

PY211 – GENERAL PHYSICS I



PHYSICS 211 is a calculus-based course which covers the principles of classical Newtonian mechanics. Topics include: the laws of motion; the conservation laws of energy, momentum and angular momentum; the principles of work and energy; the properties of rotational and oscillatory motion; and the principles of thermal physics. The course emphasizes the development of basic calculation skills and a conceptual understanding of the macroscopic physical world.

PY211 Course Organization Spring 2007

Instructors

Lecture A1	T,R 9:30-11:00 AM	SCI 107	Prof. Karl Ludwig	ludwig@bu.edu
Lecture B1	T,R 2:00-3:30 PM	SCI 107	Prof. James Stone	stone@bu.edu
Lecture C1	T,R 5:00-6:30 PM	SCI 107	Dr. Jonathan Celli	celli@bu.edu

Course Prerequisites

Completion of one semester of college calculus equivalent to the BU course MA123 is a prerequisite for the course. Please inform the instructor if this prerequisite has not been met so that you may be rescheduled into an appropriate course. In addition, you should now be taking the co-requisite calculus course MA124 or MA127.

Textbook

Physics for Scientists and Engineers, 6th Edition, Volume I, Chapters 1 - 22
Raymond A. Serway / John W. Jewett, Jr.
Brooks/Cole – Thomson Learning Publisher
ISBN: 0-534-40845-1

The textbook is available at the Boston University bookstore and from various online sources. The bookstore version comes bundled with a code that will give you access to the WebAssign homework. If you purchase the book elsewhere, it will be necessary for you to purchase separately the WebAssign access. Please note that only Volume I of the textbook is required for this semester.

Course Syllabus

The course will cover selected sections from Chapters 1 through 22 of the textbook with a few exceptions. The detailed schedules of lectures, labs, exams and homework assignments are given on the course syllabus. Please reserve the dates for the two midterm exams.

Calculator

A simple scientific calculator which has trigonometric and exponential functions and their inverses will be needed for homework and exam calculations.

Lectures

Attendance at all lectures is expected. Preparation should include the advance reading of the chapter to be covered in a particular lecture. Reading assignments are given on the syllabus for each scheduled lecture. All exams, homework assignments, and labs will be the same for all lecture sections. The combined lecture sections will be graded as a single class, with grade divisions determined jointly by the professors according to the criteria given below.

Course Bulletin Board

The PY211 bulletin board is located in the main corridor of SCI next to SCI 107.

Course Web Site <http://webct.bu.edu>

To access the course website, start at <http://webct.bu.edu>, select *My WebCT* at the top right of the screen or find the combined course title CAS/PY211 A1-C1. To login, use your regular BU login user name and Kerberos password. This web site will contain all the course information and a variety of useful physics resources. You will also be able to view your grades, lab assignments, homework assignments, and other resource material. Please note that there is one WebCT site for the course as a whole.

Homework

There will be a homework assignment given nearly every week of the semester that is not interrupted by a break. We will be using WebAssign this semester. Discussion of problems with other students is encouraged, but the work you submit must be your own since homework makes up a large portion of your grade and this is the best preparation you have for the course exams. You may obtain help from any PY211 staff member in the undergraduate resource room (SCI-121) during the posted hours for PY211. **All problem sets are due on Fridays at 5:00 pm of the week of each assignment.**

Using WebAssign

WebAssign is a web-based homework system that we will be using for most of the homework. There is an excellent guide to using WebAssign on the WebAssign web site - please read through this before submitting the first assignment. Please contact Prof. Ludwig if you have any problems, particularly if you have problems logging in.

The URL for WebAssign is: <http://webassign.net/student.html> You need a WebAssign access code. This comes bundled with the textbook (look for a cardboard package about the size of a CD) if you buy the text at the BU Bookstore. If you have a textbook from another source you can also purchase an access code for \$11.95 directly from WebAssign with a credit card. To do this log into WebAssign using the information below and then hit the button for registering with a credit card.

Three pieces of data are required to log on to WebAssign:

Username: Use your regular acs login name

Institution Name: bu

Password:

Your password is your BU student number in the form U12345678. No dashes or spaces!

* Note that if you have used WebAssign previously at BU, such as in Chemistry, then WebAssign will be looking for your old password.

Getting the most out of WebAssign

You have six chances to submit each assignment. Use your submissions wisely. Note that you can submit the answers to each question individually - you do not need to fill in answers for the whole assignment first. Each time you submit, WebAssign tells you whether you are right or wrong, and then you get more chances to correct anything you got wrong.

Things to keep in mind when using WebAssign

Start early. Come to office hours for help. Do not hit the refresh button on your browser since that can count as a submission. Numbers and variables are randomized, so everybody in the class gets a slightly different problem. Grading is done automatically, so everyone is treated equally. Your grade is recorded soon after the assignment deadline. In general WebAssign expects numerical answers to be within 1% of the correct answer, so do not round off until the very end.

Discussion Sessions

The discussion sessions will be conducted in sections of no more than 27 students, which will meet each week for one hour except as noted in the syllabus. Discussion sessions are not homework problem solving sessions. A Teaching Fellow will lead the class discussion by using the *Questions* at the end of each textbook chapter and reviewing some of the *Quick Quizzes* and *Examples* in the text. The discussion questions are provocative, interesting, and raise important issues in the course. The TF can answer any question in detail regarding homework that has already been turned in for grading. You will be able to ask your TF for general help or hints with your assigned homework problems. Do not expect the TF to solve the problems for you. The discussion sessions provide an opportunity to work through some of the conceptual ideas of classical physics in an informal setting, with the expert guidance of a Teaching Fellow.

Conceptual Exercises

A portion of each discussion section will be devoted to conceptual exercises. These involve answering conceptual questions in small collaborative groups.

Laboratory Sessions and Reports

The schedule of lab experiments for the course is included in the syllabus. Write-ups for each experiment are available on the course website. You will need to print these write-ups yourself since no hardcopies will be provided. During each 3-hour lab session, you are expected to perform the experimental measurements, analyze the data, and write the lab report. The lab reports may be written on loose leaf paper of your choice, i.e., no lab book is required. Since these reports are to be turned in to your laboratory teaching fellow at the end of your lab session, you should prepare as much of the lab report as possible before coming

to your lab session. The physics teaching laboratory rooms are located along the B1 – B25 corridor in the basement of SCI and in rooms SCI-134 and SCI-136. The room assignments for each lab may change from week to week. Please check the location of your lab each week on the schedule posted on each lab door and on the PY211 Bulletin Board. **You are expected to complete all 8 labs.** Some labs have pre-lab assignments. Generally the pre-labs are not required but they do serve as a good introduction to the lab so it would be useful for you to do them. For Lab #1, Graphical Analysis, it is necessary for you to prepare the pre-lab.

Midterm Exams

Two midterm exams will be given *Monday evenings* on the following dates:

Midterm #1 – Monday, February 12, 2007 7:00 – 9:00 PM
Midterm #2 – Monday, April 2, 2007 7:00 – 9:00 PM

Final Exam

The final exam date and time have not yet been scheduled by the university. The final exam date and time will be announced in lecture as soon as it is known.

Course Grade

Your letter grade for the course will be assigned on the basis of the total score you accumulate throughout the course. Each factor will contribute as follows:

Discussion (HW + CE)	20%
Lab Reports	15%
Midterm #1	20%
Midterm #2	20%
Final Exam	25%

Academic Conduct

Students enrolled in this course are expected to follow the Boston University Student Code of Academic Conduct for all assignments and exams. Violations of the code must be reported to the Dean's office.

Course Lecture Notes and Other Material

Students enrolled in this course are allowed to share with other enrolled students the course materials, notes, and other writings based on the course materials and lectures, but may not do so on a commercial basis or otherwise for payment of any kind. Please note in particular that selling or buying class notes, lecture notes or summaries, or similar materials violates copyright and interferes with the academic mission of the College. Such conduct is a violation of the student code of responsibility and therefore subject to academic sanction.

Lab Report Format

Title of experiment and your name, ID#, TF, lab partner.

Introduction/Theory: Write your own brief paragraph summarizing the objectives of the experiment, including physical principles, theory, and concepts involved.

Experimental Setup/Procedures: Write a brief paragraph describing the apparatus and the specific techniques being used to perform the experiment. Discuss how you actually made the measurements.

Data Analysis, Graphs, and Tables: Prepare the basic equations and tables that you will need in order to perform the calculations required to analyze your data. This part should be well organized so that you can clearly tabulate your final answers in your report.

Conclusions: Write a brief paragraph summarizing the results and conclusions derived from your data. Be sure that your conclusions are supported by your data. Discuss any inconsistencies between your result and what you expected to be the outcome of the experiment.

Questions: Answer the questions listed in the lab write-up. Your TF may delete or modify some of the required questions. These changes will be announced during the lab introduction.

Last Updated 1/15/2007