



Course Name: Introductory Chemistry

Course Number: CHE*101

Credits: 3

Catalog description: A survey of and an introduction to the fundamental principles of chemistry. The topics of atomic structure, periodic relationships, chemical bonding, kinetics, gas laws, stoichiometry, solutions, equilibria, and electrochemistry are examined in sufficient detail. Topics are covered in less detail than Chemistry 111, 121 and 122. This course is intended for non-science majors. It fulfills the science requirement in the General Studies program. This course does not have additional laboratory time and will not count toward a lab science requirement. There are three hours of lecture.

Prerequisite: MAT*137 (grade "C" or better) and eligibility of ENG*101.

Recommended: This course is an excellent preparation for students who intend to take CHE*121 but have not had a rigorous high school chemistry course in the last 3 years.

General Education Competencies Satisfied:

HCC General Education Requirement Designated Competency Attribute Code(s):

SCKX Scientific Knowledge & Understanding

Additional CSCU General Education Requirements for CSCU Transfer Degree Programs:

Embedded Competency(ies):

None

Discipline-Specific Attribute Code(s):

SCI Science elective

Course objectives:

General Education Goals and Outcomes:

Scientific Knowledge & Understanding: Students will gain a broad base of scientific knowledge and methodologies in the natural sciences. This will enable them to develop scientific literacy, the knowledge and understanding of scientific concepts and processes essential for personal decision making and understanding scientific issues.

CHE*101

Date of Last Revision: 11/11/2019



Course Specific Objectives:

1. Use the language of chemistry to describe and interpret physical and chemical phenomena.
2. Recognize the basic representations of chemical change and apply them in solving problems.
3. Discover the relationships among chemical principles and phenomena and use these to see chemistry as the unified body of knowledge rather than as a disjointed collection of facts.
4. Apply mathematical concepts and methods in the treatment of chemical data presented during class discussions.
5. Interpret the findings of the classical experiments in the atomic structure model which lead to the development of modern atomic theory using the scientific method.
6. Demonstrate the ability to correctly use chemical nomenclature to communicate and predict the chemical and physical properties of matter.

Course Content:

Lecture:

- Introduction
 - Definitions
 - Measurements
 - Data presentation
 - Ethical questions
- Matter and Properties
 - Atomic structure
 - Atomic theory
 - Process of Scientific Inquiry
- Periodicity
 - Periodic Law
 - Electron arrangement
 - Trends
- Chemical Bonding
 - Ionic and covalent bonds
 - Properties
 - Geometry
- Chemical Equations
 - Compounds
 - Mole concept
 - Reaction types
- Stoichiometry



States of Matter

- Gases and gas laws
- Liquids and their properties
- Solids and their properties
- Intermolecular Forces

Solutions

- Properties
- Concentration
- Calculations

Chemical and Physical Changes

- Energy and Entropy
- Rates
- Equilibrium

Charge Transfer Reactions

- Oxidation-reduction
- Acids, bases and salts
- Hydrolysis
- Buffers

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