement in Disciplinary Learning.

Core Requirements (28 units)

All students are required to complete the following 28 units:

- Math 150A,B Calculus (8)
- Math 250A Multivariate Calculus (4)
- Math 250B Introduction to Linear Algebra and Differential Equations (4)
- Math 280 Strategies of Proof (3)
- Math 307 Linear Algebra (3)
- Math 335 Mathematical Probability (3)
- Math 350 Advanced Calculus I (3)

Additional Requirements (18-20 units)

Each student is required to complete one of the following concentrations:

Pure Mathematics Concentration (18 units)

- Math 302 Modern Algebra (3)
- Math 414 Topology (3)
- Math 450 Advanced Calculus II (3)

Three of the following:

- Math 407 Abstract Algebra (3)
- Math 412 Complex Analysis (3)
- Math 425 Differential Geometry (3)
- Math 430 Number Theory (3)
- Math 471 Combinatorics (3)

Applied Mathematics Concentration (18 units)

- Math 306 Vector and Tensor Analysis (3)
 - Math 310 Ordinary Differential Equations (3)
 - Math 340 Numerical Analysis (3)
- Three from the following list, with at least two at the 400 level:*
- Math 370 Mathematical Model Building (3)
 - Math 375 Discrete Dynamical Systems and Chaos (3)
 - Math 406 Introduction to Partial Differential Equations (3)
 - Math 412 Complex Analysis (3)
 - Math 425 Differential Geometry (3)
 - Math 440 Advanced Numerical Analysis (3)
 - Math 470 Advanced Mathematical Model Building (3)

Probability and Statistics Concentration (20 units)

- Math 338 Statistics Applied to Natural Sciences (4)
- Math 435 Mathematical Statistics (3)
- Math 436 Advanced Applied Statistics (4)
- Math 438 Introduction to Stochastic Processes (3)

Math 439 Intermediate Data Analysis (3)

And one of the following:

- Math 340 Numerical Analysis (3)
- Math 370 Mathematical Model Building (3)
- Math 390 Introduction to Actuarial Science (3)

Teaching Mathematics Concentration (18-19 units)

- Math 302 Modern Algebra (3)
- Math 338 Statistics Applied to Natural Sciences (4)
OR Math 370 Mathematical Model Building (3)
OR Math 375 Discrete Dynamical Systems and Chaos (3)
- Math 401 Algebra and Probability for the Secondary Teacher (3)
- Math 402 Logic and Geometry for the Secondary Teacher (3)

Two of the following:

- Math 407 Abstract Algebra (3)
- Math 414 Topology (3)
- Math 417 Foundations of Geometry (3)
- Math 430 Number Theory (3)
- Math 471 Introduction to Combinatorics (3)

Cognates (9-11 units)

Each student is required to complete one of the following cognates:

Actuarial Cognate (9 units)

Finance 320 Business Finance (3) and one of the following options:

Two of the following:

- Finance 332 Theory of Corporate Finance (3)
- Finance 340 Introduction to Investments (3)
- Finance 360 Principles of Insurance (3)
OR InfoSys/DecSci 361B Quantitative Business Analysis:
Statistics and Management Science (3) and
InfoSys/DecSci 440 Integrative Decision Tools for
Business Operations (3)

Computer Science Cognate (10 units)

- Comp Sci 131 Data Structures Concepts (3)
- Any one of the Comp Sci 223 courses (3)
- Comp Sci 240 Computer Organization and Assembly Language (3)
OR Comp Sci 332 File Structures and Database Systems (3)
- Comp Sci 253U Workshop in UNIX (1)

Economics Cognate (9 units)

- Economics 201 Principles of Microeconomics (3)
 - Economics 202 Principles of Macroeconomics (3)
- One of the following:*
- Economics 310 Intermediate Microeconomic Analysis (3)
 - Economics 320 Intermediate Macroeconomics Analysis (3)
 - Economics 440 Econometrics (3)
 - Economics 441 Mathematical Economics (3)

Information Systems and Decision Sciences Cognate (9 units)

Three from the following:

- InfoSys/DecSci 422 Surveys and Sampling Design and Applications (3)
- InfoSys/DecSci 465 Linear Programming in Management Science (3)
- InfoSys/DecSci 467 Statistical Quality Control (3)
- InfoSys/DecSci 472 Design of Experiments (3)
- InfoSys/DecSci 474 Data Mining (3)
- InfoSys/DecSci 475 Multivariate Analysis (3)
- InfoSys/DecSci 490 Queuing and Stochastic Models in Management Science (3)

Physics Cognate (11 units)

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

Chemistry Cognate (10 units)

- Chemistry 120A General Chemistry (5)
- Chemistry 120B General Chemistry (5)

Civil Engineering Cognate (9 units)

- EGCE 201 Statics (3)
- EGCE 301 Mechanics of Materials (3)

One of the following:

- EGCE 302 Dynamics (3)
- EGCE 325 Structural Analysis (3)

Mathematics Cognate (9 units)

Three upper-division courses in Mathematics from one of the four concentrations of the Mathematics major other than the student's own concentration.

Research Cognate (9 units)

The research cognate is intended for students who would benefit more from research and a thesis than a standard cognate; for example, a student intending to enter graduate school in mathematics. The research student/adviser connection must be established by mutual consent, and prior to enrollment in cognate courses, the undergraduate research committee must approve a cognate plan. The student must pass a thesis defense at the end of the term in which the final cognate courses are completed. Although only one unit of seminar is formally required, it is strongly encouraged that the seminar course be taken during the entire research cognate process. Students should begin the cognate no later than their junior year.

- Math 491 Research Seminar (1)
- Math 497 Undergraduate Research (3,3)
- Math 498 Senior Thesis (2)

Writing Requirement

Math 380 will satisfy the University's upper-division writing requirement for mathematics majors.

Internships in Mathematics

Internships in applied mathematics provide work experience in advanced mathematics through positions in business, industry or government. Students should contact the Center for Internships and Cooperative Education, LH-206.

MINOR IN MATHEMATICS

The mathematics minor consists of 25 units of coursework, which must include Math 150A,B, 250A,B and at least nine units of upper-division mathematics. Math 303A,B, 380, 401, 402, 403A,B, 495, 496 or 499 may not be used to fulfill the requirements for the minor in mathematics. All courses must be completed with a grade of "C" (2.0) or better.

MINOR IN MATHEMATICS FOR TEACHER EDUCATION

1. For elementary education, the minor consists of 20 units of coursework selected from the courses offered by the Department of Mathematics. The courses must include Mathematics 150B or 338 and Mathematics 303A,B. All courses must be completed with a grade of "C" (2.0) or better.
2. For secondary education the minor consists of 22 units of coursework selected from the courses offered by the Department of Mathematics. The courses must include Mathematics 250B and six units of upper-division courses in mathematics. All courses must be completed with a grade of "C" (2.0) or better.

SINGLE SUBJECT TEACHING REQUIREMENT IN MATHEMATICS

The Department of Mathematics offers coursework meeting the requirements for California single subject credential in mathematics. For CSUF to recommend this credential, an individual must have completed the department's state-approved Single Subject Matter Preparation Program or equivalent, and have completed the two-semester math education and teacher education program, which includes methodology coursework and the student teaching experience. Students may enter this program in either the fall or spring semester. Students should contact the Department of Secondary Education for information on the application process and orientation meetings.

MASTER OF ARTS IN MATHEMATICS

The M.A. in Mathematics provides advanced study for students with one or more of the following interests: a Ph.D. program in mathematics or mathematics education, teaching in high school or community college, or using mathematical analysis in government, business or industry. Two options are offered under the M.A. program – Teaching and Applied Mathematics – in addition to a Special Topics program.

The Teaching option is designed for those individuals who are presently teaching mathematics at the secondary or community college level. Students must have completed courses in linear algebra, modern algebra and advanced calculus with at least a “B” (3.0) average. In addition, students should have completed a minimum of one year of full-time teaching.

The Applied Mathematics option is designed specifically for individuals who are seeking, or who currently hold, positions that involve mathematics or quantitative applications. Students must have completed one semester of mathematical probability and one semester of advanced calculus with grades of “B” (3.0) or better in each course. Students must also have computer programming experience. This requirement can be satisfied by completing Computer Science 120, 121 or Mathematics 320, or by coursework or work experience approved as equivalent by the graduate committee.

The Special Topics program allows the student under certain circumstances to develop a personalized study plan in order to pursue advanced work in mathematics. The courses must be selected from our regular offerings at the undergraduate and graduate level.

Admission Requirements

Students are admitted in conditionally classified standing when the following requirements have been met:

- A bachelor’s degree from an accredited institution
- A grade-point average of at least 2.5 in the last 60 semester units attempted
- Good standing at the last college attended
- An undergraduate major in mathematics with a 3.0 in all upper-division mathematics courses, or a combination of previous coursework and work experience approved as equivalent by the graduate committee of the Mathematics Department

Classified Standing

A student’s status is changed to classified standing when the following requirements have been met:

- Completion of all prerequisites and/or deficiencies, including the University Writing Requirement
- Development of a study plan approved by the Mathematics Department and Academic Programs. The study plan should be developed prior to the completion of nine units.

Teaching Option

This option, designed for mathematics teachers, requires 30 units of graduate study approved by the graduate committee. At least 16 of these units must be 500-level mathematics courses. The following coursework must be included:

Math 581 Studies in Geometry (3)

Math 582 Studies in Algebra (3)

Math 584 Studies in Analysis (3)

Math 586 Studies in Discrete Mathematics (3)

Math 587 Studies in Mathematical Problem Solving (3)

Math 599 Independent Graduate Research (3-6)

Each student will be required to take adviser-approved mathematics electives to meet the 30-unit requirement, and pass a set of four comprehensive exams. Comprehensive exams may be taken no more than twice.

Applied Mathematics Option

The courses for this option have been developed in consultation with mathematicians and scientists in the local industrial community and are specifically intended for individuals who are seeking positions, or who currently hold positions, that involve mathematics or quantitative applications. The subject matter emphasizes modern practical applied mathematics, modeling, problem solving and computation. The culminating experience is a project in which students have the opportunity of working in teams on a real world problem, contracted and paid for by a local industrial firm. Students normally begin this program in the fall semester. All classes are scheduled in the evening and can be taken in sequence in two calendar years, summers included.

Math 489A,B Applicable Analysis and Linear Algebra (3,3)

Math 501A,B Numerical Analysis and Computation I and II (3,3)

Math 502A,B Probability and Statistics I and II (3,3)

Math 503A,B Mathematical Modeling I and II (3,3)

Math 504A,B Simulation Modeling and Analysis (3,3)

Math 597 Project (6)

Special Topics Program

The Special Topics program requires a study plan with a minimum of 30 units of coursework, planned by the student and the student’s adviser and approved by the graduate committee of the Mathematics Department. At least 16 of these units must be 500-level mathematics courses. Some of the 500-level courses may be accompanied by one unit of Mathematics 599 Independent Graduate Research. Students will also be required to pass a set of comprehensive exams or complete a six-unit project.

Application Deadline

The deadlines for completing online applications are March 1 for the fall semester and October 1 for the spring semester (see <http://www.csumentor.edu>). Mailed applications need to be post-marked by the same deadlines. However, deadlines may be changed based upon enrollment projections.

Additional Information

Part-time teaching opportunities and research assistantships are available for selected graduate students. For more information, contact the Department of Mathematics.

MATHEMATICS COURSES

Courses are designated as MATH in the class schedule.

030A Intermediate Algebra-ILE (3)

Prerequisite: A score of 30 or below on the ELM exam. An intermediate algebra course designed specifically for students who have taken but not passed the ELM exam. Equations and inequalities, algebraic expressions, functions and sequences and series. Degree credit is not awarded for these courses. Successful completion of Math 30A and 30B satisfies the ELM requirement.

030B Intermediate Algebra-ILE (3)

Prerequisites: Math 30A and a score of 30 or below on the ELM exam. An intermediate algebra course designed specifically for students who have taken but not passed the ELM exam. Equations and inequalities, algebraic expressions, functions and sequences and series. Degree credit is not awarded for these courses. Successful completion of Math 30A and 30B satisfies the ELM requirement.

040 Intermediate Algebra (3)

Prerequisite: a score of 32-48 on the ELM exam. An intermediate algebra course designed specifically for students who have taken but not passed the ELM exam. Linear equations and inequalities, polynomial, rational and radical expressions, quadratic functions, exponential and logarithmic functions and sequences and series. Degree credit is not awarded for this course. Successful completion satisfies the ELM requirement.

045 Intermediate Algebra Minicourse (1)

Prerequisite: a score between 36 and 48 on the ELM exam. An intermediate algebra course designed specifically for students who have taken but not passed the ELM exam. Linear equations, polynomials, rational expressions, radical expressions, quadratic formulas, exponential functions and logarithmic functions. Degree credit is not awarded for this course. Successful completion satisfies the ELM requirement. Offered via Internet only.

110 Mathematics for Liberal Arts Students (3)

Prerequisites: passing score on the ELM or exemption and three years of high school mathematics, including two years of algebra and one year of geometry. Survey of traditional and contemporary topics in mathematics, such as elementary logic, counting techniques, probability, graph theory, codes and coding and the mathematics of the social sciences. For non-science majors.

115 College Algebra (4)

Prerequisites: passing score on the ELM or exemption and three years of high school mathematics, including two years of algebra and one year of geometry. For students planning to take Math 130 or 135. Equations, inequalities and systems of equations. Properties of functions and their graphs, including polynomial functions, rational functions, exponential and logarithmic functions, with applications. Sequences and series. If both Math 115 and Math 125 are taken, credit is given for second course only.

120 Introduction to Probability and Statistics (3)

Prerequisites: passing score on the ELM or exemption, and three years of high school mathematics, including two years of algebra and one year of geometry. Set algebra, finite probability models, sampling, binomial trials, conditional probability and expectation. Recommended for students of economics, business, and biological, geological and social sciences.

125 Precalculus (5)

Prerequisites: passing score on the ELM or exemption, and three years of high school mathematics, including two years of algebra and one year of geometry. For students planning to take Math 150A. Functions and their use in mathematical models, including linear functions, polynomial and rational functions, exponential and logarithmic functions and trigonometric functions. If both Math 115 and Math 125 are taken, credit is given for second course only.

125W Precalculus Workshop (1)

Corequisites: Math 125 and consent of instructor. Supplementary problem-solving workshop in a collegial setting. (3 hours workshop)

130 A Short Course in Calculus (4)

Prerequisites: three years of high school mathematics, including two years of algebra and one year of geometry; a passing score on the ELM or exemption; and a passing score on the MQE or exemption. Math 115 or Math 125 (with a grade of "C" (2.0) or better) is an MQE exemption. Survey of differential and integral calculus and applications. For students of biological and social sciences, business and economics. If both Math 130 and Math 135 are taken, credit is given for second course only. Six units of credit are given if both Math 130 and Math 150A are taken.

135 Business Calculus (3)

Prerequisites: three years of high school mathematics, including two years of algebra and one year of geometry; a passing score on the ELM or exemption; and a passing score on the MQE or exemption. Math 115 or Math 125 (with a grade of "C" (2.0) or better) is an MQE exemption. Survey of differential and integral calculus with applications, including derivatives, integrals and max-min problems. For students of business and economics. If both Math 130 and Math 135 are taken, credit is given for the second course only. Six units of credit are given if both Math 135 and 150A are taken.

150A Calculus (4)

Prerequisites: four years of high school mathematics, including geometry, two years of algebra and trigonometry; a passing score on the ELM or exemption; and a passing score on the MQE or exemption. Math 125 (with a grade of "C" (2.0) or better) is an MQE exemption. Properties of functions. The limit, derivative and definite integral concepts; applications of the derivative, techniques and applications of integration. Six units of credit are given for both Math 150A and Math 130 or for both Math 150A and Math 135.

150B Calculus (4)

Prerequisite: Math 150A or equivalent. Techniques of integration, improper integrals and applications of integration. Introduction to differential equations. Parametric equations; sequences and series; vectors and the geometry of 3-space.

151A Calculus I Workshop (1)

Corequisite: Math 150A and consent of instructor. Supplementary problem-solving in a collegial setting. (3 hours workshop)

151B Calculus II Workshop (1)

Corequisite: Math 150B and consent of instructor. Supplementary problem-solving in a collegial setting. (3 hours workshop)

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

Consult "Student-to-Student Tutorials" in this catalog for more complete course description. May be taken Credit/No Credit only.



250A Multivariate Calculus (4)

Prerequisites: Math 150A,B or equivalent. Calculus of functions of several variables. Partial derivatives and multiple integrals with applications. Parametric curves, vector-valued functions, vector fields, line integrals, Green's Theorem, Stokes' Theorem and the Divergence Theorem.

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

Prerequisite: Math 250A. Introduction to the solutions of ordinary differential equations and their relationship to linear algebra. Topics include matrix algebra, systems of linear equations, vector spaces, linear independence, linear transformations and eigenvalues.

270A Mathematical Structures I (3)

Prerequisite: four years of high school mathematics. First of two semesters of fundamental discrete mathematical concepts and techniques needed in computer-related disciplines. Logic, truth tables, elementary set theory, proof techniques, combinatorics and Boolean algebra.

270B Mathematical Structures II (3)

Prerequisite: Math 270A. Second of two semesters of fundamental discrete mathematical concepts and techniques needed in computer-related disciplines. Graph theory, algebraic structures and linear algebra.

280 Strategies of Proof (3)

Prerequisite: Math 150B. Logic, set theory and methods for constructing proofs of mathematical statements. A bridge to the rigors of upper-division mathematics courses containing significant abstract content.

302 Modern Algebra (3)

Prerequisites: Math 250B and 280. Integers, rational numbers, real and complex numbers, polynomial domains, introduction to groups, rings, integral domains and fields.

303A Fundamental Concepts of Elementary Mathematics (3)

Prerequisite: completion of a mathematics course that satisfies the General Education (G. E.) requirement. Structure and form of the mathematics that constitutes the core of the K-8 mathematics curriculum, including the real number system, number theory and equations.

303B Fundamental Concepts of Elementary Mathematics (3)

Prerequisites: completion of a mathematics course that satisfies the G. E. requirement and a grade of "C" (2.0) or better in Math 303A. Structure and form of the mathematics that constitutes the core of the K-8 mathematics curriculum, including the real number system, number theory and equations.

306 Vector and Tensor Analysis (3)

Prerequisite: Math 250B. Vector analysis, including coordinate bases, gradient, divergence and curl, Green's, Gauss' and Stokes' theorems. Tensor analysis, including the metric tensor, Christoffel symbols and Riemann curvature tensor. Applications will be drawn from differential geometry, continuum mechanics, electromagnetism, general relativity theory.

307 Linear Algebra (3)

Prerequisite: Math 250B. Corequisite: Math 280. Introduction to the theory of vector spaces. Linear equations and matrices, determinants, linear transformations and eigenvalues, norms and inner products.

310 Ordinary Differential Equations (3)

Prerequisite: Math 250B. Theory and methods of solutions for ordinary differential equations, including Laplace transform methods and power series methods. Oscillation theory for second order linear differential equations and/or theory for systems of linear and nonlinear differential equations.

320 Introduction to Mathematical Computation (3)

Corequisite: Math 250B. Introduction to problem-solving on the computer using modern interactive software. Numerical and symbolic computation. Variety of problems arising in mathematics, science and engineering. Also serves as preparation for subsequent computer-based courses in mathematical modeling.

335 Mathematical Probability (3)

Prerequisite: Math 250A. Probability theory; discrete, continuous and multivariate probability distributions, independence, conditional probability distribution, expectation, moment generating functions, functions of random variables and the central limit theorem.

337 Introduction to Experimental Design and Statistics in the Laboratory Sciences (3)

Prerequisites: passing score on the ELM or exemption; completion of one of the following: Biology 241, 261; Chemistry 120; or Physics 211, 225. Graphical and numerical descriptive statistics; experimental design, randomization, replication, block designs, stratified samples, controlled experiments versus observational studies. Fundamental inference for proportions, means, variances. Analysis of variance, regression. Computer analysis of data from the laboratory sciences, e.g., biology, chemistry, geology.

338 Statistics Applied to Natural Sciences (4)

Prerequisite: Math 130 or 150B or consent of instructor. Introduction to the theory and application of statistics. Elementary probability, estimation, hypothesis testing, regression, analysis of variance, non-parametric tests. Computer-aided analysis of real data. Graphical techniques, generating and interpreting statistical output, presentation of analysis (3 hours lecture, 2 hours activity).

340 Numerical Analysis (3)

Prerequisites: Math 250B and one of the following: Math 320, Comp Sci 120, 121 or equivalent. Approximate numerical solutions of systems of linear and nonlinear equations, interpolation theory, numerical differentiation and integration, numerical solution of ordinary differential equations. Computer coding of numerical methods.

350 Advanced Calculus I (3)

Prerequisite: Math 250B. Corequisite: Math 280. Development of the theoretical foundations of calculus with an emphasis on mathematical rigor and formal proof. Algebraic and topological properties of the real numbers; limits of sequences and functions; continuity, differentiation and integration of functions of one variable; infinite series.

368 First Course in Symbolic Logic (3)

(Same as Philosophy 368)

370 Mathematical Model Building (3)

Prerequisites: Math 250B or consent of instructor, and one of the following: Math 320, Comp Sci 120, 121 or equivalent. Introduction to mathematical models in science and engineering; dimensional analysis, discrete and continuous dynamical systems, flow and diffusion models.

375 Discrete Dynamical Systems and Chaos (3)

Prerequisite: Math 250B or consent of instructor. Analysis of the evolution of linear and nonlinear deterministic discrete systems with emphasis on long range behavior, stability and instability of stationary states and periodic orbits, chaotic orbits, strange attractors, fractional dimension and Lyapunov exponents; examples from current research literature.

380 History of Mathematics (3)

Prerequisite: Math 250B. History of mathematics through its methods and concepts. Helps students become proficient in writing and reading mathematical literature. Satisfies the upper-division writing requirement for mathematics majors.

390 Introduction to Actuarial Science (3)

Prerequisite: Math 150B. Corequisites: Math 335 or 338 or InfoSys/DecSci 361A. Fundamentals of actuarial science, including risk theory, interest theory, rate making, loss reserve and actuarial modeling. Selective corporate finance, investment and insurance topics, such as amortization, bonds, sinking funds, securities, annuities and pensions.

401 Algebra and Probability for the Secondary Teacher (3)

Prerequisites: 12 units of upper-division mathematics exclusive of Math 303A,B and Math 403A,B. Overview of mathematical topics relevant to the teacher of secondary mathematics. Problem-solving approach to areas, including algebra, number theory, combinatorics and probability while maintaining an historical perspective.

402 Logic and Geometry for the Secondary Teacher (3)

Prerequisites: 12 units of upper-division mathematics exclusive of Math 303A,B and Math 403A,B. Parallel to Math 401, but with emphasis on geometry, trigonometry and the theory of equations.

403A Fundamental Concepts of Middle School Mathematics I (3)

Prerequisite: Math 303B. Content background in mathematics to help satisfy credentialing requirements for teaching mathematics at the middle school level. Focuses on gaining a thorough understanding of algebra, including patterns, functions and the use of technology.

403B Fundamental Concepts of Middle School Mathematics II (3)

Prerequisite: Math 403A. Content background in mathematics to help satisfy credentialing requirements for teaching mathematics at the middle school level. Focuses on gaining a thorough understanding of advanced algebra, geometry, probability and statistics and the use of technology.

406 Introduction to Partial Differential Equations (3)

Prerequisite: Math 306. First order linear and quasi-linear partial differential equations. Classification of second order linear partial differential equations. Fourier analysis, Sturm-Liouville theory, integral transforms and their application to boundary-value problems for the potential, wave and diffusion equations.

407 Abstract Algebra (3)

Prerequisite: Math 302. Sets, mappings, groups, rings, modules, fields, homomorphisms, advanced topics in vector spaces and theory of linear transformations, matrices, algebras, ideals, field theory, Galois theory.

412 Complex Analysis (3)

Prerequisite: Math 350. Complex differentiation and integration, Cauchy's theorem and integral formulas, maximum modulus theorem, harmonic functions, Laurent series, analytic continuation, entire and meromorphic functions, conformal transformations and special functions.

414 Topology (3)

Prerequisite: Math 350. Topological spaces and continuous functions, connectedness and compactness, metric spaces and function spaces.

417 Foundations of Geometry (3)

Prerequisite: Math 307. Foundations of Euclidean and non-Euclidean geometries through transformations and formal axiomatics.

425 Differential Geometry (3)

Prerequisite: Math 307. Differential geometry of curves and surfaces. Frenet-Serret formulas, Gauss-Weingarten equations, Gauss-Bonnet theorem.

430 Number Theory (3)

Prerequisite: Math 302. Basic concepts of classical number theory with modern applications. Divisibility, congruences. Dio-phantine approximations and equations, primitive roots, continued fractions. Applications to public key cryptography, primality testing, factoring methods and check digits.

435 Mathematical Statistics (3)

Prerequisite: Math 335 or equivalent. Statistical theory and its applications, based on the use of calculus.

436 Advanced Applied Statistics (4)

(Same as Biology 436)

438 Introduction to Stochastic Processes (3)

Prerequisite: Math 335. Stochastic processes, including Markov chains, Poisson Process, Wiener Process. Applications to birth and death processes and queuing theory.

439 Intermediate Data Analysis (3)

Prerequisites: Math 250B or 270B, and 338. Simple and multiple linear regression, testing hypotheses, dummy variables, ANOVA, ANCOVA, confounding and interaction, diagnostics, influence and outliers, transformation and weighting and model selection. Introductory nonlinear and logistic regression. SAS statistical software will be used.

440 Advanced Numerical Analysis (3)

Prerequisite: Math 340. Advanced topics in numerical analysis selected from iterative methods for linear systems, approximation of eigenvalues and eigenvectors, numerical methods for ordinary and partial differential equations, optimization methods and approximation theory. Error and convergence analysis and computer coding.

450 Advanced Calculus II (3)

Prerequisite: Math 350. Sequences and series of functions. Continuity, differentiation and integration of functions of several variables. Advanced topics in analysis, such as Lebesgue integration or the theory of metric spaces.

470 Advanced Mathematical Model Building (3)

Prerequisites: Math 307, 335 and 370. A capstone course for students with strong mathematical preparation. Topics may include stochastic models, Monte Carlo integration, simulation of discrete event systems, simulation software and further studies in dynamic systems and flow and diffusion models.

471 Combinatorics (3)

Prerequisite: Math 302 or 307. Analysis of discrete structures, including existence, enumeration and optimization. Permutations and combinations, combinatorial identities, the inclusion-exclusion principle, recurrence relations, Polya counting. Basic definitions and properties of graphs, Eulerian and Hamiltonian graphs, trees, graph colorings and chromatic number, planar graphs.

489A Applicable Linear Algebra (3)

Prerequisites: linear algebra, advanced calculus and consent of instructor. Corequisite: Math 489B. Topics from linear algebra useful in graduate studies in applied mathematics. Finite and infinite dimensional vector spaces, linear transformations and matrices. Introduction to Hilbert spaces. Projection theorem and some of its applications.

489B Applicable Analysis (3)

Prerequisites: undergraduate calculus, linear algebra, advanced calculus and consent of instructor. Corequisite: Math 489A. Topics from analysis useful in graduate studies in applied mathematics. Topics may include initial and boundary value problems, including series solutions, eigenvalues and eigenfunctions, Fourier analysis, generalized functions, an introduction to the calculus of variations, and transform methods.

491 Research Seminar (1)

Prerequisite: consent of instructor. Corequisite: Math 497 or 498. Students are required to attend the weekly undergraduate research seminars and give at least one seminar presentation as determined by the faculty adviser. May be repeated for credit.

495 Internship in Applied Mathematics (1-3)

Prerequisites: 15 units of upper-division mathematics and consent of instructor. Work experience in advanced mathematics through positions in business, industry or government.

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

Consult "Student-to-Student Tutorials" in this catalog for more complete course description. May be taken Credit/No Credit only.

497 Undergraduate Research (1-3)

Prerequisites: nine units of upper-division math and consent of instructor. Methods of research in the mathematical sciences through a research project supervised by a departmental faculty. May be repeated for up to 6 units credit towards major.

498 Senior Thesis (2)

Prerequisites: six units Math 497 (up to 2 units concurrently) and consent of instructor. Preparation, presentation and defense of thesis. Topic approved by the undergraduate research committee. Thesis formatted in accordance with journal in field. May not be repeated for credit.

499 Independent Study (1-3)

Prerequisite: consent of instructor. Special topic in mathematics, selected in consultation with and completed under supervision of instructor.

501A Numerical Analysis and Computation I (3)

Prerequisites: Math 489A,B. Corequisite: Math 501B. Numerical methods for linear and nonlinear systems of equations, eigenvalue problems. Interpolation and approximation, spline functions, numerical differentiation, integration and function evaluation. Error analysis, comparison, limitations of algorithms.

501B Numerical Analysis and Computation II (3)

Prerequisites: Math 489A,B. Corequisite: Math 501A. Numerical methods for initial and boundary-value problems for ordinary and partial differential equations. The finite element method. Error analysis, comparison, limitations of algorithms.

502A Probability and Statistics I (3)

Prerequisites: Math 335, 489A,B. Corequisite: Math 502B. Theory and applications of probability models including univariate and multivariate distributions; expectations and transformations of random variables. Must be taken prior to or concurrently with Math 502B.

502B Probability and Statistics II (3)

Prerequisites: Math 335, 489A,B. Corequisite: Math 502A. Theory and applications of sampling theory, statistical estimation and hypothesis testing. Must be taken after or concurrently with Math 502A.

503A Mathematical Modeling I (3)

Prerequisites: Math 489A,B and 501A,B. Mathematical modeling concepts. Topics may include: dimensional analysis, scaling and sensitivity; system concepts, state space, observability, controllability and feedback; dynamical systems, models and stability analysis; optimization models.

503B Mathematical Modeling II (3)

Prerequisite: Math 503A. Development and analysis of mathematical models in such areas as mechanics, economic planning, operations management, environmental and ecological sciences, biology and medicine.

504A Simulation Modeling and Analysis (3)

Prerequisites: Math 501A,B; 502A,B; 503A,B. Corequisite: Math 504B. Advanced techniques of simulation modeling, including the design of Monte Carlo, discrete event and continuous simulations. Topics may include output data analysis, comparing alternative system configurations, variance-reduction techniques and experimental design and optimization.

504B Applications of Simulation Modeling Techniques (3)

Prerequisites: Math 501A,B; 502A,B; 503A,B. Corequisite: Math 504A. Introduction to a modern simulation language and its application to simulation modeling. Topics will include development of computer models to demonstrate the techniques of simulation modeling, model verification, model validation and methods of error analysis.

581 Studies in Geometry (3)

Prerequisites: Math 307, graduate standing, plus one year of full-time teaching in secondary school mathematics. Topics relating to the high school curriculum from an advanced standpoint, including the axiomatic method and non-Euclidean geometry.

582 Studies in Algebra (3)

Prerequisites: Math 302, graduate standing, plus one year of full-time teaching in secondary school mathematics. Topics relating to the high school curriculum from an advanced standpoint, including algorithms, fields and polynomials.

583 Topics in Statistics (3)

Prerequisites: Math 338, graduate standing, plus one year of full-time teaching in secondary school mathematics. Calculus-based course designed to teach appropriate strategies and tools to effectively address problems in statistics. Includes project design, exploratory data analysis and interpretation, and effective communication of results.

584 Studies in Analysis (3)

Prerequisites: Math 350, graduate standing, plus one year of full-time teaching in secondary school mathematics. Topics relating to the high school curriculum from an advanced standpoint, including limits, continuity, differentiation and integration.

586 Studies in Discrete Mathematics (3)

Prerequisites: Math 335 and one of the following: Math 320, Comp Sci 120, Comp Sci 121 or equivalent; graduate standing and one year of full time teaching in secondary school mathematics. Topics relating to the high school curriculum from an advanced standpoint, including combinatorics, probability, matrices and linear programming.

587 Studies in Mathematical Problem Solving (3)

Prerequisites: Math 302, graduate standing, plus one year of full-time teaching in secondary school mathematics. Problem solving via non-routine and enrichment-type problems from several branches of mathematics.

597 Project (3)

Prerequisite: consent of instructor. May be repeated for credit. Students in the Applied Master's Program earn a total of 6 units.

599 Independent Graduate Research (1-3)

Prerequisites: graduate standing and consent of instructor. One unit required for each regular graduate course. Also offered without being attached to any course. May be repeated for credit.

MATHEMATICS EDUCATION COURSES

Courses are designated as MAED in the class schedule

442 Teaching Mathematics in Secondary School (3)

Prerequisite: admission to Teacher Education Program in Mathematics or consent of instructor. Objectives, methods and materials and technology for teaching mathematics. Required before student teaching, of mathematics majors for the general single subject credential. (2 hours lecture, 2 hours activity)

449E Externship in Secondary Teaching (3)

(Same as Secondary Education 449E)

449I Internship in Secondary Teaching (10)

(Same as Secondary Education 449I)

449S Seminar in Secondary Teaching (3)

(Same as Secondary Education 449S)

499 Independent Study (1-3)

Prerequisite: consent of instructor. Special topic in mathematics education, selected in consultation with and completed under supervision of the instructor. May be repeated for credit.

532 Teaching Problem Solving in Middle School Mathematics (3)

Prerequisite: Math 403B. Seminar to explore techniques of problem solving for mathematics teachers of grades 5-9. Review of research on problem solving at the middle school level. Review of state and national documents on middle school mathematics education. Emphasis on problem solving in algebra, geometry and probability.

Mechanical Engineering

College of Engineering and Computer Science

DEPARTMENT CHAIR

Peter Othmer

DEPARTMENT OFFICE

Engineering 100

PROGRAMS OFFERED

Bachelor of Science in Mechanical
Engineering
Manufacturing Engineering Emphasis
Master of Science in Mechanical
Engineering

DEPARTMENT WEBSITE

<http://www.fullerton.edu/ecs>

FACULTY

Andy Bazar, Jesa Kreiner, Hossein
Moini, Peter Othmer, James Rizza,

ADVISER

Undergraduate/Graduate Program
Adviser: Peter Othmer

MECHANICAL ENGINEERING VISION, MISSION, STRATEGIES AND EDUCATIONAL OBJECTIVES

Mechanical Engineering Vision Statement

The Mechanical Engineering Department's vision is to be recognized as one of the high quality mechanical engineering programs in Southern California.

Mechanical Engineering Mission Statement

Consistent with the University's Mission, learning is the first priority in the Mechanical Engineering Department. To implement our mission, we provide the best qualities of teaching, scholarship and professional practice. The Department is committed to facilitating the education of the mechanical engineering undergraduate and graduate students by following the Department's Program Educational Objectives.

Mechanical Engineering Strategies

The Mechanical Engineering Department is committed to realize its vision, and accomplish its mission by:

- strengthening the Department's partnerships with its stakeholders and Orange County community
- enhancing the quality of the Mechanical Engineering program through systematic assessments and feedback of its program
- integrating emerging fields within the curriculum

Program Educational Objectives

1. To prepare mechanical engineering students for fulfilling careers that contribute to the success of engineering industries, which include automobile, aerospace, defense, electronics, biomedical engineering and entertainment
2. To educate mechanical engineering students thoroughly in methods of analysis, including the mathematical and computational skills appropriate for engineers to use when solving problems
3. To develop the skills pertinent to the design process, including the students' ability to formulate problems, to think creatively, to communicate effectively, to synthesize information and to work collaboratively
4. To teach mechanical engineering students to use current experimental and data analysis techniques for mechanical engineering applications such as design, manufacturing, testing and analysis of engineering systems
5. To instill in our students an understanding of their professional, social and ethical responsibilities in order to engage in lifelong learning, and develop their people, management and leadership skills

INTRODUCTION

The mechanical engineering program at CSUF provides a foundation for professional engineering careers in private industry and government. Mechanical engineers are employed in a wide range of industries, such as manufacturing, transportation, energy, food, biomedical and others. In general, mechanical engineers are involved with the design, research, development, manufacture, testing, distribution, support, maintenance and recycling of devices and products. Automobiles, airplanes, home appliances, robots, rockets, space capsules, printers and computer hard disk drives are some of the various products that have been customarily designed and developed by mechanical engineers. Mechanical engineers possess a firm understanding of science, mathematics and engineering needed to carry out these complex tasks which are so important to a modern technological society.

The Bachelor of Science in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700.

The graduate curriculum is designed to provide a specialized education for career advancement or further work towards a doctoral degree.

2 + 2 Articulated Programs with Community Colleges

The Mechanical Engineering Department has developed 2+2 articulation agreements with community colleges to provide students seamless transfer to CSUF's Mechanical Engineering program. This allows the full-time students taking the courses specified by the department adviser to graduate in two years following transfer to CSUF.

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, i.e., Mathematics 125 and Chemistry 115, which will not carry credit for the major. (See Mathematics Section for Entry Level Mathematics test and Math-Science Qualifying Examination requirements.)

Transfer Students

A transfer student shall complete a minimum of 30 units in residence, at least 15 of which shall be taken in upper-division engineering courses. Courses taken at another college or university with a grade of "D" (1.0) will not be accepted as substitute for upper-division courses.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

The undergraduate program requirements for the degree comprises four major segments: foundation courses in mathematics and physical sciences; basic engineering courses; general education courses in the arts, humanities, social sciences, biological sciences and other related areas; and a sequence of courses to fulfill the requirements of the Mechanical Engineering degree or the emphasis in Manufacturing Engineering.

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 to obtain guidance in pursuit of their careers. All courses taken in fulfillment of the requirements for the bachelor's degree must be taken for a letter grade, i.e., under grade Option 1. All mathematics and physical science courses required for the degree must be completed with at least a "C" (2.0) grade to count as prerequisite courses to engineering courses or as credit towards the degree. Graduate courses are not open to undergraduate students without approval of the program coordinator.

Mathematics and Science Courses (30)

Mathematics 150A Calculus (4)

Mathematics 150B Calculus (4)

Mathematics 250A Multivariate Calculus (4)

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

Chemistry 120A General Chemistry (5)

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

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

Physics 227 Fundamental Physics: Waves, Optics and Modern Physics (1)

Engineering Core Courses (24)

EGME 102 Graphical Communications (3)

EGCE 201 Statics (3)

EGEE 203 Electric Circuits (3)

EGME 205 Digital Computation (3)

EGCE 302 Dynamics (3)

EGME 304 Thermodynamics (3)

EGME 306A Unified Laboratory (1)

EGME 308 Engineering Analysis (3)

EGME 314 Engineering Economy (2)

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 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* (31)

A. Mathematics and Natural Sciences (16)

1. Mathematics

Mathematics 150A (4)

2. Natural Sciences

a. Physical Science

Chemistry 120A and Physics 225, 225L

b. Earth and Astronomical Sciences

Not applicable for engineering majors

c. Life Science

Biology 101 (3)

3. Implications and Explorations in Mathematics and Natural Sciences

Not applicable for mechanical engineering majors

B. Arts and Humanities (9)

1. Introduction to the Arts (3)

Art 101, 201A, 201B, 311, 312, Dance 101, Music 100, Theater 100

2. Introduction to the Humanities (3)

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

3. Implications, Explorations and Participatory Experience in the Arts and Humanities (3)

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

C. Social Sciences (6)

1. Introduction to the Social Sciences (3)

EGME 314 and EGME 490

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 a passing score on the Examination in Writing Proficiency (EWP), the following courses are required by all mechanical engineering majors: EGME 306A, 306B, 476A and 476B. Written work for these courses must meet professional standards and requires completion with a grade of "C" (2.0) or better.

Required Courses in Mechanical Engineering (39 units)

EGEE 303 Electronics (3)

EGEE 303L Electronics Laboratory (1)

EGME 306B Fluids and Thermal Laboratory (1)

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

EGME 331 Mechanical Behavior of Materials (3)

EGME 333 Fluid Mechanics & Aerodynamics (3)

EGME 335 Introduction to Mechanical Design (3)

EGME 407 Heat Transfer (3)

EGME 414 Design Project I (3)

EGME 419 Design Project II (2)

EGME 421 Mechanical Design (3)

EGME 426 Design of Thermal and Fluid Systems (3)

EGME 431 Mechanical Vibrations (3)

EGME 476A Dynamic Systems and Controls Lab (2)

EGME 476B Energy and Power Lab (2)

EGME 490 Seminar in Engineering (1)

Technical Electives in Mechanical Engineering (11 units)

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

Power and Energy

EGGN 403 Computer Methods in Numerical Analysis (3)

EGME 417 Computational Heat Transfer (3)

EGME 424 Data Acquisition and Instrumentation Using LabVIEW (3)

EGME 447 Piping Selection and Piping Network Design (3)

EGME 451 Heating, Ventilating and Air Conditioning Systems (3)

EGME 452 Fluid Machinery (3)

EGME 454 Optimization of Engineering Design (3)

Design and Materials for Manufacturing

EGGN 403 Computer Methods in Numerical Analysis (3)

EGME 315 Basic Fabrication Techniques and Manufacturing Practices (3)

EGME 410 Introduction to the Finite Element Method and Applications (3)

EGME 411 Mechanical Control Systems (3)

EGME 418 Space and Rocket Engineering (3)

EGME 422 Mechanical Design Using Pro/ENGINEER (3)

EGME 438 Analytical Methods in Engineering (3)

EGME 454 Optimization of Engineering Design (3)
 EGME 456 Introduction to Mechatronics for Engineers (3)
 EGME 457L Intelligent Systems Lab (2)
 EGME 459 Plastics and Other Non-Metallics (3)
 EGME 460 Failure of Engineering Materials (3)
 EGME 461 Fabrication Methods (3)
 EGME 462 Composite Materials (3)
 EGME 463 Introduction to Robotics (3)
 EGME 475 Acoustics and Noise Control (3)
 EGME 480 Human Factors in Engineering (3)
 EGME 483 Computer-Aided Manufacturing (3)
 EGME 486 Introduction to Electronics Packaging (3)
 EGME 487 Thermal Control of Electronics Packaging (3)

Thermal and Fluids Engineering

EGME 410 Introduction to the Finite Element Method and Applications (3)
 EGME 417 Computational Heat Transfer (3)
 EGME 422 Mechanical Design Using Pro/ENGINEER (3)
 EGME 424 Data Acquisition and Instrumentation Using LabVIEW (3)
 EGME 447 Piping Selection and Piping Network Design (3)
 EGME 451 Heating, Ventilating and Air Conditioning Systems (3)
 EGME 452 Fluid Machinery (3)
 EGME 454 Optimization of Engineering Design (3)
 EGME 486 Introduction to Electronics Packaging (3)
 EGME 487 Thermal Control of Electronic Packaging (3)

Robotics, Controls and Automated Manufacturing

EGGN 403 Computer Methods in Numerical Analysis (3)
 EGME 315 Basic Fabrication Techniques and Manufacturing Practices (3)
 EGME 410 Introduction to the Finite Element Method and Applications (3)
 EGME 411 Mechanical Control Systems (3)
 EGME 422 Mechanical Design Using Pro/ENGINEER (3)
 EGME 424 Data Acquisition and Instrumentation Using LabVIEW (3)
 EGME 454 Optimization of Engineering Design (3)
 EGME 456 Introduction to Mechatronics for Engineers (3)
 EGME 457L Intelligent Systems Lab (2)
 EGME 461 Fabrication Methods (3)
 EGME 463 Introduction to Robotics (3)
 EGME 483 Computer-Aided Manufacturing (3)
 EGME 486 Introduction to Electronics Packaging (3)

MANUFACTURING ENGINEERING EMPHASIS

See the Bachelor of Science in Mechanical Engineering section of this catalog for requirements in mathematics and science foundation courses (30 units), engineering core courses (24 units) and general education coursework.

Required Courses (43 units)

EGEE 303 Electronics (3)
 EGEE 303L Electronics Lab (1)
 EGME 306B Fluids and Thermal Laboratory (1)
 EGME 322L Introduction to Computer-Aided Design (3)
 EGME 331 Mechanical Behavior of Materials (3)
 EGME 333 Fluid Mechanics and Aerodynamics (3)
 EGME 335 Introduction to Mechanical Design (3)
 EGME 476A Dynamic Systems and Controls Lab (2)
 EGME 407 Heat Transfer (3)
 EGME 414 Design Project I (3)
 EGME 419 Design Project II (2)
 EGME 421 Mechanical Design (3)
 EGME 426 Design of Thermal and Fluid Systems (3)
 EGME 461 Fabrication Methods (3)
 EGME 463 Introduction to Robotics (3)
 EGME 483 Computer-Aided Manufacturing (3)
 EGME 490 Seminar in Engineering (1)

Technical Electives (9 units)

Approval of the adviser must be obtained before enrolling in any elective course.

EGME 315 Basic Fabrication Techniques and Manufacturing Practices (3)
 EGME 410 Introduction to the Finite Element Method and Applications (3)
 EGME 411 Mechanical Control Systems (3)
 EGME 422 Mechanical Design Using Pro/ENGINEER (3)
 EGME 454 Optimization of Engineering Design (3)
 EGME 459 Plastics and Other Non-Metallics (3)
 EGME 460 Failure of Engineering Materials (3)
 EGME 462 Composite Materials (3)
 EGME 480 Human Factors in Engineering (3)
 EGEE 323 Engineering Probability and Statistics (3)
 EGEE 404 Introduction to Microprocessors and Microcomputers (3)
 EGEE 404L Microprocessor Lab (1)
 EGEE 445 Digital Electronics (3)
 EGEE 445L Digital Electronics Lab (1)

MASTER OF SCIENCE IN MECHANICAL ENGINEERING

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

1. Bachelor's degree from a regionally accredited institution, e.g., Western Association of Schools and Colleges (WASC)
2. Bachelor's degree in mechanical 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 GPA of 2.5 in the last 60 semester units
4. Good standing at the last institution attended

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

Any student entering the Master of Science degree program without a B.S. in Mechanical Engineering will also be required to complete one or more courses in the areas where the student is deemed to be deficient, prior to beginning coursework for the Master's degree.

Application Deadlines

Reference 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 grade of "B" (3.0) or better.
2. Development of an approved study plan. Before completing nine units at CSUF toward the M.S. degree, the student must meet with an adviser for preparation of a study plan which must also be approved by the department chairman and the 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. Please refer to the "Graduate Regulations" section of this catalog and also the class schedule for further information on how this requirement can be met.

Study Plan

The study plan consists of a minimum of 30 units of adviser-approved upper-division or graduate-level coursework that 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 (3 units)

Adviser-approved math-oriented course (3)

Concentration Courses (15 units)

A student is required to select a minimum of 15 units in mechanical engineering. These units may be 400- and 500-level courses and are selected according to the student's area of special interest. Coursework is designed to meet the student's professional career goals and may focus on the following areas: Power and Energy, Design and Materials for Manufacturing, Thermal and Fluids Engineering, Robotics, Controls and Automated Manufacturing.

Other Courses (9 units)

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

Exam/Thesis/Project Option (3-6 units)

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

1. Comprehensive oral examination over selected coursework
2. EGME 597 Project (3-6 units)
3. EGME 598 Thesis (3-6 units)

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

MECHANICAL ENGINEERING COURSES

Courses are designated as EGME in the class schedule.

102 Graphical Communications (3)

Graphics as a fundamental means of communication in design. Development of spatial visualization. Freehand sketching and use of instruments, orthographic projection, pictorials. Dimensioning, tolerances, descriptive geometry, CAD principles and applications, AutoCAD, design procedure, cost analysis and freshman design project. (1 hour lecture, 6 hours laboratory)

205 Digital Computation (3)

Prerequisites: college algebra or three years of high school math, including a second course in algebra. Computers and their numerical applications. Programming languages, MathCAD spreadsheet, digital computation methods in statistics and solving algebraic equations. Applications of general purpose software for engineering analysis.

214 Basic Machine Shop Practice and Safety (2)

Prerequisites: Math 115, 125 or equivalents. Introduction to machine shop practices and drill press, grinding wheel, lathe, vertical mill and band saw. Thorough safety procedures instruction on each machine. Demonstrate safe practices on each machine. Introduction to measurement and tolerancing. Discussion and laboratory practice. (1 hour lecture, 3 hours laboratory.) Does not count toward fulfilling degree requirements. Credit/No Credit only.

286 Technology-Based Graphical Communication (3)

Prerequisite: Math 130 or 150A. Introduction to techniques used in three-dimensional graphics, design and visualization to conceptualize, apply, analyze, synthesize, evaluate and communicate information concepts using available technology. No credit for Engineering/Computer Science majors. (2 hours lecture, 2 hours laboratory)

304 Thermodynamics (3)

Prerequisites: Chem 120A, Math 150B, Physics 225. Energy and its transformation; heat and work; conservation of mass and energy, system properties, irreversibility and availability. Ideal gases, heat engines and refrigeration (both ideal and actual), equipment selection and sizing.

306A Unified Laboratory (1)

Prerequisites: Physics 225 and EGME 102. Corequisite: EGME 205. Static and dynamic measurements (tension and strain test tension beams, columns, Charpy, gyroscopes) using mechanical and electrical transducers. Use of computers in data acquisition, reduction and analysis. Each student must write a complete set of reports and pass with a "C" (2.0) or better. (3 hours laboratory)

306B Fluids and Thermal Laboratory (1)

Prerequisites: EGME 306A and 333. Corequisite: EGME 407. Continuation of EGME 306A. Flow, temperature and pressure measurement. Experimental studies of fluid friction and heat exchanger performance. Use of computers in data acquisition, reduction and analysis. Each student must write a complete set of technical reports and pass with a "C" (2.0) or better. (3 hours laboratory)

308 Engineering Analysis and Statistics (3)

(Same as Civil Engineering 308, Electric Engineering 308 and Engineering 308)

314 Engineering Economy (2)

Prerequisite: junior or senior standing in engineering. Development, evaluation and presentation of alternatives for engineering systems and projects using principles of engineering economy and cost benefit analysis. (Same as EGGN 314)

315 Basic Fabrication Techniques and Manufacturing Practices (3)

Prerequisite: EGME 102. Conventional fabrication techniques, measuring, referencing and tolerances applied to manufacturing such as tooling, computer numerical control machining and process indices. Safety instruction for use of campus machine shop equipment. (2 hours discussion and 2 hours laboratory)

322L Introduction to Computer-Aided Design (3)

Prerequisites: EGME 331, EGCE 302. Introduction to modeling, assembly, design documentation and analysis using typical commercial CAD/CAE software. Use of online resources in the collaborative design process. Design file transfer protocols. Design project using a technology based team environment. CAD/CAE system selection criteria. (1 hour discussion, 6 hours laboratory). (Same as Computer Science 322L)

331 Mechanical Behavior of Materials (3)

Prerequisites: Chem 120A, Math 250A, EGCE 201. Engineering properties of materials. Toughness and fatigue. Creep phenomena. Corrosion. Energy concepts. Beams and columns. Torsion. Combined stresses. Pressure vessels. Failure theories. Design of machine elements.

333 Fluid Mechanics and Aerodynamics (3)

Corequisites: EGME 205 and EGME 304. Principles of fluid mechanics and their applications; fluid properties; fluid statics; one-dimensional incompressible flow; concepts of multi-dimensional flows including conservation principles; similitude and dimensional analysis; internal and external viscous flow; elements of compressible flow; design considerations in fluid mechanics.

335 Introduction to Mechanical Design (3)

Prerequisites: EGME 205, EGCE 302, EGME 102. Kinematics and dynamics of mechanisms; design and analysis of linkages, gears and cams through the use of analytical, graphical and computer-aided techniques.

350 Living and Working in Space (3)

Prerequisite: junior standing. History of space flight. Space travel in literature and films. Space pioneers. The Moon Race. Space tourism and space hotels. Colonization of Moon and Mars. Space art. Economic, social, psychological, technological and global issues in space habitats.

407 Heat Transfer (3)

Prerequisites: Math 250B and EGME 333. Principles of heat transfer and their applications: introduction to conductive, convective and radiation heat transfer; one-dimensional heat conduction; concepts of multi-dimensional conduction; convective heat transfer in conduits and external surfaces; cross-flow and shell and tube heat exchangers; and thermal system design.

410 Introduction to the Finite Element Method and Applications (3)

Prerequisite: approved study plan. Basic concepts of integral and matrix formulation of boundary value problems. One dimensional finite element formulation of heat transfer, truss beam and vibration problems. Applications of commercial finite element programs. Selection criteria for code, element and hardware. CAD system interfaces.

411 Mechanical Control Systems (3)

Prerequisites: EGME 205 and 308, and EGCE 302. Mechanical control system design and analysis. Pneumatic, hydraulic, electromechanical actuators and devices. Stability criteria, root locus plots, transfer functions, introduction to feedback control and microprocessor applications.

414 Design Project I (3)

Prerequisites: EGME 322L and 421. Corequisite: EGME 426. Design methodology, CAD/CAE philosophy, optimization, product liability, probability/statistical principles, ASME codes, safety, human factors, material selection, legal aspects of design, professional ethics. Design project to be constructed in EGME 419, but feasibility study, preliminary design, assembly drawings, interim and final written project reports, interim and final oral presentations are required for 414. (1 hour lecture and 6 hours laboratory)

417 Computational Heat Transfer (3)

Prerequisites: EGME 205 and 308, and EGME 407. Computer visualization of 2-D/3-D temperature fields. Steady and unsteady conduction heat transfer. Incompressible free and forced convective boundary layer flows. Multiple surface radiation analysis. Boiling and condensation. Emphasis on design aspects of computational heat transfer and use of CFD codes.

418 Space and Rocket Engineering (3)

Prerequisites: EGCE 201, EGME 304, 331, and 333. Principles of rocket propulsion systems. Single and multi-stage rockets. Theory and application of orbital mechanics. Space flight maneuvers. Boosting a satellite into orbit. Spacecraft guidance and control. Trajectories to Moon and Mars.

419 Design Project II (2)

Prerequisite: EGME 414. Completion of the design project initiated in EGME 414. Construction of prototype, model or components. Test proposed design, and prepare a written final design report. Teamwork and communications skills are emphasized. Interim and final oral presentations are required. (6 hours laboratory)

421 Mechanical Design (3)

Prerequisites: EGCE 331 and 335. Design and application of machine components such as brakes, clutches, gears, springs, fasteners, pulleys and belting lubrication of machine elements, bearings, gaskets, seals, "O" rings, methods for study of impact, dynamic loading and fatigue; comprehensive treatment of failure, safety and reliability.

422 Mechanical Design Using Pro/ENGINEER (3)

Prerequisite: EGME 322L or equivalent. Modeling, assembly and design documentation using Pro/ENGINEER. Design of mechanical components and assemblies using Advanced Pro/ENGINEER features such as blends, drafts, user defined features, relations, family tables and assembly management. Collaborative design project, utilizing online resources. May be repeated for one credit.

424 Data Acquisition and Instrumentation Using LabVIEW (3)

Prerequisite: EGME 306A or equivalent. Graphical programming; design and development of virtual instruments using LabVIEW programming environment; building applications for data acquisition and data reduction, measurement, testing and control of engineering systems; collaborative term project. (2 hours discussion, 3 hours laboratory)

426 Design of Thermal and Fluid Systems (3)

Prerequisite: EGME 407. Integration of fundamental principles of thermodynamics, fluid mechanics, heat transfer and related subjects in the design of thermal and fluid systems. Design process and economics are applied to pumps, fans, turbines, boilers, piping systems, cross-flow and shell and tube heat exchangers.

431 Mechanical Vibrations (3)

Prerequisites: EGME 205 and 308, and EGCE 302. Modeling and analysis of single and multiple degrees of freedom systems. Response to forcing functions. Vibrations of machine elements. Design of vibration isolation systems. Balancing of rotating machinery. Random excitation and response of mechanical structures.

438 Analytical Methods in Engineering (3)

Prerequisite: EGME 308. Ordinary and partial differential equations with constant and variable coefficients; orthogonal functions; conformal mapping; potential theory; engineering applications.

447 Piping Selection and Piping Network Design (3)

Prerequisites: EGME 333 and EGCE 301 or EGME 331. Pressure losses in piping networks; selection of piping based upon fluid, temperature, pressure and economic considerations; piping connections, fittings and components; stress analysis; review of national piping codes.

451 Heating, Ventilating and Air Conditioning Systems (3)

Prerequisites: EGME 304 and 407. The fundamentals of controlling heating, ventilating and air conditioning systems. Theory and analysis of fundamental thermodynamics relating to these systems. Laboratory demonstrations of actual systems.

452 Fluid Machinery (3)

Prerequisites: EGME 304 and 333. Thermal and hydraulic design and analysis of pumps, fans, turbines and compressors. Component selection, system design and performance evaluations.

454 Optimization of Engineering Design (3)

Prerequisite: EGME 308. Application of analytical and computer optimization techniques to engineering design problems. Presentation of design as an optimization task. One dimensional minimization. Unconstrained and constrained nonlinear programming. Approximation concepts. Duality. Computer applications to design problems using a general purpose optimization program.

456 Introduction to Mechatronics for Engineers (3)

Prerequisites: EGGN 308, EGEE 303L, and EGME 306A. Introduction to mechatronics. Design issues. Sensors, actuators, programmable controllers. Hardware components for control systems. System performance. Data acquisition and control. Mechatronic control in automated manufacturing. Advanced applications and case studies. Design project.

457L Intelligent Systems Laboratory (2)

Prerequisite: EGEE 456. Design and assembly of microprocessor-based mechanisms. Lab experiments encompass machine/high level programming and interfacing of microcontrollers with sensors and actuators. Design project. (1 hour lecture, 3 hours laboratory)

459 Plastics and Other Non-Metallics (3)

Prerequisite: EGME 331. Simplified chemistry of plastics. Applications. Manufacturing processes. Methods for preventing deterioration of nonmetallic materials. Composites. Ceramics. Refractories. Wood. Destructive and nondestructive testing of nonmetallic materials.

460 Failure of Engineering Materials (3)

Prerequisite: EGME 331. Imperfections in solids; fracture initiation and crack propagation; dislocations; yield point phenomenon; fatigue; creep; ultrasonic effects; radiation damage; stress corrosion; hydrogen embrittlement; failure of composite materials.

461 Fabrication Methods (3)

Prerequisite: EGME 331. Manufacturing processes. Metal joining processes. Casting, forging, powder metallurgy, machining and machining tools, finishing, coating, plating, non-metallic materials inspection and gaging and tolerances.

462 Composite Materials (3)

Prerequisite: EGCE 301 or EGME 331. Application, mechanical properties and fabrication studies of fiber reinforced composite materials, stress analysis of laminated anisotropic composite structures. Studies of special problems unique to composites.

463 Introduction to Robotics (3)

Prerequisite: EGME 335. Corequisite: EGME 376A. Kinematic, dynamic, control and programming fundamentals associated with industrial robots and programmable manipulators. Trajectory planning, application of robotics in manufacturing and integration of robots into flexible manufacturing systems.

475 Acoustics and Noise Control (3)

Prerequisite: Physics 227. Basic phenomena on the propagation, absorption and generation of acoustic waves, specification and measurement of noise, effects of noise on speech and behavior, legal aspects of industrial and building noise, principles and application of noise control.

476A Dynamic Systems and Controls Laboratory (2)

Prerequisite: EGME 431 and 306B. Dynamic systems, vibration, acoustics and other mechanical components; computer simulation of dynamic systems (Simulink); robotics, computer-controlled machining and automatic data acquisition. Use of computers in data acquisition, reduction and analysis. Each student must write a complete set of individual engineering laboratory reports. Must be passed with a "C" (2.0) or better to count towards the upper-division writing requirement ("C-" is not a passing grade). Not available for graduate degree credit. (6 hours laboratory)

476B Energy and Power Laboratory (2)

Prerequisites: EGME 304 and 407; and pre- or corequisite, EGME 306B. Mass transfer, heat transfer and thermodynamic phenomena and their interaction with mechanical systems. Team experiment. Use of computers in data acquisition, reduction and analysis. Each student must write a complete set of individual engineering laboratory reports. Must be passed with a "C" (2.0) or better to count towards the upper-division writing requirement ("C-" is not a passing grade). Not available for graduate degree credit. (6 hours laboratory)

480 Human Factors in Engineering (3)

Prerequisite: approved study plan. Principles of design for making products and systems faster, easier and more effective to use. Design project using these principles that consider human capabilities and limitation of senses and responses to sensory stimuli. Physiological, psychological and work factors are evaluated for design of equipment, work methods, environments and standards.

483 Computer-Aided Manufacturing (3)

Prerequisite: EGME 476A or equivalent. Introduction to computer-aided manufacturing processes. CNC machines, robot and PLC programming. Design for CIM. Fixed and flexible manufacturing systems. Process planning and scheduling. Simulation software for manufacturing systems. Laboratory experiments. (1 hour discussion, 4 hours laboratory)

486 Introduction to Electronics Packaging (3)

Prerequisites: EGEE 303 and EGME 306A. Electronic components and devices. The chip carrier, packaging and production of printed circuit boards. First, second and third level packaging. Introduction to thermal analysis and vibration of electronic equipment.

487 Thermal Control of Electronics Packaging (3)

Prerequisites: EGME 308 and 407. Fluid mechanics and heat transfer as related to the thermal control of electronic packages of varying sizes. Analysis of individual components, complete boards and complete systems is considered. Liquid and gas cooling mediums.

490 Seminar in Engineering (1)

Prerequisite: senior standing in engineering. Engineering profession, professional ethics and related topics. May be repeated once for credit with the approval of the department.

497 Senior Project (1-3)

Prerequisite: consent of instructor, adviser and department head. Directed independent design project.

499 Independent Study (1-3)

Prerequisite: approval of study plan by adviser and department head. Specialized topics in engineering, selected in consultation with and completed under the supervision of the instructor. May be repeated for credit.

508 Advanced Inviscid Fluid Flow (3)

Prerequisites: EGME 205, 308, EGME 333. Two- and three-dimensional potential flow theory. Sources, sinks, vortices, Rankine bodies, free jets, channel flow, air foils. Introduction to computational fluid dynamics. Complex potential and various transformation techniques are used.

511 Advanced Mechanical Vibrations (3)

Prerequisite: EGME 431. Vibrations in rotating and reciprocating machines; noise and vibration in fluid machinery; continuous systems; random vibrations; transient and nonlinear vibration, computer applications.

512 Advanced Mechanical Design and Management (3)

Prerequisite: EGME 421 or equivalent. Advanced modern mechanisms. Analysis and synthesis of mechanisms. Advanced topics in computer-aided design of mechanical, thermal and fluid systems. Methodology of modern design. Optimization in design.

516 Advanced Radiation Heat Transfer (3)

Prerequisite: EGME 407. Radiation heat transfer, including study of the geometric shape factors, ideal (black) and real systems, and energy transfer in absorbing, scattering and emitting media, and radiation combined with other modes of energy transfer.

520 Advanced Viscous Fluid Flow (3)

Prerequisite: EGME 333. Fundamental equations of viscous fluid flow. Viscous drag estimation. Drag reduction methods. Laminar and turbulent internal and external flows. Introduction to instability and transition.

524 Advanced Thermodynamics (3)

Prerequisite: EGME 304. Equilibrium and stability criteria, third law of thermodynamics, multiple component systems, ionization, equilibrium reaction, lower core "ideal" gases, thermodynamic cycles.

526 Advanced Convective Heat Transfer (3)

Prerequisite: EGME 407. Convective heat transfer; heat transfer in external and internal flow fields for both laminar and turbulent fluid flow, applications.

530 Advanced Strength of Materials (3)

Prerequisite: EGME 421. Energy methods. Castilian's theorem. Curved beams, beams on elastic supports, thick wall cylinders, shrink fits, localized stress, column instability, failure theories, bearings.

536 Advanced Conduction Heat Transfer (3)

Prerequisite: EGME 407. Conduction heat transfer; Bessel and Legendre functions, Laplace transforms, eigenfunctions, Fourier series solutions, heat sources and sinks, multidimensional problems, transient systems and numerical methods (finite difference and finite element methods).

538 Advanced Engineering Analysis (3)

Prerequisite: EGME 438. Partial differential equations in engineering, numerical techniques, integral equations, engineering applications.

**540 Computer Applications In Engineering Design (3)**

Prerequisite: EGME 410. Computers and microprocessors in engineering design. Design methodology, modeling and simulation. Geometric modeling. Design optimization. Expert systems in engineering design. Generalized programs and simulation languages are emphasized.

541 Finite Element Method for Mechanical Engineers (3)

Prerequisite: EGME 410. Matrix formulation of basic equations in steady state and transient heat conduction. Elements and interpolation functions. Non-linear problem formulation. Finite element computer programs in heat transfer, fluid dynamics and design.

554 Applied Optimal Mechanical Design (3)

Prerequisite: EGME 454 or equivalent. Formulation of design optimization problems in mechanical engineering. Mathematical programming methods. Practical aspects of optimization. Design of complex mechanical systems. Individual projects will be assigned to apply optimization techniques to an engineering system or component.

576 Advanced Dynamics and Control of Mechanical Systems (3)

Prerequisite: EGME 411. Advanced study of the dynamics and control of mechanical systems including: state space modeling, Lyapunov stability, modern design techniques and case studies.

597 Project (1-6)

Prerequisite: consent of graduate program adviser.

598 Thesis (1-6)

Prerequisite: consent of graduate program adviser.

599 Independent Graduate Research (1-3)

Prerequisite: classified graduate status. Open to graduate students only by consent of Mechanical Engineering graduate program adviser. May be repeated for credit only upon approval by the graduate program adviser.



Military Science

College of Health and Human Development

DEPARTMENT CHAIR/PROFESSOR OF MILITARY SCIENCE

Lieutenant Colonel Jonathan B. Nepute

DEPARTMENT OFFICE

Engineering 301, Phone: 657-278-3007

DEPARTMENT WEBSITE

<http://hhd.fullerton.edu/militaryscience>

ENROLLMENT ADVISER

Captain Alan W. Sholes Jr.

ENROLLMENT COUNSELOR

First Lieutenant Nelson A. Varas

SENIOR MILITARY INSTRUCTOR

Master Sergeant William G. Tramel

ADMINISTRATION AND TRAINING OFFICER

First Lieutenant Tung M. Huynh

PROGRAMS OFFERED

Leadership, Adventure, and Physical Fitness Training (no military obligation)
Summer Leadership Internships and Military Schools to include Airborne and Army Air Assault Schools
Minor in Military Science
Second Lieutenant Commission (U.S. Army, Army Reserves or Army National Guard)

INTRODUCTION

The Military Science Program focuses on academics, teamwork and physical fitness, and is integrity-based with a mentorship program in place to support all cadets. Military Science provides a dynamic dimension to the university by offering an unmatched hands-on leadership and management education. Military Science is also a university endorsed coed club and offers various extracurricular teams and activities such as “Ranger Challenge” (intercollegiate competition based on physical fitness and agility, rifle marksmanship and map reading/land navigation), Paintball, one Field Training Exercise (overnight bivouac) per semester, rappelling demonstrations and a Color Guard team (presents flags at ceremonies and events), as well as several other exciting activities. All curriculum and activities are designed to build and enhance leadership, management and team-building skills that apply to military and civilian sectors, and last a lifetime.

Military Science courses are accredited and available to students in all academic disciplines. Full-time students are also eligible to enroll as cadets in accordance with university and Department of the Defense policies. Several competitive financial assistance programs are available, which include: four-, three- and two-year scholarships; Reserve Forces and National Guard duty; GI Bill; and loan repayment options. Additionally, scholarship recipients and Advanced course students earn up to \$500 per month in stipends.

Upon successful completion of the two- or four-year Reserve Officers Training Corps (ROTC) program, cadets are commissioned as second lieutenants in the United States Army, United States Army Reserves or Army National Guard.

Four-Year Program

This program is composed of a lower-division Basic Course and an upper division Advanced Course. The Basic Course refers to first- and second-year courses (MLSC 101, 102, 201 and 202) that are designed for beginning students who want to try Reserve Officers Training Corps (ROTC) without obligation. Once the Basic Course is completed, students qualify for entry into the upper-division Advanced Course (MLSC 301, 302, 401, 402), which prepares them to be commissioned as officers in the United States Army, the Army Reserves or the Army National Guard. Upon entry into the Advanced Course, cadets are required to sign a contract with the Department of the Army agreeing to complete the ROTC program and accept a commission as a second lieutenant. Once the contract is signed, advanced course cadets will receive up to \$500 per month, along with free uniforms for all military science courses.

Two-Year Program

This program is for those students who have at least four semesters of work remaining on campus as either an undergraduate or graduate student, and who did not participate in ROTC earlier. These students enter the Advanced Course of the program after attending a four-week, all expenses paid, summer leadership internship or providing proof of completion of Military Basic Training, or three years JROTC. Students enrolled in the

two-year program are eligible for contracting under the same benefits, requirements and guidelines as the four-year students.

International Learning Opportunities in Military Science

Summer Internship Program is an overseas culture immersion internship aimed at broadening the cultural understanding of junior officers. Since the Army is in a number of countries across the world, it is critical that young officers understand different cultures to ensure the building of strong relationships.

Advanced course students have an opportunity to attend overseas Cadet Troop Leadership Training (CTLT) for three weeks between their junior and senior years. CTLT gives cadets a chance to serve as an acting platoon leader with an actual active duty U.S. Army unit. Many of the CTLT positions are with overseas units in Korea and Europe. Additionally, commissioned second lieutenants selected for active duty will have the opportunity to serve at duty stations all over the world, work with fellow military officers from other countries, attend foreign military schools and immerse themselves in the culture of their host nation while they live and work there.

Interested contracted cadets with strong cumulative grade point averages and who are physically fit have the opportunity to be sent to a three-week Army Airborne School or Air Assault School.

MINOR IN MILITARY SCIENCE

The Military Science minor consists of a combination of courses from many disciplines totaling 23 units. Students interested in this program should seek additional information from the Military Science Program office in E-301

GENERAL REQUIREMENTS

All enrolled cadets will take courses corresponding to their academic standing in order to remain academically aligned.

Military Science 100 Army Physical Training (1)
(this class can be repeated for credit up to eight times.)

Kinesiology 146 Weight Lifting (1)
(for cadets desiring extra conditioning)

Freshman

Military Science 101 Leadership and Personal Development (3)

Military Science 102 Introduction to Tactical Leadership (3)

Sophomore

Military Science 201 Innovative Team Leadership (3)

Military Science 202 Foundations of Tactical Leadership (3)

Leadership Training Course

The Leadership Training Course (LTC) is four weeks of classroom and field training held during the summer at Fort Knox, Kent. This course is an accelerated version of the two years of leadership development training cadets receive in the Basic Course. By transforming themselves through this rigorous training, cadets will qualify for enrollment in Advanced Army ROTC on campus – provided they have two years of college remaining (undergraduate or

graduate). This course is for those who did not participate in military science during their freshman and sophomore years.

Junior

Military Science 301 Adaptive Tactical Leadership (4)

Military Science 302 Leadership in Changing Environments (4)

Leadership Development and Assessment Course

Every Army ROTC cadet who enters into the Advanced Course attends the Leadership Development and Assessment Course (LDAC) at Ft. Lewis, Wash. This course normally takes place between the junior and senior years of college and is the most important training event for an Army ROTC cadet. The 33-day training event incorporates a wide range of subjects designed to develop and evaluate leadership ability. The challenges are rigorous and demanding, both mentally and physically. LDAC tests intelligence, common sense, ingenuity and stamina. These challenges provide a new perspective on an individual's ability to perform exacting tasks and to make difficult decisions in demanding situations.

Senior

Military Science 401 Developmental Leadership (4)

Military Science 402 Adaptive Leadership (4)

Required for Commissioning

Military Science 450 Military History Seminar (3)
(or approved Military History course)

MILITARY SCIENCE COURSES

Courses are designated as MLSC in the class schedule.

100 Army Physical Training (1)

Required each semester of all students in the Military Science program. Improve and maintain physical fitness level of participants while teaching standards for the conduct of Army Physical Training (PT). Develop a good understanding of the Army Physical Fitness Program in accordance with FM 21-20, to participate, to cooperate, have fun and become physically fit. May be repeated for credit.

101 Leadership and Personal Development (3)

Introduces personal challenges and competencies that are critical for effective leadership. How personal development of life skills such as critical thinking, goal setting, time management, physical fitness and stress management relate to leadership, officership and the Army profession. (1.5 hours lecture, 3 hours laboratory)

102 Introduction to Tactical Leadership (3)

Leadership fundamentals, such as setting direction, problem solving, listening, presenting briefs, providing feedback and using effective writing skills. Dimensions of leadership values, attributes, skills and actions in the context of practical, hands-on and interactive exercises. (2 hours lecture, 3 hours laboratory)

201 Innovative Team Leadership (3)

Explores dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of Army leadership framework: trait and behavioral theories. Practice aspects of personal motivation and team building in the context of planning, executing and assessing team exercises. (2 hours lecture, 3 hours laboratory)

202 Foundations of Tactical Leadership (3)

Challenges of leading tactical teams in the complex Contemporary Operating Environment (COE). Dimensions of terrain analysis, patrolling and operation orders. Theoretical basis of the Army leadership framework explores the dynamic of adaptive leadership in the context of military operations (2 hours lecture, 3 hours laboratory)



301 Adaptive Tactical Leadership (4)

Challenges cadets to study, practice and evaluate adaptive tactical leadership skills as they are presented with challenging scenarios related to squad tactical operations. Students receive systematic and specific feedback on their leadership attributes and actions. (3 hours lecture, 3 hours laboratory)

302 Leadership in Changing Environments (4)

Increasingly intense situational leadership challenges to build cadet awareness and skills in leading tactical operations up to platoon level. Review aspects of combat, stability and support operations. Exploring, evaluating and developing skills in decision-making, persuading and motivating team members in the contemporary operating environment (COE). (3 hours lecture, 3 hours laboratory)

401 Developmental Leadership (4)

Develops proficiency in planning, executing and assessing complex operations, functioning as a member of a staff and providing performance feedback to subordinates. Situational opportunities to assess risk, make ethical decisions and lead fellow ROTC cadets. Lessons on military justice and personnel processes prepare students to make transition to becoming Army officers. (3 hours lecture, 3 hours laboratory)

402 Adaptive Leadership (4)

Dynamics of leading in the complex situations of current military operations in the contemporary operating environment (COE). Differences in customs and courtesies, military law, principles of war and rules of engagement in the face of international terrorism. Aspects of interacting with non-governmental organizations, civilians on the battlefield and host nation support. (3 hours lecture, 3 hours laboratory)

450 Military History Seminar (3)

Selected case studies in military history as they relate to the modern challenges facing the American profession of arms. Emphasizes written reports, oral presentations, discussion and field study. This course satisfies commissioning requirements.