CHEM 1110

Division: Natural Science and Mathematics
Department: Chemistry
Course: CHEM 1110
Title: Elementary Chemistry
Catalog Description:

This is the first semester course of a General, Organic, and Biochemistry sequence. It covers basic general chemistry and introduces organic chemistry. Majors typically taking the course include home economics, agricultural sciences, physical therapy, nursing, and other related health sciences. This course meets a Physical Science GE requirement and may serve some students as preparation for Chem 1210 Principles of Chemistry I.

General Education Requirements: Physical Science
Semesters Offered: Fall, Spring
Credit/Time Requirement: Credit: 4; Lecture: 4; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: MATH 1010 or equivalent

Corequisites: CHEM 1115 Elementary Chemistry Laboratory

Justification:

This course is offered by Chemistry departments at most institutions in the state and will transfer to all of them. This course fulfills requirements for programs and majors in health sciences, forestry, agriculture, etc. as required by major departments. This course may also fulfill part of the Physical Science General Education Option.

Student Learning Outcomes:

Students will be able to solve problems in general chemistry involving application of the scientific method, chemical stoichiometry, gas laws, solutions chemistry--including acid-base chemistry, and equilibrium. Students will know basic organic functional groups, organic nomenclature and basic reactions involving alkanes, unsaturated hydrocarbons, and aromatics. Students will gain an appreciation for usefulness of critical thinking and problem solving techniques.

Content:

Chemistry 1110 is an introduction to General Chemistry and an introduction to Organic Chemistry that includes the following major topics: Matter and Measurement, Atomic Theory, Chemical Bonds, Chemical Reactions, Gases, Liquids, and Solids, Solutions and Colloids, Reaction Rates and Equilibrium, Acids and Bases, Nuclear

Chemistry, Organic Chemistry (alkanes), Alkenes, Alkynes, and Aromatics.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.

Students will be able to solve problems using computational techniques including unit conversions, rounding, and scientific notation.Computational skills will be evaluated on quizzes and exams.

7) Apply scientific reasoning to a variety of contexts.

Students will be able to approach problems logically and come to a solution based on chemical principles. These skills will be evaluated through quizzes and exams.

Key Performance Indicators:

Students will be assessed on a regular basis through in-class quizzes and tests. Homework will be assigned on a regular basis to give students the opportunity to check their own progress. Percentages are approximate:

Tests 65 %

Quizzes 20 %

Homework 15 %

Representative Text and/or Supplies:

Bettelheim & March, *General, Organic, and Biochemistry*, current edition, Thomson Publishing, Philadelphia, Pa.

Optimum Class Size: 40
Maximum Class Size: 48

Signatures:

I hereby submit this course syllabus:

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Dan Black, EdD, Associate Professor

I hereby find this course consistent with the goals and resources of the Chemistry Department:

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Mark Wathen, PhD, Assistant Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

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Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)