

PHY 401

Introduction to Quantum Mechanics

Dillard University – Spring 2004

Meeting Times:

STERN 219 MWF 3:00p – 3:50p

Instructor: Rob Salgado Office: Stern 307A Voice: (504)-816-4510	E-mail: rsalgado@dillard.edu Instant-Messengers: AOL, MSN, Yahoo: dillardphysics (do <i>not</i> email here)	Office hours: -to be announced
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Catalog Description:

PHY 401 Introduction to Quantum Mechanics (3 credits)

The Schrodinger equation and eigenfunctions, wave functions, uncertainty principle; one dimensional problems; the hydrogen atom, harmonic oscillator, Angular momentum, introduction to perturbation theory. Class meets three hours per week for lecture.

[Prerequisite: PHY 306 or 390, or permission of instructor.]

Required Textbooks:

“Introduction to Quantum Mechanics” (2nd edition) by David J. Griffiths
(published by Prentice Hall; ISBN: 0-13-124405-1)

(Optional) Highly-recommended supplement:

“Modern Physics” (2nd edition) by Serway, Moses, and Moyer (published by Brooks/Cole; ISBN 0-03-001547-2)

“Schaum's Outline of Quantum Mechanics” by Yoav Peleg, Reuven Pnini, Elyahu Zaarur
(published by McGraw-Hill; ISBN 0-07-054018-7)

Electronic Materials:

I will maintain a website (for now: <http://physics.syr.edu/~salgado/401/>) that lists the assigned problems and solutions. I will also try to make available the whiteboard/PowerPoint notes and any computer source code (e.g., Python, Maple) that I use for simulations or computations.

Homework:

Homework will be assigned. Certain assignments will be collected and graded. We will discuss *some* homework in class. Other discussions for homework occur during Office Hours in the Learning Center. Exam and quiz problems are generally based on homework problems, textbook problems, and textbook examples.

Most of the learning you do in this course is done by doing homework problems outside of class!

You are encouraged to work on the homework with other students.

However, be sure that you can do the problems *by yourself* since you'll be working on quizzes and exams *by yourself*. If you need help with your homework, please visit me (with your textbook and your notebook and with proof that you have tried the problems) during Office Hours... the sooner the better.

Classroom Rules:

Come to class **ON TIME**. Attendance is **REQUIRED**.

“The University recognizes that a student may miss a class for legitimate reasons. In such cases these absences are excusable; however, the student must complete the Student Absence Form.”...

“A professor may drop a student with 3 or more unexcused absences from a course.” (2003-2005 University Catalog, page 15)

Note that your attendance is recorded on the official midterm and final grade sheets.

“Academic dishonesty will not be tolerated.” (2003-2005 University Catalog, page 15)

Come to class **PREPARED** and **EQUIPPED**, having read or written any assignments.

Limit all discussions to the PHYSICS topic under discussion.

Turn OFF all phones, pagers, radios, and other disruptive devices.

Treat each other with **RESPECT**.

Grades (for the lecture portion):

30% 5-minute QUIZZES (FORMAT: multiple-choice questions, a short problem, and vocabulary definitions for the *next* chapter or section)

20% HOMEWORK

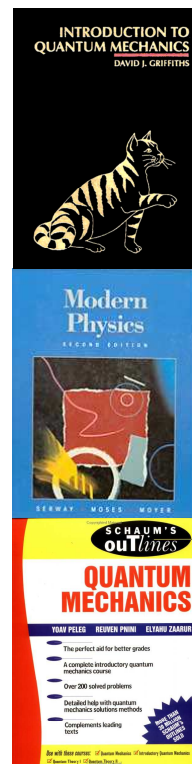
20% MIDTERM EXAM (FORMAT: conceptual and computational multiple-choice questions, two or three short problems)

30% FINAL EXAM (FORMAT: like two regular exams but cumulative)

A≥88%, B≥76%, C≥64%, D≥50%, F<50%. This class is not graded on a curve.

Borderline cases (between two letter grades): If your exams show an upward trend, your grade may be nudged upwards.

Exams and Quizzes: QUIZZES are *not* announced. They will begin at the start of the class period and will end promptly after five minutes of that period. [No makeups or extensions. This will be strictly enforced. Be on time. There is a cumulative one-hour take-home MIDTERM and a cumulative take-home FINAL.



Missed exams and quizzes: There are **no** makeup exams or quizzes. There are **no** exceptions.

If you are absent for an exam or quiz, *within one week*, you must present to me a written excuse from Academic Affairs.

Only if that excuse is valid, **your final exam will carry the weight of your missed exam or quiz.**

Otherwise, you will get no credit for the missed exam or quiz.

Dates of which you should be aware:

Martin Luther King, Jr. Holiday (Mon, Jan 19 ** no class **)

AAPT Winter 2004 Meeting (Mon, Jan 26 – Wed, Jan 28 **special arrangements will be made**)

Mardi Gras Holidays Labor Day (Mon, Feb 23 – Wed, Feb 25 ** no class **)

Midterm Period (Tue, Mar 2 – Fri, Mar 5) [Grades due Mar 8]

Spring Break (Mon, Mar 8 – Fri, Mar 12 ** no class **)

Academic Advising Day (Wed, Mar 17 ** no class **)

Easter Holiday (Fri, Apr 9 ** no class **)

Seniors Exam Period: (Wed, Apr 14 - Fri, Apr 16)

Last Day to Withdraw (Wed, Apr 14)

Last Day of Classes: (Wed, Apr 28)

Exam Period: (Fri, Apr 30 - Thu, May 6) [Grades due May 10]

Read this aloud: [the final is only given on the date and time assigned by the University --- do **not** make early travel plans]. *Read this aloud again.*

Sequence of PHY 401 topics:

Ch 1 The Wave Function

Ch 2 The Time-Independent Schrodinger Equation

Ch 3 Formalism [some important mathematics]

Ch 4 Quantum Mechanics in Three Dimensions *[needed to understand the atom]*

Ch 5 Identical Particles [needed to understand the Periodic Table]

January							Rough Schedule
Su	Mo	Tu	We	Th	Fr	Sa	
				[8]	9		Ch 1
	12		14		16		
	[19]		21		23		Ch 2 [a big chapter]
	{26		28}		30		(special arrangements)
February							
	2		4		6		
	9		11		13		
	16		18		20		Ch 3
	[23	MG	25]		27		
March							
	1		3		5		Midterm Exam on Monday or Wednesday
	[SPRING_BREAK]						
	15		[17]		19		Ch 3
	22		24		26		Ch 4 [a big chapter]
	29		31				
April							
					2		
	5		7		[9]		
ES	12		14		16		
	19		21		23		Ch 5
	26		28		_30		
May							
	3	4	5	6			