

University of Pennsylvania

School of Arts and Sciences
Department of Physics and Astronomy

Physics 151/141 – Spring 2010

General Information

There are four “regular hours” of class schedule for each Section. These regular classes will be used for a combination of lectures and recitation sessions. Two Laboratory lectures will be given early in the semester, most likely on Thursday January 21st and Thursday January 28th 5:00 – 6:00PM in DRLB room A1. It is essential that those of you taking the Lab (i.e. Physics 151 students) attend these lectures in order to be able to do the Lab effectively.

The “fifth” hour, Thursday at 5:00PM, will also be used for mid-term exams and on specific dates for review sessions.

Mid-Term Exams, Quizzes, and Homework

Exams: There will be two mid-term examinations in the course.

The 1st is **Thursday, February 11th, 5:00-6:00PM.** (will cover Ch 21 – 24)

The 2nd is **Thursday, March 25th, 5:00 – 6:00 PM.** (will cover Ch 25 – 29)

There will be no make-up exams for any reason. In the event of “excused absences” (confirmed illness or University approved sports events) the course grade will be based on the remaining exams and quizzes. If you fail to take a mid-term exam and the absence is not excused, you will receive 0 for that exam.

The Final Exam will be Monday May 3rd, 3:00 – 5:00PM.

It is not possible to take the Final Exam at another time, so be careful not to schedule any conflicts.

Quizzes: There will be ~10 quizzes during the semester. One quiz will be dropped in determining the final quiz average. As for exams, permission must be requested in advance to be excused from a quiz, either for illness (confirmed by a doctor or nurse) or for a University sports event.

Homework: Homework will be assigned each week. Solutions to the assigned problems will be provided shortly after they are due. Although the homework will not be graded,

almost all students will find it necessary to complete a substantial fraction of the homework in order to do well on the exams and quizzes. The homework will typically be “due” the Monday or Tuesday of the week after it is assigned; quizzes will be shortly thereafter, although the exact dates will vary according to the choice of the individual instructor.

Text: The text for the course is:

David Halliday, Robert Resnick, Jearl Walker: Fundamentals of Physics, John Wiley & Sons, Paperback edition, Volume 2, 8th Edition: ISBN 978-0-470-12711-7. [Chapters to be covered: 21-33 and 35-36]. The textbook is available in the Penn Bookstore.

Web Site:

Announcements, assignments, problem solutions, and grades will be made available on “Blackboard” (<https://courseweb.upenn.edu>). You should have access to two different “course sites”, one for your “section” alone and one for all sections combined. All announcements of interest to all sections will be posted on the latter site. However, your instructor may post supplemental announcements and material relevant to your section only on the Blackboard site specific to your section.

Laboratory:

The laboratory experiments are intended to supplement the lectures in the course by providing concrete demonstrations of the specific physical principals and by giving some insight into how those principles operate in practice. In the first two labs (Reflection and Refraction and Thin Lenses) the laboratory will be used to develop important concepts that will not be covered in the normal classroom lectures. Each of the subsequent labs will involve principles quite closely connected to material taught in the lectures.

For those of you taking 151, the weight of the labs in your grade is given below. However, **note that it is required that you get a passing grade in the lab in order to pass the course as whole.** Your TA will explain what the grading for the lab and what is required in order to pass.

The schedule of labs and other information is posted at:

<http://www.physics.upenn.edu/~uglabs>

The rooms in which the experiments will be performed change from week to week. The exact schedule of locations will be posted on bulletin boards located outside DRLB 3W5 and 3N18.

Grades:

Physics 151:

Final Examination – 30%
Mid term Exam 1 – 15%
Mid term Exam 2 – 15%
Quizzes – 20%
Labs – 20%

Physics 141:

Final Examination – 37.5%
Mid term Exam 1 – 18.75%
Mid term Exam 2 – 18.75%
Quizzes – 25%

Syllabus

Ch. 21: Electric Charge and Electric Force
Ch. 22: Electric Field: first principles & calculation
Ch 23: Electric Field: symmetry principles (Gauss' Law)
Ch 24: Electric Potential Energy and Electric Potential
Ch 25: Storing electric charge and energy: capacitance
Ch 26: Moving electric charge: current resistance
Ch 27: Electric circuits with resistance and capacitance
Ch 28: Magnetic Fields: Force on moving charged particles
Ch 29: Magnetic Field from currents: Biot-Savart Law and Ampere's law
Ch 30: Induced electric field: circuits with resistance/ inductance (Faraday's law)
Ch 31: Electromagnetic oscillations: circuits with capacitance & inductance
Ch 32: Maxwell's Equations and speed of light.
Ch 33: Waves: Energy transport by electromagnetic waves
Ch 34: Images (only a portion of this chapter will be covered)
Ch 35: Waves: Interference
Ch 36: Waves: Diffraction
Ch 37: Einstein and speed of light: special relativity (time permitting)

We will cover approximately one chapter per week. The course is fast moving so be careful not to fall behind. (We may attempt to give a more precise syllabus with dates or this may simple be updated weekly by your instructor).