

Chem 561

Fundamentals of Quantum Mechanics

Instructor:

Xueyu Song

Lecture:9:55-11:45am at Hach 1227; Office Hours:by appointment

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Syllabus:

- Brief review of some mathematical materials.
- Wave-function, Schrodinger equation and some simple examples of its applications
- Fundamental formalism of quantum mechanics
- Hydrogen atom and angular momentum
- Identical Particles and quantum statistics
- Time-independent perturbation theory
- The variational principle and its applications
- Time-dependent perturbation theory
- Scattering Theory

This course teaches through examples. Homework is an integrated part of the course. Problems are assigned for roughly every three classes. You are encouraged to collaborate for your homework provided that you tried by yourself. There are one midterm and one final. The grade will be based on homework(30%), midterm(30%) and final(40%). The required textbook is *Introduction to Quantum Mechanics* by David Griffith, but my favorite two textbooks are Landau and Lifshitz's *Quantum Mechanics* and Cohen-Tannoudji, Diu and Laloe's *Quantum Mechanics: Vol I and II*.

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reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations. Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information or assistance is available online at www.sas.dso.iastate.edu, by contacting SAS staff by email at accessibility@iastate.edu, or by calling 515-294-7220. Student Accessibility Services is a unit in the Dean of Students Office located at 1076 Student Services Building.