

CHEMISTRY (CHM)

Course Descriptions

CHM 101. Fundamentals of Chemistry I (MOTR CHEM 100L). 5 Credit Hours.

Fundamentals of Chemistry I presents the basic concepts and symbols of chemistry with applications to everyday life. The course is designed for students desiring an introduction to chemistry and is suitable for allied health students. Laboratory work presents opportunities to use laboratory equipment, emphasizes observations and measurements, and provides elementary quantitative and qualitative analysis.

Prerequisites: MTH 140S with a minimum grade of "C" or higher, or placement into MTH 140 or higher, and Reading Proficiency

CHM 102. Fundamentals of Chemistry II. 4 Credit Hours.

This course presents the fundamental concepts of organic chemistry and biochemistry. It is suited for allied health students and for students not planning to major in chemistry. Topics include basic structure and reactions of organic molecules and a survey of carbohydrates, lipids, amino acids and proteins, with an introduction to metabolic pathways. Laboratory work emphasizes observations. Additional lab hours required.

Prerequisites: CHM 101 or CHM 105 with minimum grades of "C" and Reading Proficiency

CHM 105. General Chemistry I (MOTR CHEM 150L). 5 Credit Hours.

General Chemistry I is designed for science-related majors and emphasizes the fundamental principles of chemistry. Topics include measurement, physical and chemical processes, nomenclature, atomic structure, quantum theory, stoichiometry, molecular structure, bonding theory, physical properties of gases, thermochemistry, and properties of solutions. Upon completion of the course, students should be able to demonstrate an understanding of the fundamental chemical laws and concepts and will obtain prerequisite chemical knowledge needed for advancement to General Chemistry II.

Prerequisites: MTH 140 (or MTH 140S or at least one and a half years of high school algebra) and CHM 101 with a minimum grade of "C" or one year of high school chemistry, and Reading Proficiency

CHM 106. General Chemistry II. 5 Credit Hours.

This course is a continuation of General Chemistry I. Topics include quantitative analysis of kinetics, equilibrium, thermodynamics, electrochemistry, nuclear chemistry, and some descriptive chemistry and organic chemistry. It includes laboratory work involving qualitative and quantitative analysis. Completion of the course provides students with an understanding of general chemical laws and concepts, and prerequisite knowledge needed for higher level chemistry courses. Additional lab hours required.

Prerequisites: CHM 105 and (MTH 160 or MTH 160A or MTH 160B or MTH 160C or MTH 160S) with minimum grades of "C" or test in MTH 170 or higher on the Math placement test and Reading Proficiency

CHM 109. Chemistry and the Environment (MOTR CHEM 100L). 4 Credit Hours.

Chemistry and the Environment presents the concepts and symbolism of chemistry with an emphasis on the natural environment and applications to everyday life. This course is suited for students who have a general interest in the study of chemistry in a course containing a laboratory component and is not intended as a substitute for Fundamentals of Chemistry I (CHM 101). Prerequisites: Completion of a 100-level MTH course with a minimum grade of "C" or placement into MTH 140 or higher, and Reading Proficiency

CHM 123. Fundamentals of Forensic Chemistry (MOTR CHEM 100). 3 Credit Hours.

Fundamentals of Forensic Chemistry is a non-laboratory course that introduces fundamental chemistry concepts with applications in gathering and evaluating evidence for criminal investigations. Topics covered include atomic structure, formation of compounds, physical and chemical properties of compounds, properties of solutions, drug chemistry and poisons, arson and explosives, trace evidence analysis, estimating time of death, and biological chemistry. Prerequisites: Reading Proficiency

CHM 206. Organic Chemistry I. 3 Credit Hours.

Organic Chemistry I is an introduction to the structure, properties, and mechanisms of reactions of organic compounds. Topics covered include nomenclature, bonding, stereochemistry, and reactivity, with emphasis on the chemistry of alkanes, alkenes, alkynes, and alkyl halides. Upon completion of this course, students should be able to demonstrate a fundamental knowledge of organic compounds and their reactivity and obtain prerequisite knowledge needed for advancement to Organic Chemistry II (CHM 207).

Prerequisites: CHM 106 with a minimum grade of "C" and Reading Proficiency

CHM 207. Organic Chemistry II. 3 Credit Hours.

Organic Chemistry II is a continuation of Organic Chemistry I (CHM 206). This course will cover the nomenclature and chemistry of dienes, conjugated systems, aromatic compounds, alcohols, epoxides, ethers, aldehydes and ketones, carboxylic acids and derivatives, and amines. Writing and predicting organic reaction mechanisms will be emphasized, as well as the structure identification of functional groups and organic compounds.

Prerequisites: CHM 206 with a minimum grade of "C" and Reading Proficiency

CHM 210. Organic Chemistry Lab I. 2 Credit Hours.

This course is an introduction to the laboratory work in organic chemistry. The emphasis of the course is on generally-employed laboratory techniques for purification and characterization of organic compounds and an introduction to laboratory instrumentation. Additional lab hours required.

Prerequisites: Concurrent or prior enrollment of CHM 206 with a minimum grade of "C" and Reading Proficiency

CHM 211. Organic Chemistry Lab II. 2 Credit Hours.

This course is a continuation of CHM 210 Organic Chemistry Lab I. The emphasis of the course is on synthesis of organic compounds, including multi-step syntheses, and on characterization and analysis of organic compounds and exploration of instrumentation. Additional lab hours required.

Prerequisites: Concurrent or prior enrollment in CHM 207 with a minimum grade of "C" and CHM 210 with a minimum grade of "C" and Reading Proficiency

CHM 220. Quantitative Analysis. 4 Credit Hours.

Quantitative Analysis introduces students to the quantitative analytical techniques of gravimetric, volumetric, and spectrophotometric methods for the analysis of chemical samples. Topics covered include acid-base and oxidation-reduction equilibria and titrations, solubility and chelation, spectrophotometry, and chromatography. The class explores instrumentation, calculations, and statistics involved in these analytical methods. Theories underlying sampling and proper use of quantitative laboratory equipment are discussed, as well. Evaluation and quantification of unknown samples in the laboratory setting is emphasized.

Prerequisites: CHM 106 with a minimum grade of "C" and MTH 160 or MTH 160S with a minimum grade of "C" or placement into MTH 170 or higher, and Reading Proficiency