

Course Syllabus
Physical Chemistry: Chem 561, Spring 2016

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Office Hours: 11:30 - 12:30 Mondays & 10:45 - 11:45 Wednesdays

Teaching Assistant: Mary Van Vleet, Room 8351, mary.vanvleet@wisc.edu
Office Hours: 5:00 - 6:00 Mondays & 11:00 - 12:00 Fridays

Textbook: Silbey, Alberty, and Bawendi, "Physical Chemistry," 4th Edition, 2005

Course Outline:

My overall plan for this course is given below; it may be modified slightly as the course progresses. I have indicated the appropriate sections of the text, and it is to your benefit to read ahead.

1. Zeroth Law of Thermodynamics and Equations of State (1.1 - 1.8)

Hmwk 1 (due Jan 27)

2. First Law of Thermodynamics and Applications (2.1 - 2.13)

Hmwk 2 (due Feb 10)

EXAM 1 (1 & 2, Feb 15)

3. Second and Third Laws of Thermodynamics (3.1 - 3.8)

Hmwk 3 (due Feb 24)

4. Fundamental Equations of Thermodynamics (4.1 - 4.8)

Hmwk 4 (due Mar 2)

EXAM 2 (3 & 4, Mar 7)

5. Chemical Equilibria (5.1 - 5.9)

Hmwk 5 (due Mar 16)

6. Phase Equilibria (6.1 - 6.7)

Hmwk 6 (due Apr 6)

EXAM 3 (5 & 6, Apr 11)

7. Kinetic Theory of Gases (17.1 - 17.5, 17.7, 19.1)

Hmwk 7 (due Apr 20)

8. Kinetics and Gas Reactions (18.1 - 18.4, 18.6 - 18.10, 19.4)

Hmwk 8 (due Apr 27)

EXAM 4 (7 & 8, May 4)

FINAL EXAM (1 - 8, May 11)

Course Grade:

I do not grade on a curve. Everyone who earns at least 85% of the points available in this course will earn an A or AB, 70% will earn a B or BC, 60% will earn a C, and 50% will earn a D. I reserve the right to lower these cutoffs, but I will not raise them.

Point Breakdown:	Problem Sets	25 points each	200 points total
	In-class Exams	100 points each	400 points total
	Final Exam		200 points
	Overall		800 points

Regrade requests must be turned in within 3 days after the graded exam or problem set was returned to the class; please be aware that your original work may have been photocopied and that any variations will be presumed to have been made after the exam or problem set was originally graded.

Discussion:

Attendance of your discussion section is highly recommended; much of this time will be spent solving problems. This small group work is an excellent way to make progress toward understanding the course material.

Problem Sets:

Problem sets will be due at the beginning of class on the due date. Late problem sets will not be accepted, no exceptions! All problem sets are due on Wednesdays; you will turn in your problem set at the beginning of class, receive an answer key at the end of class, and will have the opportunity to ask questions in discussion that same day. Graded problem sets will be returned to you in class on the Friday following their due date. While only a subset of the problems may be graded, I expect that you will work through and understand all of the assigned problems. In this course, you will exhibit your mastery of a concept with your ability to solve problems. Mathematics is a key part of physical chemistry and you will need to be comfortable enough with math to solve problems. While I encourage you to work on your problem sets in groups, you are responsible for fully understanding the solutions to all of the assigned problems.

Exams:

Exams will be held in class, during the regular class periods. Each exam will cover two of the eight units outlined above; the final exam will be cumulative. It is my goal (but not a guarantee) that the class period prior to each exam will be a review of the material that will appear on the exam.

Participation:

Being an active participant in class discussions and in your discussion section will help you learn the material. I encourage you to ask questions in class and in discussion, and to utilize both my and Mary's office hours. You are also welcome to ask a question or make a comment (anonymously, if you wish) and put it in my mailbox.

Errors in Silbey, Alberty, and Bawendi (4th edition):

Page 61, Equations 2.95 and 2.96, all four “ C_p ” symbols should be “ C_p^0 ”

Page 68, point 5, “differential” should replace “variable”

Page 186, Figure 6.6, part a, x-axis label should read “ x_1 ”, “ y_1 ” should not appear

Page 187, text just after Equation 6.31, replace “6.23” with “6.27”

Page 192, Figures 6.11, x-axis label should be “ x_1, y_1 ” in both panels

Page 193, Figures 6.12, x-axis label should be “ x_1, y_1 ” in both panels

Page 687, text 3 lines after Equation 19.4, replace “2” with “1/2”

Other Resources:

Three alternate textbooks are on reserve in the library. You should try reading one of these alternate texts if you are having trouble understanding a particular section of Silbey, Alberty, and Bawendi.

“Physical Chemistry” by Atkins and de Paula

“Physical Chemistry” by Levine

“Physical Chemistry” by McQuarrie