Course Outline

Course: Quantum Mechanics I
Instructor: Dr Alakabha Datta
Office: 209 Lewis Hall
Meeting: MWF: 10 am to 10.50 am, Lewis 104
Office Hours: By Appointment
Email:datta@olemiss.edu, datta@phy.olemiss.edu
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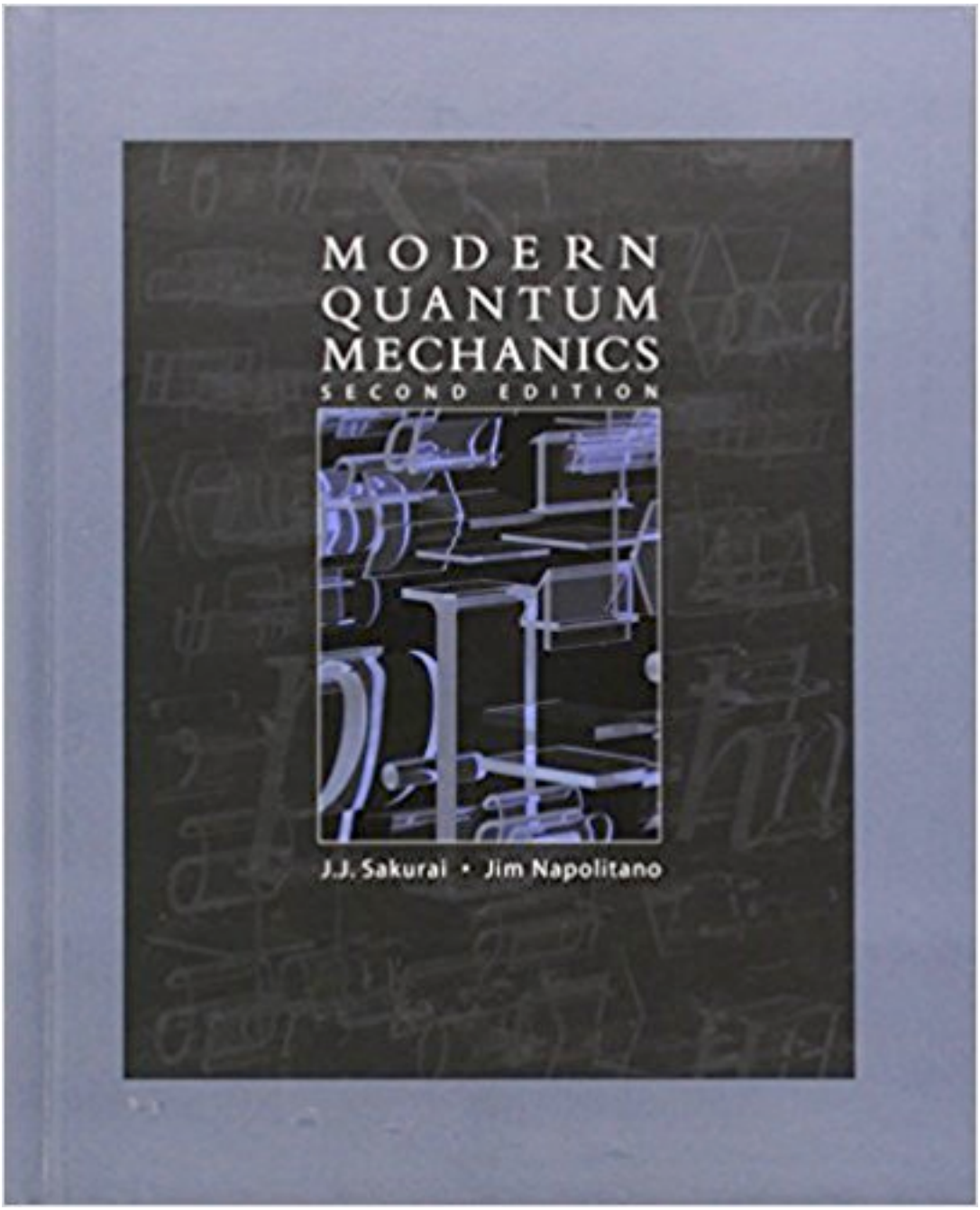
Course homepage: Check Blackboard.


MODERN
QUANTUM
MECHANICS
SECOND EDITION
J.J. Sakurai • Jim Napolitano

Book

Course Goals: Learning to apply the basic postulates and rules of Quantum Mechanics learnt in QM 711 to solve problems in various areas of research.

Independent study: The course will also involve solving problems that will require students to research material on published journals to complete the project. The purpose of this is to help the student acquire skills to pursue independent research. The students will also complete a report on a topic of current research interest.

Marking:

Homework: 60 %

Mid Term Exam: 15%

Final Exam: 25% In class exam.

An overall course average of the following percentages will guarantee the corresponding letter grade:

90%	A
80%	B
70%	C
60%	D

Topics Covered in course:

Basic Formalism (Ch 1)

Simple Time Evolution Problems (CH 2)
Harmonic Oscillator (CH 2)
Review of 1-D problems, WKB (Ch 2)

Angular momentum (Spin and Orbital)
Angular Momentum Addition
Central Potential, Hydrogen Atom

Perturbation Theory (Ch 5)
Simple examples in perturbation theory,
Variational Principle.
Simple examples in time dependent problems,
Magnetic resonance.