University of Maryland
Department of Physics

Spring 2011 Prof. Ian Appelbaum Physics 401

Title: PHYS 401 Quantum Physics I: Introduces some quantum phenomena leading to wave-particle duality. Schroedinger theory for bound states and scattering in one dimension. One-particle Schroedinger equation and the hydrogen atom. This is a 4 credit course.

Prerequisite: *Prerequisite: PHYS273. Corequisites: PHYS374 and MATH240. Credit will be granted for only one of the following: PHYS401 or PHYS421. Formerly PHYS421.*

Instructor: Prof. Ian Appelbaum, Room 1368 (Physics / Center for Nanophysics and Advanced Materials). You can find the Center either by 1) going through the blue door labeled "Center for Nanophysics and Advanced Materials" in the basement of the Physics building, or 2) entering from the plaza between the Math and Physics buildings. My office is right next to those of Profs. Lobb, Anlage, Ouyang, and Paglione on the second floor. A map is available at:
http://appelbaumlab.umd.edu/images/officemap.jpg
Please note that the doors to the Center lock after 6:00 PM on weekdays, and remain locked all weekend.
Phone: x5-0890
e-mail: appelbaum@physics.umd.edu, or appeli@umd.edu
WWW: http://appelbaumlab.umd.edu/appelbaum.html

Office Hours: While I won't be scheduling regular office hours, please feel free to arrange a meeting time, or just stop by my office to ask questions about the course material or just talk about physics in general.

Schedule: Three meetings weekly:
M..... 3:00pm- 4:50pm (PHY 1402) and
WF..... 3:00pm- 3:50pm (PHY 1402)

Required Text: *Introduction to Quantum Mechanics*, by David J. Griffiths, 2nd edition.

Overview: PHYS401 is a four (4) credit course that meets four hours a week. The primary objective consists of understanding several canonical problems in quantum mechanics. Topics to be covered include "particle in a box", harmonic oscillator, scattering states and tunneling, the free particle, the two-state system, angular momentum, and the one-electron atom. There will be three one-hour lectures per week, as well as a recitation hour. You will be required to submit homework assignments approximately weekly. There will be three midterms and a final.

Dropping the Course: Note: the last day to drop without a "W" is February 4. The last day to drop with a "W" is April 8.

Grading:

Midterm 1	10%
Midterm 2	25%
Midterm 3	25%
Final	30%
Homework	10%

Homework: Homework is assigned approximately every week and will be due before lecture begins. Late homework will not be accepted and will receive a grade of 0.

Academic Dishonesty (cheating): Academic dishonesty is a serious offense that may result in suspension or expulsion from the university. In addition to any other action taken, the normal sanction is a grade of "XF", denoting "failure due to academic dishonesty," and will normally be recorded on the transcript of the offending student.

Course Web Site: Course materials, including syllabus, contact info, useful links, and PDFs of in-class notes, will be regularly posted to the course website at:
http://www.physics.umd.edu/courses/Phys401/appeli-Spring-2011/