

Chem 3620, Physical Chemistry II, Winter 2005

Class Times: TTh 10:00 – 11:50 am, Olin 103

Instructor: Sandra S. Eaton

Office: Seeley G. Mudd Rm. 178

Office Hours: T Th 8-10 am, or by appointment

Text: *Physical Chemistry*, P. Atkins and J. de Paula, 7th ed., Freeman, 2002.

Tentative Course Outline

Date	Topic	Reading in text	Homework - E and P refer to Exercises and Problems in text
Jan. 4	Problems with Classical Mechanics, Wave-Particle Duality	p. 293-304	
6	Schrödinger Equation Wave Functions, Eigenfunctions	304-312	
11	Operators, Expectation Values, Uncertainty Principle	313-320	E11.5b, E11.6b, E11.9b, E11.14b, P11.16
13	Particle in 1-D box	325-331	
18	3-D box, box with sloping bottom	331-334	P11.20, E12.5b, E12.6b and calculate Δp , E12.7b
20	Harmonic Oscillator	338-345	
25	Rotational Motion	345-352	E12.8b, E12.9b, E12.10b, E12.12b, E12.13b
27	Exam 1		
Feb. 1	Hydrogen Atom	365-372	E12.17b, E12.18b, P12.4
3	Hydrogen-like Wavefunctions	372-383	
8	Electron Spin	352-355	E13.5b, E13.6b, E13.10b, E13.16b, P13.2. The use of Mathcad in working some of these problems is encouraged.
10	Multielectron Atoms	383-392	
15	H ₂ Molecule	410-422	E13.14b, E13.19b, P13.12, P13.21, P13.26b
17	Diatomic Molecules	422-432	
22	Exam 2		E14.5b, E14.7b, E14.9b, P14.5, P14.7 (due Mon. Feb. 21)
24	Symmetry, Point Groups	453-462	
Mar. 1	Character Tables, Molecular orbitals for H ₂ O	463-471	
3	Rotational Spectra	481-490, 497-501	E15.7b (change D _{6h} to D _{3h}), E15.13b, E15.14b, E15.15b, E15.16b
8	Vibrational Spectra	511-515, 517-523	
10	Final exam – cumulative		E16.8b, E16.11b, E16.18b, E16.19b, P16.5

Weekly homework assignments will be collected and graded. Updated copies of the syllabus, including homework assignments will be posted on Blackboard

Grading: Class Participation - 10%, Homework - 15%, Exams - 25% each.

Revised 2/27/05