SYLLABUS FOR PHY-111: General Physics I

Spring 2006

INSTRUCTOR: Dr. Gary B. Adams
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CLASSES OFFICE HOURS (tentative)
PHY 111 10:40-11:30 MWF PSF-101 2:40-3:30 MWF PSF-462 (PSF-306 on W)
PHY 131 1:40-2:30 MWF PSF-173 3:40-4:30 M PSF-462
PHY 334 12:40-3:30 TTH PSF-377 11:40-12:30 TH PSF-306
11:40-12:30 T PSH-352 Help-Study

NOTE: All Office Hours are open to all of my students.

I. INTRODUCTION

PHY-111 is the first part of a two-semester sequence in introductory physics offered to students who are not majoring in physics or engineering. This sequence is intended for students in pre-medicine, pre-architecture, pre-dentistry, pre-law, construction, psychology, life sciences, manufacturing technology, aerospace technology, physical therapy, pre-optometry, pre-veterinary medicine, etc. WE WILL ASSUME YOU HAVE A GOOD WORKING KNOWLEDGE OF ALGEBRA, GEOMETRY, AND TRIGONOMETRY.

PHY-111 covers the subject of Newtonian mechanics including kinematics (the description of motion), and dynamics (the relation of motion to force and mass). Among the most important topics are Newton’s Laws of Motion and the conservation of momentum and energy. Other topics include: Rotation, Simple Harmonic Motion, Waves and Sound, Fluids, and Elasticity in Solids. The textbook is College Physics, 7th Edition, with WebAssign, by Raymond S. Serway and Jerry S. Faughn (Thomson, 2006). You may purchase either Volume 1 or the extended edition, which contains both Volumes 1 and 2. WebAssign is required. If you buy a textbook without WebAssign, then you must buy WebAssign separately (it is available with a credit card at the WebAssign web site). Also required is a PRS (Personal Response System) transmitter, which is available at the bookstore.

The associated laboratory, PHY-113, is an essential part of the introductory physics experience. We STRONGLY recommend that you take the lab concurrently with the lecture lection, even if your curriculum is one of the few that does not require it.
II. COURSE FORMAT AND POLICIES

A. General

The course during this Semester commences on Wed., Jan. 18 and concludes on Mon., May 1. A schedule of lectures and examinations is distributed with this syllabus. A schedule of reading and homework assignments will be posted on the class web site (available from my home page).

Lectures are on MWF from 10:40-11:30 in PSF-101. Students are responsible for any information imparted to the class during lectures. Minimal preparation for lecture is to do the reading assignment for that day; the required reading assignments from Serway and Faughn (S&F) are available on the course website. To more fully prepare for lecture, you should take an advance look at the homework problems which will be assigned for that lecture. Students with still more time to prepare for lecture may wish to download the Optional Readings from the course website; these will provide an alternative presentation of the topics in the required reading and will sometimes provide an advance look at the lecture for those topics. A small number of Multiple Choice questions will be asked during each lecture. These may cover the required reading from S&F, or may check your comprehension of some topic that I have just covered in lecture. You are expected to record your response to these questions using your PRS (Personal Response System) transmitter. You must register your PRS transmitter in order for your responses to be graded. A guide to PRS, including instructions for registering your transmitter, can be found at the course web site. YOU MUST USE ONLY THE TRANSMITTER THAT YOU REGISTER AND NO OTHER. Use of another student’s transmitter is a case of academic dishonesty, just exactly like cheating on a test. Any and all students involved in any such incidents will automatically receive an E for the course, and may be referred to the Dean for further sanctions.

Recitation sections occur weekly as scheduled, beginning Fri., Jan. 20. The last recitation meeting will be on Mon., May 1. The purpose of recitation is to give the student an opportunity in a small class environment to learn essential concepts and problem-solving strategies. Each recitation period (except the first Fri. and Mon.) will open with a short quiz.

Help-Study sessions are for the students’ benefit, but participation is optional. Beginning Mon., Jan. 23, the Help-Study Hall (PSH-352) will be staffed by volunteer faculty and Teaching Assistants several hours each day between 8:40 and 3:30. Teaching Assistants associated with this course, and
your instructor, will keep some of their office hours in the Help-Study Hall.

An e-mail account is available for every student enrolled at ASU. Instructions for obtaining an e-mail account can be obtained at the ASU Computer Commons. Important class information will be disseminated regularly through e-mail. The student will be responsible for receiving it. Exam and term grades will be published by e-mail or web page as soon as they are available. IF YOU CURRENTLY HAVE AN ASU E-MAIL ACCOUNT, THEN YOU NEED DO NOTHING. If you DO NOT currently have an e-mail account at ASU, or if you do not receive an e-mail from the instructor by Feb. 10, then you should send the instructor a message at the address gary.adams@asu.edu. The subject of the message should be "PHY 111 e-mail" and the body of the message should include your name and your RECITATION SECTION by TIME and by LINE NUMBER. Your e-mail address will be copied from your message and added to the class list.

B. PRS (Personal Response System)

You will use your PRS transmitter to answer Multiple Choice questions during the lecture period. Your answers will be graded, and your PRS grade will count 5% of your overall class grade. For the first two weeks, PRS questions will be considered practice questions, as you learn to use your PRS transmitters. Beginning Wed. Feb. 1, PRS questions will be graded. You are always encouraged to discuss PRS questions with your neighbors in lecture, but when answering, always think for yourself. A correct answer will be counted as 3 points, an incorrect answer will be counted as 2 points, and no answer will be counted as zero points; so the penalty for an incorrect answer is very small. There are expected to be about 75 PRS questions over the course of the semester, so the maximum possible PRS score will be about 225 points. The final PRS grade will be determined as a percentage out of 200 points (or ~90% of all possible points should the number of possible PRS points change.) Your maximum PRS grade is 100%, i.e. more than 200 points will not be counted as extra credit. Since only 90% of all possible PRS points are required for a perfect PRS score, no opportunity is provided to make up missed PRS questions. USING SOMEONE ELSE’S TRANSMITTER, OR ALLOWING SOMEONE TO USE YOUR TRANSMITTER, WILL RESULT IN AN AUTOMATIC FAILING GRADE FOR THE COURSE.

C. Homework

A list of assigned homework problems will be made available on the class web site as the semester proceeds. There will be one assignment for
each lecture. All Homework assignments are to be completed and turned in using WebAssign. (EXCEPTION: There may be four or five problems during the semester which have to be written up and handed in at recitation.) A guide to registering for, and using, WebAssign can be found on the course web site. Due dates are available under My Assignments at your WebAssign web site. In general, assignments are due six days after the lecture with which they are connected, but the official due dates are always the ones found at your WebAssign site (you have about eight days to do each of the first two assignments -- this allows you to become accustomed to using WebAssign). Assignments submitted after the due date has passed will receive no credit.

YOU SHOULD ALWAYS DO THE TEXTBOOK PROBLEMS ON PAPER BEFORE ATTEMPTING THE ONLINE VERSIONS, as the actual numerical values in the online versions will be randomized, and so will always be different from the numerical values in the textbook problems. While doing the textbook problems on paper, STUDY GROUPS ARE STRONGLY ENCOURAGED. For most people, talking about physics is an essential part of understanding physics and developing an accurate and useful physical intuition. However, you should always work alone when submitting your HW online. Remember, HW problems are practice for the tests; you are only hurting yourself by collaborating during the online submission process.

A total of approximately 1750 homework points will be possible. The final homework grade will be determined as a percentage out of 1500 points (or ~85% of all possible points should the number of total HW points change.) Your maximum homework grade is 100%, i.e. more than 1500 points will not be counted as extra credit.

600 HOMEWORK POINTS ARE REQUIRED FOR A PASSING GRADE IN THE COURSE.

D. Quizzes

Quizzes will be given during the first 10-15 minutes of each recitation beginning Fri. 1/27. This results in 13 quizzes for each recitation section. The highest 10 quiz scores will be counted. Quizzes will be similar to simpler problems, and will be on material already covered in the lectures and/or homework assignments. Fri. quizzes will most likely come from material covered during the previous Mon. or Wed., and Mon. quizzes will most likely come from material covered during the previous Wed. or Fri.
E. Examinations

The five tests will cover material indicated in the schedule by lecture numbers. Each test will consist of 2-3 problems and 10-11 multiple choice or short answer questions. The problems may be similar to homework, but they may also represent applications of principles in entirely different circumstances. The multiple choice questions may cover conceptual questions as well as simpler problems. The final examination will consist of 40 multiple choice questions. The final will be comprehensive. For the test dates, see the lecture schedule which accompanies this syllabus. This instructor’s tests from a previous semester, with solutions, will be available at the Noble Library Copy Center beginning Wed., Feb. 1.

Examinations are governed by the following policies:

* THERE WILL BE NO MAKE-UP TESTS FOR ANY REASON. The lowest score of all five tests will be deleted in the final course grade calculation. IF YOU MISS A TEST FOR ANY REASON, THAT TEST MUST BE YOUR DROP.

* Academic dishonesty on an examination will result automatically in a failing grade for the course and referral to the Dean for further sanctions. Cheating in any form will not be tolerated!

* The use of hand calculators is permitted. However, YOUR CALCULATOR MAY NOT CONTAIN STORED PHYSICS EQUATIONS.

* Test paper (including scratch paper) will be provided. Bring only your pencils and calculators, along with a picture ID.

* A short equation sheet will be provided for each test. It will NOT include any definitions, or fundamental physical principles (like Newton’s Second Law). You will find a version of the equation sheet on the class web page.

* No partial credit is given for multiple choice. For the problems, partial credit is given. Arithmetical errors will be treated charitably, but for answers that do not make physical sense (wrong dimensions, deviation by several orders of magnitude, etc.) no credit will be awarded. In general, you must get the PHYSICS right to receive any partial credit. Wrong physics = no credit. Failure to give units is always at least 1 point off for each occurrence.

* In the event of a fire alarm occurring during an examination, students will be asked to close their examination booklets, gather their belongings and leave the room as expeditiously as possible, leaving their examination booklets on the tables where they were working. The booklets will be
gathered and graded as they are. Unless the alarm proves to represent a bona fide emergency, there will be no make-up examination.

* If a student believes there to have been an error in grading his or her test, the complaint should be PUT IN WRITING, stapled to the relevant page of the test, and handed to the course instructor. The problem will be regraded by the individual who graded it originally. If the student is not satisfied with the grader’s response to the complaint, he or she may appeal to the course instructor. In this event, the instructor reserves the prerogative to regrade the entire examination. Simple errors, such as point addition, can be corrected by contacting the student’s recitation section instructor.

F. Final Grades.

The final course grades will be determined with the following weights:

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<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>PRS (total points out of 200)</td>
<td>5%</td>
</tr>
<tr>
<td>Homework (total points out of 1500)</td>
<td>8%</td>
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<tr>
<td>Quizzes (best 10 of 13)</td>
<td>7%</td>
</tr>
<tr>
<td>Tests (best 4 of 5)</td>
<td>60%</td>
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<tr>
<td>Final Examination</td>
<td>20%</td>
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LESS THAN 600 HOMEWORK POINTS IS AN AUTOMATIC E.

The scale for final letter grades will ultimately be determined by overall class performance. However, any student who earns 90% of all possible points can expect to receive an A. For information on how to figure your final grade see the course web page. (This information will be available by Feb. 10.)

G. Withdrawal

Withdrawal policies are established by the University (see the Spring 2006 General Catalog pages 18 and 56.) The deadline for course withdrawal is Mar. 31. Other deadlines are also given in the Catalog.

Beginning Jan. 18, this information, plus course information updates, and answers to even-numbered problems, will be available on the internet at

http://www.public.asu.edu/~gbadams