Physics 651 Fall 2023

Quantum Mechanics I

Instructor: Oksana Ostroverkhova, oksana@science.oregonstate.edu,
http://www.science.oregonstate.edu/~ostroveo/index.html

Textbook: *Modern Quantum Mechanics*, Third Edition, J.J. Sakurai, J. Napolitano

References: 1. *Principles of Quantum Mechanics*, R. Shankar
2. *Quantum Mechanics,* B. H. Bransden and C. J. Joachain
3. *Quantum Mechanics* (vol. 1), C. Cohen Tannoudji, B. Diu, F. Laloe
4. *Quantum Mechanics*, D. McIntyre

Office hours: upon request

Course outline:

Waves and particles: fundamentals	(Ch. 1.1)	week 1
Mathematical tools: kets, bras, operators	(Ch.1.2-1.3)	week 2
Measurements, observables, uncertainty principle	(Ch. 1.4-1.7)	week 3-4
Schroedinger's equation	(Ch. 2.1, 2.2, 2.4)	week 5-7
1D problems, simple harmonic oscillator	(Ch. 2.3)	week 8-9
Path integrals, modern applications	(Ch. 2.6)	week 10

Homework:

There will be one homework assignment per week; check the course web for current assignments due. Homework is to be turned in at the beginning of the class; late homework is not accepted. The homework solutions will be available immediately after the due time.

Worksheets:

In order to help you check your understanding of the material and provide feedback for me, worksheets will be given during almost every lecture. The worksheets will be graded and returned as soon as possible.

Exams:

We will have one in-class midterm (tentative date November 1) and a final exam (the registrar-set time is Tuesday, December 12, 2023 at 6 pm).

Grading Policy:

Homework (total)	30%
Worksheets (total)	10%
Midterm	20%
Final	40%