

Syllabus
Chemistry H2A – Honors General Chemistry

Fall 2011

Lecture: MWF 1000a-1050a

Room: ICS 174

Instructor: Robert M. Corn

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Office: 2139 Nat Sci 2

Office hours: Monday 200p-300p; Thursday 100p-200p, or by appointment.

Web page: <http://unicorn.ps.uci.edu/H2A>

Course TAs:

Gidget Tay

Email: tayg@uci.edu

Office Hours: FRH 3034, Tuesdays 400p-500p

Sandra Brown

Email: sebrown1@uci.edu

Office Hours: NS2 2208, Tuesdays 10:00-11:00a and Thursdays 2:30-3:30p

Discussion Sections:

CHEM H2A HON GENRL CHEMISTRY dis A1 (40271)

MON 2:00 pm – 2:50 pm in RH 188

CHEM H2A HON GENRL CHEMISTRY dis A2 (40272)

TUE 3:00 pm – 3:50 pm in PSCB 240

CHEM H2A HON GENRL CHEMISTRY dis A3 (40273)

THU 11:00 am – 11:50 am in SSPA 1170

Text: Chemical Principles: The Quest for Insight

by Peter Atkins and Loretta Jones

Hardcover: 1024 pages

Publisher: W. H. Freeman; 5th edition

Language: English

ISBN-10: 1429209658

ISBN-13: 978-1429209656

Older versions of the text should work just fine -- just check for differences in the problems.

Introduction

Chemistry is all around us -- both implicitly in the world as we know it, and explicitly as the news and internet is filled with environmental, biochemical or toxicological issues that are defined in terms of chemical composition and measurement. Diagnostics for Health Care, Atmospheric Measurements of Greenhouse Gases, Volcanic Eruptions, Solar Energy and Hydrogen Vehicles are some examples of subjects that require knowledge of chemical structure and reactivity for critical comprehension. In this course we will introduce the concepts of quantum mechanics, atomic structure, molecular bonding and the impact of chemical structure on the macroscopic world. Along with the theoretical concepts that are the key to understanding these areas, we will also introduce some of the key measurement techniques that let us understand how chemistry works, including: atomic spectroscopy, vibrational spectroscopy and x-ray diffraction. Through a combination of lectures, discussion sections, laboratories and problems we will learn how chemical structure, chemical reactivity and chemical analysis impact our daily lives.

"Experiments are the only means of knowledge at our disposal. The rest is poetry, imagination."
-- Max Planck.

Course Structure

This course has a number of different pieces that are designed to give you multiple entry ports into the wonderful world of chemistry:

Weekly Lectures

These are three 50 minute lectures during which I will discuss the theory and application of various chemical topics. A quick outline of lecture topics is listed here (see the web page for a more detailed topic list):

1. Quantum Mechanics: Photons, Electrons, Protons
2. Atomic Structure
3. Molecular Bonding and Structure
4. Micro to Macro Part I -- Kinetic Theory of Gases
5. Micro to Macro Part II -- Materials: Liquids, Solids, etc.

Weekly Readings

About 80% of what I will lecture about will be covered in the first five chapters of the textbook Chemical Principles by Peter Atkins and Loretta Jones. Here is a list of the chapter titles; you can see how they mirror my topic list:

1. Atoms
2. Chemical Bonds
3. Molecular Shape and Structure
4. The Properties of Gases
5. Liquids and Solids

Weekly Discussion Sections

In addition to the MWF lecture sessions, the class TAs will run three discussion sections to go over problems and additional information on the class material. These are an important place for you to go to ask QUESTIONS and find out ANSWERS. Also, quizzes may be given during discussion section and the discretion of the TAs.

Problem Sets

About once a week there will be a problem set to help you sort out the various pieces of information that you receive from the lectures, discussion and textbooks. Problem sets will be announced in lecture. Problem Sets MUST be received by the due date for credit.

Midterm Exams

There will be two short in-class 50-minute exams on the following dates:

In Class Exam #1: Wednesday, October 19th.

In Class Exam #2: Friday, November 18th.

There will be no make up exams. All exams will be cumulative. If you have a conflict with the exam times, please see me immediately.

Final Exam

The Final exam is scheduled for Monday Dec 5th, 1030a-1230p. The room assignment for the Final will be announced in lecture.

Grading Scheme

Your participation in the course will be graded as follows:

In-Class Exam #1	200 pts.
In-Class Exam #2	200 pts.
Final Exam	300 pts.
Problem Sets	200 pts.
Discussion	<u>100 pts.</u>
Total:	1000 pts.

Letter Grades

The following is an absolute scale for letter grades in this course. Sublevels for pluses and minuses will be set within the grade ranges at the end of class in consultation with the TAs. I reserve the right to lower the number of points required for a grade, but I will never adjust the points higher than the numbers here. In other words, 850 points will earn you an A or A- no matter what.

A or A- : 850 - 1000 points

B-, B or B+: 700 - 849 points

C-, C or C+: 550 - 699 points

D: 500 - 549 points

F: < 500 ☹ No Fs Please!!!