CLASS SYLLABUS: Chem 1410.005/.251—General Chemistry

Fall Semester 2013

CHEM 1410.005 General Chemistry for Science Majors-Lecture
CHEM 1410.251 General Chemistry for Science Majors-Recitation

Instructor: Prof. Jeffry Kelber
Office: Science Research Bldg. 232
Lectures: Tues., Thursday 11AM-12:20PM, Chem 109
Recitation: Tues., 2-2:50 pm Chem 109

Office Hours, Tues, Thursday. 3-5pm or by appointment
Phone: 940-565-3265
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Note: Concurrent registration for Lectures and Recitation is required,

Prerequisites; Successfully passed a high school chemistry course. Knowledge of algebra and trigonometry is also strongly recommended. Knowledge of calculus or enrollment in a calculus course is helpful but not required.

Text (required): ***Principles of Chemistry, The Molecular Science***, J. W. Moore, C. L. Stanitski and P. C. Jurs

Course Description:

This is the first semester of a two semester course, and is designed to introduce the student to important concepts in chemistry, including elementary aspects of atomic theory, the relationship between atomic structure, chemical bonding and the properties of materials, and basic concepts in thermodynamics and chemical reactions. This class will also provide the knowledge base necessary for more advanced courses in chemistry, biochemistry and materials science or engineering. .

Course Objectives

By the end of the course, you should be able to:

- Balance chemical reactions
- Understand the relationships between atomic structure and trends in chemical properties across the period table.
- Understand the basic relationships between electronic structure of atoms and the formation of chemical bonds between atoms in molecules
- Understand how chemical bonds in molecules determine chemical behavior in such important areas as energy, the environment, and nanoelectronics
- Understand and apply fundamental concepts in thermodynamics, such as enthalpy, to predicting certain aspects of chemical behavior.

Course Requirements:

Attendance –not required for lecture, but strongly recommended. The exception is for exams, which will be given in class, and for which attendance is required. Attendance not required for recitation, but strongly advised.

Exams, quizzes and Grades:

There will be two exams in this class, each worth 25% of your total grade, plus a comprehensive final exam, worth 40%. No exam grades will be dropped. Additionally, there will be a series of quizzes during lecture, typically on Thursday. Total scores on quizzes will be averaged and account for 10% of your grade. Each student is allowed a maximum of four "no shows" on quizzes, due to sickness, schedule conflicts, etc. After that, each quiz not taken will count as a zero towards your total average. The goal of these quizzes is to keep you current in the class, and to probe areas where you may need additional work prior to the exam.

Exams and quizzes will be closed book and will be graded on a curve***. Laptops and cell phones will not be permitted during exams.***

A general note about this course: Many courses, in high school and elsewhere, emphasize memorization for succeeding in class and getting a good grade. That will not help you here. Successfully passing this class will require considerable study, reflection, and critical thinking.

Homework and Help: Homework will be assigned but not graded. However, quiz and test questions will generally be related to the homework, so doing the homework is a big step toward getting a decent grade. If you are having trouble understanding the lectures, doing the homework, or answering quiz questions, do NOT wait for the exam—get help. Typically, help can come from four sources:

(a) a classmate who understands this—often the fastest and easiest route,

(b) a graduate student in the chemistry resource center

(c) The teaching assistant for this section

(d) Your professor. (That's what office hours are for. If there is a schedule conflict, make an appointment.)

Tips for Succeeding in this Course:

There are no guarantees, but in general, the following should help you get a good grade:

1. Read each chapter ***before*** the week of the lecture.(This is the most important).

2. Read each chapter a second time, thoroughly, and do the homework

3. Attend class regularly

4. *Get help if you need it—do not wait until right before an exam*.

Answers to homework, quizzes and tests:

We will go over homework in recitation. Quizzes and tests will mainly be discussed in class. Answers to past homework, quizzes and exams will be posted on my web site.

Topics Covered in Lecture:

(8/29)Introductory Lecture: This course, scientific notation, and stuff like that

Text, Chapt. 1 –Read outside of class

(9/03)Text, Chapt. 2 Atoms and Elements—the Rutherford Model of the Atom and atomic sizes

(9/10)Text. Chapt. 3 Chemical Compounds and Formulae

(9/17)Text, Chapt. 4 Chemical Equations, the Mole Concept

(9/24)Text. Chapt. 5 Chemical Reactions in Solution

(10/01) Text Chapt. 6 Chemical Reactions and Energy

(10/8) Exam I Chapts 1-6 (Tues) Review of Answers on Thursday (no recitation)

(10/15) Chapt. 7 Atomic Struture and the Periodic Table

(10/22) Chapt. 8, Covalent Bonding, Atoms and Molecules

(10/29) Chapt. 8--continued

(11/5) Chapt. 9, Bonding and Molecular Structures

(11/12) Chapt. 10 Gases: The ideal gas law and kinetics,

(11/19) Exam II Chapts. 7-10 (Tues), Review of Answers on Thursday (no recitation)

(12/10) Final Exam, 10:30 AM, Chem 109

Disabilities Accommodation:

The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940-565-4323 during the first week of class.