

Chem 3610, Physical Chemistry I, Fall 2007

Latest revision is 9/09/07

Class Times: TTh 12:00 – 1:50 pm, BE 102

Instructor: Sandra S. Eaton

Office: Seeley G. Mudd Rm. 178

Office Hours: T Th 2-4 pm, or by appointment

Text: *Physical Chemistry*, Volume 1: *Thermodynamics and Kinetics*, P. Atkins and J. de Paula, 8th ed., Freeman, 2006.

Course Outline

Date	Topic	Reading in Atkins and de Paula	Homework - E and P refer to Exercises and Problems from Atkins and de Paula
Sept. 11	Real and ideal gases	p. 3 - 22	
13	Work, heat, and the 1 st Law	p. 27-40	
18	Enthalpy, heat capacity, practical implications	p. 40-48	E1.2a, E1.13a, E1.19a, P1.28 E2.4a, E2.6a, E2.9a, P2.4
20	Thermochemistry, heat of formation	p. 49-57	
25	State functions, Joule Thompson effect	p. 57-67	
27	Entropy and spontaneous change	p. 76-87	
Oct. 2	Additional examples, review		
4	Exam 1		
9	ΔS for specific processes, 3 rd Law	p. 87-94	
11	Overall spontaneous processes, ΔG and ΔA	p. 94-102	
16	Combining the 1 st and 2 nd laws	p. 102-108	
18	Phase transitions, phase stability	p. 117-131	
23	Thermodynamics of mixtures	p. 136-148	
25	Properties of solutions	p. 148-165	
30	Additional examples, review		
Nov. 1	Exam 2		
6	Phase diagrams	p. 174-188	
8	Chemical equilibria	p. 200-216	
13	Equilibrium electrochemistry	p. 216-230	
15	Additional examples, review		
Nov. 20	Final exam – cumulative 11 am - 1 pm		

Reading assignments

Reading assignments are intended to prepare you for discussions in class. It is important that you read the material before coming to class and bring your questions with you.

Homework

Homework is very important to the learning process. The best way to understand the material for this class is to work problems. Homework will be assigned weekly, collected, and an answer key provided. The assignments will be added to the version of the course outline that is posted on Blackboard. If you have difficulty working an assigned problem it often is useful to try a

similar problem from the end of the chapter for which the worked solution is provided in the student's solution manual which is available in the bookstore. From each homework set one problem will be randomly selected for grading.

Part of the time during each class period will be spent working together on problems. Your contributions to these discussions will be part of your grade.

Grading

Class Participation - 5%, Homework - 20%, Exams - 25% each.