



Syllabus

CHM 092 Introduction to Chemistry

General Information

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Department Science and Technology

Course Prefix CHM

Course Number 092

Course Title Introduction to Chemistry

Course Information

Catalog Description An introductory course in chemistry for students who have not had high school chemistry. Designed for nonscience majors, pre-nursing students, and those who plan to take General Chemistry. Emphasizes the metric system, states of matter, elementary atomic and molecular structure, introduction to inorganic and organic chemistry, the Periodic Table, basic laboratory procedures, and descriptive chemistry as they relates to everyday experiences. Provides prerequisite for CHM 121. Fulfills laboratory science degree requirements for nonscience degrees.

Credit Hours (imputed) 4

Lecture Contact Hours 5

Lab Contact Hours 0

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

None

Co-requisites

None

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed categories

None

FLCC Values

Institutional Learning Outcomes Addressed by the Course

None

Course Learning Outcomes

Course Learning Outcomes

1. Explain basic chemical concepts and how they relate to everyday experiences
2. Demonstrate proficiency in problem solving methodology and critical thinking skills
3. Explain and demonstrate how scientists use the scientific method to explore physical phenomena. The scientific method includes: observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of mathematical and interpretive analysis
4. Work effectively with others in teams
5. Apply scientific data, concepts, and models in problem solving
6. Access information for life-long learning. (This includes use of the text books, libraries, and the Internet)
7. Use of the instruments and laboratory techniques of this discipline

Outline of Topics Covered

A. Introduction to Chemistry

- I. Matter**
- II. Energy**
- III. Atoms, ions, and molecules**
- IV. Conductivity**
- V. Elements, compounds, pure substances, and mixtures**
- VI. Scientific methods**

B. Math Review and Metric

- I. **Unit conversion**
- II. **Significant figures**
- III. **Powers of ten**
- IV. **Metric measurements**

C. Atoms and Elements

- I. **Subatomic particles**
- II. **Isotopes**

D. Chemical Bonding

- I. **Periodicity**
- II. **Periodic table**
- III. **Valence and reactivity**
- IV. **Ionic and covalent bonds**

E. Nuclear Chemistry

- I. **Natural radioactivity**
- II. **Fission and fusion**
- III. **Nuclear Power**
- IV. **Nuclear medicine**

F. Arithmetic of Chemistry

- I. **Mole**
- II. **Molarity, PPM, and % concentration**

G. Acids and Bases

- I. **Properties**
- II. **Neutralization**
- III. **pH (no calc.) concept**
- IV. **Antacids and common acids**
- V. **Buffers**
- VI. **Le Chatelier's Principle and blood chemistry**

H. Organic Chemistry

- I. **Carbon as the center**
- II. **Classes of Hydrocarbons**

- III. Isomers**
- IV. Functional groups**
- V. Optical isomers related to health**

I. Chemicals, Pollution, and the Environment

- I. Greenhouse**
- II. Water pollution**
- III. Ozone**
- IV. Acid rain**

J. Energy, Food, Fats, and Oils

- I. Calorie**
- II. Basal metabolism**
- III. Saturated, unsaturated, and trans fat**
- IV. % calories from fat, protein, and carbohydrates**

K. Chemicals in Food

- I. Vitamins and minerals**
- II. Antioxidants**
- III. Risk Benefit Theory**

L. Gases

- I. Ideal gas law**

M. Polymers

- I. Organic**
- II. Carbohydrates**
- III. Proteins**
- IV. Nucleic acids**
- V. Inorganic**