

Syllabus for PHYS 0110 “Introduction to Physics” (Fall 2011)

General information:

- CRN: 10677
- Location: Alumni 343
- Lecture: Mondays, Wednesdays, Fridays 12:00–12:50 pm
- Textbook: Cutnell & Johnson, “Physics”, 8th edition, Wiley
- Instructor: Ayres Freitas
Phone: 412-624-9060
Email: afreitas@pitt.edu
Office: Allen Hall 200A
- Office hours: Mondays 3-4pm and Thursdays 10-11am
- Teaching assistants: Charles Harrington and Kai Zhang

Course description:

This course is the first half of a two-semester introductory physics course for non-science majors, and for those majoring in the social, psychological and life sciences that do not need the calculus-based course required of engineering and physical science students. The second half is PHYS 0111.

Physics is the most fundamental of all natural sciences. It connects a large variety of observations and phenomena—in our every-day life as well as on the microscopic and the cosmological levels—by a few fundamental, universal laws. Understanding of basic physical principles was essential for the development of many aspects of modern life: automobiles, airplanes, phones, electronics, computers, power generation, air conditioners, etc. etc.

In this part of the course (PHYS 0110), we will examine the physical laws and their application for the motion of objects under the influence of forces, and for the description of heat and gases:

- One- and two-dimensional motion
- Newton’s three laws of motion and Newton’s law of gravitation
- The work-energy theorem and conservation of energy
- The impulse-momentum theorem
- Rotational and harmonic motion
- Fluid mechanics
- Heat and temperature
- The kinetic theory of gases

The goal of this course is not only to learn these physical principles, but also to develop critical thinking and problem solving skills.

Mathematics is very important to understanding physics and you should be familiar with high-school level math, including algebra, geometry, trigonometry, vectors, and scientific notation.

Recitations:

In addition to the lecture, you must attend one of the weekly one-hour recitation sessions associated with the class. The recitation is led by a teaching assistant (TA) who will guide you through a tutorial to deepen the main concepts of this course. After each tutorial, a short in-class quiz will be taken. You can also address the TA with questions about your homework.

Textbook and Homework:

Reading the textbook is an essential element of the class. You can choose between the online e-book (through WebAssign – see below), the new printed textbook from the Pitt bookstore or any other bookseller, or a used copy of the 8th or 7th edition of Cutnell & Johnson.

A homework set will be due **once per week on Fridays, 11am.**

During the lecture I will work out in detail one of the assigned problems that were due before the class.

Homework assignments are given through the WebAssign website (www.webassign.net).

You will need to register with WebAssign. There are different pricing options available:

- Access to the homework system only (if you plan to buy the printed textbook separately): \$35.60.
- Access to the homework and full Cutnell & Johnson e-book: \$52.85.

If you decide for the first option, you can always upgrade to the full e-book later for the price difference of \$17.25.

To register for my course with WebAssign:

- Go to <http://www.webassign.net> and click on “I Have a Class Key” on the right.
- Enter the key for my class: **pitt 5406 8687**
- Follow the instruction to setup your account.

For help on registration and other WebAssign aspects, go to https://www.webassign.net/user_support/student/.

You must register before the second week of class! The first homework is due on Friday in the second week (Sept 9).

It is encouraged to form study groups with other people in the class and discuss the homework problems together. However, do your own work to figure out the solutions, because if you just copy someone else’s answers you will surely do poorly on the exams.

Lecture questions:

Alumni Hall 343 is equipped with a Student Response System (SRS). The system consists of hand-held transmitters, called pads, which you will use to answer simple multiple-choice questions, which I will ask once or twice during each lecture session. You will be given one or two minutes to think about each question and discuss it with your neighbor. During this time the SRS receiver will pick up all the signals. At the end of the time the answers from each student will be recorded and a summary of the results displayed.

At the beginning of the semester you will be assigned a number that corresponds to a particular pad. Make sure to memorize your pad number! The pads are stored in bins on a cart at the front of the lecture room. When you enter the room pick up the bin with your number, and then place it back into the proper bin at the end of the lecture. **Do not take your pad out of the classroom!**

Answering to the lecture questions will count as extra credit towards the final grade. You will receive 100% for each correct answer and 80% for each question you answer incorrectly. Not answering a question at all results in no credit (0%), so it pays to always try.

Courseweb and other resources:

The class has a CourseWeb site where you can find materials (such as lecture slides), course grades, and a discussion board to communicate with other students:

<http://courseweb.pitt.edu>

More materials are available through the publisher's Student Companion Site:

<http://bcs.wiley.com/he-bcs/Books?action=index&itemId=0470223553&bcsId=4768>

You are encouraged to take advantage of the **Physics Exploration Center (PEC)**, which is located Thaw Hall 312. This room is generally open and staffed by a TA from 9am to 4pm Monday through Friday. The PEC is a learning center where selected demonstration experiments have been set up for you to explore on your own. One per week will be available. Concrete experimental experience can help you to improve your conceptual understanding of physics. PEC experiments are not required, but you can earn extra credit by finishing a high-quality report and handing it in to the TA.

Within the PEC is the **Physics Help Room** staffed with TAs who can answer questions and help you with lecture material, math and problem solving strategies.

Grading scheme:

The class will have three midterm exams and one comprehensive final exam. You may bring a simple calculator and one handwritten letter-size sheet with any notes you fit on it to each midterm exam, and four sheets to the final exam. No books, algebraic calculators, laptop computers, smart phones, or any other print or electronic media are allowed. The lowest of the three midterm exams will not count towards the final grade.

Makeup exams will not be given without a valid excuse, and will not be given arrangements prior to the exam date.

The final grade is determined as follows:

Quizzes	10%
Homework	20%
Best two of the three midterm exams	20% each
Final exam	30%

Extra credit: You can earn up to a total of 3% extra credit by answering the lecture questions. You can collect additional points by doing the weekly lab activity at the PEC and handing in the reports (see above). Each complete and correct report is worth 0.3% extra credit.

Important dates:

<i>Monday, August 29:</i>	First day of class
<i>Monday, September 5:</i>	Labor Day (no class)
<i>Wednesday, September 28:</i>	Exam 1
<i>Thursday, October 7:</i>	Class meets in David Lawrence Hall 120/121
<i>Monday, October 10:</i>	University holiday – the lecture class and recitations scheduled for this day are shifted to Tue, Oct 11 (Tuesday classes do not meet this week).
<i>Friday, October 21:</i>	Exam 2
<i>Friday, November 18:</i>	Exam 3
<i>Wednesday, November 23 – Friday, November 25:</i>	Thanksgiving break (no class)
<i>Wednesday, December 14:</i>	4:00-5:50pm Final exam

Academic integrity:

Students in this course are expected to comply with University of Pittsburgh Policy on Academic Integrity. Disciplinary action may be taken for bringing unauthorized materials to an exam, obtaining exam materials before the beginning of the exam, cheating during an exam, posting homework solutions on the web or the discussion board, and other violations described in the policy.

Disability resources:

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and [Disability Resources and Services](#), 140 William Pitt Union, (412) 648-7890 / (412) 383-7355 (TTY) as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.