

Chemistry 100a
General Chemistry I
Section 2
Fall 2008

Lectures: Monday, Wednesday and Friday 9:30 – 10:30 Hilles 109
Recitations: Tuesday 9 – 10 or 2:30 – 3:30 in Hilles 108
Laboratory: Tuesday, Wednesday, Thursday and Friday 1 – 4 KINSC E305
(you must be available for at least one of these four laboratory periods)

Course Instructors:

Lecture: Alex Norquist KINSC E304C, 896-2949, anorquis@haverford.edu
Office Hours: Monday 3 – 5, Thursday 2:30 – 4 and
by appointment.
Laboratory: Dennis Collin KINSC L305, 896-7948, dcollin@haverford.edu
Office Hours: Tuesday, Wednesday and Friday,
11:30 – 12:30

Course Materials:

- Required text: *General Chemistry, Atoms First*, McMurray and Fay, Prentice Hall
- Optional workbook. *Student Solutions manual*
- Lab manual
- A bound laboratory notebook. The pages should be numbered, but you do NOT need duplicate pages. The bookstore sells 11.75" by 9.375" "Computation Books" (Boorum #09-9890) with a soft brown cover that is ideal for use in the laboratory. It has more pages than you need, but you can reuse this notebook in subsequent Chemistry courses.
- A simple scientific calculator. If you use a programmable graphing calculator (TI-8x series, for instance), you may not use it in an exam or quiz in any way that would hinder your learning or give you an advantage over a student with a non-graphing scientific calculator, such as storing or solving equations, converting units, or looking up periodic table information.

Supplementary Materials: Many other general chemistry texts, which cover the same material, are available. Some are on Reserve in the White Science Library, many others are located in the Chemistry lounge (INSC E310). Consultation of another text may be useful at times.

Class Attendance. Regular attendance is *critical* for success in this class, and is therefore required. Topics will sometimes be discussed in more detail or from a different perspective than what is in the text. Test material will reflect the subject matter discussed in class.

Blackboard. Everyone enrolled in the course has access to the Chem 100 Blackboard site. The problem sets will be posted on Blackboard, no hard copies will be distributed in class. Lecture handouts will also be posted on Blackboard before each lecture. Remember to bring a copy to class.

Problem. A list of problems for the text will be posted on Blackboard weekly. Students are encouraged to work together on the homework. A subset of the posted problems must be turned in each week. These problems will not be graded, but points will be given for their completion. The best way to learn chemistry is by working many many problems. The goal is to be able to complete the exercises without the aid of a solutions manual or class notes. This can only be accomplished by doing the problems.

Quizzes. A fifteen minute quiz will be given at the beginning of every Wednesday meeting. These quizzes will focus on the material presented in the preceding week of lectures.

Examinations. There will be two 55-minute exams, plus a comprehensive final exam. Material discussed during the two lectures before each test will included on the following test. The dates for these tests are October 7 and November 25. **Mark these dates on your calendar! November 25 is the day before Thanksgiving.**

Late Work. The penalty for lab work will be 10% of the possible score per day. Two problem sets can be turned in one day late during the semester. These two 'days' can be used at any time, but no more than two are available.

Grading. There will be four hourly tests, graded homework, laboratory reports and a three-hour self scheduled exam. The homework average will have the same weight as one hourly test. All tests will be closed book and closed note.

Two tests	20 %	or	15 %
Final exam	20 %		35 %
Quizzes	30 %		20 %
Problem sets	5 %		5 %
Laboratory	25 %		25 %

The grades for the tests and final exam will be calculated both ways, with the highest average used in the final grade. This system provides a mechanism through which a poor semester performance can be salvaged by an excellent final exam. However, in our experience this seldom happens.

Help. If you are having difficulty with the reading, lectures, laboratory or problem sets there are several options for help.

- **Work with other students in Chem 100a when doing the suggested problems.**
- See and instructor during office hours or make an appointment to see and instructor at some other time.

Honor Code. All examinations in this course are given under the Haverford College Honor System. After each exam each student is asked to sign a pledge accepting full responsibility for conduct under the Haverford Honor System.

We advise students to study and work together. Study sessions in which groups of students help one another to understand the material are extremely valuable. However, laboratory work, calculations and reports must be the work of the student submitting the

report. The submission of another person's spread sheet as your own work is a clear case of plagiarism.

Students who think they may need accommodations in this course because of the impact of a disability are encouraged to meet with me privately early in the semester. Students should also contact Rick Webb, Coordinator, Office of Disabilities Services (rwebb@haverford.edu, 610-896-1290) to verify their eligibility for reasonable accommodations as soon as possible. Early contact will help to avoid unnecessary inconvenience and delays.

**Chem 100a Section 2 Syllabus
Spring 2009**

The chapter listings correspond to McMurray and Fay "General Chemistry, Atoms first."
Detailed reading assignments will be posted on Blackboard.

Chemistry: matter and measurement. Topics include units, measurements and dimensional analysis.	Chapter 1
The structure and stability of atoms. The structure of atoms and nuclear chemistry.	Chapter 2
Periodicity and the electronic structure of atoms. The quantum model of the atom and the periodic properties of multielectron atoms.	Chapter 3
Ionic bonds and some main-group chemistry. An introduction to bonding in ionic systems.	Chapter 4
Covalent bonds and molecular structure. Various models of covalent bonding, including Lewis structures, VSEPR, valence bond theory and molecular orbital theory.	Chapter 5
Mass relationships in chemical reactions. Balancing chemical equations.	Chapter 6
Reactions in aqueous solutions. Reduction oxidation reactions and precipitations in water.	Chapter 7
Thermochemistry: chemical energy. A description of the role of energy in reactions.	Chapter 8
Gases: their properties and behavior. Ideal and real gases and the kinetic-molecular theory of gases.	Chapter 9
Liquids, solids and phase changes. Intermolecular forces and the structure of liquids and solids.	Chapter 10
Solutions and their properties. Colligative properties.	Chapter 11

Laboratory. Each student is required to attend a laboratory session from 1-4 p.m. each week on the day to which he or she is assigned. Each student who wishes to enroll in Chemistry 100 must fill out an on-line lab sectioning form (available at <http://www.haverford.edu/chemistry/100/lab/sectioning.php>) **by 8 pm, Thursday September 3.** Based on this form, each student will be assigned to a laboratory section; section assignments will be posted outside the lab on Friday, September 5.

All files required for the lab portion of this course are available on Blackboard. Read the lab procedures and report forms before you come to lab. A lab appendix will be distributed to each student enrolled in the course on Monday, September 7. The order of laboratory experiments is as follows:

**Chem 100a 2009
Laboratory Schedule**

Week	Date	Experiment
	Sept 1 – 4	No laboratory sections will meet this week.
1	Sept 8 – 11	Check-in Microsoft Excel
2	Sept 15 – 18	Experimental Errors and Data Analysis
3	Sept 22 – 25	Malachite Stoichiometry Chem Draw
4	Sept 29 – Oct 2	Solid state structures
5	Oct 6 – 9	Colorimetric Analysis of Commercial Aspirin
6	Oct 13 – 16	No laboratory sections will meet this week.
7	Oct 20 – 23	The Standardization of an NaOH Solution
8	Oct 27 – 30	Synthesis and Analysis of a Ferric Oxalate I
9	Nov 3 – 6	Synthesis and Analysis of a Ferric Oxalate II
10	Nov 10 – 13	Synthesis and Analysis of a Ferric Oxalate III
11	Nov 17 – 20	Calorimetry and ΔH of Reaction
12	Nov 24 – 27	Thanksgiving. No laboratory sections will meet this week.
13	Dec 1 - 4	Unknown Gas Lab Determination of the Gas Constant R
14	Dec 8 - 11	Check-out