Physics 511: Quantum Mechanics I (Fall 2024)

Lectures:  Tue, Thu: 11:00-12:20
Place:  H116, Harriman Hall.
First meeting:  Tuesday, August 26, 2023

Instructor:  Alexander Abanov, alexandre.abanov@stonybrook.edu
Office hour:  B102, TBA

Teaching assistant:  TBA
Office hour:  TBA

Main textbook:  J.J. Sakurai and Jim Napolitano, “Modern quantum mechanics”

Recommended textbooks:
V. Galitski, B. Karnakov, V. Kogan and V. Galitski Jr “Exploring Quantum Mechanics.”
L.D. Landau and E.M. Lifshitz “Quantum mechanics: non-relativistic theory” (Vol. 3).

Grading:  Grade = (1/5) Homework + (1/5) Take Home Exam + (1/5) Midterm + (2/5) Final

Exams:  Exam policy: no textbooks or print-outs. Personal class notes and assignments with solutions are allowed.

Homework:  assigned every week.

From Graduate School Bulletin, Stony Brook University. PHY 511: Quantum Mechanics I
First course in a two-part sequence. Topics include basic quantum physics and mathematical apparatus; application to one dimensional examples and simple systems. Symmetries, angular momentum, and spin. Additional topics as time permits.
Fall, 3 credits, Letter graded (A, A-, B+, etc.)

Approximate outline of the course:

1. Basic concepts: Hilbert space, quantum dynamics, measurements.
2. Quantum dynamics in one dimension.
3. Angular momentum, spin.
5. Symmetries in quantum mechanics.
6. Two-level systems. Elements of quantum information and computation.