SYLLABUS FOR PHY 131: University Physics II

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 131 is the second part of a four-semester sequence in introductory physics offered to engineering and other science and pre-professional majors who have the appropriate background in mathematics. The prerequisite for PHY 131 is the second semester of calculus, or, in terms of its ASU course number, MAT 271. Since a working familiarity with basic integral calculus will be assumed, the student who has not had this course or its equivalent should withdraw from the class. Differential and integral calculus will be used regularly throughout the course.

PHY 131 covers the subject of electricity and magnetism from the electrostatics of Coulomb's law through electrodynamics, as contained in Ampere's and Faraday's laws. Some DC and AC circuit analysis is done, but only to illustrate the physical properties of simple circuit elements and the concept of resonance in physical systems. The course concludes with a discussion of Maxwell's equations and a brief introduction to electromagnetic waves. A detailed list of topics can be found on the lecture schedule which accompanies this syllabus. The textbook is Physics for Scientists and Engineers, by Wolfson and Pasachoff, Third Edition, (Addison Wesley, 1999.) Reading assignments are keyed to this textbook. At the bookstore, the textbook should come packaged with Mastering Physics. Mastering Physics is required. If you buy a used textbook, and you do not already have an active Mastering Physics account, then you must buy Mastering Physics separately (either at the bookstore or online). Also required is a PRS (Personal Response System) transmitter, available at the bookstore.

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 1:40-2:30 in PSF-173. 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, which is distributed with this syllabus. To more fully prepare for lecture, also take an advance look at the homework problems which will be assigned for that lecture. A small number of Multiple Choice questions will be asked during each lecture. These may cover the reading assignment, 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 Thur., Jan. 19, and ending Tue. May 2. The purpose of the recitation section is to give the student an opportunity in a small class environment to learn essential concepts and problem-solving strategies. Beginning with the recitations meeting Wed., Jan. 25, each recitation period 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 131 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 45 PRS questions over the course of the semester, so the maximum possible PRS score will be about 135 points. The final PRS grade will be determined as a percentage out of 120 points (or $\sim$90% of all possible points should the number of possible PRS points change.) Your maximum PRS grade is 100%, i.e. more than 120 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 SOMEOME ELSE'S TRANSMITTER, OR ALLOWING SOMEONE TO USE YOUR TRANSMITTER, WILL RESULT IN AN AUTOMATIC FAILING GRADE FOR THE COURSE. It is your responsibility to make sure that your PRS transmitter is in working order, and that your response is recorded. See the PRS page on our class web site for tips.

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. Almost all homework assignments are to be completed and turned in using Mastering Physics; however, there will be ten to twenty problems during the semester which have to be written up and handed in at recitation. A guide to using Mastering Physics can be found on the course web site. Due dates for Mastering Physics HW are available on the Assignment List at the Mastering Physics web site. In general, assignments made on Mon. are due by 11 PM the following Mon., assignments made on Wed. are due by 11 PM the following Tue., and assignments made on Fri. are due by 11 PM the following Thu., but the official due dates are always the ones found at your Mastering Physics site. Assignments submitted after the due hour has passed will receive a rapidly declining amount of partial credit which will go to ten percent one hour after the due hour. Due dates for problems that must be written up and turned in will be found at the HOMEWORK SCHEDULE page on the course web site.

For working on homework, STUDY GROUPS ARE STRONGLY ENCOURAGED. This will be especially applicable for those HW problems that have to be written up, but you may also want to print out some of the Mastering Physics problems and work on them in your study groups. However, you should realize that for most Mastering Physics problems, the numerical values in the online versions will be randomized, and so will be different for each student; so in your study group, you will be finding the right method rather than the actual answers.

A total of approximately 1800 homework points will be possible. The final homework grade will be determined as a percentage out of 1600 points (or ∼90% of all possible points should the number of total HW points change.) Your maximum homework grade is 100%, i.e. more than 1600 points will not be counted as extra credit. 600 HOMEWORK POINTS ARE REQUIRED FOR A PASSING GRADE IN THE COURSE.

The following policies govern written homework:

* Written assignments will be accepted only at the beginning of the recitation period on the days they are due. LATE HOMEWORK WILL NOT BE ACCEPTED.
* 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, written homework solutions should be one's own. Homework that has obviously been copied will not receive credit and the students involved will be subject to charges of academic dishonesty.

D. Quizzes

Quizzes will be given during the first 10-15 minutes of each recitation beginning Wed. 1/25. 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 homework assignments. Mon. quizzes will most likely come from material covered during the previous Wed. or Fri. Tue. and Wed. quizzes will most likely come from material covered during the previous Fri. or Mon. Thur. and Fri. quizzes will most likely come from material covered during the previous Mon. or Wed.

E. Examinations

The five tests will cover material as indicated in the lecture schedule. Each test will consist of 10-12 multiple choice questions (MC) and 2-3 problems. The MC are either conceptual or require a brief calculation. The problems may be similar to homework, but they may also represent applications of principles in entirely different circumstances. The final exam will consist of 40 MC questions; it will be comprehensive. For the test dates, see the lecture schedule. Tests from a previous semester, with solutions, will be available at the Noble Library Copy Center after 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.
* 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.
* Formula sheets will not be used in tests. Understanding a concept of physics is tantamount to knowing its mathematical expression and how to apply it to a given physical situation. Non-trivial derivatives and integrals, numerical values of physical constants, and some case-specific formulas will be provided when their use is required.
* 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.

* In the event of a fire alarm occuring 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, 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:

PRS (total points out of 120): 5%
Homework (total points out of 1600): 8%
Quizzes (best 10 of 13): 7%
Tests (best 4 of 5): 60%
Final Examination: 20%

A MINIMUM OF 600 HOMEWORK POINTS IS REQUIRED FOR A PASSING GRADE IN THE COURSE.

The scale for final letter grades will ultimately be determined by the 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.

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 info updates, will be available on the internet at http://www.public.asu.edu/~gbadams