Fall 2015 - CHEMISTRY 110-0001 Course #: 2586 (3 credit hours)

Instructor/Contact Info: Dr. Leifker, FR 336, mleifker@niu.edu
Office Hours: W/F 9:00 – 10:00 am**;** or by appointment

On-Line Course Information: Blackboard (https://webcourses.niu.edu)
Materials: General, Organic, and Biochemistry (8th Edition) by Denniston; on-line homework package

Lecture Times: Tuesday & Thursday @ 11-12:15pm in Faraday Hall 143

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 located in **Faraday 247** and the schedule will be posted online (http://www.chembio.niu.edu/chembio/aboutus/help_room.shtml) and outside the help room door. 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 – There will be four 100-point hour exams, with each exam covering content from 2-3 chapters. Three of the exams will be administered during the regular semester (dates are indicated in the lecture schedule) and the last 100 point exam will be administered as Part I of the final exam. *The lowest regular exam score will be dropped. This allows you to miss an exam if absolutely necessary, and minimizes the effect of one poor score on the overall grade.* ***There will be no make-up exams or extra credit points.*** *The professor will deal with any issues that affect your ability to take an exam (medical issues, weather closures, etc.) on a case by case basis.* Any student more than 30 minutes late to any exam will not be allowed to take it. You must attend your registered section for all exams, no exceptions.

Homework/Participation – 100 points. All the homework will be online using the Connect and LearnSmart technologies. See attached handout for more information. Connect and LearnSmart cannot be accessed through smart phones and iPads, you must use a computer.

Final Exam - The final exam will consist of two parts: Part I counts as one of the four 100 pt. hour exams described above, and Part II is a 100 pt. comprehensive exam. **Final: Tuesday, May 10th 10 – 11:50 am in Faraday Hall 143**

Total points:	hourly exams	= 300 pts. (lowest of four exams is dropped)
	Homework	= 100 pts.
	comprehensive final exam	= 100 pts.
	total	= 500 pts.

Grading scale: A ≥ 90% B ≥ 80% C ≥ 70% D ≥ 60% F < 60%

Accessibility Statement: 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 4th floor of the Health Services Building, and can be reached at 815-753-1303 (V) or drc@niu.edu.

Academic Integrity. Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else. Students are responsible for plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying

and acknowledging those sources or if they paraphrase ideas from such sources without acknowledging them. Students responsible for, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.

TENTATIVE LECTURE SCHEDULE

WEEK	CHAPTER/TOPIC	Exams
1. 1/19 – 1/21	Introduction/Chapter 1 (Sections 1.1-1.2)	
2. 1/26 – 1/28	Chapter 1. (Sections. 1.3-1.5)	
3. 2/2 – 2/4	Chapter 2. (Sections 2.1-2.5)	
4. 2/9 – 2/11	Chapter 2. (Sections 2.6-2.7)	**Exam 1 (Thursday)**
5. 2/16 – 2/18	Chapter 3. (Sections 3.1-3.2)	
6. 2/23 – 2/25	Chapter 3. (Sections 3.3-3.5); Chapter 4. (Section 4.1)	
7. 3/1 – 3/3	Chapter 4. (Sections 4.2-4.3)	
8. 3/8 – 3/10	Chapter 4. (Sections 4.4-4.5)	**Exam 2 (Thursday)**
9. 3/15 – 3/17	**SPRING BREAK**	
10. 3/22 – 3/24	Chapter 5. (sections 5.1-5.2)	
11. 3/29 – 3/31	Chapter 5. (Section 5.3); Chapter 6. (Sections 6.1-6.4)	
12. 4/5 – 4/7	Chapter 6. (Sections 6.5-6.6); Chapter 7. (Sections 7.1-7.2)	
13. 4/12 – 4/14	Chapter 7. (Sections 7.3-7.4)	**Exam 3 (Thursday)**
14. 4/19 – 4/21	Chapter 8. (Sections 8.1-8.2)	
15. 4/26 – 4/28	Chapter 8. (Sections 8.3-8.5)	
16. 5/3 – 5/5	Chapter 9. (Sections 9.1-9.7)	
17. 5/10	**Exam 4/Final Exam @ 10:00 – 11:50am**	

General Education Course Objectives

- Improve ability to think critically and logically
- Perform basic chemical computations and improve ability to reason quantitatively
- 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

Course Content Objectives

- Understand concepts of matter and energy and become acquainted with metric and SI units of measurement
- Understand atoms and ions and their subatomic components
- Learn the electronic structures of atoms and ions, and understand their relationship to periodic properties
- Correctly predict the shapes of molecules and ions from Lewis dot/VSEPR characteristics
- Learn chemical nomenclature
- Learn basic stoichiometry calculations
- Develop ability to predict outcomes of chemical reactions from knowledge of reactants and reaction types
- Understand the chemical basis for the physical behavior of gases, liquids, and solids
- Become knowledgeable about the properties of aqueous solutions
- Develop the ability to predict reactions and equilibria from knowledge of Le Chatelier's Principle
- Understand the physicochemical characteristics of acids, bases, oxidants, and reductants
- Become knowledgeable about nuclear chemistry and its applications to medical fields

McGraw Hill On-Line Resources
CONNECT Plus and LearnSmart

The grading in CHEM 110 includes 100 pts. Based on participation and performance using on-line instructional technologies. CONNECT Plus and LearnSmart are products that are linked to the McGraw Hill textbook, and you must register for these components using the access codes purchased separately or combined with the required textbook. These on-line components are described here, along with the relative weights assigned to each component.

LearnSmart

LearnSmart is an adaptive learning technology that uses student responses to evaluate mastery of content, and tailor tutorials-style learning sessions to help students increase proficiency. Once students have demonstrated mastery of a given concept, it introduces more advanced concepts until the student has achieved a given level of competence with the component. If the program identifies an area in which the student requires additional practice it will provide a link and/or references to specific sections in the textbook so the student can do additional reading, etc.

The LearnSmart modules on Blackboard are correlated with the content of individual lectures and students are expected to read the appropriate sections and complete the LearnSmart module before lecture! For example according to the syllabus we begin Chapter 3 during the third week of class, beginning with sections 3.1 and 3.2. Each student would be expected to read those sections and complete the LearnSmart module tied to those sections before coming to lecture. This allows the instructor to evaluate which concepts in those sections appeared to pose more difficulty for students, and to focus their lectures to provide additional practice with or discussion on those topics.

There are 14 LearnSmart modules on Blackboard, with due dates tied to the lecture schedule described in the syllabus. The average score on the LearnSmart module will constitute 25% of the 100 pts for Homework/Participation in the grading scheme.

CONNECT

CONNECT is an on-line homework package that is intended to provide students with additional practice working with concepts. Although performance on the homework is part of the grade, it is also a useful self-assessment tool. If, while working on a given homework module, you discover that you are having difficulty with a particular concept or problem, you should use that as a guide in preparing for the exam. Try additional problems until you are confident of your abilities, or seek additional help as needed for the exam.

Homework problems are assigned using either pooled sets of questions or algorithmic questions that will vary data so that two students are unlikely to receive the same set of problems. A student may attempt the homework assignment multiple times and the highest score achieved before the due date will be recorded. **DO NOT WAIT UNTIL THE HOUR BEFORE THE DUE DATE TO BEGIN THE HOMEWORK.** This is a recipe for failure. Rather, begin the homework assignments as close as possible to the dates when the corresponding material is covered in lecture so that it is fresh in your mind, and so you have time to seek help if needed well before the assignment is due.

There are 14 CONNECT homework assignments, and the overall average on the homework will constitute 75% of the 100 pts for Homework/Participation in the grade scheme.