

PHY4604 Introduction to Quantum Mechanics I

Spring 2017

Lectures

Lectures will take place every Monday, Wednesday, and Friday from January 4 through April 19 **except** January 16 (Martin Luther King, Jr. Day), January 20, February 20 (exchange for Feb 15 evening midterm), March 6–10 (spring break), and March 13, 15 (exchange for Mar 22 evening midterm). Classes will be held 2nd period (8:30–9:20 a.m.) in NPB 1220.

Instructor

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Office Hours: Wed 1:30 p.m.–3:30 p.m.

Grader

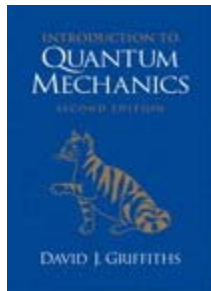
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Course Overview

PHY 4604 is the first course of the two-semester introductory quantum mechanics sequence PHY 4604–4605. The course introduces the basic concepts of wave mechanics, the formalism of quantum mechanics, and applications to atomic, molecular, and condensed matter physics. The material covered is central to much of contemporary research in physics, in other sciences, and in engineering.

You can view archived material for [Fall 2008 \(Links to an external site.\)](#), [Fall 2009 \(Links to an external site.\)](#), [Fall 2010 \(Links to an external site.\)](#), [Spring 2012 \(Links to an external site.\)](#), [Fall 2012 \(Links to an external site.\)](#), [Spring 2013 \(Links to an external site.\)](#), [Fall 2014](#), [Spring 2015 \(Links to an external site.\)](#), and [Fall 2015 \(Links to an external site.\)](#).

Textbook



The course text is *Introduction to Quantum Mechanics* by David J. Griffiths (2nd ed., Pearson Prentice Hall, 2005). The text is required, meaning that you will be assumed to have access to it to complete reading and homework assignments.

There are many other useful textbooks on quantum mechanics. You are encouraged to explore alternatives. Here are four that have often been recommended by colleagues who taught the course in the past:

- R. Shankar "Principles of Quantum Mechanics", 2d edition, Springer 1994.
- L.E. Ballentine "Quantum Mechanics, A Modern Development", World Scientific 1998.
- M. Belloni, W. Christian and A.J. Cox "Physlet Quantum Mechanics", Pearson Prentice Hall 2006.
- S. Gasiorowicz "Quantum Physics", J. Wiley, 1974.

Prerequisites

Modern physics, PHY3103 or PHY3063, is a prerequisite because it motivates and introduces the Schrodinger equation, which is the starting point for this course. For mathematics, you should have completed differential equations, MAP 2302, as well as have familiarity with such linear algebra concepts as eigenstates and eigenvalues. Students who do not know linear algebra tend to do poorly in this course. So you are encouraged to at least read the appendix of Griffiths textbook and go through all of the problems in the appendix to prepare for the course.

Homework

There will be seven homework sets, due on 1/13, 1/27, 2/10, 2/24, 3/17, 3/31 and 4/14. The homework is your best opportunity to learn the material in depth. If at all possible, do the homework entirely on your own. Only if you are hopelessly stuck is it alright to seek help from the instructor or other students. Any help must be explicitly acknowledged at the end of the corresponding problem. In that case you will not be penalized for having received help.

Quizzes

There will be five in class quizzes, on 1/18, 1/30, 2/27, 4/3, and 4/17. The quizzes will be on the material covered by the previous homework set. The best four of the quizzes will be counted towards your final grade.

Midterm and final exams

Midterm 1 will be on Wed, Feb. 15, 8pm-10pm in NPB 1220. Midterm 2 will be on Wed, Mar. 22, 8pm-10pm in NPB 1220. The final will be on Fri, Apr 28, at 10:00am-12:00pm in NPB 1220.

Grades and grade points

The final grade will be based on:

Homework	20%
Quiz	15%
Midterm 1	20%
Midterm 2	20%
Final	25%

Tentative grading scheme (subject to change):

A	100%	to 94%
A-	< 94%	to 90%
B+	< 90%	to 85%
B	< 85%	to 80%
B-	< 80%	to 75%
C+	< 75%	to 70%
C	< 70%	to 60%
C-	< 60%	to 50%
D+	< 50%	to 40%
D	< 40%	to 30%

D-	< 30%	to 20%
F	< 20%	to 0%

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> (Links to an external site.)

Attendance requirement

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> (Links to an external site.).

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Online course evaluation

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu> (Links to an external site.). Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results> (Links to an external site.).

Academic honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers,

quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code> (Links to an external site.).