CHEMISTRY 211 (GENERAL CHEMISTRY II, Sections R001-R004) Spring 2017
Co-requisite: CHEM 213 - General Chemistry Laboratory II

Time & Place: M, W, F 8:00 A.M. - 8:50 A.M., Faraday Hall 143.
Textbook: *"General Chemistry: Atoms First"*, by McMurry and Fay, 2nd Edition (Pearson; 2014) and Pearson *MasteringChemistry* (on-line homework, assessment and study tools utilizing adaptive learning). *MasteringChemistry* includes an ebook and a Study Area with self quizzes, videos, activities, math resources etc. that you are strongly encouraged to use. An access code for *MasteringChemistry* is bundled with the textbook or you may purchase one on-line the first time that you open an assignment on Blackboard. **You must purchase the code labeled "Modified Mastering" in order for it to work with Blackboard.** The University bookstore also sells stand-alone *MasteringChemistry* access codes. The *MasteringChemistry* access code costs $114 and is good for two semesters. You may sign up for a 14-day free trial of *MasteringChemistry* the first time that you access our course but be sure to use the same login credentials when you purchase the code after the free trial. A solutions manual and study guide are available for purchase for the textbook at the Pearson website but they are not required. The Faraday library has many older chemistry textbooks and math tutorial books that you may find useful.
Instructor: Dr. Chong Zheng, Office: La Tourette Hall 326, Phone: 753-6871, email: *czheng@niu.edu* (email is preferred).
Course webpage: http://webcourses.niu.edu/.
Office hours: M, W 9:00 A.M. - 10:00 A.M. or by appointment.

Recitation TA & Office Hours: Sean Kenneday, email: skennedy2@niu.edu.
Office hours will be announced in the first recitation session.

Recitation Schedule (All recitations are in Faraday Hall 205):

Section R001:	Tuesdays, 11:00 A.M. – 11:50 A.M.	Section R002:	Tuesdays, 12:30 P.M. – 1:20 P.M.
Section R003:	Tuesdays, 2:00 P.M. – 2:50 P.M.	Section R004:	Tuesdays, 3:30 P.M. – 4:20 P.M.

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 is posted online (http://www.chembio.niu.edu/chembio/academics/undergraduate/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 (departmental office).

Exams and Grading
Exams – The exam dates for the three 100-point hour exams are indicated in the lecture schedule (see next page). *The lowest exam grade will be dropped. 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.*

Final Exam – The 140 point final exam will be comprehensive

Recitation – The recitation grade will be based on four 10-point quizzes and attendance (2 points for each attendance for a total of 30 points of the 15 recitation sessions in the semester). 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. Thus the maximum recitation points are 70.

Homework – There will be nine 10-point homework assignments administered on-line using *MasteringChemistry* through Blackboard. You will need an *access key* (provided with the textbook purchase or purchased separately, see above). Please note posted deadlines for the assignments.

Class Participation Extra Credit Points – You can purchase an optional clicker to answer questions posted during the lecture. If you answer ALL questions during the lecture and get at least one correctly, you will earn 1 extra credit point. But you must answer all questions in each lecture in order to receive the extra credit. There will be approximately 30 extra credit points available. With these extra credit points, a student can usually move one letter grade up. For instruction how to use the clicker, please read the instruction: http://www.turningtechnologies.com/pdf/content/NXTStudentUserGuide.pdf. You must register your clicker before you can get these extra credit points. To register, log into Blackboard. Go to the "Tools" menu, click on the "TurningPoint Registration Tool" link, and follow the instruction there.

Total points = 500 points (hourly exams = 200, with lowest exam dropped; recitation = 70, homework = 90; final exam = 140, not counting the extra credit points)

Grading scale: A > 90% (450 pts.), B > 80% (400 pts.), C > 70% (350 pts.), D > 60% (300 pts.), F < 60%

There will NOT be grade curving! The effective curving is the LearnSmart study module and class participation extra credit.

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.

Technical support of the MasteringChemistry website or the clicker – If there is any technical problem, please contact the student support at the *MasteringChemistry* website or NIU ITS at 753-8100. The instructor has no technical control of the *MasteringChemistry* website and the NIU Blackboard, therefore will be not able to answer any related technical questions.

Any student who may need an accommodation due to a disability, please notify me as early in the semester as possible. It is the responsibility of the student to contact the Disabilities Resource Center at 815-753-1303 to initiate and obtain accommodations

TENTATIVE LECTURE SCHEDULE

WEEK	**CHAPTER: TOPIC**	**Exam**
1. Jan. 18-20	**10:** Liquids, Solids, and Phase Changes	
2. Jan. 23-25	**10:** Continued	
3. Jan. 30-Feb. 3	**11:** Solutions and Their Properties	Quiz
4. Feb. 6-10	**11:** Continued / **12:** The Rates and Mechanisms of Chemical Reactions	**Exam I Friday Feb. 10**
5. Feb. 13-17	**12:** Continued	
6. Feb. 20-24	**13:** Chemical Equilibrium: The Extent of Chemical Reactions	
7. Feb.27-March 3	**13:** Continued / **14:** Aqueous Equilibria: Acids and Bases	Quiz
8. March 6-10*	**14:** Continued	**Exam II Friday March 10**
9. March 20-24	**14:** Continued / **15:** Applications of Aqueous Equilibria	
10. March 27-31	**15:** Continued / **16:** Thermodynamics: Entropy, Free Energy, and Equilibrium	
11. April 3-7	**16:** Continued	Quiz
12. April 10-14	**17:** Electrochemistry	**Exam III Friday April 14**
13. April 17-21	**17:** Continued	
14. April 24-28	**22:** Nuclear Chemistry	
15. May 1-3*	**22:**Continued	Quiz
May 8	8-9:50 AM	**FINAL**

*March 12-19: Spring Break; May 5: Reading Day.

CHEMISTRY 211 - 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

- Become familiar with the properties of solutions and be able to calculate concentrations of species in solution
- Understand the concepts behind chemical kinetics and reactions rates
- Understand acid-base and ionic equilibria, and appreciate real-world applications of these equilibria
- Understand entropy, free energy, and the direction of chemical reactions
- Understand the difference between voltaic and electrolytic cells, and be able to calculate the cell potential of a voltaic cell
- Understand the nuclear properties of isotopes, including nuclear reactions, and the practical applications of nuclear chemistry.