Physics 354: Introduction to Quantum Mechanics
Instructor

Prof Eric Corwin
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Lectures

MWF 10:00 – 10:50 pm, 318 Willamette Hall

Office Hours

M 2:00 – 4:00 pm, or by appointment, 373a Willamette Hall
You are strongly encouraged to come to office hours, either with course-related questions, or just to chat.

Textbook

Introduction to Quantum Mechanics by A.C. Phillips. I’m not sure if this book will be available in the book store. If not, it can be obtained from numerous online booksellers by searching for “introduction to quantum mechanics phillips“.

Topics

This course introduces the strange world of quantum mechanics. We will start with the unintentional unraveling of classical physics set in motion by Planck’s solution to the “ultraviolet catastrophe” and work through to a modern understanding of quantum mechanics. Along the way we will develop Schrödinger’s famous wave equation and recast the Hamiltonian operator of classical physics in a quantum light. We will apply these tools to the task of understanding the behaviour of conjugate variables (position and momentum, time and energy, etc.) and thereby derive Heisenberg’s uncertainty principle. We will also examine the behaviour of particles under the influence of various potentials (square well, harmonic, etc.) and derive scattering and tunnelling behaviours. Throughout the course we will comment on the interpretations of quantum mechanics and attempt to understand how to square our everyday world with the predictions of quantum mechanics.

Homework

There will be weekly problem sets. Except by prior arrangement late homework will only be accepted until 24 hours after the deadline and will automatically lose 50% of its score.

If you get stuck on a problem, don’t spin your wheels for very long. It is useful to struggle for a while, but it is a waste of your time to stare at one problem for hours. Instead, come to office hours or talk to your classmates for help. Students are encouraged to collaborate on homework but reminded that the work you submit should be your own.
Grading

Final grades will be determined by homework, a midterm, a final, and class participation.