Instructors: H. Bernhard Schlegel  07 Life Sciences
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Lectures: Monday, Tuesday, Wednesday, Friday  8:30-9:25 AM,  1109 Science Hall

Office Hours: Monday 9:30-10:30 AM. We will also be available for after-class questions/discussions – please, make appointments by asking after class, or by e-mail.


Topics covered by the course: Quantum mechanics (Ch. 9); atomic structure (Ch. 10); molecular structure (Ch. 11); rotational and vibrational spectroscopy (Ch. 13); electronic spectroscopy (Ch. 14); kinetic theory of gases (Ch. 17); chemical kinetics (Ch. 18). The emphasis will be made on the fundamental physical principles that form a unified base for understanding chemistry and spectroscopy.

The first part of the course will be taught by Prof. Schlegel and the second part by Prof. Cisneros.

♦ The reading assignments must be completed BEFORE each lecture.
♦ All homework assignments must be turned in on time, which will be announced.
♦ There will be 10 quizzes during the lectures that will contribute to the final grade.
♦ There will be 2 midterm exams (1 hr each) and a final exam (2.5 hrs).
♦ All exams and quizzes will be closed-book.
♦ Zero grade (0 pts) will be assigned if an exam/quiz is missed.
♦ You are expected to abide by the honor code:
http://studentsenate.wayne.edu/news_archive.php?id=3164
♦ If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS). Once you have your accommodations in place, we will be glad to meet with you privately during office hours to discuss your special needs.
♦ All exam dates are final, permission (with legitimate excuse) must be obtained 24 hours before the date and time of the exam.
♦ Grading:
  
  2 midterm exams (100 pts each)  200 pts
  final exam  200 pts
  quiz grades  100 pts
  homework  50 pts
Tentative Schedule

Week 1  Intro to quantum mechanics, failure of classical mechanics (pg 295-303)
Week 2  Principles of quantum mechanics, particle in a box (pg 304-322, quiz 1)
Week 3  Harmonic oscillator, rigid rotor (pg 322-344, quiz 2)
Week 4  Hydrogen atom (pg 348-369, quiz 3)
Week 5  Many electron atoms (pg 369-391), Midterm 1, February 11
Week 6  Many electron atoms (pg 369-391, quiz 4),
Week 7  Diatomic molecules (pg 396-416, quiz 5)
Week 8  Polyatomic molecules (pg 416-433, quiz 6)
Week 9  Rotational and vibrational spectroscopy (pg 458-497, quiz 7)
Week 10 Electronic spectroscopy (pg 502-529), Midterm 2, March 18
Week 11 Electronic spectroscopy (pg 502-529, quiz 8)
Week 12 Kinetic theory of gases (pg 614-637, quiz 9)
Week 13 Chemical kinetics (pg 641-659, quiz 10)
Week 14 Reaction rates (pg 659-678) Note: No class on 4/19 (Passover)
April 28 Final Exam 8:00 – 10:30