

Course: **CHEMISTRY 100**
Term: **Fall, 2008**
Room: **Pierce Hall 201**
Meetings: **MWF, 10:40-11:30A**
Instructor: **Patrick Coppock**

Oxford College and Liberal Arts. Oxford College is dedicated to a liberal arts education, and science, including chemistry, is an integral part of the liberal arts. In this course, you will have an opportunity to master these liberal arts skills:

- Reasoning:
 1. Problem-Solving
 2. Critical Thinking
 3. Logic
 4. Calculation/Computation
 5. Investigation
 6. Analysis of data
- Language
 1. Listening and interpreting
 2. Reading
 3. Writing
- Aesthetics
 1. Observing
 2. Seeing relationships among form, pattern, harmony, and shape
- Imagination
 1. Prediction
 2. Developing scientific insight (hypotheses)

Learning Goals. The primary learning goals for this class are for you to:

- Utilize critical thought and reasoning to understand chemical behavior at the microscopic and macroscopic levels.
- From your knowledge of chemistry and chemical systems, be able to develop solutions to problems which you have not encountered before.

Content goals. You will be expected to demonstrate competence in these areas of chemistry:

- The scientific method
- Conversion between different measuring systems
- Significant figures
- Basic concepts of matter and energy
- The structure of the atom
- The periodic table
- Electron configurations
- Nomenclature
- Shapes of molecules
- Polarity of molecules
- Molecular mass and moles

- Stoichiometry
- Reactions in aqueous solution
- Oxidation-reduction
- Gases
- Solutions
- Concentration, especially molarity
- Colligative properties
- Kinetics
- Equilibrium
- Acids and bases
- pH
- Titrations
- Buffers
- Nuclear chemistry

Materials. "Introduction to General, Organic, and Biochemistry," 7th ed., by Bettelheim, Brown, and March; optional (recommended) study guide and solutions manual, Scientific calculator. You will find it prohibitively difficult to work problems without a scientific calculator. Safety glasses and carbon-copy notebook are required for lab (available in book store).

Attendance. All students are expected to attend all lecture and laboratory sessions. However, it is recognized that emergencies may arise which may necessitate absences from class. You should notify me if an absence is due to illness or other emergency. You are responsible for all material covered in lecture if absent.

You are allowed 3 absences in lecture and none in lab.

If you exceed the 3 absence limit in lecture for whatever reason, you will lose 1 point for the next absence (number 4), 2 points for the next absence (number 5), and 3 points for each additional absence (numbers 6 and up). These points will be deducted from the final course average. Note that there are no "excused" absences.

Make-up exams are not given, regardless of the reason an exam was missed. If you miss an exam and present me with an acceptable excuse, the grade on the final exam will count in place of the missed exam grade. You must notify me by the day and time of the exam that you will not be present and you must give me the reason for the absence. If the excuse is not considered acceptable by the department, the exam grade will be a zero. In general, illness or emergency situations are the only acceptable excuses for missing an exam. Missing an exam also counts as an absence in the course.

3 tardies will be treated as 1 absence. If you come in more than 15 minutes tardy, you will be counted absent. If you come in late, it is your responsibility to ensure that you are marked tardy and not absent. If you are continuously tardy, you may be excluded from further classroom attendance.

Cell phones and pagers are not allowed in class or lab. Should you bring one and it goes off, or should you use it to call someone, you need to leave the class. Food and drink are not allowed in lab, but beverages in spill-proof containers may be brought into class.

Problems. For each chapter, there are problems that you should work to help you in understanding the material. These problems are the ones in the chapter and the odd-numbered ones at the end of the chapter. These problems are for your benefit only; they will be neither collected nor graded. Since chemistry is a problem-oriented course, and the tests will include problems, it is essential that you become proficient in working problems. You should work problems as you encounter the material. You should also attempt each problem before seeking help from the book, your notes, or the answer. It is not sufficient to be able to follow how a problem is worked; on a test, you will have to work a problem all the way through, and the only way you will be able to do this is if you have worked numerous practice problems. I've never seen anyone do well that did not do all assigned problems, and it is my strong feeling that all students earning A's and most earning B's do extra problems--most notably the problems within the chapter text given as examples.

Group Assignments. Problem sets, which will be collected and graded, will be assigned on each chapter from the even-numbered problems at the end (sometimes along with additional problems not in the book). You will work on these assignments in groups of four students. Each group will hand in one copy of their solutions that has been signed by all group members, indicating that it is the work of all four group members. The work must be legible and clear. You must write on one side of the paper and staple each problem set. These problem sets are due before class on the due date. Late problem sets will not be accepted. Solutions to these problem sets will be posted on our LearnLink conference after the problem sets have been handed in. It is your responsibility to ensure that you understand the posted solutions to all assigned problems. Since you are being graded on these problem sets, the Honor Code applies - you may not give or receive help from anyone not in your group;

you may not use any material other than your textbook, your study guide, and your notes.

Tests. There will be 4 exams, given in class. Each exam will last 55 minutes. For an exam, you may bring only a calculator and pencils; any other material will be given out with the exam. Make sure your calculator is one which is allowed (see Materials, above), that it is working, and that you know how to use it. Calculators may not be shared. You must take the exam during your regular class time. If you come in late, you will not be given extra time to finish the exam. The honor code applies to all exams.

Honor Code. It is assumed that all Oxford College students will adhere to the highest standards of academic honesty and will uphold the Oxford College Honor Code. Accordingly, I do not normally proctor exams.

On exams, you may not use any material not distributed with the exam itself except for a calculator and pencils/pens. Any other material you bring into the room must be left at the front of the room, including a cell phone. During an examination, you may not give or receive assistance. Since absences and tardies can affect your grade, giving false information regarding absences or tardies is a violation of the Honor Code. Note also that the Oxford College Honor Code expects students to report any violations of the Code they know of. See the Honor Code Pledge handout for more information.

Exam schedule.

Exam I	Friday, Sept. 23
Exam II	Friday, Oct. 14
Exam III	Friday, Nov. 11
Exam IV	Friday, Dec. 9

Exams may be moved forwards or backwards as necessary; this will be announced in class and on the class LearnLink conference. The sections covered for each exam will be announced in class.

Final Exam. There will be a final exam, covering the semester's material. This will be given during the regularly scheduled final exam period.

Schedule. We will cover chapters 1-9.

Preparation for class. Refer to the "Student Survivor's Guide" for information. You are also expected to regularly read the class and the lab LearnLink conferences.

Laboratory. Your laboratory instructor will explain the lab procedures to you. Note under Grading, below, how your lab grade affects your course grade.

Grading. The problem sets average score will count the same as an additional exam grade, and the final will count as two exam grades, giving a total of 7 grades (4 exams + problem sets + final counting twice). The lowest of the 6 exam grades will be dropped (the problem set grade will NOT be dropped). This average will constitute the lecture portion of your course grade.

Your course grade equals 80% times your lecture grade and 20% times your lab grade.

Grading scale. Grades are normally assigned as follows:

93 - 100 A	77 - 79 C+
90 - 92 A-	73 - 76 C
87 - 89 B+	70 - 72 C-
83 - 86 B	67 - 69 D+
80 - 82 B-	60 - 66 D
	below 60 F

Your exam average AND your lab average must both be passing or you will receive an grade of F in the course regardless of your final numerical average. Grades are assigned based on your performance in the course (exams, lab, attendance).

Coppock

Chemistry 100 Laboratory Course Syllabus Spring 2004

Laboratory Course Goals

- To develop analytical, critical thinking, and problem solving skills using chemistry specific approaches, methods, and techniques you are learning in lecture and lab.
- To strengthen your skills in communicating analytical results in a clear and concise manner.
- To think about, understand, and evaluate matter on both a macroscopic and a microscopic scale.
- To develop an understanding and appreciation of the scientific method.
- To develop an understanding of how a chemist approaches and solves problems.

At the end of the Chemistry 100 laboratory course students should be able to think like a chemist to solve a small range of chemistry problems using the scientific method. This includes making observations, developing predictive hypotheses, and designing appropriate experiments. The students should be able to perform these experiments using some of the major techniques of chemistry and construct tables and graphs to appropriately analyze and effectively represent their data. Finally, students should be able to interpret and communicate their results orally and in written form.

Grading Methods and Laboratory Course Requirements

15 % Pre-lab quizzes
25% Notebook carbon copies
50 % Report memos, in-lab report sheets, and group presentations
10 % Instructor evaluation

*You must pass both the lecture and the laboratory component to pass Chemistry 100.

Pre-Lab Quizzes

You must come to lab prepared. To prepare for lab you must read the assignment and any background information or required reading- BEFORE LAB!!! The lab is student centered which means YOU the students, are responsible for understanding the background information and performing each experiment. If you do not do the required reading before lab, this is impossible. Lack of preparation creates confusion and frustration. To help you avoid this, a pre-lab quiz will be given at the beginning of each lab. The quizzes may also include concepts that were discussed in a previous lab session but are repeated in the lab course over and over (accuracy, precision, uncertainty, reading graduated cylinders, scientific method, etc.). If you are late and miss the quiz, you will

receive a zero for the quiz and may not be allowed to participate in lab. The pre-lab quizzes will count as 15% of your overall lab grade.

Notebook Carbon Copies

It is important to keep a clear, legible record of the work you do while in the laboratory. It should explain what you planned to do, what you observed, any changes to your plan, results, and any necessary calculations. After the experiment has been finished you should write a short summary statement. Before you hand it in, ask yourself if someone not taking the lab could read your notebook and understand what you did and what your results were. The carbon copies of the laboratory notebook write-ups will be turned in before you leave the lab. The notebook carbon copies will count as 20 % of your overall lab grade.

In-lab report sheets

For the experiments called *workshops*, you will fill out a report sheet during lab and turn it in before you leave.

Report Memos

A 1-2 page report in the form of a memo will be required for the assignments (3 of the 12 lab sessions). These reports should be written using a word processor. Do NOT wait until the hour before lab to write and print these reports since they constitute the majority of your laboratory grade. Write them as soon as possible after the laboratory session so that you can allow yourself time for reflection and revision. Make an outline of the important points that you must cover in explaining what you did and what the results were; then use as much creativity as possible!!! You will be required to revise these papers and the two grades will be averaged.

Make sure and print out the lab reports the night before your report is due. Do not wait until just before lab to print your report- you would be surprised by how many printers fail to operate just before lab begins! If you do not hand in your work at the beginning of the lab session it will be considered one day late. Late reports lose one letter grade per day. The laboratory reports (memos) will count as 50 % of your overall lab grade.

Instructor Evaluation

Because this is a student-centered laboratory your attitude and performance can affect the other students. During the course of the semester the lab instructor will evaluate you in the following areas: *attitude, being prepared, being on time, following the safety rules, working efficiently, finishing on time, and leaving the lab clean.* The evaluation score will range from 0-100 points. Most students can expect to earn a score of 85. Exceptionally courteous, well-prepared, and efficient students can expect higher evaluation scores. Rude, quarrelsome, and unprepared students can expect lower scores. This instructor evaluation will count as 10 % of your overall lab grade.

Honor Code Policy

During a lab session students are encouraged to discuss the experiment with others to promote understanding and exchange ideas. If you discuss notebook write-ups, questions, and calculations with other students during lab, put the answers in your own words. **Lab reports (memos) and report sheets (including calculations) are expected to be your own work!!!** Collaboration on lab reports is a violation of the Honor Code and will be reported to the honor council. It is also a violation of the Honor Code to copy any portion of a report from a previous semester's report. To protect yourself from this situation do not work together on lab reports - do your own work! If you need assistance ask your lab instructor. The usual penalty for students who are found to have violated the honor code is an F in the course.

Chemistry 100 Laboratory

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The Oxford College Honor Code applies to Chemistry 100 laboratories. You should be familiar with the stipulations of the Honor Code. Some areas in which it applies in this laboratory include, but are not limited to:

1. Lab reports (memos and report sheets) should be considered as tests. On a lab report you may not give or receive help from anyone but an Oxford College chemistry faculty member.
2. On a lab report (memos and report sheets), you may use your book, your notes, and the lab manual, but you may not look at or use any portion of another student's lab report. This applies to the report of any student currently in the course as well as to the report of any student who has taken the course earlier.
3. A paper submitted as a lab report (memos and report sheets) must be your work and your work alone. You may not use a portion of the paper of another current or former student, or a model paper by an instructor. This means you may not reprint a portion of another paper, photocopy a portion of another paper, retype a portion of another paper, or in any way incorporate a portion of another paper, including data, tables, and figures, into your paper. In addition, you may not have anyone else type your paper. However, you may have someone proof-read your paper for its writing (but not for its content). The Honor Code provisions regarding plagiarism apply to the lab report.

You should be aware that as the instructor, I am obligated to report any suspected Honor Code violations to the Honor Council for investigation. Should you be found guilty of violating the Honor Code by the Honor Council, you should be aware that the usual penalty is an F in the course.

I have read the Honor Code of Oxford College and the above statements as to how the Honor Code applies for this laboratory. I understand them and I agree to abide by them.

Name _____

Signed

Date _____

(print name)

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3. A paper submitted as a lab report (memos and report sheets) must be your work and your work alone. You may not use a portion of the paper of another current or former student, or a model paper by an instructor. This means you may not reprint a portion of another paper, photocopy a portion of another paper, retype a portion of another paper, or in any way incorporate a portion of another paper, including data, tables, and figures, into your paper. In addition, you may not have anyone else type your paper. However, you may have someone proof-read your paper for its writing (but not for its content). The Honor Code provisions regarding plagiarism apply to the lab report.

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