CHEM_OX 141

Instructor:
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Meetings:
Theoretical ("Lecture")
Pierce 223 – MF, 8:30-10:30AM
Practical ("Lab")
Pierce 201 – W, 8:30-10:30AM

1. 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)

2. 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.

3. Content goals. You will be expected to master these areas of chemistry:

- The scientific method
- Conversion between different measuring systems
- Significant figures
- The structure of the atom
- Nomenclature
- Molecular mass and moles
- Stoichiometry
- Reactions in aqueous solution
- Molarity
- Gases
- Thermochemistry
- Quantum theory and electromagnetic radiation
- Electron configurations
- The periodic table
- Bonding
- Molecular geometry and hybridization
- Organic chemistry

4. Materials. You will need:

Textbook: "Chemistry" 10th ed., by Chang.

Optional: study guide, student solutions manual.

Scientific calculator. Calculators which can download and/or store information, which can automatically solve equations, or which can be programmed, are not allowed.

For lab: Laboratory manual, sold by the Chemistry Department.

Carbon-copy lab notebook.

Safety glasses.

You must have all three materials for lab before your first lab meeting.

5. Attendance. (a) All students are expected to attend all lecture and laboratory sessions. However, it is recognized that emergencies can arise which may result in absence 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 will lose 1 point for your 4th absence, 2 points for the fifth absence, and 3 points for each additional absence sixth and beyond. These points will be deducted from the final course average. Note that there are no "excused" absences.

(b) 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. As the instructor, I 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.

6. In class. Ask questions. Our time together in class is meant to be a conversation. I ask questions and you should try to answer them. And you ought to ask your own questions. Our meetings are the second most important part of your learning; thus, they are critical to your success here.

7. **Problems**. At the end of each chapter, there are problems which you should work to help you in understanding the material. 5-10 problems will be assigned each class as preparation for the next meeting and will be collected then. 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 numerous practice problems.

8. **Exams**. There will be 4 exams. These will be given in class and will last 55 minutes. Make sure your calculator is one which is allowed, that it is working, and that you know how to use it. I typically do not bring extra calculators. 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 (see the Honor Code Pledge handout).

9. **Final Exam.** There will be a final exam, covering the semester's material. This will be given during the regularly scheduled final exam period. Final exams are not returned. Why?

10. **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 unless I have reason to believe the Honor Code is being violated.

    On exams, you may not use any material not distributed with the exam itself except for your own calculator and pencils/pens. You may not have any other material with you – this includes books, notebooks, book bags, papers, etc.; they must be left at the front of the room. You may not have a cell phone or other electronic device with you; if you bring these, they must be left at the front of the room also (and must be turned off). 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 they know of. See the Honor Code Pledge handout for more information.

11. Laboratory. At your first lab meeting, I 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. Note under Grading below, how your lab average affects your course grade.

12. 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 course grade will be computed by taking 80% of your lecture grade and 20% of your lab grade. Calculate the grade of a student who earned the following exam scores: 63, 78, 72, 70, and 60 and a lab average of 82.

13. 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 a grade of F in the course regardless of your final numerical average.

What grade is assigned to an average of 89.49?

Meeting	Date	HW problems due	Chang
1		None	Syllabus; 1.3-1.8
2		Examples 1.1-1.8	1.9
3		* Example 2.1	2.1-2.4
4		Examples 2.2-2.9	2.5-2.7
5		* Examples 3.1-3.7	3.1-3.4
6		Examples 3.8-3.10, 3.12	3.5, 3.7
7			Exam Review
8		*** Exam 1 (1.3-3.7)**	
9		Examples 3.13-3.15	3.8, 3.9
10		Example 3.16	3.10
11		* Examples 4.1, 4.2	4.1, 4.2
12		Examples 4.3-4.5	4.3, 4.4
13		Examples 4.6-4.8, 4.10, 4.11	4.5, 4.7
14		*	Practice Problems
15		Examples 5.1, 5.2	5.2, 5.3
16		Examples 5.3-5.10	5.4
17		* Examples 5.14, 5.15	5.6
18		Example 5.17	5.7, 5.8
19			Exam Review
20		*** Exam 2 (3.8-5.7)**	
21		Examples 6.5-6.8	6.1, 6.2, 6.5
22		Examples 6.3, 6.9, 6.10	6.4, 6.6, 6.7
23		* Examples 6.1, 6.2, 6.4	6.3, 6.4
24		Examples 7.1-7.5	7.1-7.4
25		Examples 7.6, 7.7	7.5-7.7
26		* Examples 7.8-7.11	7.8, 7.9
27		Examples 8.2, 8.3, 8.4	8.1, 8.3, 8.4
28			Exam Review
29		*** Exam 3**	
30		Example 9.1	9.1, 9.2
31		Read Sections 9.3, 9.4	9.3, 9.4
32		* Examples 9.9-9.12	9.9
33		Examples 9.2-9.5	9.5, 9.6
34		Examples 9.6-9.8	9.7, 9.8
35		* Examples 9.13, 9.14	9.10
36		Example 10.1	10.1
37		Examples 10.3-10.5	10.3-10.5
38		* Example 10.2, Read Section 10.8	10.8, 10.2
39			Exam Review
40		**Exam 4**	
41			Review for Final Exam
	TBD	Final Exam	

* Prelab Write-up, Prelab Quiz