

# CHEMISTRY (CHEM)

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## **CHEM 001A General Chemistry 5 Units**

This course is required for students majoring in biology, chemistry, geology, physics, forestry, pharmacy, veterinary medicine, dentistry, and medicine. CHEM 001A also meets the one semester chemistry requirement for all engineering majors. This course covers basic chemical principles: atomic structure, bonding, periodicity, nomenclature, chemical reactions, stoichiometry, thermochemistry, physical states of matter, solutions, acids and bases, and dynamic equilibrium. The role that chemistry plays in everyday life, industry, and human welfare is emphasized. (C-ID CHEM 110)

Lecture Hours: 3 Lab Hours: 6 Repeatable: No Grading: L  
Prerequisite: CHEM 015 and MATH 013, both with C or better  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## **CHEM 001B General Chemistry 5 Units**

This course is a continuation of Chemistry 001A, the second semester of a one year college level general chemistry sequence. The content includes thermodynamics, chemical kinetics, chemical equilibrium, electrochemistry, coordination compounds, nuclear chemistry, and organic chemistry. The laboratory emphasizes qualitative and quantitative analyses of inorganic compounds and introduces electronic instrumentation. The course is required for students majoring in physical and biological sciences and pre-professional majors such as pre-medicine and dentistry. The course also completes the basic chemistry requirements for students majoring in chemical and materials engineering. (C-ID CHEM 120S)

Lecture Hours: 3 Lab Hours: 6 Repeatable: No Grading: L  
Prerequisite: CHEM 001A with C or better.  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## **CHEM 012A Organic Chemistry 5 Units**

The first course of a two-semester sequence in organic chemistry with emphasis on structure, reaction mechanisms, and their kinetics. Topics include nomenclature, stereochemistry, mechanisms, reactions, and spectroscopic studies of organic compounds. Problem-solving techniques will be used to elucidate mechanistic, structural, and stereochemical features of reactions and molecules. Lecture and laboratory will cover synthesis, isolation, purification, elucidation, and identification of organic structures, instrumental methods and data interpretation. (C-ID CHEM 160S)

Lecture Hours: 3 Lab Hours: 6 Repeatable: No Grading: L  
Prerequisite: CHEM 001B with C or better  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## **CHEM 012B Organic Chemistry 5 Units**

This is the second course of a two-semester sequence in organic chemistry designed to follow Chemistry 012A. Topics include nomenclature, stereochemistry, mechanisms, reactions, and spectroscopic studies of aliphatic and aromatic alcohols, aldehydes, ketones, acids, and other classes of organic and biological compounds (such as amino acids, proteins, and nucleic acids). Problem-solving techniques will be used to elucidate mechanistic, structural, and stereochemical features in chemical reactions. Lectures and laboratory methods will focus on synthesis, isolation, purification, elucidation, and identification of organic structures as well as instrumental methods and data interpretation. (C-ID CHEM 160S)

Lecture Hours: 3 Lab Hours: 6 Repeatable: No Grading: L  
Prerequisite: CHEM 012A with C or better  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## **CHEM 015 Fundamentals of Chemistry 4 Units**

Chemistry 015 covers the fundamentals of modern inorganic chemistry with emphasis on atomic structure, chemical bonding, chemical formulas, nomenclature, equations, stoichiometry, gas laws, solutions, and related topics. Chemistry 015 is intended primarily as a preparation for the Chemistry 001A and 001B sequence. The central nature of chemistry among other branches of science is stressed, and examples of the important role that chemistry plays in our lives are presented. The course also meets the general education requirements for a laboratory science. (C-ID CHEM 101)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: MATH 111 with P grade  
Recommended: MATH 013 may be taken prior to or concurrent with CHEM 015  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

## **CHEM 030A Introduction to Chemistry 4 Units**

This course covers the basic principles of chemistry. Content includes measurements; matter and energy; atomic structure, periodicity; chemical bonding and nomenclature; chemical reactions and equations; gases, solutions and colloids; oxygen, hydrogen and water; and acids, bases and salts. CHEM 030A is a prerequisite for microbiology and physiology and is designed to meet the chemistry requirements for nursing and other allied health majors. This course meets the General Education requirements for a laboratory science. (C-ID CHEM 101)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L  
Prerequisite: MATH 111 with C or better  
Advisory Level: Read: 3 Write: 3 Math: None  
Transfer Status: CSU/UC Degree Applicable: AA/AS  
CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3

**CHEM 030B Introduction to Chemistry 4 Units**

This course introduces the basic principles of introductory organic and biological chemistry. It is designed for allied health and industrial technology majors. Content includes hydrocarbons, alcohols, ethers, carbonyl compounds, carboxylic acids, esters and amines, and an introduction to structures and properties of carbohydrates, lipids, and other biopolymers. (C-ID CHEM 102)

Lecture Hours: 3 Lab Hours: 3 Repeatable: No Grading: L

Prerequisite: CHEM 030A or CHEM 015 or CHEM 001A with grade C or better

Advisory Level: Read: 3 Write: 3 Math: None

Transfer Status: CSU/UC Degree Applicable: AA/AS

CSU GE: B1, B3 IGETC: 5A, 5C District GE: B1, B3