

Physics 215 Non-Relativistic Quantum Mechanics Winter 2006

Instructor: Joel Primack ISB 318 joel@physics.ucsc.edu

Office Hours: Wednesdays: 2-3 pm, or by appointment

Class meets: Mondays and Wednesdays 11 am to 12:45 pm, ISB 231

Webpage: <http://physics.ucsc.edu/~joel/Phys215.htm>

Syllabus (tentative):

- Fundamentals of quantum mechanics
- Quantum dynamics and the Schrödinger equation
- Aspects of one-dimensional quantum mechanics
- The harmonic oscillator and coherent states
- Angular momentum and the hydrogen atom
- Particle in a magnetic field, gauge invariance, Landau levels
- Spin and two-state systems
- Symmetries in quantum mechanics
- Tensor operators and the Wigner-Eckart theorem

Textbooks:

Modern Quantum Mechanics (Revised Edition) by J.J. Sakurai

Lectures on Quantum Mechanics by Gordon Baym

Supplemental books:

Quantum Mechanics by Ernest S. Abers

The principles of Quantum Mechanics by P.A.M. Dirac

Feynman Lectures on Physics, Vol. 3 by R.P. Feynman, R.B. Leighton, and M. Sands

Quantum Mechanics: Fundamentals by Kurt Gottfried and Tung-Mo Yan

Quantum Mechanics: Non-relativistic Theory by E.M. Lifshitz and L.D. Landau

Quantum Mechanics by Albert Messiah

Quantum Mechanics by Eugen Merzbacher

Quantum Mechanics by Ramamurti Shankar

Schedule:

	Monday	Wednesday	
January	8	10	
	holiday	17	
	22 HW1	24	
	29	31 Midterm	
February	5	7	
	12 HW2	14	
	holiday	21	
	26 HW3	28	
March	5	7	
	12 HW4	14	
March 20	Tuesday, 8 -11am		FINAL EXAM

Grading:

Homework 40%

Midterm 20%

Final 40%