CHEMISTRY 142 Dr. Parker

Spring 2002

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, a continuation of Chemistry 141, you will have an opportunity to master or amplify these liberal arts skills (see the class LearnLink conference for more information):

- Reasoning:

1. Problem-Solving
2. Critical Thinking
3. Logic
4. Calculation/Computation
5. Empiricism
6. Analysis
7. Use of Evidence
8. Measurement

- Language

1. Listening
2. Reading
3. Writing
4. Dealing with narratives

- Aesthetics

1. Observing closely
2. Seeing relationships among form, pattern, harmony, and shape

- Imagination

1. Synthesis
2. Remembering
3. Forecasting (planning)
4. Playing with differences
5. 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 master these areas of chemistry (for a more detailed list of the content, see the class LearnLink conference):

- Concentration units
- Factors affecting solubility
- Colligative properties
- Coordination compounds and crystal field theory
- Kinetics, including rates of reaction and reaction mechanisms
- Equilibrium, including LeChatlier's Principle
- Acids, bases, buffers
- pH and titrations
- Solubility equilibrium
- Entropy and free energy
- Electrochemistry, including electrochemical cells and electrolysis
- Nuclear chemistry
- Organic chemistry (time permitting)

Text. "Chemistry," 6th ed., by Chang.
Optional: Study guide, student solutions manual.
Laboratory manual: sold by the Chemistry Department.
Carbon-copy lab notebook.
Safety glasses for lab.

You must have all three materials for lab <u>before</u> your first lab meeting.

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 NO ABSENCES 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.

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, the exam grade will be a zero. It is up to me as the instructor to make the determination as to whether an excuse is acceptable. In general, illness or an emergency situation are the only acceptable excuses for missing an exam. Missing an exam also counts as an absence in the course.

Being late to class is rude and distracting. Therefore, 3 tardies will be considered equal to 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 see me immediately after class to ensure that you are marked tardy and not absent. No adjustments will be made at a later time. If you are continuously tardy, you may be excluded from further classroom attendance. When you are in class, you must be attentive and not disturb others. Leaving a class early counts as an absence, as does sleeping through a class or being generally inattentive.

Cell phones and pagers are not allowed in class or lab. Food and drink are not allowed in class or lab; however, beverages in spill-proof containers may be brought into class.

Problems. At the end of each chapter, there are problems which you should work to help you in understanding the material. These problems are for your benefit only; they will not be taken up or graded. Since general chemistry is a problem-oriented course, and the tests will consist mainly of problems, it is essential that you become proficient in working problems such as those found at the end of the chapters. 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 practice problems.

Tests. There will be 4 exams, given approximately every 3-4 weeks. These will be 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 working and that you know how to use it. 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.

Each exam will also include an essay; this must be typed or word-processed and double-spaced, and if more than one page, stapled together. The topic will be posted 4-7 days in

advance on the class LearnLink conference. The essay must be turned in when you come to take the exam. Part of your grade on the essay will be based on your writing -- grammar, spelling, and punctuation. You should run a spell checker and proof-read. Hand-written essays and essays not double-spaced are not acceptable. For the essay, you may use your book and notes, but giving or receiving assistance from any person is an Honor Code violation.

Oxford College has adopted as part of its Mission Statement that its curriculum is designed to teach students to "embrace responsible citizenship." In addition, as part of its Purpose Statement, the College lists "to augment the student's ... intellectual awareness of the world". To encourage you to become aware of the world around you, most exams will have a bonus question on "current events."

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 proctor exams.

On exams, you may not use any material not distributed with the exam itself except for calculators and pencils/pens. Any other material you bring into the room must be left at the front of the room. During an examination, you may not give or receive assistance. On assignments for outside class (essays, lab reports), the work is to be your work alone – you may not give or receive any assistance, and you may use only materials authorized. 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 of which they are aware.

See the Honor Code handout for more information.

Exam schedule.

Exam I	Friday, Feb. 8
Exam II	Friday, Mar. 8
Exam III	Friday, Apr. 5
Exam IV	Friday, Apr. 26

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.

Chapter 12
Chapter 22, sections 3-5,7
Chapter 13
Chapter 14
Chapter 15
Chapter 16, sections 1-6,8-10
Chapter 18
Chapter 19
Chapter 23
Chapter 24 (time permitting)

The sections covered for each exam will be announced in class.

Preparation for class. The pace of this course is such that it normally is not sufficient merely to attend class and take notes. You must also make use of your textbook. Before coming to class, you should read the material to be covered; after class, you should read back over this material as well as your class notes.

Review sessions. A review session will be held before each exam; the date and time will be announced in class. Often the review session will be held in class. If held outside of class, these sessions are optional and voluntary; no new material will be covered. Students normally come to a review session to ask questions that have come up while studying or to see problems worked.

Laboratory. Your laboratory instructor will explain the lab procedures to you. The lecture and laboratory are designed to coordinate so that you will have covered material in class before being required to use that material in lab. As you will note under Grading, there are penalties assessed for a low lab average and for low individual lab grades.

Office Hours. My office is Pierce 217. I am usually in my office and available from 9-5 every day. Exceptions are around lunch time (11:30-1:00) and during other classes and labs.

Grading. The final will count as two exam grades, giving a total of 6 (4 exams + final counting twice). The lowest of these 6 grades will be dropped. This average will constitute the lecture portion of your course grade.

Your lab grade will count in one of two ways, whichever results in a higher grade in the course for you:

(1) Your course grade will be computed by adjusting your grade on the lecture portion using your lab average as shown below:

93 and up	+2	73 - 75	-4
90 - 92	+1	70 - 72	-5
85 - 89	no adjustment	67 - 69	-6
82 - 84	-1	64 - 66	-7
79 - 81	-2	61 - 63	-8
76 - 78	-3	58 - 60	-9
		57 and below	-10

In addition, for every lab report which is below 50, 1 point will be subtracted from your course average.

OR

(2) Your course grade will be computed by taking 80% of your lecture grade and 20% of your lab grade. You must pass both the lecture AND the lab portions of the course or you will receive an F.

Grading scale. Grades are normally assigned as follows, with no rounding:

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