

**Fall 2014 - CHEM 210-0001 "General Chemistry I"**  
**Co-requisite:** CHEM 212 - General Chemistry Laboratory I  
**Participating in the Pre-Professional Health Themed Learning Community**

**Instructor** - Dr. Elizabeth R. Gaillard, LaT322, 753-6908, [gaillard@niu.edu](mailto:gaillard@niu.edu)

**Office Hours** – T 3:00-3:50 and WF 10:00-10:50 or by appointment

**Recitation TA** – Jennifer Tournear, [jtournear@niu.edu](mailto:jtournear@niu.edu)      **TA Office Hours** – TBA

**TLC Student Leader** – Dan Jeffries, [djeffries1@niu.edu](mailto:djeffries1@niu.edu)

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

**Materials:** "Principles of General Chemistry", by M. Silberberg 3<sup>rd</sup> Edition (McGraw Hill; 2013) and McGraw-Hill Connect Plus (on-line homework and LearnSmart adaptive learning). Connect Plus includes an ebook and the Smartbook in LearnSmart that you are strongly encouraged to use. **You are not required to purchase the hardbound copy of the textbook.** An access code for Connect Plus is bundled with the textbook or you may purchase one on-line the first time that you open an assignment on Blackboard. The University bookstore also sells Connect Plus access codes. The Connect Plus access code costs \$115 and is good for two semesters.

A solutions manual is available for the textbook but it is not required. The Faraday library has many older chemistry textbooks and math tutorial books that you may find useful.

### Lecture and Recitation Schedule:

Section R001 Lecture MWF, 9:00 AM, FR 143	Recitation Monday, 10:00 AM FR 205
Section R002 Lecture MWF, 9:00 AM, FR 143	Recitation Monday, 11:00 AM FR 205
Section R003 Lecture MWF, 9:00 AM, FR 143	Recitation Monday, 1:00 PM FR 205
Section R004 Lecture MWF, 9:00 AM, FR 143	Recitation Monday, 2:00 PM FR 205
Section T603 Lecture MWF, 9:00 AM, FR 143	Recitation Monday, 2:00 AM FR 205

**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 Hall 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. General Chemistry laboratory TA office hours are held in Faraday 246. 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

**Recitation** - The recitation grade (100 points possible) will be based on four 10-point quizzes (40 points), ten 4-point homework assignments (40 points) and attendance (2 points for each quiz free session). The quizzes will be given during the recitation period of the week of the exam (see next page) and there will be **no make-up quizzes or homework**. The homework will be administered on-line using Connect. LearnSmart modules can be used for extra credit in recitation. Two points of extra credit will be assigned for each completed LearnSmart module. Students are strongly encouraged to utilize the LearnSmart study modules; numerous studies indicate that students who use LearnSmart on average earn one letter grade higher than those who do not.

**Exams** - Dates for three 100 point in-semester exams are indicated in the lecture schedule (see next page). During the Final Exam period, there will be two exams: a fourth exam (100 points) and a comprehensive final exam (100 points). All exams will consist of 25 multiple-choice questions. The lowest exam grade will be replaced by the recitation grade unless the recitation grade is lower. **There will be no make-up exams unless prior arrangements have been made with the instructor to take the exam before the scheduled date and time. Professor Gaillard reserves the right to refuse to make alternative arrangements. A missed exam will be replaced by the recitation grade.** Your overall final class grade will be determined as follows:

Best of four exams and recitation	400 points
<u>Final Exam</u>	<u>100 points</u>
Total	500 points

**Grading scale:** The grades will be determined according to the percentage of points out the total possible 500 points:

>93% (>465)=A, 90-92.9% (450-464)=A-, 87-89.9% (435-449)=B+, 83-86.9% (415-434)=B, 80-82.9% (400-414)=B-, 77-79.9 (385-399)=C+, 70-76.9 (350-384)=C, 60-69.9 (300-349)=D, <59.9 (<299)= F.

This scale may be revised downward (not upward), but this is not guaranteed.

## Additional Policies

**Academic integrity** - Good academic work must be based on honesty. Cheating and plagiarism are considered to be serious offenses. Students responsible for, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for this course and may be suspended or dismissed from the university.

**Accommodations for students with disabilities** – Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). Any student requiring an academic accommodation due to a disability should let his or her faculty member know as soon as possible. Students who need academic accommodations based on the impact of a disability will be encouraged to contact the DRC if they have not done so already. The DRC is located on the 4<sup>th</sup> floor of the Health Services Building and can be reached at 815-753-1303 or drc@niu.edu.

## TENTATIVE LECTURE SCHEDULE

<u>WEEK beginning</u>	<u>CHAPTER/TOPIC</u>	<u>Exam/Quiz</u>
1. Aug. 25	<b>1:</b> Keys to the Study of Chemistry	
2. Sept. 1*	<b>1:</b> Continued/ <b>2:</b> The Components of Matter	
3. Sept. 8	<b>2:</b> Continued	
4. Sept. 15	<b>3:</b> Stoichiometry of Formulas and Equations	
5. Sept. 22	<b>3:</b> Continued/ <b>4:</b> The Major Classes of Chemical Reactions	<b>(quiz 1) Exam 1, 9/26</b>
6. Sept. 29	<b>4:</b> Continued	
7. Oct. 6	<b>5:</b> Gases and Kinetic Molecular Theory	
8. Oct. 13	<b>6:</b> Thermochemistry: Energy Flow and Chemical Change	
9. Oct. 20	<b>7:</b> Quantum Theory and Atomic Structure	<b>(quiz 2) Exam 2, 10/24</b>
10. Oct. 27	<b>7:</b> Continued/ <b>8:</b> Electron Configuration and Chemical Periodicity	
11. Nov. 3	<b>8:</b> Continued/ <b>9:</b> Models of Chemical Bonding	
12. Nov. 10	<b>9:</b> Continued	
13. Nov. 17	<b>10:</b> The Shapes of Molecules	<b>(quiz 3) Exam 3, 11/21</b>
14. Nov. 24*	<b>10:</b> Continued	
15. Dec. 1	<b>11:</b> Theories of Covalent Bonding	<b>(quiz 4)</b>
<b>Final: Wed., Dec. 10</b>	8 AM - 9:50AM	<b>FINAL</b>

\*Sept. 1 Labor Day (University closed); Nov. 26-Nov. 30 Thanksgiving Break (University closed)

## Additional Information

**CHEM 211 is a challenging course.** There are many resources available to help you succeed – it is *your* responsibility to take advantage of them. Success will require diligent study habits, paying attention to announcements and attendance at all scheduled lectures and labs. As a general rule of thumb, you should be studying about 3 hours per week per credit hour so, for CHEM 211, that equals approximately 9 hours per week outside of the classroom. In addition to the departmental resources described above, the following university resources may be of benefit to you:

- \* NIU Office of Student Academic Success: <http://www.niu.edu/osas/index.shtml>
- \* NIU Tutoring Centers: <http://www.niu.edu/access/tutoringcenters/>
- \* One-on-one tutoring: <http://www.niu.edu/access/pal/>

In the lecture hall and recitation classroom, common courtesy is expected. Don't engage in activities that interfere with my teaching (or Tim's teaching) or that interfere with your fellow students learning. If you use a computer or tablet in class, use it only for class related activities. If you need to arrive late or leave early, please do so discretely. Anyone who violates these basic standards may be asked to leave the lecture hall or recitation classroom.

### **Themed Learning Community (TLC) Policy**

This course is part of a Themed Learning Community, meaning it is intentionally paired with one or two other courses taken in conjunction with one another. It is required that you are enrolled in **ALL TLC** courses simultaneously in order to benefit from the unique learning opportunity created by these bundled courses. If, for some reason, you wish to drop one of your TLC courses, you must drop all of the courses that make up this TLC. Students are responsible for seeking additional guidance from their TLC instructors or the Office of Student Engagement and Experiential Learning (OSEEL) regarding possible withdrawal from TLC courses. Along with the benefits of integrative coursework, TLC students will also benefit from additional mentoring, academic support, and additional co-curricular opportunities.

Students who are enrolled in the Pre-Professional Health TLC should also be enrolled in the CHEM 210 Recitation section that meets on Mondays from 2 – 2:50 pm and in the CHEM 212 General Chemistry Laboratory I that meets on Tuesdays from 2 – 4:50 pm.

## **CHEM 210 - GENERAL EDUCATION AND COURSE CONTENT OBJECTIVES**

### **CHEM 210 General Education 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

### **CHEM 210 Content Objectives**

- 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