

BUS 595 SPECIAL STUDIES IN BUSINESS ADMINISTRATION (1-3)

Supervised independent study. A maximum of 3 units may be applied toward the requirements for the M.B.A. degree. Prerequisite: consent of faculty member under whom the individual work is to be conducted, consent of the M.B.A. coordinator, and approved "Application for Special Study 495/595."

BUS 596 GRADUATE INTERNSHIP (1-3)

Field experience for qualified graduate students in business administration. A maximum of 3 units may be applied toward the requirements for the M.B.A. degree. Students must establish with the M.B.A. coordinator that the work involved is clearly integral to the students' graduate studies. CR/NC grade only.

BUS 599 MASTER'S DEGREE DIRECTED RESEARCH (1-3)

Research directed by the student's committee on a project. An Advancement to Candidacy Form GSO 1 must be filed with the MBA Coordinator before the student registers for this course.

Chemistry (CHEM)

CHEM 102 CHEMISTRY AND SOCIETY (3)

Lecture, 2 hours; laboratory, 3 hours. An introductory course in chemistry for students majoring in subjects other than the sciences. This course covers many of the ideas of chemistry in a way that requires only basic algebra. An emphasis is placed on the role of chemistry in daily life and in decision making. The laboratory will consist of experiments covering chemical principles and phenomena discussed in the lecture. Satisfies GE, category B1 (Physical Sciences) and GE laboratory requirement.

CHEM 105 ELEM OF GENERAL, ORGANIC AND BIOCHEM (5)

Lecture, 3 hours; laboratory, 3 hours. A survey of the principles of chemistry with emphasis placed on those that apply to living organisms. The course is designed for students in nursing and majors that do not require further courses in chemistry. Course is not a prerequisite for any chemistry course. Satisfies GE, category B1 (Physical Sciences) and GE laboratory requirement.

CHEM 107 INTRODUCTION TO PHYSICAL SCIENCE FOR TEACHERS (3)

Lecture, 3 hours. A non-mathematical course designed to introduce students to a range of topics in physics and chemistry that are required by the California Science Standards for grades K-8, including the laws of motion, energy, the structure of matter, the states of matter, electricity and magnetism, and light and optics. Lectures include many demonstrations to illustrate physical science principles and students will be asked to think about how they would demonstrate or explain various concepts.

CHEM 110 INTRODUCTORY GENERAL CHEMISTRY (3)

Lecture, 3 hours. Develop fundamental knowledge and necessary skills in General Chemistry for students who plan to major in science or pre-health programs. This course assumes no previous chemistry background from the student and may be used as a first chemistry course or as a refresher course to enhance an insufficient chemistry background. Topics covered in the course include significant figures, unit conversions, naming chemical compounds, chemical equations, concentration units, pH, acids and bases, the mole concept, and stoichiometry. CHEM 110 may be taken to prepare for CHEM 115A. This course is not applicable to the chemistry major, minor, or GE requirement.

CHEM 115A GENERAL CHEMISTRY (5)

Lecture, 3 hours; laboratory 3 hours. Principles of chemistry for students in science, pre-health, and related areas of study. This course will introduce students to science and scientific thought by using problem-solving strategies in both a conceptual and mathematical manner. First semester topics include atomic and molecular structure, states of matter, chemical reactions, stoichiometry, and thermodynamics. Second semester topics include kinetics, equilibrium, buffers, and electrochemistry. Satisfies GE, category B1 (Physical Sciences), and laboratory requirements.

CHEM 115B GENERAL CHEMISTRY (5)

Lecture, 3 hours; laboratory 3 hours. Continuation of CHEM 115A. Prerequisite: CHEM 115A. Satisfies GE, category B1 (Physical Sciences), and laboratory requirements.

CHEM 125A HONORS ANALYTICAL GENERAL CHEMISTRY (5)

Lecture, 3 hours; laboratory 3 hours (5 units). This is a one-year sequential honors analytical general chemistry course. This course is designed for students who have a prepared background in chemistry. Topics traditionally covered in the first semester of general chemistry (periodic trends, stoichiometry, aqueous chemical reaction, and molecular geometry) will be briefly reviewed. However, this first semester of this course (CHEM 125A) will focus on bonding, kinetics, solutions, acid-base equilibrium, thermodynamics, and electrochemistry. Prerequisite: 4 or higher on the high school AP chemistry exam, or a pass on the departmental chemistry placement exam. Letter grade or Cr/NC. Fall A / Spring B. GE credit for area B1.

CHEM 125B HONORS ANALYTICAL GENERAL CHEMISTRY (5)

Lecture, 3 hours; laboratory 3 hours (5 units). The second semester (CHEM 125B) starts by applying the topics covered in the first semester to statistics, chemical literature, chromatography, spectroscopy, and biological chemistry. After completion of this course students will receive credit for the full year of general chemistry and one semester of quantitative analysis (CHEM 255). Prerequisite: 4 or higher on the high school AP chemistry exam, or a pass on the departmental chemistry placement exam. Letter grade or Cr/NC. Fall A / Spring B. GE credit for area B1.

CHEM 195 LOWER DIV SPECIAL STUDIES (1-3)

May be repeated.

CHEM 255 QUANTITATIVE ANALYSIS (4)

Lecture, 2 hours; laboratory, 6 hours. Theory and practice of methods of analysis, including volumetric, gravimetric, and selected instrumental techniques. Prerequisite: CHEM 115B. CAN CHEM 12 or CHEM 125A.

CHEM 310A FUNDAMENTALS OF PHYSICAL CHEMISTRY (3)

Lecture, 3 hours. Development and applications of the concepts of thermodynamics, equilibrium, kinetics, quantum mechanics, and spectroscopy to chemical systems. Prerequisites: CHEM 255; CHEM 125B; MATH 211S; PHYS 210AB or 214 and 216; or consent of instructor.

CHEM 310B FUNDAMENTALS OF PHYSICAL CHEMISTRY (3)

Lecture, 3 hours. Continuation of CHEM 310A. Prerequisites: CHEM 310A; CHEM 255; CHEM 125B; MATH 211S; PHYS 210AB or 214 and 216; or consent of instructor.

CHEM 313 ELECTRONICS (3)

Lecture, 3 hours. DC and AC circuit theory, applications of diodes, transistors and operational amplifiers, electronic test instruments, electronic transducers, waveform generators, noise, logic gates and Boolean algebra, number systems and codes, combinational logic circuits, and applications of circuit simulation programs. Crosslisted with PHYS 313. Prerequisites: concurrent enrollment in CHEM 313L is mandatory. MATH 107, PHYS 210B or 214; or consent of instructor.

CHEM 313L ELECTRONICS LAB (1)

Laboratory, 3 hours. Laboratory to accompany CHEM 313. Crosslisted with PHYS 313L. Experiments in this lab are designed to address the major topics of CHEM 313 lecture course. Students will experiment with physical and simulated circuits. Prerequisite: concurrent enrollment in CHEM 313 is mandatory.

CHEM 316 FUNDAMENTALS OF PHYSICAL CHEM LAB (2)

Lecture, 1 hour; laboratory, 3 hours. Physicochemical measurements with an emphasis on error analysis, instrumental techniques, report writing, and presentation. Prerequisites: CHEM 310A; concurrent enrollment in CHEM 310B or consent of instructor.

CHEM 325 INORGANIC CHEMISTRY (3)

Lecture, 3 hours; Atomic structure, symmetry, and group theory of small molecules and the relationship of these concepts to bonding theory and molecular spectroscopy. Applications of symmetry and group theory to coordination chemistry of transition metal complexes in organometallic, environmental, bioinorganic, and materials chemistry. Other topics include kinetics and reaction mechanism of inorganic and organometallic compounds including electron transfer. Prerequisites: CHEM 310B, or Concurrent enrollment.

CHEM 335A ORGANIC CHEMISTRY (5)

Lecture, 3 hours; laboratory lecture, 1 hour; laboratory, 3 hours. Basic course in the general theory and reactions of organic chemistry. Emphasis on basic principles. Recommended for science and pre-professional majors. Prerequisite: CHEM 115B; CHEM 125A or consent of instructor.

CHEM 335B ORGANIC CHEMISTRY (3)

Lecture, 3 hours. Continuation of CHEM 335A. Prerequisite: CHEM 335A.

CHEM 336 ORGANIC CHEMISTRY LAB (2)

Laboratory lecture, 1 hour; laboratory, 3 hours. Fundamental techniques of organic chemistry emphasizing synthetic organic chemistry, modern instrumental methods, and qualitative organic analysis. Designed to complement CHEM 335B. Prerequisite: CHEM 335A.

CHEM 397 CHEMISTRY PRACTICUM (1-6)

Supervised chemistry work experiences that involve practical application of previously studied theory. Intended for professional growth and/or collection of data for future theoretical interpretation. Not applicable toward the chemistry major or minor. May be repeated for up to a total of 6 units. Two hours of work per week for each unit of credit. Cr/NC only. Prerequisite: junior standing or consent of instructor.

CHEM 401 INSTRUMENTAL ANALYSIS AND CHEMICAL SYNTHESIS (3)

Lecture, 1 hour; laboratory 6 hours. An integrated inquiry and project-based upper-division course for B.S. and B.A. majors. The projects will cover the synthesis of organic and inorganic molecules and characterization of student-prepared molecules. Lecture will focus on analysis of spectroscopic data, an overview of the instrumental hardware, and principles of chromatography. Topics include basic electronics, optics, signal noise, detectors, IR, optical, MNR and fluorescence spectroscopy, mass spectrometry, and chromatography. Prerequisites: CHEM 255, CHEM 125B; and CHEM 336 highly recommended.

CHEM 402 ADVANCED SYNTHESIS AND INSTRUMENTAL ANALYSIS (3)

Lecture, 1 hour; laboratory 6 hours. Project-based synthesis, purification and characterization of inorganic, organic and organometallic molecules. Capstone course for BS chemistry degree. Topics will include air-sensitive syntheses, standard Schlenk line techniques, characterization through IR, optical and NMR spectroscopy, mass spectrometry, and electrochemistry. Prerequisite: CHEM 401. Highly recommended: CHEM 325, or consent of instructor.

CHEM 441 BIOCHEMICAL METHODS (3)

Lecture, 1 hour; laboratory, 6 hours. Applications of biochemical techniques to the study of proteins, enzymes, and nucleic acids. Prerequisites: CHEM 232 or 335B; CHEM 255 (strongly recommended); CHEM 445 or 446; and foundation in spectroscopy, kinetics and thermodynamics, or consent of instructor.

CHEM 445 STRUCTURAL BIOCHEMISTRY (3)

Lecture, 3 hours. A study of the structural function relationships of amino acids, proteins and enzymes, carbohydrates, lipids, and nucleic acids. Also includes topics such as enzyme kinetics, membrane transport, and signaling. Prerequisites: CHEM 335B or CHEM 232 and a foundation in spectroscopy, kinetics and thermodynamics, or consent of instructor.

CHEM 446 METABOLIC BIOCHEMISTRY (3)

Lecture, 3 hours. A study of bioenergetics, enzyme structure and function, and the metabolism of carbohydrates, and lipids and proteins. Prerequisites: CHEM 335B or CHEM 232; and foundation in spectroscopy, kinetics and thermodynamics, or consent of instructor.

CHEM 494 UNDERGRADUATE RESEARCH AND SERVICE LEARNING (1-6)

This course serves as a 'senior experience' for our graduating majors. Under supervision by the chemistry faculty, students may participate in the course in a variety of different ways including, but not limited to individual investigations of student-or faculty-initiated chemical problems, departmental service, and/or community outreach to connect society with chemistry. May be taken only by petition to the Chemistry Department. May be repeated. Prerequisites: consent of instructor.

CHEM 495 SPECIAL STUDIES (1-3)

Investigation of existing information on a specific or general topic of interest to the student. May be repeated. Prerequisite: consent of instructor; upper-division standing in chemistry or closely related science.

CHEM 496 SELECTED TOPICS IN CHEMISTRY (1-3)

A study of an advanced topic in chemistry. May be repeated for credit with new subject matter.

CHEM 497 RESEARCH SEMINAR (1)

Laboratory, 3 hours. Capstone course for B.A. and B.S. degrees. The course will focus on techniques involved in the preparation and delivery of technical seminars. This final project will be a formal oral presentation to the chemistry department on a research paper from the chemical literature or the student's undergraduate research project. Instruction includes the appropriate coverage of the selected topic, use of the chemical literature, and the reparation and use of PowerPoint, graphic, and web-based applications to create an informative talk. Prerequisites: senior standing or consent of instructor.

CHEM 499 INTERNSHIP (1-4)

Chemistry field experience in industrial, hospital, or similar laboratory settings. Enrollment by prior arrangement with supervising faculty member and community sponsor. Please see department advisor for details. Three hours of work per week for each unit of credit. Internship assignments may be paid. Cr/NC only. May be repeated.

Chicano and Latino Studies (CALs)

CALS 219 CHICANO/LATINO IDENTITY AND HERITAGE (3)

A survey of the Chicano and Latino experience in the United States. The course serves as an introduction to Chicano and Latino studies through the social sciences in order to explain the individual's status and place within the group and society. This includes how Chicano and Latinos and other Latinos have adapted to the various cultural, social, economic, and political elements of U.S. society as compared to other groups. Satisfies ethnic studies requirement in GE, category D1 (Individual and Society).

CALS 220 CHICANO/LATINO ARTS AND LITERATURE (3)

A survey of the humanities (arts and letters) found in Chicano/Latino cultures. Introduction to traditional and contemporary literature, drama, cinema, art, music, and dance forms found in the Spanish-speaking communities of the Southwestern United States and their related heritages. Satisfies ethnic studies in GE, category C4 (Comparative Perspectives).

CALS 225L LANGUAGE LABORATORY/FIELD WORK (1)

At least two hours per week of practice in the language laboratory or in an approved fieldwork setting such as a Spanish-speaking organization, community agency, or bilingual classroom. Cr/NC only. Prerequisite: concurrent enrollment in CALS 225.

CALS 225 SPANISH FOR BILINGUALS (3-4)

The study of the grammar and structure of Spanish with ample practice, in oral and written forms, to help develop proficiency in normative Spanish, using various language-acquisition techniques. Students will be able to enter upper-division classes in Spanish. Standard or normative Spanish will be compared and analyzed in terms of non-normative, regional, and local community varieties of Spanish. Prerequisite: functional Spanish skills at the second-year level or equivalent. Satisfies foreign language in GE, category C4 (Comparative Perspectives and Foreign Languages). This course does not satisfy GE ethnic studies requirements. Requirement: concurrent enrollment in CALS 225L.

CALS 301 CALS LEADERSHIP AND MENTORING (1)

A supervised, guided process where senior-level majors in CALS coach and mentor newly declared majors after having been coached by a senior student the previous semesters. Elective units. May be enrolled more than once.

CALS 310 CHICANO/LATINO ARTS AND CRAFTS WORKSHOP (1)

Analysis of and workshop on providing Chicano Mexican and other Latino arts and crafts. Includes village and folk arts, with particular emphasis toward adapting these arts to the public school curriculum. Course projects require a public exhibit.

CALS 339 LATINOS AND THE U.S. LABOR MARKET (3-4)

This course is designed as an overview of major theories, trends, and debates on the topic of Latinos and labor market inequality in the United States. Topics include urban poverty, discrimination in employment, how jobs and workers are matched, and over-arching issues as how globalization and place affects the labor force. Particular attention is given to the interaction between race and class as determinants of the life chances of minorities and specifically of Latinos in the United States. Satisfies upper-division ethnic studies in GE, category D1 (Individual and Society).

CALS 350 LATINO CULTURAL STUDIES (4)

This course focuses on the theoretical debates that have shaped the field of Chicano and Latino studies. In the tradition of Américo Paredes' *With His Pistol in His Hand*, the class will emphasize the role that counter-cultural narratives and traditions play in relation to Chicano/Latino identities and identity-based activism/politics.