

Definition

Chemistry is the discipline of science that explores the physical and chemical laws that define fundamental elemental interactions and hence the composition, properties and reactivity of all matter.

Staff

To access faculty and staff, dial (661) 722-6300, then the 4-digit extension.

Program Advisement:

Dr. Leslie Uhazy, Dean ext. 6417

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Program Description

The Chemistry courses are designed to meet the general education and major transfer requirements for the physical sciences.

Distinctive Features

Traditional teaching may be supplemented with computer and Internet-based instruction. Laboratory activities provide “hands-on” experimentation and discovery into the natural, physical and chemical characteristics of the earth and our universe. Engineering and life science applications may be presented and computer-based data acquisition and analysis may assist in some lab instruction.

Career Options

Biochemistry

Chemist

Pharmacy

(These careers require education beyond the two-year college level.)

Certificate Program

Certificate not applicable.

Associate Degree

An associate degree with a major in Chemistry is not available. Chemistry courses can be included in the 18 units necessary for an associate degree with a major in Liberal Arts and Sciences. (See Graduation/Associate Degree Requirements.)

Transfer

Students planning to continue studies at a four-year college or university after AVC should visit the Transfer Resource Center and consult with a counselor as soon as possible. Additional information on official transfer articulation agreements from AVC to many CSU/UC campuses can be found at the following Web site: www.assist.org

Prerequisite Completion

If a course is listed as a prerequisite for another course, that prerequisite course must be completed with a satisfactory grade in order to enroll in the next course. According to Title 5, Section 55200(d), a satisfactory grade is a grade of “A,” “B,” “C” or “P”. Classes in which the Pass/No Pass option is available are indicated with an asterisk (*) before the course title. See “Pass/No Pass Option” in the catalog for full explanation.

Chemistry Courses

CHEM 101 INTRODUCTORY CHEMISTRY

5 units

7 hours weekly

(3 hours lecture, 1 hr SAS, 3 hours lab)

Advisory: Completion of MATH 070 and Eligibility for College Level Reading and ENGL 099.

An introductory study of the nature of matter and its chemical and physical transformation. An emphasis is placed on fundamental laws and principles, elements, compounds and simple chemical reactions. Examines chemical theory in the context of familiar phenomena. Theories are tested and evaluated in the laboratory. One-hour of lecture time, small assembly section, is reserved for small group activities and analysis. This is a general education course for non-science majors. It is an advisory for science majors who have not previously studied chemistry. Science majors who have studied chemistry should consider CHEM 110 instead of this course. (CSU, UC, AVC)

CHEM 102

*INTRODUCTORY CHEMISTRY (ORGANIC & BIOCHEMISTRY)

4 units

6 hours weekly

(3 hours lecture, 3 hours lab)

Prerequisite: Completion of CHEM 101.

This course is a basic study of molecular structure, bonding, nomenclature, reactivity and other physical and chemical properties of organic compounds. An emphasis will be placed on the preparations, reactions, and naming of organic and biological compounds. The laboratory generally evaluates material that is being studied in lecture. The students learn to use and interpret the data obtained by the use of general organic laboratory techniques and equipment. The course is intended for those planning to earn a degree in an allied health science or a related field. (CSU, UC, AVC)

CHEM 110 GENERAL CHEMISTRY

5 units

7 hours weekly

(4 hours lecture, 3 hours lab)

Prerequisite: Completion of MATH 102.

Advisory: Completion of CHEM 101, 101L, and Eligibility for College Level Reading and ENGL 099.

Introduces the atom and its largest subatomic particles. Describes and quantifies, where possible, how these particles and the nature of the atom are involved in chemical reactions, physical state, chemical energy, and bonding models. Algebra is used extensively to solve problems involving quantities. Examines chemical theory in the context of familiar phenomena. Theories are tested and evaluated in the laboratory. One hour of lecture time may be reserved for small group activities and analysis. This course is designed for science, mathematics and related majors. (CSU, UC, AVC)

CHEM 120 GENERAL CHEMISTRY

5 units

9 hours weekly

(3 hours lecture, 6 hours lab)

Prerequisite: Completion of CHEM 110 and MATH 130 or MATH 140.

Advisory: Eligibility for College Level Reading and ENGL 101.

Investigates and quantifies, where possible, the kinetics, entropy, and enthalpy that underlie chemical reactivity. Relates these concepts to chemical equilibrium. Explores application of equilibrium to colligative properties of solutions, acid-base chemistry, precipitation from aqueous solutions, electrochemistry and coordination compounds. Algebra is used extensively in the development of these topics. Includes a cursory introduction to the fields of nuclear, organic, polymer and biochemistry. Examines chemical theory in the context of familiar phenomena. Theories are tested and evaluated in the laboratory. One hour of lecture time is reserved for small group activities and analysis. This course is designed for science, mathematics and related majors. (CSU, UC, AVC)

CHEM 199 *OCCUPATIONAL WORK EXPERIENCE

1–8 units

hours vary

Prerequisite: To participate in work experience, students must have a job or internship which is either paid or voluntary and have the approval of the supervisor and instructor supervising

work experience in the specific subject area. **PRIOR TO ENROLLING**, students must attend a scheduled orientation or meet individually with the supervising instructor for an individual orientation.

Occupational Work Experience Education is supervised employment designed to provide students a realistic learning experience through work. The ultimate goal is to teach students those skills and attitudes that will equip them to function and adapt as an employee in a variety of situations and jobs. Occupational Work Experience Education is supervised employment extending classroom-based occupational learning at an on-the-job learning station related to the students' educational major or occupational goal. Credit may be accrued at the rate of one to eight units per semester. For the satisfactory completion of all types of Cooperative Work Experience Education (WE 197 and WE 199), students may earn up to a total of sixteen semester credit hours. (CSU, AVC) (R3)

CHEM 205 QUANTITATIVE ANALYSIS

4 units

6 hours weekly

(3 hours lecture, 3 hours lab)

Prerequisite: Completion of ENGL 101 and CHEM 120.

Advisory: Eligibility for College Level Reading and MATH 150.

Quantitative, gravimetric, volumetric, and instrumental methods of analysis. Stoichiometric calculations and applications of principles of chemical equilibrium to analytical problems. Laboratory accuracy is required. The theory and practice of some of the more modern techniques of instrumental method are studied. This course is applicable for students interested in working in a variety of careers including biotechnology, research, environmental laboratories, medical laboratories, crime laboratories, and government agency laboratories. (CSU, AVC)

CHEM 210 ORGANIC CHEMISTRY

5 units

9 hours weekly

(3 hours lecture, 6 hours lab)

Prerequisite: Completion of CHEM 120.

This course is a study of molecular structure, bonding, nomenclature, stereochemistry, spectral and other physical properties of organic compounds. A major topic will be the preparations, reactions and reaction mechanisms of organic compounds. The laboratory generally evaluates material that is being studied in lecture. The student learns to use and interpret the data from infrared spectroscopy, gas chromatography and various equipment available in the laboratory. The course is intended for those planning to pursue a four-year degree in science or a related field. (CSU, UC, AVC)

CHEM 212 ORGANIC CHEMISTRY SUPPORT LABORATORY

.5 unit

2 hours weekly

Corequisite: Concurrent enrollment in CHEM 210.

This optional course provides access to the laboratory facilities used in the CHEM 210 Organic Chemistry course. This course will provide opportunities to complete course assignments and master learning objectives. Students in CHEM 210 are strongly encouraged to enroll in this course. **NOTE:** No grade will be given for this course; student will receive "pass" or "no pass" only.

CHEM 220 ORGANIC CHEMISTRY

5 units

9 hours weekly

(3 hours lecture, 6 hours lab)

Prerequisite: Completion of CHEM 210.

This course is a continuation of the study of molecular structure, bonding, nomenclature, stereochemistry, spectral and other physical properties of organic compounds. A major topic will be the preparations, reactions, and reaction mechanisms of organic compounds. A short introduction will be given covering biochemical topics. The laboratory generally follows material that is being studied in lecture. The course is intended for those planning to pursue a four-year degree in science or a related field. (CSU, UC, AVC)