Physical Chemistry I. Quantum Chemistry
Fall Semester 2015

Class Time:
Problem Period:

Instructor: Dr. Stefan Franzen, 363E Partners III, Tel. 515-8915
Office Hours: By appointment (franzen@ncsu.edu), email any time

Text: Physical Chemistry, 8th Edition (or newer), Peter Atkins & Julio de Paula, Freeman Press

Date	Topic	Reading
20 Aug	Blackbody Radiation	8.1-8.6, 16.1
25 Aug	The Particle in a Box	9.1-9.3
27 Aug	The Harmonic Oscillator	9.4-9.5
1 Sept	The Hydrogen Atom	9.6-9.7, 16.2
3 Sept	Angular momentum, spin	9.8-9.9
8 Sept	Absorption and Fluorescence	9.7-9.8
10 Sept	Atomic Structure	10.1-10.9
15 Sept	Midterm I	
17 Sept	Group Theory	12.1-12.3
22 Sept	Group Theory	12.4-12.6
29 Sept	Variational Principle	11.1-11.4
1 Oct	Diatomic Molecules	11.5-11.6
6 Oct	LCAO-MO	11.7
8 Oct	Fall Break	
13 Oct	Molecular Structure	11.8
15 Oct	Vibrational spectroscopy	13.1-13.3
20 Oct	Vibronic vs. Franck-Condon	13.4-13.17
22 Oct	Mid-term II	
27 Oct	Perturbation theory	9.9-9.10
29 Oct	Line shapes	14.1-14.2
3 Nov	Dielectric properties	14.3-14.4
5 Nov	Lasers and Applications	14.5-14.6
10 Nov	NMR Spectroscopy	15.1-15.3
12 Nov	Fourier Transform NMR	15.4-15.6
17 Nov	Biological Applications	
19 Nov	Midterm III	
24 Nov	Statistical Mechanics	16.1-16.5
1 Dec	Statistical Applications	17.1-17.8
3 Dec	Applied Molecular Dynamics	

Grades will be based as follows: There will be +/- grading.

Homework	200 pts
Mid-Terms	400 pts
Final exam	400 pts
Semester Total	1000 pts