CHEM A100: PRINCIPLES OF CHEMISTRY

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	190500 - Chemistry, General
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)
Associate Arts Local General Education (GE)	• Area 5 Physical and Biological Sciences, Scientific Inquiry, Life Science (OB)
Associate Science Local General Education (GE)	• Area 5 Physical and Biological Sciences, Scientific Inquiry, Life (OSB)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 5A Physical Science (5A)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 5A Physical Science (5A)
California State University General Education Breadth (CSU GE-Breadth)	• CSU B1 Physical Science (B1)

Course Description

Non-mathematical chemistry for students not majoring in science. Emphasis on relationship of chemistry to the human body with particular attention to drugs of all kinds, food, metabolism, cancer and environmental contaminants. Includes concepts of structure of matter, bonding, acid-base chemistry, organic chemistry and thermodynamics. Transfer Credit: CSU; UC: Credit Limitation: CHEM A100, CHEM A110 and CHEM A130 combined: maximum credit, 1 course; No credit for CHEM A100, CHEM A110 and CHEM A130 if taken after CHEM A180.

Course Level Student Learning Outcome(s)

1. Demonstrate knowledge of the fundamentals of chemistry, including the scientific method, the periodic table, chemical nomenclature, atomic and molecular structure, types of chemical bonds, and solutions.
2. Use chemical equations to express chemical reactions, particularly in the area of acid-base chemistry.
3. Analyze molecular shapes using the valence shell electron-pair repulsion model (VSEPR), and analyze relative solubility's using knowledge of intermolecular forces and the principle of “like dissolves like.”
4. Recognize the major organic functional groups and the most important types of biochemical molecules, and state some basic properties and functions of these compounds.
5. Explain the action of drugs on the human body using simple models of neurons and the nervous system.

Course Objectives

- 1. Describe the scientific method.
- 2. Demonstrate knowledge of the names of elements, symbols of elements, and the periodic table.
- 3. Demonstrate an understanding of chemical structures and the types of chemical bonds.
- 4. Predict the relative solubility of substances using a knowledge of intermolecular forces.
- 5. Use simple chemical equations to describe chemical reactions.
- 6. Describe the major organic functional groups and most important types of biological molecules.
- 7. State the relevance of chemistry to the individual and today's society.
- 8. Make objective appraisals of issues which have chemical implications.

Lecture Content

Chemistry and the nature of science and scientific knowledge Structure of matter Atoms and atomic structure Elements and the periodic table Compounds and chemical bonding Chemical reactions Energy and thermodynamics Acid-base chemistry Oxidation-reduction chemistry Chemical resources Introduction to organic chemistry Organic compounds Polymer chemistry Chemistry of living systems Chemistry of toxic substances Chemistry of food production Nutritional chemistry Chemistry and medicine Consumer chemistry

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)

Instructional Techniques

Lecture, demonstration, problem assignments, and discussion.

Writing Assignments

Exams will include some questions requiring the writing of sentence explanations and/or descriptions. Students will be expected to analyze questions and generate answers to them. Some questions will require the use of principles to synthesize an answer which was not taught.

Out-of-class Assignments

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Demonstration of Critical Thinking

Problem solving exercises, exams

Required Writing, Problem Solving, Skills Demonstration

Exams will include some questions requiring the writing of sentence explanations and/or descriptions. Students will be expected to analyze questions and generate answers to them. Some questions will require the use of principles to synthesize an answer which was not taught.

Textbooks Resources

1. Required Suchocki, John A. Conceptual Chemistry. , 3RD ed. New York: Prentice Hall, 2007