CHEM 3610
Physical Chemistry I
Fall, 2005

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INTRODUCTION	
Tues Sept 13	Worksheet 1: Calculus review, Introduction to exact and inexact differentials
Thurs Sept 15	Worksheet 2: Real and ideal gases (Chapters 1 and 7.1-7.3)
Tues Sept 20	Worksheet 2: continued
THERMODYNAMICS - THE FIRST LAW	
Thurs Sept 22	Worksheet 3: Work, heat and the first law of thermodynamics (Chapter 2.1-2.3)
Tues Sept 27	Web-Based Simulations (W2.1-W2.6),
Thurs Sept 29	Enthalpy and Heat Capacities (Chapter 2.4-2.10, and 3)
Tues Oct 4	Worksheet 4: Enthalpy, Thermochemistry, Chemical Reactions, Hess's Law (Chapter 4)
Thurs Oct 6	**Discussion and review**
Tues Oct 11	**Exam # 1**
THERMODYNAMICS - THE SECOND LAW	
Thurs Oct 13	Worksheet 5: Heat Engines, entropy, & the second law of thermodynamics (Chapter 5.1-5.5 Web-based Simulation-W5.1)
Tues Oct 18	Worksheet 6: ΔS for processes involving gases, phase transitions, and chemical reactions, entropy & probability, the third law of thermodynamics (Chapter 5.6-5.12)
Thurs Oct 20	Worksheet 7: Gibbs & Helmholtz energies - (Chapter 6.1-6.2, Thermodynamics in a Nutshell)
Tues Oct 25	Worksheet 8: Properties of the Gibbs energy and more fun with thermodynamic relationships (Chapter 6.3-6.6, 7.4, and Thermodynamics in a Nutshell)
APPLICATIONS OF THERMODYNAMICS	
Thurs Oct 27	Worksheet 9: Thermodynamic description of mixtures (Chapter 6.7-6.8)
Tues Nov 1	Worksheet 10: Chemical equilibrium & spontaneous reactions (Chapter 6.9-6.13)
Thurs Nov 3	Worksheet 11: Effect of pressure, temperature, pH, and catalysts on K_{eq} (Chapter 6.10-6.13).
Tues Nov 8	**Exam #2**
Thurs Nov 10	Worksheet 12: Properties of solutions, activities (Chapter 9)
Tues Nov 15	Worksheet 13: Phase diagrams, vapor pressure, surface tension, supercritical fluids, and liquid crystals (Chapter 8)

Thurs Nov 17	**Discussion and review**
Tues, Nov 22	**Final Exam** (at 11:00 am)

HOMEWORK
Homework is very important since confidence in the subject can only be gained by working problems. You may discuss homework problems and solution approaches with your classmates as much as you want. The specific solution approach that you take and the recording of that solution should be your own work.

ATTENDANCE
Attendance is not mandatory, but in order to get full credit for in-class group work you must attend all classes. For unexcused absences, your group grade will be adjusted to reflect the percentage of classes missed. For example, if 3 of 15 classes are missed, then your group grade will be reduced by 20%.

WORKSHEETS
Worksheets are available for downloading from the course website. You will work with your group on the worksheets, and each group will hand in one worksheet for grading. It is very important that every member of the group understands what is on the worksheet and has participated in answering the questions. To encourage meaningful participation by all group members, a peer review process will be included in this course

PEER REVIEW
During the quarter, you will fill in an evaluation sheet for each member of your group and they will in turn evaluate you.

READING ASSIGNMENTS
The reading assignments are designed to prepare you for the worksheets. Don't be discouraged if you don't understand everything in the reading. Do bring your questions on the reading to class. I will spend a few minutes at the beginning of each class answering questions about the reading. It will be exceedingly difficult to complete the worksheets if you don't read the assignment.

Every member of the group has a responsibility to come to class prepared to work on the worksheets.

GRADING SCHEME
Individual Work
Homework 15%
1st exam 15%
2nd exam 15%
3rd exam 15%
Group Work
Worksheets 30%
Peer review 10%