

Chemistry 442-2: Quantum Mechanics II

Winter 2004

Tuesdays & Thursdays, 12:30 p.m. – 1:50 p.m.

- Instructor:** Teri W. Odom
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Tech KG58, 491-7674
- Office hours:** Fri. 11 a.m. – 12 p.m. or **by appointment**
- T.A.:** Jiha Sung
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Office hours: TBD
- Required Texts:** Quantum Mechanics (Cohen-Tannoudji)
- Other Texts:** Modern Quantum Mechanics (J.J. Sakurai)
Elements in Quantum Mechanics (M.D. Fayer)
Quantum Mechanics in Chemistry (G. Schatz & M. Ratner)
- Course goals:** (i) To apply tools in quantum mechanics to modern chemical problems (laser spectroscopy, nanoscale structures, device architectures, electron tunneling, etc.)
(ii) To relate mathematical functions and equations to their physical meaning
- Topics:** Time-dependent quantum mechanics
Time-dependent perturbation theory
Angular Momentum
Electron Spin
Interaction of light and matter
Scattering theory
- Grading:** The final grade will be determined by:
15% (group work) + **15%** (homework) + **15%** (midterm 1)
+ **15%** (midterm 2) + **40%** (final exam)
- Exam dates:** There are two in-class midterms scheduled
29 Jan
26 Feb
- Other details:**
1. **Previous year's homework and exam solutions** should **NOT** be consulted for answers or reference.

2. **Problem sets** will be distributed every 1-2 weeks. They should be written-up concisely. Please box your final answer.
3. **Group work** involves rotating groups of 3 students working together to solve short problems at the beginning of the class. ~10 minutes will be allotted for this activity.