

Course Outline

Course: Quantum Mechanics II

Instructor: Dr Alakabha Datta

Office: 209 Lewis Hall

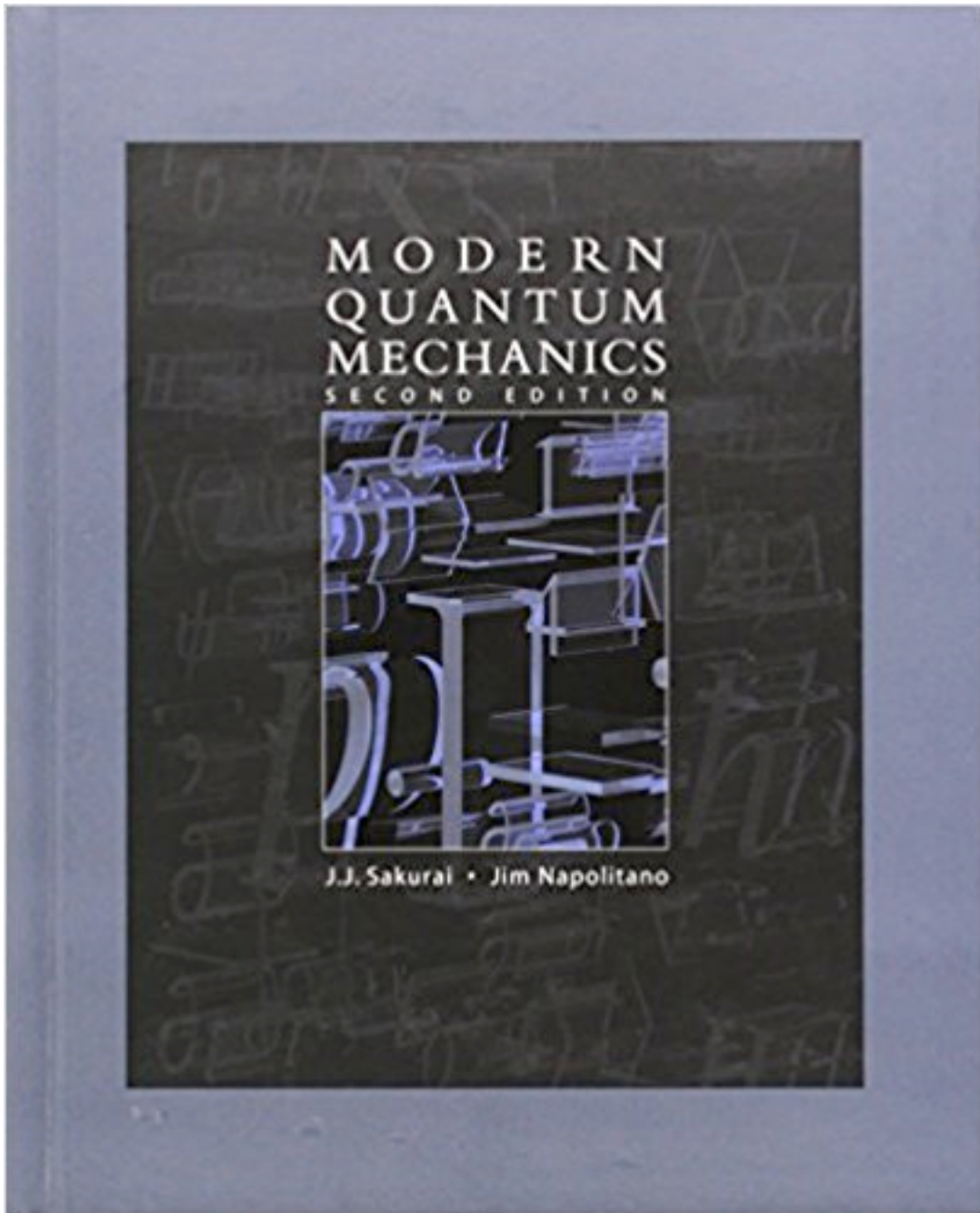
Meeting: T TH 9.30 am to 10.45 am, Lewis 228

Office Hours: By Appointment

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Phone: (662) 915-5611

Course homepage: Check Blackboard.



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 Report: 15%

Final Exam: 25% Take home 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:

Potentials and the E & M fields. Density matrix,
Tensors.

Symmetries: Parity, Lattice and Time reversal transformation.

Time independent Perturbation Theory:

Stark Effect, spin-orbit and Zeeman effect.

Relativistic corrections. Lenard

Jones potentials.

Time dependent problems:

Dyson Series, Dipole atomic transitions,

Photoelectric effect.

Identical particles and many particle system.

Scattering, Dirac Equation.