

August 31, 2011

Syllabus – Physics 3300 – Introductory Modern Physics

Instructor: Professor Paul Karchin
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Office Hours: Students are welcome to stop by my office at any time - if I can't meet with you immediately, we'll make an appointment. The best way to contact me is by e-mail.

Meeting Times: M, W, 5:30 – 6:55 pm, Room 185, Physics Research Building

Course Description: Prereq: PHY 2180 or consent of instructor; coreq. for physics majors only: PHY 3310. For physics, chemistry, engineering, mathematics majors and other interested students. Introduction to relativity, quantum phenomena, atomic structure, quantum mechanics, condensed matter physics, quantum optics, nuclear physics, elementary particles, and anti-particles.

Text: The course text is "Modern Physics" 2nd ed. by Serway, Moses and Moyer (Saunders). This book is available for about \$10 from internet sellers.

Exams: There will be four exams, each covering about a quarter of the course material. The second, third and fourth exams will have a review question based on the previous exam. Exams are closed book, but a summary sheet is allowed.

Problem Sets: There will be 8 problem sets. These are essential preparation for the exams.

Class Attendance and Participation: students are expected to attend regularly and participate in class discussion. Ten percent of the classes can be missed without penalty.

Grading: The course grade has the following components:

- 80% - Exams, after dropping the lowest 25% of individual problem scores
- 10% - Problem Sets, after dropping the lowest 10% of individual problem scores
- 10% - Class Attendance and Participation, after dropping up to three missed classes

The course grade will be assigned according to the total number of percentage points as follows.

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
90-100	85-89	80-84	75-79	70-74	65-69	60-64	55-59	50-54	45-49	40-44	0-39

Policy on Missed Work: There are no make-up exams or problem sets. The grading scheme, dropping the lowest 25% of exam problems, and allowing for a missed problem set and missed class attendance, will accommodate routine illness and personal contingencies.

Generally, if a student is registered for the course a regular grade will be given. A grade of incomplete (I) will be given only in exceptional cases (to accommodate illness or emergency) after consultation with Prof. Karchin before the end of the term.

Student Disability Services: If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Please discuss your registered accommodations with the instructor.

Class Schedule – will be adjusted as needed throughout the semester.

Class Dates	chapter / item	PHY3310 Laboratory
08/31	begin ch. 1 relativity	no lab
09/07		computer and lab techniques 1
09/12 09/14	begin ch. 2 quantum theory of light problem set 1 due	no lab
09/19 09/21	begin ch. 3 particle nature of matter p.s. 2 due	photo-electric effect
09/26 09/28	begin ch. 4 matter waves EXAM 1	computer and lab techniques 2
10/03 10/05	begin ch. 5&6 1-D quantum mechanics, p.s. 3 due	Franck-Hertz experiment
10/10 10/12	begin ch. 7 3-D quantum mechanics, p.s. 4 due	e/m: electron beam in magnetic field
10/17 10/19	EXAM 2	no lab
10/24 10/26	begin ch. 8 atomic structure	electron diffraction
10/31 11/02	begin ch. 9 statistical physics, p.s. 5 due	Balmer spectrum
11/07 11/09	begin ch. 11 the solid state, p.s. 6 due	Stefan-Boltzmann Law
11/14 11/16	EXAM 3 begin ch. 13 & 14 nuclear physics	no lab
11/21		
11/28 11/30	begin ch. 15 particles & cosmology, p.s. 7 due	radioactive decay
12/05 12/07	begin ch. 16 cosmology, p.s. 8 due	no lab
12/12 12/14	EXAM 4	