

## FALL 2014 – CHEM 210-0003 (9576) – GENERAL CHEMISTRY I – 3 Credit Hours

Co-requisite: CHEM 212 - General Chemistry Laboratory I – 1 Credit Hour

**Principal Instructor** – Prof. Narayan S. Hosmane, FR 305, 753-3556 [hosmane@niu.edu](mailto:hosmane@niu.edu) (short e-mail questions)

**Co-Instructors:** Prof. Chong Zheng, LAT 326, 753-6871 [czheng@niu.edu](mailto:czheng@niu.edu); Dr. A. Chakrabarti, FR 310 [c.camartya@gmail.com](mailto:c.camartya@gmail.com)

**Lectures: MWF, 2:00 –2:50 PM in Faraday Hall 143**

**Office Hours** – Tu and Th, 1:00 - 2:30 PM, or by appointment

**Text: Bundled with ALEKS is Required:** “*Principles of General Chemistry*”, by Martin Silberberg, 3<sup>rd</sup> Edition (McGraw-Hill: 2013)

**Supplementary Text:** “*General Chemistry: Nature’s Mystery*”, by Narayan Hosmane, (Cognella/University Readers, 2014) is available.

## Exams, Assignments, Quizzes and Grading

**Exams** - Tentative dates for 100-points hourly exams are indicated below in the lecture schedule. Make-up exams will **NOT** be given **under any circumstances**. Missed Exam will be considered as one of the lowest exam grades. However, one of the lowest exam grades will be replaced by ALEKS grade that is **mandatory**!

**Surprise Quizzes (Pop Quizzes)** – Surprise quizzes (believe me you will be surprised!) for a TOTAL 100 points (worth a grade of ONE exam) will be given **during the lecture and the recitation hours**. However, only **BEST TEN** quiz grades will be counted toward your FINAL GRADE. There will be **ABSOLUTELY** no make-up quizzes. **Exam and Quiz Grades will not be curved!**

### Online Self-Assessment through ALEKS is mandatory (100 Points)

**Total points = 600 points** (best **two** hourly exams = 200; surprise quizzes = 100; ALEKS = 100; final exam = 200)

**Grading scale:** A > 90% (540 pts.), B > 80% (480 pts.), C > 70% (420 pts.), D > 60% (360 pts.), F < 60%

### TENTATIVE LECTURE SCHEDULE

<u>WEEK</u>	<u>CHAPTER/TOPIC</u>	<u>Exams &amp; ALEKS Due Dates (FIXED)</u>
01. August 25	Introduction/Chapter1: Keys to the Study of Chemistry	
02. <b>September 01</b>	<b>Monday: Labor Day</b>	<b>No Class</b>
03. September 03	Ch. 2: The Components of Matter	Ch.01 – Sept 14
04. September 08	Ch. 2: Continued; Ch. 3: Stoichiometry of Formulas and Equations	Ch.02 – Sept 21
05. September 15	Ch. 3: Continued; Ch. 4: The Major Classes of Chemical Reactions	Ch.03 – Sept 28
06. September 22	Ch. 4: Continued.	<b>Exam 1 (09/26)</b>
07. September 29	Ch. 5: Gases and the Kinetic Molecular Theory	Ch.04 – Oct 05
08. October 06	Ch. 6: Thermochemistry: Energy Flow & Chemical Change	Ch.05 – Oct 12
09. October 13	Ch. 7: Quantum Theory and Atomic Structure	Ch.06 – Oct 19
10. October 20	Ch. 8: Electron Configuration and Chemical Periodicity	Ch.07 – Oct 26
11. October 27	Ch. 8 Continued.	<b>Exam 2 (10/31)</b>
12. November 03	Ch. 9: Models of Chemical Bonding	Ch.08 – Nov 09
14. November 10	Ch. 9: Continued; Ch. 10: The Shapes of Molecules	Ch.09 – Nov 17
15. November 17	Ch. 10: Continued.	<b>Exam 3 (11/24)</b>
16. <b>Nov. 26-28</b>	<b>THANKSGIVING HOLIDAY</b>	<b>No Classes</b>
17. December 01	Ch. 11. Theories of Covalent Bonding	Ch.10 – Nov 29
18. December 08	<b>Final Exam - The 200-points final exam will be comprehensive and will be given on Monday, December 08, 2014 from 2:00-3:50 PM</b>	Ch.11 – Dec 04

**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 is staffed Monday through Thursday from 8:30 AM to 3:30 PM with a lunch break. On Fridays, the Tutor Room closes at 2:30 PM. General Chemistry laboratory TA office hours are held in Faraday 412 (Penthouse). The laboratory TA office hour schedule is posted outside Faraday 412, 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: see Linda Davis in FR 319 (departmental office).

## Getting Started with ALEKS

You must register and complete your Initial Assessment by **11:00 pm on the first day of Classes (but it's great to start now to get ahead!)**

**ALEKS IS VERY UNFRIENDLY TO PROCRASTINATORS.** ALEKS was designed by psychologists who specialized in learning, who know that procrastinating until the night before an assignment is due and then cramming until the wee hours is not a good way to learn. You can't do ALEKS that way. You must put in some time every day, or else you will fall so far behind on basic topics that you won't have time to complete the Objectives. It is impossible to earn a good score in ALEKS by cramming all night right before the due date!

To register as an ALEKS user:

1. Go to the ALEKS web site at <http://www.aleks.com>.
2. Click on the link marked "SIGN UP NOW" (upper left corner of the screen).
3. On the next screen you will be asked to provide the following course code: **9JDWF - RPCKX**
4. The next screen will ask for your **full name**, your **email address**, and your NIU student **Z-ID number**. *Please provide all the information requested, even the information that is listed as optional.* Remember, your NIU student Z-ID number is NOT your social security number. **You must enter your NIU Z-ID number to receive credit for your work.**
5. On the next screen you will receive your **ALEKS login name** and a **temporary password**, and you will have the chance to change your temporary password. **We recommend that you change your temporary password.**
6. ALEKS will now walk you through a tutorial of how to input answers.
7. Once you have completed the input tutorial, ALEKS will prompt you to complete the Initial Assessment. **This initial assessment is VERY important.** It will identify any pre-requisite topics you need to learn before you can be successful in this course, it can also identify what you already know, so you don't waste time on topics you already know. This is not a test for points – it is ALEKS trying to build an efficient and customized learning path for you to achieve success. Don't use any outside resources during this assessment – if ALEKS thinks you know more than you do – your homework will be really hard and take you much longer to do! Also, when you know how to do a problem – do it! If you prove mastery of that topic, you'll have less to do in learning mode.

NOTE: ALEKS has two modes, assessment mode and learning mode. Assessment mode measures what you know today (and will figure out if you have forgotten any previously learned topics). Learning mode is where you learn, practice and master the topics – and grow your ALEKS pie (your knowledge). You will frequently be assessed throughout the ALEKS course to ensure ALEKS is providing you the best instruction possible.

### ALEKS Technical Support

**No one in the department of chemistry at NIU can provide you with competent technical support for ALEKS.** Do not write to your teacher with operational questions about ALEKS...he will not be able to help you. Instead, try the following resources on the ALEKS website:

1. **Frequently Asked Questions:** <http://www.aleks.com/faqs>
2. **User's Guide:** [http://www.aleks.com/user\\_guides/learners-gchem](http://www.aleks.com/user_guides/learners-gchem)
3. **Troubleshooting:** <http://www.aleks.com/support/troubleshooting>
4. **Email the Support Team:** <http://support.aleks.com>

### SCHEDULE FOR MANDATORY RECITATION

Recitation Teaching Assistant – Michael Vega [mvega1@niu.edu](mailto:mvega1@niu.edu)

TA Office Hours – Tu and Th, 2:30 – 3:30 PM or by appointment, LaT 313

Section R009	Lecture MWF, 02:00 PM,	Faraday 143	Recitation Wednesday,	11:00 AM	FR 205
Section R011	Lecture MWF, 02:00 PM,	Faraday 143	Recitation Wednesday,	04:00 PM	FR 205
Section R012	Lecture MWF, 02:00 PM,	Faraday 143	Recitation Wednesday,	05:00 PM	FR 205
Section R013	Lecture MWF, 02:00 PM,	Faraday 143	Recitation Wednesday,	03:00 PM	FR 205

**Recitation** - Surprise quizzes for a TOTAL of 100 points (worth a grade of ONE exam) will be given **during the lecture and the recitation hours**. However, only **BEST TEN** quiz grades will be counted toward your FINAL GRADE. There will be **ABSOLUTELY** no make-up quizzes. **Exam and Quiz Grades will not be curved! Your attendance at each assigned recitation session is mandatory!** However, help is given for the online assignments, if requested.

**THE DUE DATES FOR ONLINE (ALEKS) ASSIGNMENTS ARE ALL FIXED AND REQUESTS FOR EXTENSION OF DUE DATES WILL NOT BE HONORED UNDER ANY CIRCUMSTANCES!**

**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.

**RESTRICTIONS ON USE OF CELL (MOBILE) PHONES, WiFi, INTERNET, LAPTOPS AND iPADS IN CLASSROOMS:**

- Use of Cell (Mobile) Phone during the class hours is strictly prohibited. If you are caught of using cell phone or receiving any live text and/or e-mail messages, your cell phone or laptop and/or iPad will be confiscated. Therefore, your cell phone or laptop/iPad must be either switched off or on AIRPLANE (SILENT) MODE. Therefore, you must carry a separate ordinary calculator that MUST NOT be connected to Internet through WiFi or any telephone network! Your Internet entertainment will be a distraction for others!

**HOMEWORK ASSIGNMENTS:**

- There is no specific homework assigned for this class. However, it is your responsibility to do as much end-of-chapter problems as possible in order to perform well in the pop quizzes, exams and ALEKS. You can check your answers in the solution manual, but the professor of this class will not evaluate and grade your homework problems.

**SPECIAL ACCOMMODATION:**

*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 Disability Support Services authorizing your accommodations is usually needed before accommodations can be granted.*