

Physics 671

Quantum Mechanics II

Instructor: Jason Kumar
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Class meets:
T Th 9:00am-10:15pm
WAT 417A

Required Textbook:
Principles of Quantum Mechanics, R. Shankar

Optional Textbook:
Modern Quantum Mechanics, J. J. Sakurai

Topics to be covered:

Hydrogen Fine-Structure
Time-Dependent Perturbation Theory
Wigner-Eckhart Theorem
Many-Body Quantum Mechanics
Scattering (Born Approximation and Partial Wave Expansion)
Coupling Charged Particles to Electromagnetic Fields
Stark and Zeeman Effects
Path Integral Formulation of Quantum Mechanics
Tunneling and Instantons

Grading:

The course grade will be based on homework and exams

60% -- homework
20% -- midterm
20% -- final

Student Learning Outcomes:

At the successful completion of this course, students will be expected to:

- 1) Understand advanced concepts in quantum mechanics.
- 2) Understand major applications of these concepts.