Introduction to Modern Physics
PHYS 3305 (Spring 2008) Syllabus
http://www.physics.smu.edu/~kehoe/3305_08s

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Texts: *"Modern Physics"*, 2nd edition,
   Author: Randy Harris
Prerequisite: differential and integral calculus, scientific calculator
Class Coordinates: Tues. & Thurs. 11:00a.m – 12:20p.m. in Rm 157 Fondren Science
Office hours: 12:00noon-2:00pm Friday, or by appointment

Course Objectives: To provide an overview of the physics of the 20th century. Students will familiarize themselves with special relativity and quantum mechanics. They will also study the physics of nuclei, atoms and semiconductors. Modern applications will be discussed. Problem solving skill development will also be an emphasis of the class.

Method of Instruction: The class will consist of lectures. Help sessions are Thursday 5:00pm to 6:50pm in Fondren 123. Homework is the foundation of your effort to acquire skill in using the material in the course. It will be due on each Tuesday following the week the material is covered and will be worth 20% of the course grade. No late homework is accepted. Solutions will be posted on the course website.

Quizzes and Tests: There will be 2 primary tests during the semester, aside from the final exam. Tests will make up 25% of the class grade. Each test covers material since the previous one. The final is cumulative over the whole course and counts for 25% of the grade. There will be weekly 15 minute quizzes during the semester scheduled Tuesdays of non-test weeks. These will provide 20% of your grade. The lowest two quiz grades will be dropped. Each quiz covers material since the last test or quiz. Tests and quizzes are closed book. You may bring a single 8.5"x11" sheet with important formulas and constants relevant for the material on each test and quiz. A presentation on a special topic at the end of the semester will count for 10% of the course grade.

Grading and Attendance Policy: In general, it is *crucial* to show your work to get credit for solutions to physics problems. Regrading requests must be well-justified in writing, and as delineated on the course web-page. Anticipated absences resulting from religious observance or officially sanctioned extracurricular activity must be brought to the instructor's attention at least 2 weeks in advance. Upon request, missed lectures will be recored as an audio podcast with a copy of lecture notes. Affected quizzes or tests will be given prior to the rest of the class. No other make-up quizzes or tests will be granted.

Physics 3305 Schedule, Spring 2008

Date	Reading, Tests, Quizzes	Homework Problems Assigned:
Jan 15 T	Ch 1: Precursors to Modern Physics	
Jan 17 Th	Ch 2 (to 2.3): Special Relativity	Ch 2: 18,20,21,31; 45,51,54,62,70,84,94
Jan 22 T	Ch 2.5+: Relativistic Dynamics HW Ch 2a due; Quiz #1	
Jan 29 T	Ch 3: EM Waves as Particles HW Ch 2b due; Quiz #2	Ch 3: 12,18,19,20,21,26,34,45,49,53
Feb 5 T	Ch 4: Matter Particles as Waves HW Ch 3 due; Quiz #3	Ch 4: 17,18,19,22,24,41,43,48,62,63
Feb 12 T	HW Ch 4 due; Test #1 (Ch 2-3)	
Feb 14 Th	Ch 5: Schrodinger Equation	Ch 5: 24,25,28,33,34; 50,60,61,62,78-82
Feb 19 T	Ch 5: Bound States	
Feb 26 T	Ch 5: Simple Harmonic Oscillator HW Ch 5a due; Quiz #4	
Mar 4 T	HW Ch 5b due; Quiz #5	
Mar 6 Th	Ch 6: Unbound States	Ch 6: 15,16,24,35,45,48,56
Mar 10-15 M	*Spring Break, no class	
Mar 18 T	Test #2 (Ch 4-5)	
Mar 25 T	Ch 6: Potential Barriers	
Apr 1 T	Ch 7: Hydrogen Atom HW Ch 6 due; Quiz #6	Ch 7: 21,32,36,37,38,44,58,68,85
Apr 4 F	practice talks; *last day to drop	
Apr 8 T	Ch 7: Orbital Angular Momentum	
Apr 15 T	Ch 8: Spin HW Ch 7 due; Quiz #7	Ch 8: 28,30,31,35,41,49,50,56,62,80
Apr 18 F	final presentations	
Apr 22 T	Ch 8: Many Electron Atoms Quiz #8	
Apr 24 Th	Ch 10.5-10.8: Semiconductors HW Ch 8 due	Ch 10: 50,57,64,66
Apr 29 T	Review Session; HW Ch 10 due	
May 9 F	Final Exam 11:30am-2:30pm	