Introduction to Quantum Physics

PHY B56 - LEC 01 - Fall 2012

r	Tuesday	10:00 am - 12:00 pm	MW 264
or D	Thursday	10:00 am - 12:00 pm	MW 262

"I think I can safely say that nobody understands quantum mechanics"

– Richard Feynman

"If you are not confused by quantum physics then you haven't really understood it"

– Niehls Bohr

"There is no general consensus as to what its fundamental principles are, how it should be taught, or what it really "means". Every competent physicist can "do" quantum mechanics, but the stories we tell ourselves about what we are doing are as various as the tales of Scheherazade, and almost as implausible."

– David Gri ths

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Required Materials

Textbook: Introduction to Quantum Mechanics   by David J. Gri ths (Pearson, 2nd Ed.)

ISBN# 9780131118928; U of T Bookstore SKU# 10878835

The schedule provided at the end of this document indicates the chapters and sections you must read before each lecture. The textbook also provides the conceptual questions and detailed problems that will be the subject of the weekly problem sets, reading quizzes, and tutorial quizzes.

Textbook: Quantum Mechanics   by Robert Scherrer (Pearson, 1st Ed.)

A handout of Chapter 1: The Origins of Quantum Mechanics   will be provided.

Calculator: A scienti c and non-programmable calculator is required.

Test #1 (15%)
Our first test will be tentatively scheduled during Week 5 . This test includes all materials discussed up to and including the tutorial session of Thursday, October 04.

Test #2 (15%)

In-class Conduct

Please turn o all cellphones, laptop computers, and tablets when you come into the class.

Class Schedule

This schedule is tentative and might change during the term in order to accommodate for variations in the lectures in response to student performance and understanding of the various topics.

Please note that it is your responsibility to read the assigned sections and chapters before each lecture.

The lecture discussions will not be a direct repetition of the basic material found in the textbook.

During the lectures we will concentrate on important and difficult aspects of the theories and concepts from your textbook readings.

Failing to complete the textbook readings before each lecture will significantly affect your ability to understand the class discussions.

Dates	Tuesday Lecture 10am - 12pm	Thursday Tutorial 10am - 12pm
Sep. 11 Sep. 13	Blackbody Radiation and Light Scherrer Ch.1: 1 - 3	Matter Waves and Bohr's Atom Scherrer Ch.1: 4 - 6
Sep. 18 Sep. 20	Schrödinger's Equation Griffiths Ch.1: 1 - 4	Problem Set #1 Quiz #1
Sep. 25 Sep. 27	Wave Functions and Uncertainty Griffiths Ch.1: 5 - 6	Problem Set #2 Quiz #2
Oct. 02 Oct. 04	Stationary States Griffiths Ch.2: 1	Problem Set #3 Quiz #3
Oct. 09 Oct. 11	The Particle in a Box Griffiths Ch.2: 2	Problem Set #4 Quiz #4
Oct. 16 Oct. 18	The Free Particle and Momentum Griffiths Ch.2: 4	Problem Set #5 Quiz #5
Oct. 23 Oct. 25	Delta Potential and Scattering Griffiths Ch.2: 5	Problem Set #6 Quiz #6
Oct. 30 Nov. 01	The Finite Square Well Griffiths Ch.2: 6	Problem Set #7 Quiz #7
Nov. 06 Nov. 08	Quantum Harmonic Oscillator I Griffiths Ch.2: 3	Problem Set #8 Quiz #8
Nov. 13 Nov. 15	Quantum Harmonic Oscillator II Griffiths Ch.2: 3	Problem Set #9 Quiz #9
Nov. 20 Nov. 22	Student Presentations Groups: 1, 2, 3	Problem Set #10 Quiz #10
Nov. 27 Nov. 29	Student Presentations Groups: 4, 5, 6	Student Presentations Groups: 7, 8, 9