CHEM 1115

Division: Natural Science and Mathematics
Department: Chemistry
Course: CHEM 1115
Title: Elementary Chemistry Laboratory
Catalog Description:

This is a general inorganic and organic chemistry laboratory which reinforces the fundamental facts, theories and laws of chemistry through laboratory experiences. (It is Designed for students in home economics, nursing, physical therapy, some areas of biology, forestry and agriculture.) Concurrent enrollment in CHEM 1110 is required.

General Education Requirements: Physical Science
Semesters Offered: Fall, Spring, Summer
Credit/Time Requirement: Credit: 1; Lecture: 0; Lab: 2
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: MATH 1011 or equivalent

Corequisites: CHEM 1110

Justification:

This course is offered by chemistry departments at most institutions in the state and will transfer to all of them. It is a service course for allied health sciences, forestry, agriculture, etc. as required by their major departments. This laboratory course may also fulfill part of the Physical Science General Education Option.

Student Learning Outcomes:

Students will be able to see application of principles taught in general chemistry involving application of the scientific method, chemical stoichiometry, gas laws, solutions chemistry and equilibrium. At the conclusion of this course students should have sufficient knowledge of Chemical Principles and laboratory techniques to be able to continue with CHEM 1120 or meet requirements in their major department.

Content:

Chemistry 1115 is an introduction to General Chemistry and an introduction to Organic Chemistry Laboratory that includes the following major laboratory experiments: Safety in the Chemical Laboratory, Measurements, Density, Chemical Changes, Double Displacement Reactions, Gas Laws, Chemical Equilibrium, Acid/Base and pH, Organic Models, Melting Points, Alkene Reactions, and Alcohol Reactions.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.

Students will be able to solve problems using various techniques including: "unit cancellation . Students will be

taught methods in rounding, use of scientific notation, balanced equations, stoichiometry problems, % yield, gas laws, solutions, etc.

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. This will include their ability to apply nomenclature rules to compounds with several functional groups, to predict major and minor products of organic reactions, and to solve multi-step organic synthesis problems.

Key Performance Indicators:

Students will be assessed on a weekly basis through in-laboratory assignments and occasional quizzes. Homework will be assigned on a regular basis to give students the opportunity to check their own progress.
GRADING POLICIES:
LABS (about 12) 100 %
QUIZZES (occasional, as needed) 10-15% of lab grade
Written LAB Final (final counts as two labs)

Representative Text and/or Supplies:
Most laboratory experiments will be written in-house. A copy of each laboratory experiment will be available on the class Website.

Optimum Class Size: 16
Maximum Class Size: 22

Signatures:

I hereby submit this course syllabus:

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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)