

College Chemistry I, Chem 1450, Fall 2006

Lecture: Laney 102 MWF 8:00-8:50 am Lab: Laney 206 Th 10:50-1:30 pm, 2:40-5:30 pm

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username = chem1450 password = _____

Office hours (drop in times): **M** 2- 4 pm, **T&W** 11 am - 12 pm, **F** 2- 3 pm other times by appointment

Text *Chemistry* (4th Ed.) by John McMurry & Robert C. Fay, Prentice Hall (c) 2004.

PRS Clickers These will be used daily in lecture to record attendance and poll students in class on their understanding of course material. You must have one of these clickers in time to begin using it in lab, August 31. It is your responsibility to bring this to class daily and to ensure that it is in proper working order (batteries, etc.). Register your clicker with me via e-mail following the instructions posted on my Chem 1450 webpage.

	possible points	X	% in category	=	points in category
PRS clicker participation	3	X		=	
quizzes	17	X		=	
experiments/ lab work	20	X		=	
exams	40	X		=	
final exam (Dec 11, 8-10 am)	20	X		=	

overall grade

100

your course grade

The lowest experiment, quiz, and hour exam will be dropped. Final exams may not be dropped.

Grades: A 89 - 100 points B 79-88 C 69-78 D 57-68 F < 57

Any student with a documented disability (e.g., physical, learning psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must at the beginning of the semester contact the instructor and UCA Office of Disability Services at 450-3135.

Course Description A required course for chemistry, biology, chemical physics majors, and medical pre-professional tracks. Principles of general chemistry are treated with emphasis on theoretical and quantitative applications. Lecture discussions, small-group, and laboratory work are used.

Course Objectives Develop a working knowledge of such topics as chemical nomenclature, proportionate relationships in chemical formulas and reactions, general reaction classifications, energy and its interaction with different forms of matter, atomic and molecular structure in relation to periodic chemical and physical properties, and quantitative chemical problem solving skills. Two goals are the ability to apply this knowledge to the natural world and adequate preparation for further detailed studies in chemistry.

Exams and Quizzes **Exams** (50 min) dates are posted on the syllabus. Plan your schedule accordingly; these dates rarely change. **Quizzes** (first 10 min of class) are always announced at least one class period prior to the day they are given. These timed exams and quizzes typically consist of short answer questions and questions requiring numerical work. Copies of old exams are linked to my Chem 1450 web site. Exams change every semester and are designed to test your mastery of class material in order to meet the two goals listed under the Course Objectives section.

- Policies**
- Attendance
Students with poor attendance (regularly late or absent) rarely do well in this course. Three unexcused absences will result in a WF grade. It is the student's responsibility to obtain information covered during an absence. Accurate attendance records will be accumulated based on your PRS clicker classroom responses.
 - Homework
Homework problems representative of course expectations are listed on the Lecture Schedule. Your success on timed exams and quizzes is directly related to the effort you spend working and *understanding* all of these problems.
 - Office Hours
This time is specifically set aside for you to ask me questions and receive help on course material. Use this time! If you cannot make the scheduled times, make another arrangement with me.
 - Makeups
No makeup labs, quizzes, or exams will be offered. A missed lab, quiz, or exam will be dropped as your lowest score.
 - Academic misconduct (cheating/plagiarism) "In the event an instructor determines that a student has engaged in academic misconduct, the instructor will meet with the student and inform him/her of the action or sanction the instructor deems appropriate." Quoted from p 41 of the UCA 06-07 Student Handbook, linked to Desrochers webpage.

Lab**Manual:** *Modular Laboratory Program in Chemistry* H. A. Neidig (ed.)

Wherever you purchase your packet of experiments, you must check to see that it contains all of the numbered experiments from the list below. Exchange defective packets at your place of purchase.

Lab**Schedule:** Th 10:50 - 1:30 or 2:40 - 5:30 in Laney 206

Date	Laboratory Activity	Background preparation for lab*	Expt Number
Aug 24	Syllabus, Safety, Sig. Figs., Exponents		
31	Dimen. analysis, lecture, clickers	Sec. 1.8-1.13, Problems 1.27,1.90	MISC 486
Sep 7	Density, Miscibility, Solubility	Sec. 1.10, Sec. 11.4	PROP 474
14	Two-component mixture	Sec. 2.7	PROP 603
21	Water Content of an Ionic Hydrate	Sec. 3.12, Sec. 14.15, Problem 14.17	ANAL 517
28	Dolomite composition	Sec. 3.4, Problem 3.12	ANAL 900
Oct 5	Studying chemical reactions	Sec. 3.1, 3.2, 4.1-4.7	REAC 422
12	Standardization of NaOH solution	Sec. 3.7, 3.9, 3.10	ANAL 424
19	FALL BREAK		
26	Visible Atomic Spectrum of Hydrogen	Sec. 5.3, 5.4	STRC 345
Nov 2	Molecular geometry (Lewis dot,VSEPR)	Sec. 7.5-7.9	STRC 409
9	Molecular geometry (Valence bond)	Sec. 7.10-7.12	STRC 409 <i>continued</i>
16	Heats of reaction	Sec. 8.8, 8.10, Problem 8.12	THER 901
23	THANKSGIVING HOLIDAY		
30	Percent Composition of H ₂ O ₂ (aq)	Sec. 9.4, Problem 9.78	ANAL 378
Dec 7	STUDY SESSION See webpage for final review sheet		

*Refers to text sections or end-of-chapter problems directly related to this lab work. You should read these sections and work these questions in advance of that day's lab work.

Lab Participation Chemistry is an experimental science. Lab time is your chance to master some of the experimental aspects of the subject. You will work with a partner in lab, but you will still actively participate in the experiments. Passive observation in lab while a partner does the work is unacceptable.

Pre-lab Assignments Prelab assignments are due before a lab session begins. A portion of the points for each experiment are allotted to the prelab (5 of 30 points). Late prelabs will not be accepted and will result in a loss of those points. Nearly every experiment has a formal pre-lab assignment written into the published pages, especially when lab work will be performed. These are the pages that are due at the beginning of the lab period. Advice for working some of the prelabs is posted on my Chem 1450 website.

Safety Goggles You must use appropriate safety goggles when working in lab. Your goggles should meet the ANSI Z.87 standard for laboratory eye protection. Specifically, they must have side and top shields to protect your eyes from chemical spills. Examples of eyewear are posted on my 1450 webpage.

Tentative Lecture and Exam Schedule

Date	Topic, see Boardlist for specific sections	End of chapter questions to work*
F Aug 25	Chapter 1: Matter and Measurement	1-4,6,7,9,11-22,25-27,29,32,33,36-39,44-45,48,50-53,57,59-61,64,
M 28		65,67,68,70,71,73-76,78-80,83,84,86,89,90,93-94,96,97,100-103,107
W 30	Review Quiz	
F Sep 1	Chapter 2: Atoms, Molecules, Ions	2-8,10-21,25-27,29-32,36,38,42-45,48,51,52,55,57-65,67,69,74,75,
M 4	LABOR DAY HOLIDAY	78-83,85,87,89,91,94,96,98,99,101,102,104,107,111,117
W 6		
F 8		
M 11	Chapter 3: Formulas, Equations Moles	1-4,7-8,10-15,17,18,20-25,27,30-34,36,37,40-43,46-54,56,57,59,60,
W 13		62-64,68,69,71,72,74,77-81,84-85,87-88,90,93-95,97,99,101-103,
F 15		108,111,113,114,118-121,123-125,129,133
M 18	EXAM 1: Chapters 1, 2, through Sec. 3.3	
W 20		
F 22		
M 25		
W 27	Chapter 4: Reactions in Aqueous Solution	1-14,18-21,24-26,28,30-40,43,44,46-48,51,52,54-60,62,64-66,68,
F 29		70-73,76,77,80-84,86,89,94,98,99,101,104,106-108,115
M Oct 2		
W 4		
F 6	EXAM 2: Chapters 3 and 4	
M 9	Chapter 5: Periodicity and Atomic Structure	1-5,7-8,10-13,15-21,23-34,36,37,45,46,48-51,54-58,60-61,65,66,
W 11		68,70-72,75,76,78,79,82-86,91-92,95,98,100,103,108,109,113,119
F 13		
M 16		
W 18		
F 20	FALL BREAK	
M 23	Chapter 6: Ionic Bonds and Main Group	1-7,9-11,15(a,b),16(a,c),17-25,27-33,36-40,42,44,46,48,50,53,55,
W 25		56,58,59,72,74,80(omit c),82(a),84,86,92,93,98(omit c),99(a,b),105
F 27		106,109,113
M 30		
W Nov 1	EXAM 3: Chapters 5 and 6	
F 3	Chapter 7: Covalent Bonds/Molec. Structure	1-5,6(omit a,b),7,9-18,20-22,24,25,31,32,35-38,40,42-44,46-57,59,
M 6		60-64,70-82,85,88,89,91,96,97,100,102,103,113,115,120,125,129
W 8		
F 10	Chapter 8: Thermochemistry	1-2,8-20,27-29,34,37,40,41,43,48-56,58,61-75,97,98,101(a),102,
M 13		104,108,110,114,115(a,b),119,122(a)
W 15		
F 17		
M 20	EXAM 4: Chapters 7 and 8	
W,F 22,24	THANKSGIVING HOLIDAY	
M 27	Sec 8.11, Chapter 9: Gases	1-2,4-17,20,26,27,29-35,37,38,42-45,47,49,50,52,56,58,60,64,66,
W 29		68-70,73,74,77-78,80,81,83,90,91,94,98,99,101,103,104,107,108,
F Dec 1		111,112,114-116,122
M 4		
W 6		
F 8	Study Day: come by my office for help 8 - 9	
M 11	Comprehensive Final Exam 8:00 - 10:00	

*Answers to homework problems from the text are in the solution manual (by Joseph Topich) for *Chemistry* (4th Ed.) at the two hour reserve desk in the library.