CHEM 430 Physical Chemistry I

Class: 1100-1150 M, W, R, F, McCracken 4200
Weekly problem session: TBA
Exam reviews: TBA

Prerequisites
CHEM 120, PHYS 210, PHYS 211, and MATH 272

Text
Atkins, *Physical Chemistry*, 5th edition. Chapters 1-10, 24-27 will be covered.

Instructor
Dr. John B. Miller

	Office Hours
McCracken 4020	M 1500-1600
387-2871	R 1300-1400
john.b.miller@wmich.edu	or by appointment

Course Topics:
Gas Dynamics, Laws of Thermodynamics, State Changes, Equilibria, Electrochemistry, Chemical Kinetics, Molecular Dynamics

Absence Policy
Attendance in class is critical to success in this course. Students should contact Dr. Miller beforehand if they know they are going to miss a class. Valid excuses for missing a quiz or examination include illness (doctor's note required), death in the family (funeral program or newspaper obituary required), or other events beyond the student's control *with prior instructor approval*.
Unexcused absences from a quiz or exam will result in no credit for that item.

Quizzes
Ten quizzes make up the largest share of evaluation for this course. *The lowest two quiz grades will be dropped* Quizzes will be given approximately weekly, generally on Thursday. They will require one half of a class period. Quiz problems will be very similar to those that appear in the homework assignments. It is also very likely that student demonstrations or demo topics will be included. *Always come prepared:* please bring a calculator (no computers). At least five of the quizzes will be administered electronically.

Quiz solutions will generally be posted the day the quizzes are returned, usually the Monday following the quiz. (One day return of graded quizzes is *not* to be expected.)

Standard Exam
A portion of a standardized physical chemistry examination will be administered the first Thursday of class to determine the current level of knowledge for the class. This exam will be graded and recorded, ***but this score has no direct bearing on any student's course grade.*** However, questions extracted from this examination will occasionally appear on the quizzes and exams. Student performance on these "embedded" questions will be included both as a portion of the particular quiz or exam, and as part of a "final standard" score. Comparing the initial standard with the final standard can serve as one objective measure of each student's improvement (although those who should do well on the initial test will *not* be penalized in any way). These results will be also be used for internal evaluation of the course by comparing aggregate student performance on the initial test and the questions embedded later in the term.

Midterm and Final Examinations.
A midterm examination is tentatively scheduled for class on Monday 20 October.
The final examination will be comprehensive and is scheduled for Wednesday 17 December at 1445.
Review sessions will be scheduled on an *ad hoc* basis.

Student Demonstrations

Students will be randomly divided into small groups to develop and present a brief demonstration covering a relevant topic from recent or near-term future lectures. These can consist of:

- Simple Apparatus
- Computer simulation
- Chemical reaction

or any other medium that is appropriate. Demos will generally be given after the quizzes on Thursdays. Scheduling will be randomly assigned after the first week of class. There is a *small* budget (~$10/week) available for materials. The topic and planned demo should be discussed with Dr. Miller at least a week before presentation. A written description is due at the presentation, as is any apparatus, code, *etc*. The presentation and submitted materials will be evaluated and *each member of the group will receive the same grade*. This is a significant fraction of each student's grade (equivalent to the midterm), so think hard and be creative.

Online Resources
Online computer resources will be available for use in this course. Each student will be given a computer account for use in the course. All resources can be accessed through the World-Wide Web at the URL http://unix.cc.wmich.edu/~millerj/chem430/chem430.htm.

Computer facilities are available in the basement of the Bernhard Center, in the UCC labs, and in McCracken 5160. Dialup connections via the University modem pool (387-2040) may also be used (contact the UCS help desk for detailed information about dialup). Three brief tutorial sessions are scheduled to instruct students in the basic use of these online resources.

Grading

Quizzes (10 with two lowest dropped)	400 (8@50) points	47%
Student Demonstrations	100 points	12%
Standard Exam	50 Points	6%
Midterm Exam	100 Points	12%
Final Exam	200 points	23%
TOTAL	850 points	

Current individual scores and the score distribution will be posted on the class Web site (http://unix.cc.wmich.edu/~millerj/chem430/grades.htm). The final grade will be based on individual performance within the class distribution.