

PHYS4100 Introductory Quantum Mechanics Spring 2006

Welcome to Quantum Mechanics, the framework by which physicists understand all of nature. We will start out studying some purely quantum mechanical phenomena, and then see how this formalism leads to the Schrödinger equation. We will extend this formalism to include other phenomena, and compare predictions to experiment.

INSTRUCTOR: Jim Napolitano SC 1W07 x8019 email: napolj@rpi.edu
Office Hours: Tuesday 2-4pm *or by appointment*

TA/GRADER: Anthony Villano SC 3C23 x8403 email: villaa@rpi.edu
Office Hours: Tuesday 2-4pm (Huntington Library)

WEB PAGE: <http://www.rpi.edu/dept/phys/Courses/PHYS4100/>

MEETINGS: Mon & Thu Sage 5510 10:00-10:50 *and* 11:00-11:50
 Wed DCC 236 2:00-4:00 (for extra help)

TEXTBOOK: John S. Townsend *A Modern Introduction to Quantum Mechanics*
 University Science Books (2000)
 Web site <http://www.uscibooks.com/townsend.htm/>

The book is in the bookstore. You might be able to get a better price, including used copies, through amazon.com or other online booksellers.

GRADING POLICY

Grades will be determined as follows:

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|-----------------------------------|-------|
| Homework assignments | 30% |
| Monday morning quizzes | 10% |
| Three mid term exams | 3×10% |
| Final exam (<i>not</i> optional) | 30% |

where the cutoffs for *A*, *B*, *C*, and *D* are 90, 80, 70, and 60 respectively.

Homework assignments are all taken from exercises in the textbook, and will be graded according to the number and difficulty of the problems. However, all assignments will be weighted equally in the final course grade.

A quiz may or may not be given at the start of each 10am class Monday morning. These will be based on the reading due for that day, and cannot be made up. They will all be weighted equally in the final course grade.

Mid term and final exam grades will be scaled up (if necessary) so that the class average is approximately 75. I believe the curve makes it unfair to borderline students if the final is optional, so everyone must take the exam.

I may make adjustments to the overall grading scheme if there are special circumstances.

COURSE FORMAT

The course syllabus (available at the course web page) details day by day, the topics we will cover, the reading assignment for that class, and the homework which is *due that day*. Homework is due generally on Thursday, except for weeks in which there is a midterm, or on the last day of class, when a shorter assignment is due on Monday.

The entire class, including myself and the teaching assistant, can be reached through the email address PHYS4100-L@lists.rpi.edu. I will use this frequently, for reminders, updates, and so on. You are also welcome to use this list to communicate with each other, ask questions, raise issues, or anything else associated with our course.

I expect to stick to the course schedule as originally posted, but if for some reason I make some changes, I will change the posting and notify everyone through the email list.

Class time will usually be split between two 50-minute lectures, with a ten minute break in between. Depending on the material to be covered that day, we may take time to answer questions on the homework, or in preparation for an upcoming exam. I urge you to come to class prepared and ready to ask questions.

On Monday mornings at 10am sharp, I will frequently give a short quiz covering all material up to and including that day's reading assignment. These will consist of a few multiple choice questions, very similar to those you might find on the GRE Physics Subject Test. (See <http://www.ets.org/Media/Tests/GRE/pdf/Physics.pdf>.) *Missed quizzes cannot be made up*, although I will accept excused absences under special circumstances.

A regular "extra help" session will be run by the teaching assistant on Wednesday afternoons from 2pm until 4pm, or perhaps later. I will join as my own constraints permit.

The mid term and final exams are open book. You are welcome to bring your textbook, notes, calculators, or other materials. You may also bring your laptop computers, but I will design the exams so that they will be of little or no use to you. The point is that you don't need to memorize anything, but know your book and study for the exams!

ACADEMIC INTEGRITY STATEMENT

I want you all to collaborate with each other on homework as much as possible, and to come for help during office hours, help sessions, or at any mutually convenient time. However, it is very important for me to trust that you are handing in your own work. (Just the same, it is important that you trust me to organize and teach a quality course for you.) If you want to look over the *Rensselaer Handbook of Student Rights and Responsibilities* regarding Academic (Dis)Honesty, that might be a good idea. However, to put it simply,...

Don't copy someone else's homework, and don't cheat on exams. If I suspect you of either, I will ask for an explanation. If your explanation is unsatisfactory, you will be given a grade of zero and reported to the Dean of Students. If this happens more than once, you will be given an *F* for the course.