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## Chemistry (CHEM)

### **CHEM 001A**                      **General Chemistry I**                      (5)

*Class Hours:* 54 Lecture | 108 Laboratory  
*Prerequisite(s):* MATH 063 or MATH 064  
*Transfers to:* UC/CSU  
*C-ID:* CHEM 110

#### General Chemistry I

CHEM 001A is the first semester of a one-year course in chemistry intended for majors in the natural sciences (chemistry, biochemistry, biology, physics, pre-medicine), mathematics, and engineering.

### **CHEM 001B**                      **General Chemistry II**                      (5)

*Class Hours:* 54 Lecture | 108 Laboratory  
*Prerequisite(s):* CHEM 001A  
*Transfers to:* UC/CSU  
*C-ID:* CHEM 120S

#### General Chemistry II

CHEM 001B is a continuation of the study of the principles of chemistry with an emphasis on chemical thermodynamics (H, S, G), kinetics and mechanisms, equilibrium, electrochemistry, spectroscopy, nuclear chemistry, introductory organic and biochemical systems, and selected elemental chemistries of metals, non-metals, and metalloids. The laboratory includes lecture-matched qualitative and instrumental evaluation of selected species and parameters as well as microprocessor and computerized data gathering, processing and reduction, and computer simulations. Appropriate training in chemical safety is provided. The Chemistry 001A-001B sequence is required of all students majoring in chemistry, chemical engineering, engineering sciences, biology, microbiology, and all applied sciences (medicine, pharmacy, veterinary science, nursing, home economics, etc.).

### **CHEM 002A**                      **Introductory Chemistry**                      (4)

*Class Hours:* 54 Lecture | 54 Laboratory  
*Prerequisite(s):* MATH 063 or MATH 064  
*Transfers to:* UC/CSU  
*C-ID:* CHEM 101

#### Introductory Chemistry

CHEM 002A is a study of the applied principles of chemistry for the allied science and non-science majors. Included are scientific methodology, composition of matter, physical and chemical changes, bonding, nomenclature, chemical periodicity and reactivity, stoichiometry, states of matter, atomic and molecular modeling, chemical energetics, properties and models of solids, liquids, gases, aqueous solution and Redox reactions, pH, reactions of elements/acids/bases/salts, and a brief introduction to organic chemistry. Appropriate training in chemical safety is provided. The CHEM 002A/002B sequence is a state university curriculum requirement for students planning to transfer to majors in agriculture, nursing, home economics, industrial technology, industrial arts, and other applied sciences.

### **CHEM 002B**                      **Intro to Organic Chem & Biochem**                      (4)

*Class Hours:* 54 Lecture | 54 Laboratory  
*Prerequisite(s):* CHEM 002A  
*Transfers to:* UC/CSU  
*C-ID:* CHEM 102

#### Introduction to Organic Chemistry and Biochemistry

CHEM 002B is an introduction or a survey to the basic concepts of organic and biochemistry for nursing majors and other allied health fields. Topics include structure and behavior of organic and biological compounds, metabolism, and regulation as they apply to living systems. The laboratory component will support the course topics including both qualitative and quantitative experiments, and analysis of data.

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**CHEM 012A                      Organic Chem for Sci Majors I                      (3)**

*Class Hours: 54 Lecture*

*Prerequisite(s): CHEM 001A*

*Co-Requisite(s): CHEM 012AL*

*Advisory(s): CHEM 001B*

*Transfers to: UC/CSU*

*C-ID: CHEM 150/160 S*

Organic Chemistry for Science Majors I

CHEM 012A is the first course in a two course sequence in organic chemistry intended for majors in the natural sciences (chemistry, biochemistry, biology, physics, and pre-medicine). A study of all aspects of fundamental organic chemistry including nomenclature, chemical and physical properties, reactions and syntheses of the major classes of organic compounds will be cover by the two-course sequence. The course sequence includes advance topics of organic chemistry such as theoretical aspects, reaction mechanisms, multistep syntheses, and the chemistry of polycyclic and heterocyclic compounds. This course is more extensive an intensive than CHEM 002B and includes a greater emphasis on reaction mechanisms and multistep syntheses.

**CHEM 012AL                      Organic Chemistry Lab for Scie                      (2)**

*Class Hours: 18 Lecture | 72 Laboratory*

*Prerequisite(s): CHEM 001A and CHEM 001B*

*Corequisite(s): CHEM 012A*

*Transfers to: UC/CSU*

*C-ID: CHEM 150/160 S*

Organic Chemistry Lab for Science Majors I

CHEM 012AL is the first laboratory course of a one-year lab course sequence in organic chemistry intended for majors in the natural sciences (chemistry, biochemistry, biology, physics, and pre-medicine). A study of all aspects of fundamental organic chemistry including nomenclature, chemical and physical properties, reactions and syntheses of the major classes of organic compounds will be cover by the two-course sequence. The course sequence includes advance topics of organic chemistry such as theoretical aspects, reaction mechanisms, multistep syntheses, and the chemistry of polycyclic and heterocyclic compounds. This course is more extensive and intensive than CHEM 002B and includes a greater emphasis on reaction mechanisms and multistep syntheses.

**CHEM 012B                      Organic Chemistry for Science                      (3)**

*Class Hours: 54 Lecture*

*Prerequisite(s): CHEM 001A and CHEM 012A*

*Advisory(s): CHEM 001B*

*Transfers to: UC/CSU*

*C-ID: CHEM 160 S*

Organic Chemistry for Science Majors II

CHEM 012B is the second semester of a one-year course in organic chemistry intended for majors in the natural sciences (chemistry, biochemistry, biology, physics, and pre-medicine). A study of all aspects of fundamental organic chemistry, including nomenclature, chemical and physical properties, reactions and syntheses of the major classes of organic compounds. The study includes theoretical aspects, reaction mechanisms, multistep syntheses, and the chemistry of polycyclic and heterocyclic compounds. This course is more extensive and intensive than CHEM 002B and includes a greater emphasis on reaction mechanisms and multistep syntheses.( is just the lecture only course. The lab component is CHEM 012BL.)

**CHEM 012BL                      Organic Chemistry Lab for Scie****(2)***Class Hours: 18 Lecture | 72 Laboratory**Prerequisite(s): CHEM 012A and CHEM 012AL**Corequisite(s): CHEM 012B**Transfers to: UC/CSU**C-ID: CHEM 160 S*

Organic Chemistry Lab for Science Majors II

CHEM 012BL is the second semester of a one-year lab course in organic chemistry intended for majors in the natural sciences (chemistry, biochemistry, biology, physics, and pre-medicine). A study of all aspects of fundamental organic chemistry including nomenclature, chemical and physical properties, reactions and syntheses of the major classes of organic compounds will be cover by the two-course sequence. The course sequence includes advance topics of organic chemistry such as theoretical aspects, reaction mechanisms, multistep syntheses, and the chemistry of polycyclic and heterocyclic compounds. This course is more extensive and intensive than CHEM 002B and includes a greater emphasis on reaction mechanisms and multistep syntheses.

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