CHM 1111 (CHEM 1111) General Chemistry Laboratory I (1 semester hour) Introduction to the chemistry laboratory. Experiments are designed to demonstrate concepts covered in CHM 1311; including properties and reactions of inorganic substances, and elementary qualitative and quantitative analysis. (0-3) S

CHM 1112 General Chemistry Laboratory II (1 semester hour) A continuation of CHM 1111 demonstrating the concepts covered in CHM 1312, including acid-base chemistry, reaction kinetics, electrochemistry, polymers, and organic synthesis. Prerequisite: CHM 1111 or 1215. (0-3) S

CHM 1215 Honors Freshman Chemistry Laboratory I (2 semester hours) This course and its follow-on (CHM 1216) reinforce the concepts of Freshman Chemistry via experiments of a quantitative analysis nature. Students are offered the opportunity to acquire basic laboratory skills and an appreciation for the presence of chemistry in daily living through a combination of laboratory and computer experiments and applied research modules. Corequisite: CHM 1315. (0-6) Y

CHM 1216 Honors Freshman Chemistry Laboratory II (2 semester hours) A continuation of CHM 1215. This course reinforces concepts presented in CHM 1316. Prerequisite: CHM 1215; corequisite: CHM 1316. (0-6) Y

CHM 1311 (CHEM 1311) General Chemistry I (3 semester hours) Introduction to elementary concepts of chemistry theory. The course emphasizes chemical reactions, the mole concept and its applications, and molecular structure and bonding. (3-0) S

CHM 1312 (CHEM 1312) General Chemistry II (3 semester hours) A continuation of CHM 1311 treating metals; solids, liquids, and intermolecular forces; chemical equilibrium; electrochemistry; organic chemistry; rates of reactions; and environmental, polymer, nuclear, and biochemistry. Prerequisite: CHM 1311 or 1315. (3-0) S

CHM 1315 Honors Freshman Chemistry I (3 semester hours) An advanced course dealing with the principles of structure and bonding and the physical laws that govern the interactions of molecules. The course is intended for students who have a solid background in chemistry at the secondary level and the desire to explore general chemistry concepts more deeply. Both the lecture and its laboratory, CHM 1215, incorporate significant content of quantitative analysis; students successfully completing the 10 semester credit hour Honors Freshman Chemistry sequence are not required to take CHM 2401 (Introductory Quantitative Methods in Chemistry) in partial satisfaction of a chemistry baccalaureate. Corequisite: CHM 1215. (3-0) Y

CHM 1316 Honors Freshman Chemistry II (3 semester hours) A continuation of the presentation of concepts begun in CHM 1315. This course will present advanced topics including those in organic, biochemistry, and environmental chemistry. Prerequisite: CHM 1315; corequisite: CHM 1216. (3-0) Y

CHM 2123 (CHEM 2123) Introductory Organic Chemistry Laboratory I (1 semester hour) The experimental skills associated with organic functional group reactions. Prerequisite: CHM 2323 (may be taken concurrently). (0-4) S

CHM 2225 (CHEM 2225) Introductory Organic Chemistry Laboratory II (2 semester hours) Continuation of Organic Chemistry Laboratory I. Prerequisites: CHM 2323 and 2123; corequisite: CHM 2325. (0-8) S

CHM 2323 (CHEM 2323) Introductory Organic Chemistry I (3 semester hours) The covalent bond. Organic chemistry: aliphatic and aromatic compounds; covalent inorganic and organometallic compounds; a survey of the organic functional groups and their typical reactions; stereochemistry. The first course in organic chemistry. Satisfies the basic organic chemistry lecture requirements for pre-health profession students. Prerequisite: CHM 1312 or 1316. (3-0) S


CHM 2V01 Topics in Chemistry (1-3 semester hours) Subject matter will vary from semester to semester. Prerequisite: Consent of instructor ([1-3]-0) R

CHM 2401 (CHEM 2401) Introductory Quantitative Methods in Chemistry (4 semester hours) A study of the theory, applications, and calculations involved in the methods of analysis. Theory and practice of volumetric, gravimetric, and spectrophotometric methods. CHM 2401 may not be taken for credit by students who have completed successfully CHM 1316. Prerequisites: CHM 1312 and 1112. (2-6) Y

CHM 2V95 Individual Instruction in Chemistry (1-3 semester hours) Individual study under a faculty member's direction. May be repeated for credit. Consent of instructor required. ([1-3]-0) R
CHM 3312 Physical Chemistry II (3 semester hours) Fundamental microscopic properties of matter and radiation are discussed. A core of topics including quantum chemistry, atomic and molecular structure and spectroscopy, and statistical mechanics is supplemented with topics germane to the wide variety of students taking physical chemistry. Such additional topics might include nuclear magnetic resonance, symmetry, photochemistry, crystals, or macromolecules. Prerequisite: CHM 3411 or consent of instructor. (3-0) Y

CHM 3341 Inorganic Chemistry I (3 semester hours) Survey of inorganic chemistry with emphasis on the modern concepts and theories of inorganic chemistry including electronic and geometric structure of inorganic compounds. Topics address contemporary physical and descriptive inorganic chemistry. (3-0) Y

CHM 3361 Biochemistry I (3 semester hours) Structures and chemical properties of amino acids; protein purification and characterization; protein structure and thermodynamics of polypeptide chain folding; catalytic mechanisms, kinetics, and regulation of enzymes; energetics of biochemical reactions; carbohydrate structure and metabolism; the citric acid cycle, electron transport mechanisms and oxidative phosphorylation. Prerequisites: CHM 2323 and 2325, or equivalent. (Same as BIO 3361.) (3-0) Y

CHM 3362 Biochemistry II (3 semester hours) Membrane structure and function; glycogen metabolism, gluconeogenesis, and pentose pathway; lipid structure and metabolism; amino acid metabolism; photosynthesis; nucleic acid structure and metabolism; sequencing and genetic engineering; replication, transcription, and translation; chromosome structure. Prerequisite: CHM 3361, or consent of instructor. (Same as BIO 3362.) (3-0) Y

CHM 3411 Physical Chemistry I (4 semester hours) Fundamental properties of macroscopic physical and chemical systems are introduced and described in quantitative terms. A core of topics in thermodynamics (first, second, third law; chemical and phase equilibria) and chemical kinetics is supplemented with topics germane to the wide variety of students taking physical chemistry. Prerequisites: CHM 2325 and 2225, and MATH 2421, or consent of instructor. (4-0) Y

CHM 3471 Advanced Chemical Synthesis Laboratory (4 semester hours) Careful handling practices and controlled variation of reaction parameters to obtain high yield syntheses. Use of standard separation techniques and spectrophotometric methods to identify reaction products and assess their purity. Prerequisite: CHM 2225 or consent of instructor. (1-7) Y

CHM 3472 Instrumental Analysis (4 semester hours) Basic processes, instrumentation and applications of ultraviolet, visible, fluorescence, atomic and mass spectroscopy, electrochemistry, surface and microanalysis, and separations. Emphasis will be placed upon acquisition, treatment, and interpretation of data and report writing. Prerequisite: CHM 2401. (2-6) Y

CHM 4335 Polymer Chemistry (3 semester hours) Macromolecules. Synthesis, structure, and properties of polymers. Polymer-polymer and polymer-solvent interactions. Applications in industry and biochemistry. Prerequisite: CHM 3411 or consent of instructor. (CHM 3312 recommended.) (3-0) Y

CHM 4381 Environmental Chemistry (3 semester hours) This course encompasses the study of the sources, reactions, transport, effects, and fates of chemical species in water, soil, and air environments and the effects of technology thereon. Prerequisite: CHM 2325 or consent of instructor. (3-0) T

CHM 4399 Senior Honors in Chemistry (3 semester hours) For students conducting independent research for honors theses. Prerequisites: Consent of supervising faculty and filing a research plan approved by supervising faculty and the Undergraduate Committee in Chemistry prior to the 12th class day. This course satisfies the university advanced writing requirement. (0-9) R

CHM 4473 Physical Measurements Laboratory (3 semester hours) Thermodynamics and physical properties of matter, vacuum techniques, kinetics, basic operations in electronics, literature skills, and use of computers. Prerequisites: CHM 3472 and CHM 3312, or consent of instructor. (1-7) Y

CHM 4V01 Topics in Chemistry (1-9 semester hours) Subject matter will vary from semester to semester. Examples would include, as required, bioorganic chemistry, industrial processes, applied spectroscopy, drugs and people, practical analysis, or other topics which span several subdisciplines. Prerequisites: CHM 2325 and 3411, or consent of instructor. ([1-9]-0) R

CHM 4V91 Research in Chemistry (2-6 semester hours) Students will pursue an independent project under the supervision of a member of the Chemistry faculty. Prerequisites: Consent of supervising faculty and filing a research plan approved by supervising faculty and the Undergraduate Committee in Chemistry prior to the 12th class day. This course satisfies the university advanced writing requirement. ([2-6]-0) S