Principles of Chemistry
CHE 117 Section 2--Spring 2012

Instructor: Martha R. Kellner

Lecture/Lab: MWF 12:50-3:10 p.m. Hoyt 369
Office: Hoyt 364, extension 7295
home phone: 724-946-2824 (no calls after 10 p.m., please)
e-mail: kellnemr@westminster.edu

office hours: Mon, Tue, Wed, and Fri 8:30 – 10:00

Required text: *General Chemistry: Atoms First* by McMurry and Fay (e-text is ok)
Required access to electronic homework: *Mastering Chemistry* (www.masteringchemistry.com)
Required materials: CHE117 Course Packet and safety glasses or goggles (available in bookstore)
scientific calculator (must include *ln* and e^x functions)

Components of the Grade

50%	4 Hourly Exams
15%	Final Exam
20%	Laboratory Work
15%	Electronic Homework

Grading Scale

A ≥ 90.0%

90.0% > B+ ≥ 87.0% > B ≥ 83.0% > B- ≥ 80.0%

80.0% > C+ ≥ 77.0% > C ≥ 73.0% > C- ≥ 70.0%

70.0% > D+ ≥ 67.0% > D ≥ 63.0% > D- ≥ 60.0%

Dates to Remember

Exam 1	February 8 (Wed)
Exam 2	March 2 (Fri)
Exam 3	March 30 (Fri)
Exam 4	April 27 (Fri)
Final Exam	May 11 (Fri) 8:00−10:30 a.m.

COMPONENTS OF THE GRADE

Hourly Exams

All exams will involve problem solving and/or short answer questions. The test format may vary slightly from one exam to the next. If you have a field trip, concert, or sports competition at the same time as a **scheduled** CHE117 exam, notify your instructor **well in advance** of this conflict. Absences are excused **only** at the discretion of your instructor. **Exams may not be made up.** If excused by your instructor, the grade you will receive for the missed exam will be the average of the final and your other 3 exams.

Final Exam

The final will be a comprehensive, standardized, multiple-choice exam. The periodic table, a list of constants, and selected equations will be provided for you to use while taking the final exam.

Laboratory Work

Our department uses an investigative, rather than a verification, approach to laboratory work. Most lab work is collaborative and conclusions are drawn from pooling class data. This can be frustrating to students who are accustomed to following specific instructions resulting in predictable results. **Labs cannot be made up.** Absences on lab days create difficulties for the instructor, the student, the class, the lab assistants, and the chemical hygiene officer. In the event of a medical emergency inform your instructor immediately, preferably by campus e-mail. Let your instructor know of other college-sponsored activities that necessitate absence from lab well in advance.

Homework

Readings and problems from your textbook will be assigned each unit. Answers to these problems are available either in your textbook or in the solutions manual on reserve in Mack Library. Consequently I will not be collecting these assignments. Your course homework grade will be based on assignments made on the online tutorial, **www.masteringchemistry.com.** Use this electronic resource to your advantage—you can redo the problems, without penalty, until you get them correct! Our course ID is **CHE117Sec2Spr2012**

Extra Credit

Up to 0.3 % can be added to your course average from extra credit work.

- Attending an approved outside lecture will add 0.1 % of extra credit upon submission of a one-page summary of the talk. Talks required by your major are not approved for extra credit.
- On occasions something of major scientific significance is reported in one of the major news weekly magazines, on a radio or TV news broadcast or in a daily newspaper. On those occasions, please bring it to class to enlighten all of us. You will be given 0.1 % of credit for this type of class contribution. Unless the newspaper or magazine belongs to you, turn in a **photo-copy** of the article, or a summary of the news report, stating broadcasting time and station. No electronic sources are approved for extra credit.

ACADEMIC INTEGRITY

AIP include cheating, misconduct, plagiarism, and providing false information. Academic dishonesty will not be tolerated. The first citation for academic dishonesty will result in a zero grade for the specific assignment. The second citation will result in a failing grade for the course. All citations for academic dishonesty will be reported to the Dean of the College, in accordance with college policy. Details of the AIP can be found in the 2011-2012 Westminster College Undergraduate Catalog on pages 71-76, and is also in the Student Handbook.

SCIENTIFIC DISCOVERY INTELLECTUAL PERSPECTIVE

All courses that satisfy Scientific Discovery IP requirements are to have the following outcomes:

1. Learn about scientific discoveries in the natural world and scientific methods used in problem solving which include formulating and testing hypotheses, using deductive and inductive reasoning, and making objective and quantitative observations.
2. Draw conclusions from data collected in laboratory and/or field and communicate the work and results in an appropriate format.
3. Consider the natural sciences in their ethical and societal context.

PRINCIPLES OF CHEMISTRY STUDENT OUTCOMES

- demonstrate an understanding of chemical principles by applying them to interpret data and solve problems
- demonstrate an understanding of the chemical nature of the natural world
- demonstrate an awareness of the creative nature of chemistry
- demonstrate an understanding of the interaction of science and society
- demonstrate an awareness of some of the ethical issues in science including present and future implications
- record data and observations accurately
- draw logical conclusions from the data and observations
- evaluate data and conclusions critically
- communicate results and conclusions effectively
- demonstrate the following skills:
    - graphing data and analyzing relationship(s)
    - using light absorption to investigate a reaction
    - correlating electron arrangements and molecular structure
    - determining the stoichiometry of a chemical reaction
    - using LeChâtelier's Principle and determining an equilibrium constant
    - using indicators and electronic measurements to study reactions of acids and bases
    - determining the heats of reactions
    - determining a rate law
    - determining the relative strength of redox reagents
    - expressing the results of calculations with the appropriate number of significant figures

EXPECTATIONS

- read the text assignments before each class and bring the text and a calculator to class
- Write down your questions and bring them to class, or send your instructor an e-mail message (The only stupid question is the one you did not ask.)
- work the assigned problems by applying the ideas learned from the text and in class
- participate in small work and discussion groups in class
- attend class/lab
- complete all lab reports and written assignments on time
- come and talk with me if/when you have difficulty with the course
- do the best work you are capable of doing

Each of us has a variety of strengths and weaknesses. If you have difficulty with reading, taking tests, manipulating chemicals and equipment in the lab... please talk with me, in person or by e-mail as soon as possible so that I can help you perform at your highest level.

HELP AVAILABLE

I am here every day. Come by my office and ask for additional assistance. During my office hours, students in my classes have priority over all other tasks. I'll be glad to work with you other than during office hours when I can. If I am not available when you stop by, I will gladly set up another time when we can meet. In addition, the Learning Center has other qualified people on its staff to help you with chemistry. Call 6700 and make an appointment.

TEXTBOOK

There is no text available that exactly matches the course content of CHE117. We will use selected sections of McMurray and Fay's textbook, *General Chemistry: Atoms First.* The CHE117 Course Packet includes the daily Lesson worksheets and the Lab handouts.

Additional Help: Chemistry 117 proceeds at a very quick pace. Keep up with the material! Do ALL suggested problems! For additional help, come see me (stop by my office or make an appointment), attend help sessions, and/or contact the Learning Center (x6700).

Course Schedule

Monday		Wednesday		Friday	
		1/18	L2: Atoms Lab 0: Endo and Exo	1/20	L1: Solutions
1/23	Lab 1: Oscillating Reaction	1/25	L3: Electromagnetic	1/27	L4: Orbitals
1/30	L5: Electron Configurations Lab 2: Spectroscopy of Dye	2/1	L6: Ionic Compounds	2/3	L7: Covalent Compounds
2/6	Lab 3: Iron in a Vitamin	2/8	**EXAM 1**	2/10	L8: Lewis Structure
2/13	L9: Molecular Shape Lab 4: WebMO	2/15	L10: Polarity/IMFs	2/17	L11: Stoichiometry
2/20	Lab 5: Synthesis of Aspirin	2/22	L12: Enthalpy	2/24	L13: Entropy
2/27	L14: Free Energy	2/29	Lab 6: Hess's Law	3/2	**EXAM 2**
3/12	L15: Kinetics Lab 7/8: Crystal Violet	3/14	L16: Rate Laws	3/16	L17: Rate and Temp
3/19	L18: Mechanism	3/21	Lab 9: Le Châtelier's L19: Equilibrium	3/23	L20: ICE Tables
3/26	Lab 10: Determining K_c	3/28	L21: Le Châtelier's Prin.	3/30	**EXAM 3**
4/2	L22: Aqueous Reactions Lab 11: Standardization	4/4	L23: Acid-Base Equilibria	4/6	**EASTER BREAK**
4/10 (Tue)	**L24: pH of Solutions**	4/11	L25: Buffers Lab 12: Buffers	4/13	L26: Titration
4/16	Lab 13: Titration Curve	4/18	L27: Solubility	4/20	L28: Thermo and Equil Lab 14: Therm. of Borax
4/23	L28: Thermo and Equil.	4/25	**Undergraduate Research Arts Celebration**	4/27	**EXAM 4**
4/30	L29: Redox Reactions	5/2	L30: Voltaic Cells Lab 15: Electrochem Cells	5/4	L31: Electrochemistry
Final Exam Friday 5/11/12 at 8:00AM-10:30AM					

***Monday classes meet on Tuesday, April 10**

Unforeseen circumstances may require rearrangement of the schedule. Changes will be announced in class.