# CHEM - Chemistry

CHEM 103 - General Chemistry I (4)

Topics include atomic theory, periodicity, bonding, reactions, stoichiometry, gas laws, and thermochemistry. Laboratory experiments illustrate these concepts and develop laboratory techniques. Lecture and laboratory. 7 contact hours.

General Education Category: Natural Science.

Prerequisite: Completed college mathematics competency or appropriate score on the math placement exam.

Offered: Fall, Spring, Summer.

CHEM 103H - Honors General Chemistry I (4)

For students with a good background in science and mathematics. Topics are listed in and experiments are similar to CHEM 103, with increased emphasis on instrumentation and independent work. Lecture and laboratory. 7 contact hours.

General Education Category: Natural Science.

Prerequisite: Completed college mathematics competency or appropriate score on the math placement exam.

Offered: As Needed.

CHEM 104 - General Chemistry II (4)

Topics include states of matter, solutions, kinetics, acids and bases, equilibrium theory, thermodynamics, and electrochemistry. Lecture and laboratory. 7 contact hours.

General Education Category: Advanced Quantitative/Scientific Reasoning.

Prerequisite: CHEM 103 or equivalent with a minimum grade of C-.

Offered: Spring, Summer.

CHEM 104H - Honors General Chemistry II (4)

For students with a good background in science and mathematics. Topics are listed in and experiments are similar to CHEM 104, with increased emphasis on instrumentation and independent work. Lecture and laboratory. 7 contact hours.

General Education Category: Advanced Quantitative/Scientific Reasoning.

Prerequisite: CHEM 103H or equivalent with a minimum grade of C-.

Offered: As Needed.

CHEM 105 - General, Organic and Biological Chemistry I (4)

General chemistry in preparation for studying organic and biochemistry is introduced, including structure, bonding, energy, reactions, rates, equilibrium, acids and bases; and from organic chemistry, alkanes and alkenes. Lecture and laboratory. 6 contact hours.

General Education Category: Natural Science.

Offered: Fall, Spring, Summer.

CHEM 106 - General, Organic, and Biological Chemistry II (4)

Topics include alcohols, carbonyl compounds, amines, amides, carbohydrates, lipids, proteins, enzymes, bioenergetics, catabolism, biosynthesis, nucleic acids, hormones, and neurotransmitters. Lecture and laboratory. 6 contact hours.

General Education Category: Advanced Quantitative/Scientific Reasoning.

Prerequisite: CHEM 104 or CHEM 105 with a minimum grade of C-.

Offered: Fall, Spring, Summer.

CHEM 205W - Organic Chemistry I (4)

Topics include structure, stereochemistry, nomenclature, and chemistry of hydrocarbons and alkyl halides, spectroscopy, reaction mechanisms, and computational chemistry. Lecture and laboratory. 7 contact hours.

Prerequisite: CHEM 104 with a minimum grade of C-.

Offered: Fall.

CHEM 206W - Organic Chemistry II (4)

Topics include reactions of functional groups, synthesis and mechanism, spectroscopic identification, and topics in biochemistry and computational chemistry. Lecture and laboratory. 7 contact hours.

Prerequisite: CHEM 205W.

Offered: Spring.

CHEM 310 - Biochemistry (4)

Topics include biological macromolecule structure, function and interactions, catalysis and kinetics of biochemistry, acid-base equilibrium in biological systems, and thermodynamics of binding and recognition. Lecture.

Prerequisite: CHEM 206W.

Offered: Fall.

CHEM 403 - Inorganic Chemistry I (3)

Topics include electronic structure of atoms, molecular symmetry, bond theories, acid-base chemistry, solids, redox and coordination chemistry.

Prerequisite: CHEM 206W.

Offered: Fall.

CHEM 404W - Analytical Chemistry (4)

Topics include the principles and applications of volumetric, gravimetric, and selected instrumental methods of analysis, including potentiometric and spectroscopic methods. Lecture and laboratory. 6 contact hours.

Prerequisite: CHEM 104

Offered: Spring (even years).

CHEM 405 - Physical Chemistry I (3)

Through rigorous quantitative approaches, properties of gases, kinetic molecular theory, thermodynamics, statistical mechanics, and chemical and phase equilibrium are presented. Differential and integral calculus are used extensively. Lecture.

Prerequisite: CHEM 104, MATH 213, and PHYS 102.

Offered: Fall.

CHEM 406 - Physical Chemistry II (3)

Through rigorous quantitative approaches, quantum mechanics, atomic structure, atomic spectra, chemical bonding, molecular spectra, and chemical kinetics are presented. Differential and integral calculus are used extensively. Lecture.

Prerequisite: CHEM 104, MATH 314, and PHYS 102.