

Physical Chemistry I (CE)
Spring, 2021

Instructor: T.-S. Yang, Ph.D

Department of Chemistry and Biochemistry, Rm 410

Office hour: Friday 16:00 ~ 18:00 pm

Main Text: P. Atkins, J. de Paula, and J. Keeler: Atkins' Physical Chemistry,
Int'l ed. (or 11th ed.) 2018

Reference: D.A. McQuarrie, Quantum Chemistry, 2th ed. 2007

Course Outline:

1. Origins of Quantum Theory (Topic 7A)
2. Schrodinger Equation and Quantum Theory of Translational Motion (Topic 7B&D)
3. Postulates and Principles of Quantum Theory (Topic 7B&C)
4. Quantum Theory of Vibrational Motion (Topic 7E)
5. Quantum Theory of Rotational Motion (Topic 7F)
6. Hydrogen-like Atomic Structure (Topic 8A)
7. Many-electron Atoms (Topic 8B)
8. Atomic Spectra (Topic 8C)
9. Molecular Orbital Theory: Hydrogen Molecule-ion (Topic 9B)
10. Molecular Orbital Theory: Diatomic Molecules (Topic 9CD)
11. Molecular Orbital Theory: Polyatomic Molecules (Topic 9E)
12. Molecular Symmetry and Group Theory (Topic 10AB)

Grading will be based on quizzes 20%, midterm exam (4/21 Wed 14:45) 40%, and final exam (6/23 Wed 14:45) 40%.