

Chemistry (CHEM)

CHEM& 100 Preparatory Chemistry

5 credits

Quarter(s): S, F, W, Sp

Introduces the world of chemistry through the exploration of matter and the basic properties related to what our surroundings are composed of. Students will examine laws, formulas, reactions, and structure governing all substances and their interactions. Prepares students for further study in chemistry. No credit is given to those with one year of recent high school chemistry credit.

Prerequisite: None

CHEM& 110 Chemical Concepts w/Lab

5 credits , NSL

Quarter(s): S, F, W, Sp

Provides an exploration of our universe through the study of atomic structure, interactions between matter and energy, and everyday encounters with chemistry (technology, environment, energy, materials, foods, etc.). This course is primarily for non-science majors planning to transfer. Laboratory is included. Lab hours are required for this course.

Prerequisite: Completion of or concurrent enrollment in MATH 79 or CCP 79.

CHEM& 121 Intro to Chemistry

5 credits , NSL

Quarter(s): S, F, W, Sp

Provides an exploration of the matter that makes up our universe through the study of atomic structure, gases, solutions, acids and bases, stoichiometry, and reactions. This course is primarily for non-science majors preparing for careers in the health sciences and related fields. Laboratory is included. Lab hours are required for this course.

Prerequisite: CHEM& 100 or CHEM& 110 or one year of high school chemistry, and completion of, or concurrent enrollment in MATH 88 or MATH 87 or CCP 88 or CCP 97.

CHEM& 131 Intro to Organic/Biochem

5 credits , NSL

Quarter(s): Sp

Explores the chemistry of carbon compounds including structures, nomenclature, and properties of basic organic compounds with an emphasis on biochemical substances and applications. Includes families of alkanes, alkenes, alcohols, ethers, aldehydes, ketones, acids, proteins, carbohydrates, and other biochemical materials. This course is primarily for non-science majors preparing for careers in the health sciences and related fields. Laboratory is included. Lab hours are required for this course.

Prerequisite: CHEM& 121 (was CHEM 111) or CHEM& 161 (was CHEM 151).

CHEM& 161 General Chem w/Lab I

5 credits , NSL

Quarter(s): F, W

Provides an in-depth study of chemistry formulas and equations, mathematics, gas laws, atomic theory, solution chemistry, periodic law, electron configurations, the mole concept and stoichiometry. This is the first of a three-quarter sequence designed for science majors. Laboratory is included. Lab hours are required for this course.

Prerequisites: MATH 98 or CCP 98 with CHEM& 100; OR MATH 98 with high school chemistry; OR MATH& 142

CHEM& 162 General Chem w/Lab II

5 credits , NSL

Quarter(s): F, W, Sp

Provides the applications portion of the year-long study of chemistry. This course examines bonding and molecular theory, intermolecular forces, solids, liquids, and gases, solutions, acids, bases, salts, pH, kinetics, equilibrium, electrochemistry, and an introduction to thermodynamics. This is the second in a three-quarter sequence designed for science majors. Laboratory is included. Lab hours are required for this course.

Prerequisites: C or better in CHEM& 161

CHEM& 163 General Chem w/Lab III
5 credits , NSL
Quarter(s): S, Sp

Examines, in more detail, equilibrium, thermodynamics, and descriptive chemistry of elements and their compounds. Topics in kinetics and equilibrium are revisited to enhance students' comprehension and understanding. The course ends with a survey of several areas of chemistry including coordination chemistry, nuclear and radiochemistry, nanochemistry, organic chemistry, and biochemistry with special emphasis on relevant and inspiring aspects of these topics. Laboratory is included. Lab hours are required for this course.

Prerequisites: C or better in CHEM& 162

CHEM& 261 Organic Chem w/Lab I
5 credits , NSL
Quarter(s): F

Explores the chemistry of organic compounds including structures, nomenclature, bonding, and properties of basic organic compounds. The course covers the families of alkanes, alkenes, and alkynes, and discusses functional groups and stereochemistry and their roles in chemical properties. This is the first in a three-quarter sequence designed for science majors in chemistry-related fields. Laboratory is included. Lab hours are required for this course.

Prerequisite: CHEM& 163 (was CHEM 153) or instructor permission.

CHEM& 262 Organic Chem w/Lab II
5 credits , NSL
Quarter(s): W

Continues the exploration of the chemistry of organic compounds including structures, nomenclature, and synthesis of basic organic compounds. The course covers the families of alkyl halides, alcohols, aldehydes, ketones, and other groups of compounds. Reactions and synthesis of various compounds of these families will

be studied and performed. Products of the processes will be examined using physical and spectroscopic means. This is the second in a three-quarter sequence designed for science majors in chemistry-related fields. Laboratory is included. Lab hours are required for this course.

Prerequisite: CHEM& 261 (was CHEM 251).

CHEM& 263 Organic Chem w/Lab III
5 credits , NSL
Quarter(s): Sp

Continues the exploration of the chemistry of organic compounds including structures, nomenclature, and synthesis of basic organic compounds. The course covers the families of amines, carbonyls, aromatics, biochemical compounds and other groups of compounds. Reactions and synthesis of various compounds will be studied and performed. Products of these processes will be examined using physical and spectroscopic means. The course includes a qualitative analysis of organic compounds. This is the third of a three-quarter sequence designed for science majors in chemistry-related fields. Laboratory is included. Lab hours are required for this course.

Prerequisite: CHEM& 262 (was CHEM 252).

CHEM 231 Quantitative Analysis
5 credits , NSL
Quarter(s): Sp

Provides a study of the qualitative and quantitative analytical applications of chemistry including the mathematical treatment of data collected. It will examine gravimetric and volumetric wet chemical analysis. Instrumental analysis of both organic and inorganic substances will be done. This is a one-quarter course required for students who are chemistry and chemical engineering majors. Lab hours are required for this course.

Prerequisite: Completion of, or concurrent enrollment in CHEM& 163 (was CHEM 153).

**CHEM 288 Cooperative Work Experience
1 – 15 credits**

Provides work-based learning experience in a specific program of study. Individualized student outcomes are developed, focusing on behaviors that contribute to workplace success.

Prerequisites: Instructor or Cooperative Education Coordinator permission

Concurrent requirements: COLL 289 or BUS 294 must be taken prior to or concurrent with this course.

**CHEM 299 Independent Study
1 – 10 credits**

Offers individualized learning opportunities for knowledge or skill development. Content and expectations are established between the student and instructor, and documented in an Independent Study contract.

Prerequisites: By instructor permission only.