

Chemistry 1410, Physical Chemistry 1, Fall 2015 Instructor:

K. Jordan, 330 Eberly Hall; jordan@pitt.edu

Text: *Quantum Chemistry and Spectroscopy*, 3rd edition, by Thomas Engel

Supplemental reference: *Applied Mathematics for Physical Chemistry* by James Barrante

Lectures: Mon and Wed, 6:00 PM – 7:10 PM, Room 150 CSC

Recitation: Wed, 7:20 PM – 8:10 pm, Room 150 CSC

Office Hours: Monday 1:00 – 2:00 PM; Wednesday 2:00 – 3:00 PM

Web page: www.pitt.edu/~jordan/chem1410-f15

TA Office Hours:

Grading: Three exams, first two (25% each), third (35%); homework (10%), piazza-forum participation (5%). All exams are open book, i.e., you can use your text and notes, but no other sources. Makeup exams are permitted only in the case of medical emergencies.

We will be covering many important concepts that build on one another. As a result, you are strongly encouraged to attend all lectures and recitations.

Week 1 (Aug 31, Sep 2)	Chapter 1, the need for quantum mechanics; Chapter 2 the Schrödinger Equation
Week 2 (Sept 9)	Chapter 2, the Schrödinger Equation
Week 3 (Sept 14, 16)	Chapter 3, postulates of QM
Week 4 (Sept 21, 23)	Chapter 4, QM of simple systems; Chapter 5, particle in the box
Week 5 (Sept 28, 30)	Chapter 6, commuting operators
Week 6 (Oct 5, 7)	Chapter 7, QM of vibration and rotation; Exam 1 (Mon)
Week 7 (Oct 12, 14)	Chapter 7, QM of vibration and rotation; Chapter 8, vibrational and rotational spectroscopy
Week 8 (Oct 20, 21)	Chapter 9, the H atom
Week 9 (Oct 26, 28)	Chapter 10, many el. atoms; Chapter 11, atomic spectroscopy
Week 10 (Nov 2, 4)	Chapter 12, H ₂ ⁺ and H ₂
Week 11 (Nov 9, 11)	Chapter 12, bonding in diatomics; Exam 2 (Wed)
Week 12 (Nov 16, 18)	Chapter 13, bonding in polyatomics
Week 13 (Nov 23, 30)	Chapter 14, electronic spectroscopy
Week 14 (Dec 2, 7)	Chapter 16, symmetry
Week 15 (Dec 9)	Exam 3 (Wed)