

## Spring 2012 - CHEMISTRY 210 (Section 1: R001-R004)

**Co-requisite:** CHEM 212 - General Chemistry Laboratory I

**Instructor**—Lee Sunderlin, FW327, 753-6870, [sunder@niu.edu](mailto:sunder@niu.edu)

**Office Hours**—MWF 10:00 – 10:50 or by appointment.

**Recitation Teaching Assistant**—Rebecca Shaw

**TA Office Hours**—W 1-3 F 1-2

**SI hours** TBA (if available)

**On-Line Course Information (Blackboard):** <https://webcourses.niu.edu>

### Lecture and Recitation Schedule:

Section R001	Lecture MWF, 9:00 AM, LaT 200	Recitation Monday, 10:00 AM FR 205
Section R002	Lecture MWF, 9:00 AM, LaT 200	Recitation Monday, 11:00 AM FR 205
Section R003	Lecture MWF, 9:00 AM, LaT 200	Recitation Monday, 12:00 noon FR 205
Section R004	Lecture MWF, 9:00 AM, LaT 200	Recitation Monday, 1:00 PM FR 205

**Materials:** “*Principles of Chemistry*” 2<sup>nd</sup> Edition, by M. Silberberg (McGraw Hill; 2010)

**Tutors and Lab TA Office Hours:** The Department of Chemistry and Biochemistry maintains a free Tutor Room for General Chemistry students. The Tutor Room is in **Faraday 247** and the schedule will be posted online ([http://www.chembio.niu.edu/chembio/aboutus/help\\_room.shtml](http://www.chembio.niu.edu/chembio/aboutus/help_room.shtml)) and outside the help room door. Most semesters it is staffed Monday through Thursday from 8:30 AM to 3:30 PM with a lunch break. On Fridays, the Tutor Room closes early (~2:30 PM). General Chemistry laboratory TA office hours are held in Faraday 247. The laboratory TA office hour schedule is posted outside the Tutor Room and at the departmental stockroom window. Students are also encouraged to ask laboratory TAs for assistance in understanding the lecture material.

**Paid Tutors** - Names of tutors for hire are available from Linda Davis in Faraday 319 (Dept. office).

### Exams and Grading

**Exams** - Dates for the three 100 point hour exams are indicated in the lecture schedule (see next page).

***There will be no make-up exams unless prior arrangements have been made with the instructor. A missed exam will count as the dropped exam when the grade is calculated.***

**Recitation** - The recitation grade will be based on four quizzes (10 points each, in recitation), homework assignments (3 points for each chapter), and attendance (2 points for each of 14 class meetings).

Homework will be carried out online, as discussed below and in class. There will be no make-up quizzes.

**Final Exam** - The final examination will be divided into two parts: a 100 point section on the material from the last three weeks of class, and a 100 point comprehensive section. These two sections will be treated as separate scores for purposes of grading. The lowest score for the class will be dropped from the final score for the course. The final examination will be given on Wednesday, May 9<sup>th</sup> from 8-9:50 AM.

You may use an approved calculator but no other outside materials or devices on the test or quizzes.

Any cheating on a quiz or exam can result in a zero for that quiz or exam.

**Total points = 500 points** (hour-long exams = 300; recitation = 100; two sections of final exam = 200, best five scores kept)

**Grading scale:** A > 90% (450 pts.), B > 80% (400 pts.), C > 70% (350 pts.), D > 60% (300 pts.), F < 60%  
*Any student who may need an accommodation due to a disability, please make an appointment to see me during my office hours, or when convenient. A letter from the Center for Access-Ability Resources authorizing your accommodations is usually needed before accommodations can be granted.*

## TENTATIVE LECTURE SCHEDULE

<u>WEEK</u>	<u>CHAPTER/TOPIC</u>	<u>Exam</u>
1. Jan 18-20	<b>1:</b> Keys to the Study of Chemistry	
2. Jan 23-27	<b>2:</b> The Components of Matter	
3. Jan 30-Feb 3	<b>2:</b> Continued / <b>3:</b> Stoichiometry	Quiz Jan 30
4. Feb 6-10	<b>3:</b> Continued	<b>Exam I Feb 10</b>
5. Feb 13-17	<b>4:</b> Chemical Reactions	
6. Feb 20-24	<b>5:</b> Gases	
7. Feb 27-Mar 2	<b>5:</b> Continued / <b>6:</b> Thermochemistry	Quiz Feb 27
8. Mar 5-9	<b>6:</b> Continued	<b>Exam II Mar 9</b>
9. Mar 19-23	<b>7:</b> Atomic Structure	
10. Mar 26-30	<b>8:</b> Chemical Periodicity	
11. Apr 2-6	<b>8:</b> Continued / <b>9:</b> Chemical Bonding	Quiz Apr 2
12. Apr 9-13	<b>9:</b> Continued	<b>Exam III Apr 13</b>
13. Apr 16-20	<b>10:</b> Shapes of Molecules	
14. Apr 23-27	<b>11:</b> Covalent Bonding	Quiz Apr 23
15. April 30-May 2	<b>11:</b> Continued (May 4 is reading day)	
16. May 9	Wednesday 8-9:50 AM	<b>FINAL</b>

## CHEMISTRY 210 - GENERAL EDUCATION AND COURSE CONTENT OBJECTIVES

### General Education Course Objectives

- Improve ability to think critically and logically
- Improve ability to reason quantitatively and to perform basic chemical computations
- Improve ability to interpret mathematical models
- Learn how to use the scientific method and theories to understand chemical phenomena
- Develop an appreciation for the importance of the role of chemistry in everyday life
- Develop an understanding of the historical development of the field of chemistry

### Content Objectives of this Course

- Understand the components of atoms and ions
- Learn how to write chemical formulas and how to name compounds
- Learn how to balance chemical equations and how to perform simple stoichiometry calculations
- Understand the behavior of gases, liquids, and solids
- Become familiar with the electronic structure of atoms and understand how chemical reactivity depends on electronic structure
- Correctly predict the shapes of complex molecules and ions, and become familiar with the theories of chemical bonding

### Homework Instructions – online homework with Sapling Learning

1. Go to <http://saplinglearning.com>

2a. If you already have a Sapling Learning account, log in, click "View Available Courses", then skip to step 3.

2b. If you have a Facebook account, you can use it to quickly create a SaplingLearning account. Click "create account" located under the username box, then click "Login with Facebook". The form will auto-fill with information from your Facebook account (you may need to log into Facebook in the popup window first). Choose a password and timezone, accept the site policy agreement, and click "Create my new account". You can then skip to step 3.

2c. Otherwise, click "create account" located under the username box. Supply the requested information and click "Create my new account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.

3. Find your course in the list (listed by school, course, and instructor) and click the link.

4. Select a payment option and follow the remaining instructions.

Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments. During sign up - and throughout the term - if you have any technical problems or grading issues, send an email to [support@saplinglearning.com](mailto:support@saplinglearning.com) explaining the issue. The Sapling support team is almost always more able (and faster) to resolve issues than your instructor.

### Optional homework for CHEM 210 from Silberberg text (not for class credit)

Chapter 1 Problems 1, 5, 14, 16, 18, 23, 25, 31, 46, 54, 59

Chapter 2 Problems 3, 4, 7, 12, 16, 24, 28, 32, 39, 43, 48, 54, 58, 60, 64, 68, 78

Chapter 3 Problems 1, 2, 7, 13, 17, 27, 29, 34, 37, 42, 44, 50, 58, 68, 72, 78

Chapter 4 Problems 2, 8, 12, 24, 26, 28, 40, 42, 50, 54, 58, 66, 74

Chapter 5 Problems 7, 15, 17, 31, 35, 42, 43, 47, 56

Chapter 6 Problems 5, 7, 13, 22, 24, 35, 37, 41, 44, 53, 55

Chapter 7 Problems 7, 9, 14, 19, 21, 35, 40, 42, 55

Chapter 8 Problems 5, 10, 12, 18, 20, 22, 30, 40, 42, 57, 61

Chapter 9 Problems 4, 6, 8, 10, 18, 30, 35, 36, 39, 45, 51

Chapter 10 Problems 1, 3, 5, 11, 13, 19, 24, 33, 37, 39, 54

Chapter 11 Problems 1, 7, 13, 21, 25, 29, 33, 35, 37