Jan. 9, 2012

Syllabus – Physics 3300 – Introductory Modern Physics

Instructor: Professor Paul Karchin
268 Physics Research Building
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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: MWF, 12:50-1:45 pm, Room 177, 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.

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 set score (of eight)
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 - revised 2/1/12– will be adjusted as needed throughout the semester

Class Dates	chapter / item	PHY3310 Laboratory
1/09 1/11 1/13	begin ch. 1 relativity	no lab
1/16 1/18 1/20	no class – M.L. King holiday begin ch. 2 quantum theory of light problem set 1 due	no lab
1/23 1/25 1/27	begin ch. 3 particle nature of matter p.s. 2 due	computer lab 1
1/30 2/01 2/03	begin ch. 4 matter waves ***EXAM 1 – part 1***	thermal radiation
2/06 2/08 2/10	***EXAM 1 – part 2***	computer lab 2
2/13 2/15 2/17	p.s. 3 due; begin ch. 5&6 1-D quantum mechanics	photo-electric effect
2/20 2/22 2/24	p.s. 4 due; begin ch. 7 3-D quantum mechanics	electron diffraction (Davisson-Germer expt.)
2/27 2/29 3/02	begin ch. 8 atomic structure ***EXAM 2 – part 1*** ***EXAM 2 - part 2***	no lab
3/05 3/07 3/09	p.s. 5 due; begin ch. 9 statistical physics	no lab
3/12 - 3/16	Spring Break - no class	
3/19 3/21 3/23	p.s. 6 due; begin ch. 11 the solid state	electron q/m (Thomson expt.)
3/26 3/28 3/30	begin ch. 13 & 14 nuclear physics	Franck-Hertz expt.
4/02 4/04 4/06	***EXAM 3 – part 1*** ***EXAM 3 – part 2***	no lab
4/09 4/11 4/13	p.s. 7 due; begin ch. 15 particles	Balmer spectrum
4/16 4/18 4/20	p.s. 8 due; begin ch. 16 cosmology	radioactivity
4/23 (M)		no lab
4/30 (M)	***EXAM 4, 10:40 am – 1:10 pm***	