

# CHEMISTRY 141

DR. SAADEIN

SPRING 2002

**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.

**Purpose.** This course will provide each student with an opportunity to increase their understanding of:

- the scientific method
- the metric system
- significant figures
- the three states of matter
- atomic structure
- nomenclature of inorganic compounds
- writing and balancing chemical equations
- predicting products of chemical reactions
- oxidation-reduction reactions
- acid-base reactions
- stoichiometry in reactions
- gas law
- thermochemistry (calorimetry, enthalpy, First Law of Thermodynamics)
- quantum theory
- electron configurations
- the Periodic Table, periodic trends in properties
- chemical bonding and Lewis structures
- hybrid orbitals, predicting geometry and polarity of molecules
- solutions – concentration units, properties

Students are also presented with the opportunity to develop quantitative problem-solving skills.

In addition, students are exposed to modern topics of concern in science and are encouraged to be skeptical and question results.

**Expected Results.** Prior to the completion of the course, each student will have an opportunity to demonstrate his/her comprehension of concepts and competence in the skills stated above.

**Assessment Procedures.** Each student will complete four-hour long examinations covering the material contained in the required textbook and in-class lectures as well as a comprehensive final exam covering the entire semester's material. Each student's exams

will consist of both quantitative problems and qualitative questions. Each student's exam will be judged by standards of logically organized and presented work – quantitative answers must show the reasoning used and be correct in magnitude and precision; qualitative answers must be thorough and demonstrate correct grammar, spelling, and punctuation.

**Use of Assessment Findings.** Each exam is graded; written corrections and criticisms are included. Each exam is returned at the next class period and thoroughly discussed – problems are worked on the blackboard and correct answers are explained to the class. Individual appointments are made with students who seem to be having unusual difficulty. The treatment of topics with which a substantial portion of the class has difficulty may be revised.

After the course is completed, each student will complete a standardized course evaluation form. This is done anonymously and the comments are read by the course instructor. The feedback can be incorporated into subsequent decision concerning the content and form of the course.

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

Students are allowed 2 absences in lecture and NO ABSENCES in lab.

Students who exceed the 2 absence limit in lecture for whatever reason will lose 1 point for the next absence (number 3), 2 points for the next absence (number 4), and 3 points for each subsequent absence (numbers 5 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 a student misses an exam and presents the instructor with an acceptable excuse, the grade on the final exam will count in place of the missed exam grade. The instructor must be notified by the day and time of the exam that the student will not be present and must be given the reason for the absence. If the excuse is not considered acceptable, the exam grade will be a zero. It is up to the instructor to make the determination as to whether an excuse is acceptable. In general, illness or an emergency situation are the only acceptable reasons 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 late, it is your responsibility to see the instructor immediately after class to ensure that you are marked tardy and not absent. No adjustments will be made at a later time. The instructor reserves the right to exclude from further classroom attendance a student who is continuously tardy.

NOTICE: Falsification of information regarding absences is a breach of academic integrity and a violation of the Oxford College Honor Code.

**Problems.** At the end of each chapter, problems will be recommended which should 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 include a large number of problems, it is essential that you become proficient in working problems like 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 your book, your notes, or other sources. 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.

**Tests.** There will be 4 exams, given approximately every 3-4 weeks. For an exam, you may bring only a calculator and pencils; any other material will be given out with the exam. Any other material you bring into the exam room must be left at the front. The honor code applies to all exams.

**Exam schedule.**

Exam I	Thursday, February 7
Exam II	Thursday, February 28
Exam III	Thursday, April 4
Exam IV	Thursday, April 25

**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 1-12.

**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. 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 low lab grades.

**Office hours.** My office is Pierce 216. I am usually in my office and available from 9-5 every day. Exceptions are around lunchtime and during class and labs.

**Grading.** The final will count as two exam grades, giving a total of 6 (4 exam grades + final counting twice). The lowest of these 6 grades will be dropped. This average will constitute your grade in the course, along with any adjustments from lab and attendance.

Your lab grade will be used to determine what adjustment, if any, is made to your course average:

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 that is below 50, 1 point will be subtracted from your course average. Lab grades are not rounded.

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

## **Chemistry 141 Lab Schedule Spring 2002**

**Purpose.** This laboratory will provide each student with an opportunity to develop the following skills:

- use of balances
- calculation of measures of accuracy and precision
- proper handling of scientific equipment and glassware
- observation of chemical and physical properties
- heating to constant weight
- determination of theoretical and percent yields
- preparation of standard solutions
- acid-base titration
- collection and measurement of gases
- calorimetry
- molecular geometries

In addition, each student is provided with the opportunity to demonstrate skill and scientific writing.

This laboratory is taken concurrent with Chemistry 141 and is designed to coordinate with it.

**Expected Results.** Prior to the completion of the course, each student will have an opportunity to demonstrate his/her comprehension of concepts and competence in the skills stated above.

**Assessment Procedures.** Each student will make a record of all observations and measurements while in lab and will complete a written laboratory report each week. The laboratory report will be judged on the basis of accuracy of results, description of observations and procedures, and methods used to obtain results. Answers to written questions will be judged by standards of logically organized material and correct grammar, spelling, and punctuation.

Each student will also write one experiment as a formal paper. This work will be judged by standards expected of a scientific paper – proper voice, tense, referencing, organization, and use of figures and tables.

**Use of Assessment Findings.** Each lab report is graded; written corrections and criticisms are included. Each report is returned at the next lab period. Individual appointments are made with students who seem to be having unusual difficulty. The treatment of topics with which a substantial portion of the class has difficulty may be revised. Students are given a chance to rewrite the formal report. The grade earned in lab is incorporated into the course grade for Chemistry 141.

After the course is completed, each student will complete a standardized course evaluation form. This is done anonymously and the comments are read by the course instructor. The feedback can be incorporated into subsequent decisions concerning the content and form of the course.

<b>Week</b>	<b>Experiment</b>	<b>Date</b>
1	Check in, Exp. 1	January 23
2	Exp. 2	January 30
3	Exp. 3	February 6
4	Exp. 4	February 13
5	Exp. 9	February 20
6	Exp. 5	February 27
7	Exp. 17	March 6
8	Exp. 7	March 20
9	Exp. 8	March 27
10	Exp. 6	April 3
11	Check-out* Make-up**	April 10

Review classes will be held during lab time on April 17 and 24.

\*Check-out is a scheduled laboratory session; an absence here will result in a lab grade penalty.

\*\*The make-up lab may be performed only if you have missed a lab with a valid excuse and have the prior permission of your lab instructor; see the lab manual for details.

NOTE: The lab schedule is subject to change, depending on the pace of the course. Changes will be announced in class and posted to the "Chem 141 labs" LearnLink conference.