

Chemistry 456A, Winter 2012

Thermodynamics

University of Washington

Department of Chemistry

Syllabus

Instruction Hours: M,W,F 10:30-11:20 a.m. Bagley 154

Tutorial Hour: Thursday 10:30-11:20 a.m. Bagley 154

Course Web Site: <http://courses.washington.edu/bhrchem/>

Instructor: Professor Bruce H. Robinson

Bagley, 212, 206-543-1773, robinson@chem.washington.edu

Office Hours: Friday 1:00 – 2:00 p.m. in Bagley 212 or 330.

Tuesday 10:30-11:20, Bagley 106

By appointment.

Teaching Assistant: Kerry Garrett: keg22@uw.edu

Office: Bagley 330

Time: Monday and Thursday from 2:30 to 3:30.

CLUE is offering drop in tutoring nights Tues, Wed and Thurs.

Text: Engel or Engle and Reid, “Physical Chemistry”

or “Thermodynamics, Statistical Thermodynamics and Kinetics” 2nd Ed.

Recommended: Zumdahl, Chem. 152 textbook. Chapters 5, 9, 10 and 11.

Class Reading Schedule (Approximate)

Week Reading in the Text

1 Chapter 1 and 2

2 Chapter 3

3 Chapter 4

4 Chapter 5

5 Chapter 6

6 Chapter 6

7 Chapter 7,8

8 Chapter 8,9

9 Chapter 9,10

10 Chapter 11

Holidays: No class Monday 1/16/12 and Monday 2/20/12

Examinations:

First Exam: Monday January, 23, 2012 (100 points)

Rescheduled to: Monday January, 30, 2012 (100 points)

Second Exam: Monday February 13, 2012 (100 points)

Rescheduled to: : Friday February 17, 2012 (100 points)

Final Exam: Monday, March 12, 2012 8:30-10:20 a.m. (200 points)

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Homework: Worth 100 points total. Due Tuesday and Friday to be turned into the locked box on the third floor labeled "Robinson Chem 456" outside of room 330 Bagley. Assignments are due by 5PM on the day they are due. Any additional arrangements will need to be made directly with the T.A. Assignments will be posted on the web site. Answer keys will be posted weekly on the web site.

There is nothing more important in the course than doing problems (i.e. the homework and additional problems you find in the text or make up for yourself). Do not just do problems to get something turned in and get a few points; this is your opportunity to discover when you don't know something and to seek help from fellow students, TAs, teachers, texts etc. The goal of a homework problem is not the answer; the goal is to understand the material and how you get the answer. I know of no other way to know whether I understand the material than to test myself with problems.

I also recommend that you rewrite your notes after each lecture into a different notebook to be sure that you indeed understand what was said. Use this as an opportunity to expand on what was left out of lecture but alluded to. Mark parts of the lectures that were unclear or confusing and use the class and tutorial time as an opportunity to clarify what is confusing. If you are confused, please assume that others are similarly perplexed. If I feel a question is of general concern we can go over it, otherwise I can suggest that we meet individually.

I will lecture from the board using chalk. However, brief summaries of the essential materials are available on my website for you in PowerPoint format and as word documents. Please feel free to use these lecture outlines as additional aids in understanding the material.

I am assuming that you had Chemistry 152 (or an equivalent course that covered introductory thermodynamics); and that the text for that course was Zumdahl's "Chemical Principles" or an equivalent text. Reviewing the material in there would be very valuable for this course. In particular Chapter 5 on ideal gasses, Chapters 6 and 7 on Stoichiometry and equilibrium in chemical reactions and 9 and 10 on the first and second laws of thermodynamics, will be of fundamental importance in developing the ideas of energy, heat, work, entropy and free energy.

To underscore the importance of homework: The following is a correlation from chemistry 455 (autumn 2007) of the cumulative homework score and the final exam scores. The strong correlation indicates that doing the homework definitely helps in improving performance on the exams.

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