

Chemistry 531
Quantum Chemistry
Fall Semester 2005

Instructor: Dr. Spiridoula Matsika,
Office: Beury 242, Phone: 1-7703, e-mail: smatsika@temple.edu
Office Hours: Mon 1-2pm, Wed 11-noon, Th 1-2pm or stop by anytime!
Lecture: Monday Evening 6:10 pm - 9:00 pm, Beury Hall 413

Text: "Quantum Chemistry" (fifth Edition) by I. Levine
References: "Introduction to Quantum Mechanics: with Applications to Chemistry" by Pauling and Wilson
"Principles of Quantum Mechanics" by R. Shankar

Topics:

- I. Background
 - Review of Classical Mechanics
 - Wave/particle behavior of electrons
- II. Fundamentals of Quantum Mechanics
 - Schrodinger Equation/ Wavefunctions/ Operators/ QM Postulates
- III. Particle in a Box
- IV. Harmonic Oscillator
- V. Angular Momentum
- VI. The Hydrogen Atom
- VII. Approximate Methods
 - Variational approaches
 - Perturbation Theory
- VIII. Many Electron Atoms
- IX. Diatomic Molecules

Course Description:

Introduction to the principles of Quantum Mechanics and applications of them to the study of atoms and molecules

Grading: Weekly Homework: 20%
Midterm: 40%
Final: 40%

Homework and Exams:

Weekly homework problems will be collected in class on the due date. Late homework will not be accepted without prior consent of the instructor.

There will be one midterm exam on 10/24/05 and the final exam on 12/12/05.

Students with disabilities:

Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific condition as soon as possible. Contact Disabilities and Services at 215-204-1280 in 100 Ritter Annex to coordinate reasonable accommodations for students with documented disabilities.

First class: Monday, August 29.

Labor Day (no class) Monday, September 5.

Last day to drop (tuition refund available): Monday, September 12.

Last day to withdraw (no refund): Monday, October 31.

Thanksgiving Holiday: November 24-27

Last Class: Wednesday, December 7.