

Syllabus and Outline

Preparation of General Chemistry Online

Course Description

This is an introductory chemistry course covering the basics in chemistry. This course provides the training needed to enroll in college level General Chemistry courses.

Participants

This course is designed for students without a high school chemistry background or who need additional help prior to enrollment in college level General Chemistry courses.

Schedule

The Fall quarter at UCI comprises 10 weeks. During those 10 weeks, we will work through 4 Modules. You should aim to complete a module every two weeks. You are responsible for your own progress. You are free to plan your time as you see fit, but make sure to make sufficient progress to catch up with discussion sections and discussion forums. In addition, you should make progress according to the schedule of the two exams for this course. After Modules 1 & 2, during week 3, there will be a Midterm Exam. After Modules 3 & 4, during Finals week, there will be a Final exam. Please take note of the schedule below.

Navigating the Site

To get started, go to Module 1. The Modules consist of Segments. Each Segment revolves around certain learning objectives. The Segments contain all the material needed to complete this class. They consist of a lecture video, a summary, examples problems and homework problems. It is recommended that you first watch the lecture (4 to 10 minutes each), look over the summary and practice with the interactive example problems. Note: the summary and examples are flash files that do not play well in Safari. If you use a Mac, use Firefox or Chrome as your browser. You can then move on to the homework for that Segment. After completing the homework, you can move on to the next Segment, and so forth. After completing all the Segments in Module 1, you are ready for the Module 1 Quiz. Anticipate one week for the entire Module. Once completed, start with Module 2. In this fashion, work your way through the course.

Grading

You will receive credits for four components of this course: the Homework (each segment; cumulative for a total of 15%), the Module Quiz (each Module for 5%; cumulative for a total of 20%), the Midterm (20%), and the Final (45%). The individual components will not be curved. Only your Total grade will be curved at the end of the course.

Textbook: None

Course Outline

1. Introduction
 - a. Units, Unit conversions
 - b. Significant Figures and Dimensional Analysis
 - c. Length, Area, Volume
 - d. Temperature, Mass, Density

2. Atoms, Ions and Molecules
 - a. Structure of the Atom
 - b. Basic Quantum Mechanics, Orbitals
 - b. Atomic Mass and Isotopes
 - c. Ions
 - d. Molecules
 - e. Naming compounds

3. Mass Relationships
 - a. Molecular mass, Avogadro's number
 - b. Molecular and Empirical Formulas
 - c. Chemical Reactions and Equations
 - d. Mass calculations from Chemical Reactions

4. Fundamental Reactions
 - a. States of Matter
 - b. Gas Phase Reactions
 - c. Properties of Solutions
 - d. Concentration and Dilution
 - e. Acid-base, Oxidation, Precipitation reactions.