

University of Washington: Department of Chemistry  
Chemistry 455 A; Spring 2007

Instruction Hours: M, W, F 8:30-9:20 a.m. Bagley 260

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

Tutorial: Thursday 8:30-9:20, Bagley 260

Instructor: Professor Bruce H. Robinson

Bagley, 212, 206-543-1773, [robinson@chem.washington.edu](mailto:robinson@chem.washington.edu)

Office Hours: Wed and Fri 3:30 – 4:20 p.m. and by appointment.

Teaching Assistant: Greg Olsen

Office: Bagley 114, [golsen@u.washington.edu](mailto:golsen@u.washington.edu)

Office Hours: Mon 9:30-10:20, Fri 5:00-6:00 in CHB 239

Text: Introduction to Quantum Mechanics, Thomas Engel or  
Physical Chemistry by Engel and Reid (if you are taking either 456 or 457 afterwards)

Review Text: Chemical Principles by Steven Zumdahl

Recommended: McQuarrie, Atkins or Anderson's texts.

The Monograph by Anderson is available on my web site but it doesn't  
look as nice as the original.

Approximate Class Reading Schedule

Reading in the Lecture Notes (Text) (A week means about 3 lectures worth of material)

Week: Assignment

- 1 Zumdahl: Chapters 12, parts of 13 and parts of 14
- 2 Chapters 1 and 2
- 3 Chapters 3 and 4
- 4 Chapters 4 and 5
- 5 Chapter 6 and 7
- 6 Chapter 7 and 8
- 7 Chapter 9
- 8 Chapters 10 and 11
- 9 Chapter 11 and 12
- 10 Chapter 13 and 14

Holidays: May 28, 2007 is Memorial day and is a school holiday

First Day of Lecture: March 26, 2007. Last Day of Lecture: June 1, 2007 (Friday)

Examinations:

Review Exam: Friday: April 6, 2007 (50 bonus points)

First Exam: Friday, April 27, 2007 (100 points)

Second Exam: Friday, May 25, 2007 (100 points)

Final Exam: Tuesday 6/5/2007, 8:30-10:20 (200 points)

See the Schedule on the web for the details of the assignments, lectures and exams, and a class bulletin board.

Homework: Worth 100 points total. Due Friday and Monday to be turned into the TA. Place them in the TA's mailbox or at another location as directed by 5:00 p.m. on the appointed day. Any additional arrangements will need to be made with the T.A. Assignments will be made from each lecture and 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 the homework. 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. To test yourself: Look at the problems in other texts (McQuarrie, Levine or Atkins) and work and follow the worked problems done by Dr. Larry Sorensen in his physics course. I'll give you the URL later.

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 it is of general concern we can go over it, otherwise I can suggest that we meet individually. Questions in class are most appreciated and very helpful for all. I don't keep track of who asks and there is no connection with your grade, so ask.

I am assuming that you had Chemistry 152; and that the text for that course was Zumdahl's "Chemical Principles". Reviewing the material in there is invaluable for this course: In particular reread the chapters on quantum mechanics and molecular structure. Chapters 12-14 are good to look over and remind your self that you have some idea of what Q.M. is about. To that end we will have lectures on this material and an in class review quiz. That quiz will ask you problems from the end of the chapters in Zumdahl. The questions that are important are listed in the lecture. The review test will be taken directly from those questions.

We will use what you know about time dependent classical mechanics from physics and integral and differential equations from math. See the math review sheet, and work that. If you have had differential equations, and or linear algebra then the concepts in the course will come more easily. Whether or not you have had these courses you should review the material of those courses at the beginning of this course. Get together with a friend who had the material, or a physics or math major and be sure you can solve the differential equation in Zumdahl, Chapter 12.