

# Course Information for Physics 101, Fall 2006

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## General

This is an introductory course in the branch of physics known as classical mechanics, aimed primarily at pre-medical students. You will find that this is a surprisingly subtle, complex, and intriguing subject. Students who master classical mechanics often report that, in addition to acquiring some of the tools they will need for future studies in science, mathematics, medicine, or engineering, they have also gained a new appreciation for the beauty of everyday phenomena and have substantially developed their reasoning skills.

It is expected that you have already completed a course in algebra at the high school level. Some students may have completed a course in calculus, and occasional mention will be made of results from calculus in classroom lectures, but if you have never had any calculus this should not pose a problem.

Some students in this course may be planning on taking the MCAT in preparation for medical school application. You should be aware that Physics 101 will **not** cover all possible topics in mechanics that might be on the MCAT. There are just too many of them. If you do well in the course, however, at the end you should have the tools to learn the rest of the material on your own when preparing for the MCAT.

## Class Meetings

You should be enrolled in:

1. One of the two lecture sections. Section 001 (Prof. Liu) meets MWF 10-11 in DRL A2. Section 002 (Prof. Heiney) meets MWF 12-1 in DRL A4.
2. One of the recitation sections, each of which meets for an hour on Monday or Tuesday afternoon.
3. One of the lab sections.
4. In addition to these regular meetings, you must keep the time slot from 5-6 on Thursdays free. This will be used during the first few weeks of the semester for lectures related to your lab course, and later in the semester for midterm examinations.

The laboratories are located on the 3rd floor north (3N) wing of DRL. A map at the center of this corridor will direct you to the week's lab or you can get it off the [web](#).

## Instructors

- Section 001: Prof. Andrea Liu, [ajliu@physics.upenn.edu](mailto:ajliu@physics.upenn.edu), office DRL 2N30, phone 215-573-7374.
- Section 002: Prof. Paul Heiney, [heiney@sas.upenn.edu](mailto:heiney@sas.upenn.edu), office DRL 2N24, phone 215-898-7918.
- Laboratory Directory: Harriet Slogoff, [slogoff@physics.upenn.edu](mailto:slogoff@physics.upenn.edu), phone 215-898-6972.
- Teaching Assistant: Robert Richter, [rrichter@sas.upenn.edu](mailto:rrichter@sas.upenn.edu)
- Teaching Assistant: Klaus Larjo, [klarjo@physics.upenn.edu](mailto:klarjo@physics.upenn.edu),

Office hours will be announced in class.

## Required Text

- *Physics*, Sixth Edition, Douglas C. Giancoli (Prentice Hall). This book is available in two forms. If you are just taking Physics 101, you may wish to buy Volume 1 *only* in paperback form--this will save you quite a bit of money. If you plan to take Physics 101 *and* Physics 102 you are probably better off buying the hardbound form, which you may even be able to get used.

## Additional supplies required

(you need to bring these to the first laboratory session):

- Official Laboratory Research Notebook (should be bound with alternating white and yellow pages).
- Ruler
- Scientific calculator

Note that there is a pre-lab exercise (available on the [web/](#)) that must be done before each lab and turned in to your teaching assistant as you enter the lab; this counts for 10% of your lab grade.

## Tutoring and Help

The Penn [Tutoring Center](#) may be able to provide you with a tutor. In addition, Penn's [Learning Resources](#) can help with difficulty with taking exams, time management, stress, etc.

## Grade Breakdown

Grading will be based on two one-hour midterm examinations, a final examination, homework collected once a week, quizzes (administered in the recitation section) and the laboratory. The relative weights are calculated as follows.

### Calculation of Net Score

Midterm 1	20
Midterm 2	20
Final Examination	35
Homework	5
Quizzes	10
Laboratory	10

The course grades will be calculated on a curve. The detailed breakdown will be determined by the instructors at the end of the term, but you should anticipate that the class mean will correspond to something in the vicinity of the B-/C+

**\*\*\* You must pass the laboratory to pass the course. \*\*\***

There will be a weekly homework assignment as indicated on the [schedule](#). The homework assignments will be posted in the Assignments area of Blackboard. Homework will be due in class on Mondays, and will not be accepted late. All the sheets in the homework should be firmly attached together, preferably stapled.

A quiz will be given almost every week in your recitation section. The quiz will generally consist of two parts: a short question based on the assigned reading for the upcoming week, and a longer question very similar to one of the homework problems that you just handed in.

## Late Homework/Missed Exam Policy

Missed exams, quizzes, and homework will be given a grade of zero unless the student has a valid excuse and has discussed the matter with the instructor **in advance**. Typical valid excuses for missed exams or homework include serious illness (with a documented visit to a doctor or the student health service), the death of a close family member, etc. Examples of unacceptable excuses are: "I just didn't feel I was ready to take the exam;" "I had two other tests the same day;" "I had a business appointment in New Jersey that morning;" or "It would cause me to miss my plane flight." There will be *no* makeups for missed quizzes, homeworks, or midterm exams. Scores for approved missing homeworks or exams will be dropped from the student's grade. Cases where more than one midterm is missed will be treated on a case by case basis; such students will be encouraged to withdraw from the course.

All exams are closed book. You will be allowed to bring to each exam a formula-and-constant sheet consisting of not more than one side of an 8 1/2 X 11" sheet of paper. Bring a calculator to all examinations. Make sure that the calculator is functioning and that you know how to use it.

Mistakes are sometimes made in grading examinations. If you believe a grading mistake has been made, write a description of the mistake, as you see it, on a separate sheet of paper, staple it to the exam booklet, and give it to your instructor. Do not write on the exam paper itself. A request for regrading will not be accepted more than one week after the return of the exam paper.

Penn has a well-defined [policy](#) regarding the conditions under which a student is allowed to make up a missed final examination. If you believe that you will not be able to take the final examination at the announced time, you should discuss this with the instructor as soon as possible.

## Honor Code

You are encouraged to study with other students, and to discuss questions on the homework assignments in general terms ("do you understand what we're supposed to do on Problem 5?"). However, the work you turn in should be your own--you should **not** divide up the work so that one student does problems 1-5, the other 6-10, and they copy from each other. All numerical calculations should represent your own work. Obviously, any form of copying or cheating on quizzes or exams is strictly forbidden. In general, you should abide by Penn's [Code of Academic Integrity](#).

## Schedule for Fall 2006 Lectures

Assignments etc. are subject to change without notice--if you are in the class check this site frequently.

Go to <http://dept.physics.upenn.edu/~uglabs/> for the lab schedule.

<b>Week</b>	<b>Reading Assignment (Giancoli)</b>	<b>Lecture Topic</b>	<b>Exams/Comments</b>
9/4	Ch. 1, 2.1-2.3	Introduction, Kinematics in 1D	-
9/11	2.4-2.8, 3.1-3.4	Vectors, Kinematics in 2D	-
9/18	3.5-3.8	Projectile Motion, Relative Velocity	-
9/25	4.1-4.9	Newton's Laws of Motion	-
10/2	5.1-5.3, 5.6-5.10	Newton's Laws of Motion, Circular Motion	Midterm #1 Thu 10/5
10/9	6.1-6.3	Circular Motion, Work	-
10/16	6.4-6.10	Work and Energy	-
10/23	7.1-7.7	Energy, Momentum	-
10/30	7.8-7.10	Momentum	-
11/6	8.1-8.9	Rotational Motion	Midterm #2 Thu 11/9
11/13	9.1-9.2	Rotational Motion, Static Equilibrium	-
11/20	10.1-10.7	Fluids	Thanksgiving Break Thu/Fri
11/27	10.8-10.12, 11.1-11.6	Fluids, Vibrations	-
12/4	11.7-11.13, 12.1, 12.6-12.7	Vibrations, Waves, Sound	-
			Final Exam Tuesday 12/19

Last updated 9/2/06.