CHEM 1010

Division: Natural Science and Mathematics
Department: Chemistry
Course: CHEM 1010
Title: Survey Chemistry
Catalog Description:

This course is designed to give non-majors a glimpse at chemistry and how it relates to the world around them. It does this by exploring matter and the transformations it undergoes. The course also provides an insight to the physical and life sciences from the chemists point of view. It gives the student a feeling for how scientists view problems and the systematic method by which they solve them. Discussion topics are chosen from physical, organic, and biological areas inside the chemistry field.

General Education Requirements: Physical Science
Semesters Offered: TBA
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: MATH 1011 or equivalent

Corequisites: CHEM 1015

Justification:

This course is intended as a General Education class in the physical science area and is needed to help combat "chemophobia" in the media and to introduce students to chemicals and chemistry in a relatively non-threatening way. Most colleges and universities in Utah offer a GE course in chemistry.

Student Learning Outcomes:

At the conclusion of this course students should have a basic understanding of the chemistry discipline and the many ways chemicals and chemists affect their life and the world around them. Each student should be better able to make observations and act based on those observations, and to think more lucidly. Other outcomes should include a better understanding of the workings of the physical world, and of the interdependence of man, nature, and evolving technologies.

Content:

Chemistry 1010 is a General Education course that introduces the student to the scientific discipline of chemistry. Students learn the basic concepts and principles of chemistry including: Matter and its chemical and physical properties Elements, compounds and mixtures Chemical vs. physical change Measurement and the metric system Atomic theory and the structure of the atom Periodic law and the periodic table Properties of main-group elements Nuclear chemistry Nuclear energy Chemical bonding and the states of matter The How much? How fast? How far? and Why? of chemical reactions Acid-base reactions Oxidation-reduction reactions Introduction to organic chemistry These concepts and principles are then applied to investigations into issues such as: Energy alternatives and energy policies Recycling pros and cons Polymers and their place in society

The chemistry of life Nutrition Water and the environment Air and the environment Evaluation of degrees of risk

General Education Outcomes:

7) Apply scientific reasoning to a variety of contexts.
Most of this course is conceptually based rather than computationally based. Students learn to apply the concepts of chemistry to many current issues as listed above. They practice the application of these concepts in almost daily homework assignments which are then discussed in class.

Key Performance Indicators:
Students will be assessed often through in-class quizzes and tests. Homework is assigned on a nearly daily basis to allow students to check their own progress. Homework assignments: 15%-25% of the final grade Quizzes: 15%-25% of the final grade

Representative Text and/or Supplies:
Baird AND Gloffke, *Chemistry in Your Life*, Current Edition, W. H. Freeman and Company, New York, NY

Optimum Class Size: 30
Maximum Class Size: 46

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)