CHEM 101: Principles of Chemistry I

This detailed course description provides information about course topics & content. It is not a course syllabus. Summer 2013 course syllabi are updated in the spring, and may not be available until summer classes begin.

Instructor Information

Instructor	Email	Course Format	Number of Credits
Wendy Olson	wolson001@umbc.edu	Lecture, Discussion	4

General Information

Course Format Other

Students will attend two three-hour lectures and two two-hour discussion sections per week.

Delivery Format

In-Person

Prerequisite:

Placement into MATH 106 or above.

Course Materials

Currently Used Materials

• Atoms First, 1st edition, Burge/Overby, McGraw-Hill

Course Objectives/Learning Outcomes:

Chemistry 101 is the first half of an introductory two-semester course primarily designed for those students who plan to continue their chemical education beyond the elementary level. We will find, however, that Chemistry 101 is a valuable experience for aspiring chemists, chemical engineers, medical doctors, dentists, pharmacists and thoughtful students of all disciplines. You will also discover that chemistry is truly a central science.

A chronology of course topics with text references and problem assignments is included with this syllabus. In a sense, the problem assignments define the course. A student who learns to solve problems of comparable difficulty, spanning the range of topics, will have achieved the essential goals of the course. There are no prerequisites for Chemistry 101 other than competency in high school algebra.

The goal of this course is to provide a basic background and understanding in the theory and principles of chemistry (e.g. scientific measurements and methods, matter and its properties, stoichiometry, energy, electronic structure, chemical bonding and the periodic properties of the elements).

Potential Topics Covered:

Atoms and the Periodic Table

Quantum Theory and the Electronic Structure of Atoms

Periodic Trends of the Elements

Ionic and Covalent Compounds

Representing Molecules

Molecular Geometry and Bonding Theories

Chemical Reactions

The Mole and Molar Mass

Chemical Reactions in Aqueous Solutions

Energy Changes in Chemical Reactions