CH 150Z : PREPARATORY CHEMISTRY

Transcript title

Prep Chem

Credits

4

Grading mode

Standard letter grades

Total contact hours

40

Lecture hours

40

Prerequisites

Choose one of MTH 095, MTH 111Z, MTH 112Z, MTH 251Z (or higher), or minimum placement into Math Level 16.

Course Description

Explores and applies principles and applications of introductory chemistry. Emphasis on an introduction to measurement, components of matter, quantitative relationships including introductory stoichiometry, and major classes of chemical reactions. This course is preparation for the General Chemistry series for students with little to no previous chemistry experience.

Course learning outcomes

1. Differentiate between physical and chemical properties, and the phases and classifications of matter.\\n
2. Demonstrate systematic problem solving, including unit conversions of physical measurements using SI and derived units.
3. Use the periodic table to solve problems in chemistry.
4. Differentiate between ionic and covalent compounds and the bonding in each.
5. Name a variety of elements, ions, ionic compounds and covalent compounds.
6. Quantify the composition of substances.
7. Evaluate chemical reactions using foundational stoichiometry calculations.
8. General Education outcome: Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models and solutions and generate further questions.
9. General Education outcome: Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner.
10. General Education outcome: Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.

Content outline

1. Introduction, Phases of matter, physical and chemical properties and changes
2. Atomic theory, atoms and molecules, periodic table
3. The chemical enterprise
4. Compound formation, types of bonding and naming
5. Chemistry in Health Professions
6. Measurement and Unit Conversions
7. The Mole
8. Chemistry in Environmental Fields
9. Intro to Chemical Reactions
10. Chemistry and Materials
11. Batteries
12. Chemistry and Energy Technology

Required materials

Low/no cost course, all required readings come from Open Education Resources. Students should have access to basic computing resources, including learning management system.

General education/Related instruction lists

- Science not Lab