

Principles of Chemistry, Chemistry 1210, Fall 2005
Section 1, M W F, 8:30-9:20 AM, EC 106
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- Office Hours:** Wed. and Fri. 11:00 to 12:00 Noon, other times by appt.
- Text:** "Chemistry: The Central Science" 10th ed., 2005; Brown, Lemay & Bursten. A previous edition of this text (8th or 9th ed.) will work just fine if you can find one.
- Prerequisite** Math 1050 or higher
- Course description** Chemistry 1210 is the first of a two semester sequence of general chemistry for students in the physical and biological sciences and engineering. The course will cover topics presented in the first 13 chapters of the Brown, Lemay, and Bursten text. Chemistry 1220 will cover the remainder of the material in the text.
- Recitation** All students must register for a section of recitation listed in the course schedule with Richard Holz listed as the instructor. Recitation sections consist of groups of about 30 students and are administered by teaching assistants. **One sixth (1/6) of the Chem. 1210 grade** is derived from performance in recitation (quizzes and participation). The recitation setting is designed to develop problem solving skills needed for in class examinations. **Recitation sections will begin during the second week of classes.**
- Reserve** Copies of the syllabus, class schedule, previous exams and keys, solutions to selected problems etc. will be posted on electronic reserve at <http://eres.usu.edu>. The class ID is **CHEM1210**. You can search by instructor name or department. The password is **HOL1210**. Lecture notes will not be posted.
- Resource Room and Supp. Instruction** A Resource Room will be available for all students taking general chemistry. The times and location of this service will be posted on the electronic reserve page. Supplemental instruction (S.I.) is also provided for this course.
- Exams** Three hourly exams (100 points each) will be given during class on the dates indicated on the course schedule. The final exam is in-class and counts 200 points (80 points on material presented since exam 3; 120 points comprehensive). The multiple choice exams are based on material covered in class. You are strongly encouraged to read the text chapters, work the practice problems in the text, and work the practice exams I have placed on reserve. Your performance ultimately depends on your proficiency under testing conditions.
- Grading** A total of 600 points are possible in Chem. 1210 and are distributed as follows:
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| 1st Hour Exam (F, September 30, 8:30 AM, EC 106)..... | 100 pts. |
| 2nd Hour Exam (M, October 24, 8:30 AM, EC 106)..... | 100 pts. |
| 3rd Hour Exam (M, November 21, 8:30 AM EC 106) | 100 pts. |
| 10 Recitation quizzes @ 10 points each..... | 100 pts. |
| Comprehensive Final Exam (M, December 12, 7:30-9:20 AM, EC 106)..... | 200 pts. |
| Total points | 600 points |

Grading (cont.) Final assignment of grades will be done as follows:

A-/A	88-100%
B-/B/B+	77-87%
C-/C/C+	60-76%
D-/D/D+	50-59%

You are *guaranteed* the following grades if your final class percentage lies within the indicated ranges. Based on the overall class average, the percentage cuts for the various grades may shift lower than the above cuts. In other words, an "A" grade may be assigned for lower percentages (e.g. 86-100%) than those indicated above, a scenario that is *to your favor*. However, the percentages will never shift higher than the above, so you are assured the indicated or a higher grade, depending on the class average at the conclusion of the course.

Missed exams Anyone missing one of the hour exams for legitimate reasons will be eligible to take a make-up exam offered on November 16th by appointment only. This exam will be comprehensive through the material covered in the first twelve weeks of the course. This is the only make-up exam that will be offered. Missed exams that are not made-up will be scored as zero.

Provisions: The administration of Chem. 1210 will adhere strictly to the regulations outlined in the Fall Semester Schedule of Classes, pp. 102-109. Missed exams or quizzes may require written documentation from a doctor, parent or other suitable authority, at my discretion.

Learning Objectives

1. Develop a knowledge of key facts as outlined during the course
2. Develop a knowledge of the vocabulary of chemistry
3. Ability to explain chemical and physical properties using periodic table
4. Ability to explain physical and chemical properties of macroscopic materials in terms of microscopic (atomic and molecular) structure.
5. Be able to explain chemical and physical properties of materials based on their quantum structure.
6. Explain shape of molecules based on their electronic structure
7. Relate physical properties of materials to the shape of the constituent molecules
8. Provide a microscopic description of the 3 common phases of matter
9. Perform quantitative stoichiometric calculations using masses, moles, volumes etc interchangeably
10. Get an A in the course

In accordance with the Americans with Disabilities Act, reasonable accommodations will be provided for all persons with disabilities in order to ensure equal participation in Chem. 1210. In cooperation with the Disability Resource Center, reasonable accommodation will be provided for students with disabilities. Please meet with the instructor during the first week of class to make arrangements. Alternative format print materials, large print, audio, diskette or Braille, will be available through the Disability Resource Center.

Week	Day	Date	Lecture	Topic	Chapter	Recitation
1	M	8/29	1	Matter, Elements, and Compounds	1	no quiz or recitation this week
	W	8/30	2	Measurements	1	
	F	9/2	3	Atomic Structure	2	
2	M	9/5		Labor Day - No Classes		recitations meet, except sections 904 & 905
	W	9/7	4	Periodic Table	2	
	F	9/9	5	Nomenclature	2	
3	M	9/12	6	Balancing Equations	3	Quiz 1
	W	9/14	7	Atomic/Molecular Wts.	3	
	F	9/16	8	Empirical Formulas	3	
4	M	9/19	9	Calc. on Chem. Equations (<i>drop deadline w/o "W"</i>)	3	Quiz 2
	W	9/21	10	Electrolytes	4	
	F	9/23	11	Acid, Base, Salts and Ions	4	
5	M	9/26	12	Oxidation-Reduction	4	no quiz but recitations will meet this week
	W	9/28	13	Molarity	4	
	F	9/30		Exam 1 (Chapters 1-4)		
6	M	10/3	14	Energy, First Law	5	Quiz 3
	W	10/5	15	Enthalpy, Hess's Law	5	
	F	10/7	16	Enthalpy of Formation	5	
7	M	10/10	17	Radiant Energy	6	Quiz 4
	W	10/12	18	Quantum Effects	6	
	F	10/14	19	Bohr Atom, Orbital	6	
8	M	10/17	20	Many Electron Systems	6	Quiz 5
	W	10/19	21	Atomic sizes, energies	7	
	F	10/21	22	Electron Ionization, Affinity	7	
9	M	10/24		Exam 2 (Chapters 5-7)		Quiz 6
	W	10/26	23	Lewis Structures	8	
	F	10/28	24	Ionic vs. Covalent Bonds, Multiple Bonds	8	
10	M	10/31	25	Resonance, Octet violations	8	Quiz 7
	W	11/2	26	Bond Energies	8	
	F	11/4	27	VSEPR theory	9	
11	M	11/7	28	Bond polarity	9	Quiz 8
	W	11/9	29	Hybrid Orbitals	9	
	F	11/11	30	Multiple Bonds	9	
12	M	11/14	31	Gases	10	Quiz 9
	W	11/16	32	Gas laws	10	
	F	11/18	33	Partial pressures	10	
13	M	11/21		Exam 3 (Chapters 8-10)		No recitations and No quizzes
	W	11/23		Thanksgiving Break - No Class		
	F	11/25		Thanksgiving Break - No Class		
14	M	11/28	36	Liquids and Solids	11	Quiz 10
	W	11/30	37	Liquids and Solids	11	
	F	12/2	38	Solution Properties	13	
15	M	12/5	39	Solution Properties	13	Recitations meet.
	W	12/7	40	Solution Properties	13	
	F	12/9	41	Final Exam Review		
	M	12/12		Comprehensive Final Exam 7:30 - 9:20 AM		