

3400. Readings in Business. 1-3 hours. Reading books influencing American business philosophy; reading for pleasure; study of current problems reported in business periodicals. (Credit varies depending upon amount and types of reading.)

4660. International Business Operations. 3 hours. Foreign operations of American firms and impact of foreign competition on the domestic market; organization for foreign production, marketing and finance; foreign markets, resources, institutions and managerial problems arising out of governmental relations. Prerequisite(s): MKTG 3650, FINA 3770 and senior standing.

4700. Topics in Mexican Business Practices and Policies. 3 hours. Topics include analysis of issues in accounting, marketing, management, finance, the legal environment, or information systems of Mexican companies and of U.S. companies dealing with Mexican counterparts. Students are introduced to the Mexican way of doing business and the role culture plays in transacting business with Mexican companies. Prerequisite(s): ACCT 2010 and 2020; MGMT 3330; and MKTG 3010 or BCIS 3615. May be repeated for credit as topics vary, for up to 9 hours of credit. Taught in Mexico.

4900. Special Problems. 1-3 hours.

4940. Business Policy. 3 hours. Enterprise management integrating the functional areas of business administration into a realistic approach to business problems; applying principles to complex problems at the executive level. Prerequisite(s): completion of all other business foundation courses with a grade of C or better and senior standing. To be taken during the last term/semester of course work.

Business Computer Information Systems

See Information Technology and Decision Sciences

Business Law

see Finance, Insurance, Real Estate and Law

Chamber Music

see Music

Chemistry

Chemistry, CHEM

1351. Context of Chemistry. 3 hours. (3;0;1*) Fundamentals of chemistry for students who are not science majors. Applications of chemistry to its role in the world. Topics include historical and philosophical development of modern chemistry, the environment, energy, industrial and economic development, modern materials, popular perspectives of chemistry. Prerequisite(s): concurrent enrollment in CHEM 1352. May not be counted toward a major or minor in chemistry. **This hour is a discussion session. May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1352. Laboratory for Context of Chemistry. 1 hour. (0;2) Laboratory techniques for CHEM 1351. Prerequisite(s): CHEM 1351 (should be taken concurrently). May not be counted toward a major or minor in chemistry. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1410-1420. General Chemistry for Science Majors. 3 hours each. (3;0;1*) **This hour is a problem-solving session.*

1410 (CHEM 1311). Fundamental concepts, states of matter, periodic table, structure and bonding, stoichiometry, oxidation and reduction, solutions, and compounds of representative elements. Prerequisite(s): MATH 1100 or equivalent. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1420 (CHEM 1312). Thermodynamics, reaction rates, equilibrium, electrochemistry, organic chemistry, polymers, radioactivity and nuclear reactions. Prerequisite(s): CHEM 1410 or 1413 or consent of department. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1412-1422. General Chemistry for the University Honors Program. 3 hours each. (3;0;1*) **This hour is a discussion session.*

1412. Nature of chemistry, states of matter, periodic table, structure and bonding, stoichiometry, oxidation and reduction, solutions, compounds of representative elements, historical context, practical consequences. Prerequisite(s): MATH 1100 or equivalent, admission to University Honors Program. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1422. Thermodynamics, reaction rates, equilibrium, electrochemistry, organic chemistry, polymers, radioactivity and nuclear reactions, historical context, practical consequences. Prerequisite(s): CHEM 1412 (or CHEM 1410 or 1413 with grade B or better and permission of the department), MATH 1100 or equivalent, admission to University Honors Program. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1413-1423. Honors General Chemistry. 3 hours each. (3;0;1*) **This hour is a problem-solving session.*

1413. Fundamental concepts, states of matter, periodic table, structure, solutions and compounds of representative elements. Prerequisite(s): MATH 1100 or equivalent. High school chemistry or equivalent is strongly recommended. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1423. Thermodynamics, reaction rates, equilibrium, electrochemistry and nuclear chemistry. This course is strongly advised and may be required for students planning to engage in undergraduate chemical research. Prerequisite(s): CHEM 1413 or consent of department. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1430-1440. Laboratory Sequence for General Chemistry. 1 hour each. (1;3) Should be taken concurrently with CHEM 1410 or 1412 or 1413 and 1420 or 1422 or 1423.

1430 (CHEM 1111). Laboratory techniques, weighing, errors and significant figures, identification and purification of substances, and elementary quantitative analysis. Corequisite(s): CHEM 1410 or 1412 or 1413 (should be taken concurrently). *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

1440 (CHEM 1112). Quantitative, gravimetric and volumetric analyses; coordination compounds. Corequisite(s): CHEM 1420 (should be taken concurrently); 1430. *May be used to satisfy a portion of the Natural Sciences requirement of the University Core Curriculum.*

2370-2380. Organic Chemistry. 3 hours each. (3;0;1*)

**This hour is a problem-solving session.*

2370 (CHEM 2323). Structure, nomenclature, occurrence and uses of main classes of organic compounds; functional groups and their interconversion; character of chemical bonding; stereochemistry; structure and reactivity; acid/base reactions, resonance, inductive and steric effects; reaction mechanisms. Prerequisite(s): CHEM 1420, 1422 or 1423; 3210 (should be taken concurrently).

2380 (CHEM 2325). Nucleophilic and electrophilic reaction mechanisms; molecular rearrangements; radical reactions; organic synthesis; absorption spectra of organic compounds of biological interest. Prerequisite(s): CHEM 2370; 3220 (should be taken concurrently).

2900-2910. Introduction to Chemical Research.

1-3 hours each. Individualized laboratory instruction. Students may begin training on laboratory research techniques. Prerequisite(s): CHEM 1430 (should be taken concurrently) and consent of instructor. For elective credit only; may not be substituted for required chemistry courses.

3210-3220. Organic Chemistry Laboratory. 1 hour each. (1;3) Should be taken concurrently with CHEM 2370 and 2380.

3210. Separations and Synthesis. Organic preparations; techniques of recrystallization, distillation, solvent extraction, separation of mixtures, chromatography and spectroscopic methods. Prerequisite(s): CHEM 1440; 2370 (should be taken concurrently).

3220. Synthesis and Analysis. Organic syntheses and systematic identification of unknown organic compounds utilizing classical "wet" and spectroscopic analytical methods. Prerequisite(s): CHEM 2380 and 3210 (should be taken concurrently).

3230-3240. Physical Chemistry Laboratory Sequence.

1 hour each. (1;3) Should be taken concurrently with CHEM 3510 and 3520.

3230. Physical Measurements. Computer programming, treatment of experimental data, calorimetry, gases, vacuum line techniques, phase equilibria and viscometry. Prerequisite(s): CHEM 3510 (may be taken concurrently).

3240. Advanced Physical Measurements.

Electrochemistry, magnetic resonance, spectrophotometry, experimental chemical kinetics, polarimetry, experimental studies of macromolecules, and photochemistry. Prerequisite(s): CHEM 3230.

3451. Quantitative Analysis. 3 hours. Statistical treatment of data; theory and principles of sampling and transfer techniques, gravimetric, and volumetric methods; introductory instrumental analysis. Prerequisite(s): CHEM 1440; concurrent enrollment in CHEM 3452.

3452. Quantitative Analysis Laboratory. 1 hour. (0;4)

Statistical treatment of data; sampling and transfer techniques; selected gravimetric and volumetric methods; introductory instrumental analysis. Prerequisite(s): CHEM 1440; concurrent enrollment in CHEM 3451.

3510-3520. Physical Chemistry. 3 hours each. (3;0;1*)

**This hour is a problem-solving session.*

3510. Thermodynamics, kinetic theory, solutions and phase equilibria, chemical equilibrium, photochemistry and chemical kinetics. Prerequisite(s): CHEM 1420, 1422 or 1423; MATH 1720; PHYS 1420 or 2220.

3520. Quantum mechanics: atomic structure and molecular orbital theory. Spectroscopy: microwave, infrared, electronic, photoelectron, electron spin and NMR. Prerequisite(s): CHEM 3510.

3530. Physical Chemistry for Life Science. 4 hours. Fundamental principles of physical chemistry applied to biological systems; thermodynamics, equilibrium and bioenergetics, ionic equilibria, pH, buffers, ionic strength, and electrical properties of amino acids and proteins; kinetics, enzyme catalysis and inhibition; physical properties of biological macromolecules and transport properties in living systems. Prerequisite(s): CHEM 1420 or 1423. For chemistry (BA) and life science majors, and preprofessional students.

3601. Organic Chemistry. 3 hours. (3;0;1*) Survey of organic chemistry; types of chemical bonding, functional groups, synthesis and reactions; aliphatic, aromatic and heterocyclic compounds; carbohydrates, lipids and proteins. Prerequisite(s): CHEM 1420 or 1423. For medical technology, merchandising and hospitality management, and secondary education students. **This hour is a problem-solving session.*

3602. Laboratory for Organic Chemistry. 1 hour. (0;3) Prerequisite(s): CHEM 3601 (may be taken concurrently).

3610. Quantitative Techniques. 4 hours. (3;3) Survey of modern methods used in analytical chemistry; statistical treatment of data; gravimetric and titrimetric methods; spectrophotometric, chromatographic, potentiometric and radioisotope techniques. Prerequisite(s): CHEM 1420 or 1423. For medical technology, merchandising and hospitality management and secondary education students.

4530. Materials Chemistry. 3 hours. Application of chemical principles to understanding the general behavior of materials. Course includes semiconductors, metals, catalysts and "nano-designed" materials (e.g. quantum wells). Prerequisite(s): concurrent enrollment in CHEM 3520 or equivalent, or consent of department. May not be repeated at the graduate level as CHEM 5530.

4610. Advanced Inorganic Chemistry. 3 hours. Electronic structure of atoms and molecules; structure and thermodynamic properties of binary compounds; inorganic nomenclature; introductory survey of bonding, stereochemistry and reactivity of inorganic and organometallic complexes. Prerequisite(s): CHEM 3520.

4620. Advanced Inorganic Chemistry Laboratory. 1 hour. (1;3) Inorganic and organometallic preparations; spectroscopic identification of diamagnetic and paramagnetic compounds; basic glassblowing; introduction to library resources. Prerequisite(s): CHEM 4610.

4631. Instrumental Analysis. 3 hours. Principles and theory of chemical analysis utilizing absorption spectroscopy in ultraviolet, visible and infrared regions, nuclear and electron spin resonance, mass spectrometry, chromatography, polarography and other advanced instrumental techniques. Prerequisite(s): CHEM 3451, 3452.

4632. Instrumental Analysis Laboratory. 1 hour. (0;4) Identification and analysis of compounds through absorption spectroscopy in ultraviolet, visible and infrared regions, nuclear and electron spin resonance, mass spectrometry, chromatography, polarography and other advanced instrumental techniques. Prerequisite(s): concurrent enrollment in CHEM 4631.

4660. Introduction to Computational Chemistry. 3 hours. (2;3) Introduction to the use of modern computational methodologies for the study of physical properties and chemical reactions of importance in chemistry, biochemistry, molecular biology and environmental sciences. Prerequisite(s): CHEM 3520 (should be taken concurrently) or consent of department.

4670. Introduction to Medicinal Chemistry. 3 hours. Fundamentals of medicinal chemistry. General aspects of drug action and rational drug design. Drug development, antibacterial agents, analgesics, antidepressants and anticancer agents. Prerequisite(s): CHEM 2380 or CHEM 3601 with consent of department.

4700. Procedures and Materials for Science Instruction. 3 hours. (2;4) Problems, techniques and procedures for classroom and laboratory experiences based on current science education research. Recommended for students who are obtaining secondary teacher certification in a science field. Field experience in the public schools is required. Prerequisite(s): 16 hours of chemistry, completion of freshman and sophomore science courses required for certification, and consent of department. Does not count as an elective toward a major or minor in chemistry except for students seeking certification. (Same as BIOL 4700 and PHYS 4700.)

4900-4910. Special Problems. 1-3 hours each. Prerequisite(s): CHEM 3220 or equivalent, and consent of directing professor. A written report is required each term/semester. May be repeated for credit, not to exceed 3 hours each.

4920. Cooperative Education in Chemistry. 1-3 hours. Supervised work in a job directly related to the student's major, professional field of study or career objective. Prerequisite(s): 12 semester hours of credit in chemistry; student must meet employer's requirements and have consent of the department chair. May be repeated for credit.

4930. Selected Topics in Chemistry. 3 hours. Topics of current interest, which vary from year to year. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

4940. Chemistry Seminar. 1 hour. Colloquia covering current topics in chemistry. Prerequisite(s): chemistry major with senior standing. May be repeated for credit. May not be used to meet degree requirements for chemistry major or minor. Pass/no pass only.

4960-4970. Science Institute (Chemistry). 1-6 hours each. For students accepted by the university in special institute courses. May be repeated for credit, not to exceed 6 hours in each course.

Communication Studies

Students interested in majoring in communication studies must complete all pre-major requirements and must take COMM 3010 prior to or concurrently with the first enrollment in upper-division courses.

Communication Studies, COMM

1010 (SPCH 1311). Introduction to Communication. 3 hours. (1;0;2) A survey of the basic principles of human communication, with opportunities to apply these principles in different contexts. *Satisfies the Communication requirement of the University Core Curriculum.*

1440. Honors Classical Argument. 3 hours. Uses of argument in rational decision making based on classical theories of reason. Elements of argument, classical

foundations of argument and contemporary application of argument principles. Prerequisite(s): acceptance to University Honors Program. *Satisfies the Communication requirement of the University Core Curriculum.*

2020 (SPCH 1318). Interpersonal Communication. 3 hours. An introduction to interpersonal communication research results and theories with application in two-person and small group relationships in a variety of human communication contexts. *Satisfies the Communication requirement of the University Core Curriculum.*

2040 (SPCH 1315). Public Speaking. 3 hours. (1;0;2) Introduction to principles of and practice in preparing public speaking speeches. Stresses the role of public speaking in democratic decision making. *Satisfies the Communication requirement of the University Core Curriculum.*

2060 (SPCH 2341). Performance of Literature. 3 hours. (1;0;2) Performance as a method of textual study. An introduction to the theory and practice of analyzing, rehearsing and performing non-dramatic texts. Recommended for elementary education majors. *Satisfies the Communication requirement of the University Core Curriculum.*

2140. Rhetoric and Argument. 3 hours. (1;0;2) Introduction to the critical dimensions of rhetoric and argument through presentation and evaluation of public discourse. Balanced attention to the theory and practice enabling students to analyze the persuasive function of public discourse; to discuss the role of audience in the construction of public discourse; and to develop skills for constructing, supporting, and evaluating public discourse. Prerequisite(s): COMM 1010.

2900. Special Problems. 1-3 hours.

3010. Communication Perspectives. 3 hours. Skills and concepts necessary to review communication research, to engage in critical research about communication behavior, and to write scholarly papers in an appropriate format. Restricted to COMM majors, this course is a requirement for students under the 2000-01 (or later) catalog and must be taken prior to or concurrently with a student's first enrollment in upper-division COMM courses. Prerequisite(s): COMM 1010, 2020, 2060 and 2140 with a grade of C or better. Communication majors only.

3120. Nonverbal Communication. 3 hours. Applications of research and theory in understanding the impact of nonverbal communication in a variety of human contexts. Prerequisite(s): COMM 1010 and 2020.

3220. Health Communication. 3 hours. Communication in medical settings; origins, nature and impact of communication practices and beliefs in the health-care delivery system; role of interaction on human well-being. Prerequisite(s): COMM 1010 and 2020.

3260. Storytelling. 3 hours. Investigation of folk literature, original sources and literary genres employed in the art of storytelling. Training in the acquisition of techniques and skills employed by the storyteller. Prerequisite(s): COMM 1010 and 2060.

3265. Topics in Storytelling. 3 hours. Understanding how the art of storytelling influences and supports the development of diverse cultures. Comparison and contrast of storytelling traditions of at least three different groups related by geography (i.e. Americas, Asia or Africa) or topic (fairy tales, family stories or creation myths). Performance and analysis of narratives develops performance skills and sharpens critical thinking skills. Provides opportunities to participate in performances as a researcher, adapter, performer and critic. Prerequisite(s): COMM 1010, 2060 and 3260. May be repeated for credit as topics vary.