

## CHEMISTRY

---

### CHE-1A

#### General Chemistry, I

(C-ID:CHEM 110)

**5.00 units**

UC, CSU

*Prerequisite:* CHE-2A or CHE-3 and MAT-35.

Description: An exploration of simple chemical systems, their properties, and how they can be investigated and understood in terms of stoichiometry, gas laws, elementary thermodynamics, atomic structure, and bonding. Laboratory techniques in the investigation of chemical systems. Students may not receive credit for both CHE-1A and CHE-1AH. 54 hours lecture and 108 hours laboratory. (Letter Grade, or Pass/No Pass option)

### CHE-1AH

#### Honors General Chemistry, I

**5.00 units**

UC, CSU

*Prerequisite:* CHE-2A or CHE-3 and MAT-35.

*Limitation on enrollment:* Enrollment in the Honors Program.

Description: An exploration of simple chemical systems, their properties, and how they can be investigated and understood in terms of stoichiometry, gas laws, elementary thermodynamics, atomic structure, and bonding. Laboratory techniques in the investigation of chemical systems. This Honors course offers an enriched experience for accelerated students through limited class size, seminar format, and student-led discussion of current scientific research based on scientific articles. The course also focuses on how research questions are formulated and designed. Laboratory will include completion of experimental procedures written by students based on previously learned techniques and background research. Lab reports will include submission of standard operation procedures (SOPs) or papers in appropriate scientific format. Students may not receive credit for both CHE-1A and CHE-1AH. 54 hours lecture and 108 hours laboratory. (Letter Grade, or Pass/No Pass option)

### CHE-1B

#### General Chemistry, II

**5.00 units**

UC, CSU

*Prerequisite:* CHE-1A or CHE-1AH.

Description: Continued exploration of the principles of chemistry with emphasis on kinetics, thermodynamics, acid-base theory, equilibrium, and electrochemistry. Special topics from descriptive inorganic chemistry, nuclear chemistry, and introductory organic chemistry. Laboratory techniques in the investigation of chemical systems. Students may not receive credit for both CHE-1B and CHE-1BH. 54 hours lecture and 108 hours laboratory. (Letter Grade, or Pass/No Pass option)

### CHE-1BH

#### Honors General Chemistry, II

**5.00 units**

UC, CSU

*Prerequisite:* CHE-1A or CHE-1AH.

*Limitation on enrollment:* Enrollment in the Honors Program.

Description: Continued exploration of the principles of chemistry with emphasis on kinetics, thermodynamics, acid-base theory, equilibrium, and electrochemistry. Special topics from descriptive inorganic chemistry, nuclear chemistry, and introductory organic chemistry. Laboratory techniques in the investigation of chemical systems. This Honors course offers an enriched experience for accelerated students through limited class size; seminar format; focus on primary texts; and student-led discussion of current scientific research based on scientific articles. The course continues to develop an understanding of how research questions are formulated and designed. Laboratory will include completion of experimental procedures written by students, based on previously learned techniques and background research. Lab reports will include submissions of standard operating procedures (SOPs) or papers in appropriate scientific format. Students may not receive credit for both CHE-1B and CHE-1BH. 54 hours lecture and 108 hours laboratory. (Letter Grade, or Pass/No Pass option)

### CHE-2A

#### Introductory Chemistry, I

**4.00 units**

UC, CSU

*Prerequisite:* MAT-52.

Description: Introduction to the nature of chemicals, their properties, chemical bonding, reactions, and mixtures. Applications to health and environmental topics. Fulfills the needs of non-science majors. 54 hours lecture and 54 hours laboratory. (Letter Grade, or Pass/No Pass option)

**CHE-2B****Introductory Chemistry, II****4.00 units**

UC, CSU

*Prerequisite: CHE-2A or CHE-3.*

Description: Introduction to organic and biochemistry including: (1) structure, nomenclature, and reactions of some organic compounds and drugs, (2) structure and metabolism of carbohydrates, lipids, proteins, and nucleic acids, and (3) enzyme activity and inhibition. Meets the chemistry requirements for nursing, physical education, paramedics, nutrition, dental hygiene, physical therapy assistants, and inhalation therapy majors. 54 hours lecture and 54 hours laboratory. (Letter Grade, or Pass/No Pass option)

**CHE-3****Fundamentals of Chemistry****4.00 units**

UC, CSU

*Prerequisite: MAT-52.*

Description: A systematic presentation of the chemical, mathematical, and laboratory skills underlying Chemistry. Topics will include stoichiometry, bonding, reactions and solutions. Designed primarily as preparation for Chemistry 1A. 54 hours lecture and 54 hours laboratory. (Letter Grade, or Pass/No Pass option)

**CHE-10****Chemistry for Everyone****3.00 units**

UC, CSU

*Prerequisite: None.*

Description: A lecture-demonstration presentation of the basic principles of chemistry with special emphasis on how chemistry applies and contributes to society. The course is designed to provide a general overview of chemistry with emphasis on historical, industrial, environmental, organic, biological, and nuclear aspects. CHE-10 covers a wide variety of topics ranging from atoms and molecules, acids and bases, organic and biochemistry, to a look at biogeochemical cycles and nuclear chemistry. The chemistry of air and water pollution is also discussed. This course is designed for students desiring a general knowledge of the field and fulfills the natural science requirement for the Associate of Arts Degree. 54 hours lecture. (Letter Grade, or Pass/No Pass option)

**CHE-12A****Organic Chemistry I****5.00 units**

UC, CSU

*Prerequisite: CHE-1B or CHE-1BH*

Description: A discussion of aliphatic hydrocarbons that focuses on their structure, reactivity, methods of synthesis, physical properties, and reaction mechanisms. Laboratory work emphasizes techniques used to identify, separate, and purify substances. 54 hours lecture and 108 hours laboratory. (Letter Grade, or Pass/No Pass option)

**CHE-12B****Organic Chemistry, II****5.00 units**

UC, CSU

*Prerequisite: CHE-12A.*

Description: Continues discussion based on the content of CHE12A. Develops a detailed study of nucleophilic and elimination reactions from a mechanistic viewpoint. Aliphatic and aromatic chemistry will be fully integrated throughout CHE-12B. Considerable emphasis on synthesis. Laboratory includes techniques of syntheses, separation, and identification of several compounds, and an introduction to qualitative organic analysis. 54 hours lecture and 108 hours laboratory. (Letter Grade, or Pass/No Pass option)

**CHE-17****Introduction to the Development of Modern Science****3.00 units**

UC, CSU

*Prerequisite: None.*

Description: A survey of the rise of modern science in Western civilization from the Scientific Revolution of the 16th and 17th centuries through the biological and earth science revolutions of the 20th century. The historical forces that led to major scientific developments and the impact of science and science-based technology on society will be examined. 54 hours lecture. (Letter Grade, or Pass/No Pass option)