Course Syllabus for Chemistry 1410-02
Fall 2005

I. Course Title: General Chemistry I

II. Instructor: Dr. Pamela Veltkamp

Office hours: MWF 9:00-10:00, 11:00-12:00, TR 8:30-9:30, other hours available by appointment
Phone: x3881, 793-3881 (if dialing from off-campus) office: S217 e-mail: veltkamp@mcm.edu
I check my email frequently during the day, and will respond as soon as possible to messages from students. However, there may be times during the day when I can not respond immediately, and I am often not online at night!

III. Course Description:

Chemistry is the study of matter and its changes and of the models that are used to explain those changes. Chemistry is not, however, merely a contemplation of abstract concepts. Rather, chemistry touches practically every aspect of our lives and is also important in the successful pursuit of many careers. This course is an introduction to the fundamental principles of chemistry. The language of chemistry and problem-solving techniques are introduced. Topics such as the structure of atoms and molecules, the behavior of gases, thermochemistry, and a variety of chemical reactions will be discussed. Through laboratory work, fundamental experimental skills and analytical techniques will be learned. There is no pre-requisite; however, a high school or college level introductory chemistry course is helpful, as is a good foundation in algebra. Concurrent enrollment in, or successful completion of, College Algebra or higher is required.

IV. Course Goals:

There are several goals with which I would like to challenge you as you take Chemistry 1410. First is the goal of learning the basic principles (or facts) of the following chemical topics:

• the mole and stoichiometry
• chemical reactions
• the properties of gases
• thermochemistry
• atomic structure and molecular bonding.

But simply learning the basic principles about these topics isn’t enough. Thus the second goal is to learn how to apply the basic principles to various chemical problems in order to describe the situation and predict the outcome. A closely related goal is to learn how to analyze chemical problems so that they can be solved. Accomplishing these goals should give you a greater ability to understand chemistry and extend this understanding to new situations. Chemistry is much more than a theoretical or abstract topic. It is very much an experimental and practical field of study. Therefore, in the laboratory our goal is to learn the skills and techniques necessary to perform chemical experiments.

Chemistry is not isolated from the rest of the world, of course. As we work toward the goals mentioned above, I would also challenge you to recognize the role that chemistry plays in everyday life, and to develop your sense of awe and wonder for this part of God’s creation.

V. Text and Other Required Materials:

• Online ChemSkill Builder. Each student must purchase a login number. This comes packaged with new textbooks. If you purchased a used textbook, you will need to purchase the online access separately, either from the bookstore or online at www.chemskillbuilder.com
• General Chemistry I Laboratory Manual, by Professors Pyenta and Veltkamp, available at the Print Shop in Old Main. This manual must be purchased and brought to the first lab session. Labs will begin on August 29.
• Working Safely with Chemicals in the Laboratory, 2nd edition. This book is available in the bookstore. There will be a reading assignment from it prior to the first lab session.
• A bound composition notebook for use in the lab. These notebooks have pages sewn in, not glued in. Three-ring or spiral notebooks are not acceptable. Bookstore personnel can show you which notebook is required. These are also available from the Chemistry Club or at stores such as HEB or Wal-Mart at a lower cost. This notebook is required on the first day of lab.
• Scientific Calculator. Your calculator must be able to handle scientific notation, and must have the functions for logarithm (log), natural logarithm (ln), square root and $x^2$. It will be helpful to have the functions $1/x$, $y^x$, and the $x^{th}$ root of $y$ ($\sqrt[x]{y}$) as well.

VI. Course Schedule:
• Introductory Material: Chemical foundations and the fundamental organization of matter
  Chapter 1: August 24 – 26  
    Sections 1.4 – 1.6 will be discussed in an optional lab session, Aug. 22 – 25  
  Chapter 2: August 29 – September 5  
  Test #1: September 7
• Topic #1: The mole and stoichiometry
  Chapter 3: September 9 – 16
• Topic #2: Chemical reactions
  Chapter 4: September 19 – 28  
  Test #2: September 30
• Topic #3: The properties of gases
  Chapter 5: October 3 – 12  
  Homecoming: October 14—no class
• Topic #4: Thermochemistry  
  Chapter 6: October 17 – 24  
  Test #3: October 26
• Topic #5: Atomic structure and molecular bonding
  Chapter 7: October 28 – November 4  
  Chapter 8: November 7 – 14  
  Test #4: November 16  
  Chapter 9: November 18 – 28  
  Thanksgiving Holiday: November 23 – 25  
  Chapter 10: November 30 – December 5  
  December 9: Study Day, no classes

Four exams will be given throughout the semester. They are scheduled for September 7, September 30, October 26, and November 16. **The final exam will be given during exam week on Wednesday, December 7 at 10:30 a.m.** It will contain a section of new material and a comprehensive section.

VII. Methods of Instruction:
Lecture, discussion, demonstrations, frequent short quizzes, individual and group problem-solving, and laboratory work will be used to reach the goals stated in Section IV. Students are urged to actively participate in all activities by asking questions and taking notes to gain the most benefit from the instruction.

VIII. Assignments:
Homework assignments will be comprised of assigned sections of the online problems and preparation for the frequent quizzes. The computer homework consists of problems done using the Online ChemSkill Builder (see part V above). These assignments will be made on a regular basis. ChemSkill Builder assignments will be due by 5:00 p.m. on the specified day. Credit will be given for computer assignments that are completed by 5:00 and have a score of 80% or better. You must register for this class by going to www.chemskillbuilder.com and following the instructions for new student registration, using the login number in the package that you purchased. Information you will need is the Instructor name: Veltkamp, Course ID:
Chem1410, and Section ID: 01. Be sure to click on “Credit Mode” at the bottom of the registration screen, or your homework grade will not be saved!

The frequent quizzes will be short (2 to 4 questions) and questions will be drawn from assigned reading or assigned homework problems from the end of the chapter. They will be open notebook quizzes (but closed text), so it will be in your interest to keep up with the reading and problems by taking good notes in your notebook. All quizzes will be announced (i.e. no “pop” or surprise quizzes), and the quiz will be given at the very beginning of the class period, so be on time to class! There will be no make-up quizzes. Allowances will be made in computing the final grade for quizzes missed due to excused absences.

IX. Means of Evaluation:

Comprehension of the class material and attainment of the goals stated above will be evaluated through the ChemSkill Builder homework, quizzes, and the exams. Online homework and quizzes together will account for 12% of the course grade, with 6% from the online homework, and 6% from the quizzes. The four semester exams are of equal weight, with each constituting 12% of the course grade. You are expected to take each of the 4 semester exams at their scheduled times. If you miss one of the scheduled exams and do not have an excused absence (official University-sponsored activity or documented illness), then you will receive a zero for the exam. If you know in advance that you will miss an exam because of an official University activity, you must give 3-day advanced notice (longer, if possible) so that a suitable make-up time (before you leave) can be arranged. If you are ill on the morning of the exam, please call the instructor and leave a message explaining your absence. You must bring a note from the campus nurse or a doctor documenting your illness as soon as possible after you miss the exam in order to be allowed to make it up.

The four semester exam scores will be averaged together and will account for 48% of the course grade. The final exam will count as 15% of the final grade. Exams and homework together make up 75% of the final grade. The laboratory portion counts as 25% of the course grade. Details of how the laboratory grade is calculated will be discussed in the first laboratory session.

Letter grades for the course will be assigned on the basis of the following scale. Please keep in mind that the minimum acceptable grade for a course in a major is a C not a C-.

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<thead>
<tr>
<th>Percent</th>
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<tbody>
<tr>
<td>93.5-100%</td>
<td>A</td>
<td>73.5-76.4%</td>
<td>C</td>
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<tr>
<td>89.5-93.4%</td>
<td>A-</td>
<td>69.5-73.4%</td>
<td>C-</td>
</tr>
<tr>
<td>86.5-89.4%</td>
<td>B+</td>
<td>66.5-69.4%</td>
<td>D+</td>
</tr>
<tr>
<td>83.5-86.4%</td>
<td>B</td>
<td>63.5-66.4%</td>
<td>D</td>
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<tr>
<td>79.5-83.4%</td>
<td>B-</td>
<td>59.5-63.4%</td>
<td>D-</td>
</tr>
<tr>
<td>76.5-79.4%</td>
<td>C+</td>
<td>Less than 59.5%</td>
<td>F</td>
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X. Attendance Policy and Student Conduct:

While it is valuable to students to receive instruction through a variety of methods, none of these instructional methods will be of value to the absent student. The learning by individual students, and by the class as a whole, is greatly enhanced when each class member takes the responsibility to arrive on time at each class and laboratory session, and to come with a mind ready to work with the material at hand. Students are responsible for notifying the instructor, in advance, if a class must be missed due to illness or participation in a University-sponsored activity. If it is not possible to notify the instructor in advance, the student is responsible for contacting the instructor concerning the missed class period. Excessive unexcused absences will result in the lowering of the course grade.

A student enrolled at McMurry University is expected to conduct himself/herself in a manner compatible with the University’s function as an educational, church-affiliated institution. Dishonest work on examinations, tests, or quizzes, including the giving or receiving of information or the unauthorized use books, paper, or notes will incur a grade of F or zero. The student may also be suspended from the University. Violations of the McMurry Student Code of Conduct are referred to and adjudicated through the Student Affairs Office under the general direction of the Dean of Student Affairs.

The use of cell phones in class is not permitted. They must be turned off and put away. If a student answers a phone in class, or goes into the hall to answer it, he/she will be asked to leave for the day, and his/her
absence will be marked as unexcused. Participating in the work of the class is of utmost importance while you are in class, and there is no reason to have your attention, or that of the rest of the class, directed away from this work. (Special exceptions may be granted by the professor on a person by person basis.)

The student should consider his/her work in college to be preparatory for a future career. As such, the student is expected to exhibit respectful behavior and good professional habits. No hats or chewing tobacco are allowed in the classroom. Students should dress appropriately and in a way that indicates that they take their work as a college student seriously. (Pajamas are as inappropriate in the classroom as they would be in any other place of work!)

XI. Steps to Take in Order to Succeed in this Course:

Success in chemistry (defined as obtaining a C or better) is dependent on the way you participate in and study for the course. Here are some steps to follow to have a successful semester in chemistry.

1. **Always stay ahead of the class lectures in your reading of the text.** Interact with the text (as if you were conversing with the author) by writing questions in the margin, finding answers to those questions, selectively underlining key concepts (highlighting is not recommended), and working example problems as they come up in the reading. **During class, listen (and ask!) for explanations** to material with which you have difficulty. After class, review the material, checking for concepts that are still difficult (talk to the instructor or tutors about these), and noting material that was emphasized to a greater extent than other concepts.

2. **Participate in class** by doing three things: (a) listen, (b) take notes, and (c) take part in class discussions or ask questions in class. This requires your undivided attention. Do your sleeping, visiting with friends, daydreaming, etc. during some other time and at some other place. If a neighbor habitually makes it difficult for you to concentrate, move to a different seat or speak to the instructor about the problem.

3. **Do the homework assignments.** To a great extent, chemistry is learned through practice, practice, practice. The homework problems are chosen to help you develop skills and understanding, and to prepare you for the types of questions that will be found on the exams. If a particular topic or problem is difficult for you, work through example problems in the text, and find similar problems at the end of the chapter to work on (many problems are grouped by topic). Keep in mind that the total homework grade is equal to one test grade, and doing well here can modify or even negate a poor test grade.

4. **Study on a regular basis,** not just the day or night before an exam. When an exam is near, you should only need to review.

5. **Take advantage of the resources made available to you:** the Chemistry Computer Lab (S204) where you can work on ChemSkill Builder and also access the online resources connected with your text, the Academic Enrichment Center (the Campus Center) with free tutoring and the same Internet access as in the Chemistry Computer Lab, and the instructor’s office hours. In addition, McMurry provides assistance to qualified individuals through the Disability Services Office, located in Old Main, Room 102. If you have a documented disability that may impact your performance in this class and for which you may require accommodations, you must be registered with the Disability Services Office.