

SYLLABUS FOR PHY-131: University Physics II

SECOND SUMMER SESSION, 2007

INSTRUCTOR: Dr. Gary B. Adams

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OFFICE HOURS: 12:00-1:15 PM Daily (except for examination days)  
in the Help-Study Room PSF-462

## I. INTRODUCTION

PHY-131 is the second part of a three-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 Homework and Lecture Schedule which accompanies this syllabus.

The textbook is University Physics, by Young and Freedman, Eleventh Edition, (Addison Wesley, 2004.) Reading assignments and homework problems are keyed to this textbook. You may use either the expanded edition or Volume 2 only. Also required is a PRS (Personal Response System) transmitter, available at the bookstore.

## II. COURSE FORMAT AND POLICIES

### A. General

The course during this Summer Session commences on Monday, July 2 and concludes on Friday, Aug 3. A schedule of lectures, examinations and homework assignments is distributed with this syllabus.

Lectures occur daily from 7:40 until 9:20 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 that lecture's homework problems. 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 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 daily from 9:30 - 10:10 (line numbers 80843 and 83808) or 10:30 - 11:10 (line #72625). The recitations are conducted by graduate Teaching Assistants. During the recitations the TA's may respond to questions involving homework problems, demonstrate problem-solving techniques, ask students to present solutions to the class, go over test problems from previous semesters, review lecture material, etc.

Most recitations will begin with a short **quiz** similar to one of the HW problems which is due on that day. Quiz days are indicated with a "Q" alongside the date on the Homework Schedule which accompanies this syllabus.

Recitation sections are part of the obligatory classroom period for the course and each student must participate in order to obtain a passing grade. **HOMEWORK WILL NOT BE ACCEPTED AT ANY PLACE OR TIME OTHER THAN THE RECITATION SECTION AND THEN ONLY FROM ITS AUTHOR.** Thus, absence from recitation section results automatically in a reduction of homework credit.

The **Help-Study Hall** (PSF-462) will be staffed by faculty and Teaching Assistants from 11:00 to 3:00 PM each day except examination days. Help-Study Sessions are for the students' benefit, and taking advantage of these Sessions has made a significant difference in the success of many students, but participation is completely optional. Teaching Assistants associated with this course will inform their respective recitation sections of the

hours during which they will be present in the Help-Study Hall, and they will not otherwise keep office hours. When visiting the Help-Study Hall you may of course ask questions of any member of the course staff on duty. Students who find it impossible to attend the Help-Study sessions because of other commitments can arrange office appointments with the instructor or TA's.

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. Use of this resource is optional to Summer Session students in PHY-131, but highly recommended. Useful class information will be disseminated through e-mail. 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 July 13, then you should send the instructor a message at the address *gary.adams@asu.edu*. Please sign your name to the message. Your e-mail address will be copied from your message and added to the class list. Here are the e-mail addresses for the Summer Session 131 TA's:

Ajit Dhamdhere	Ajit.Dhamdhere@asu.edu
David Foster	David.J.Foster@asu.edu
Catherine Kaleida	Catherine.Kaleida@asu.edu

#### B. Personal Response System (PRS)

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 week, PRS questions will be considered practice questions, as you learn to use your PRS transmitters. Beginning Mon. July 9, 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 50 PRS questions over the course of the session, so the maximum possible PRS score will be about 150 points. The final PRS grade will be determined as a percentage out of 135 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 135 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. 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 is distributed with this syllabus. There is one problem set for each lecture. Due to the time constraints of a five-week session about half as much homework is assigned as during a normal fifteen-week session; however, in general the summer assignments consist of only the more challenging problems from each chapter. Many problems are assigned from other textbooks; these problems are available in the Online Problems section of the course web site. The answers to all odd-numbered problems can be found in the back of the text; answers to the assigned even-numbered problems (and problems from other texts) are available on the class web site. You may wish to do some of the simpler problems in preparation for the assigned problems; however, you should turn in only the assigned problems.

There are twenty homework assignments at an average of seven problems each. EACH ASSIGNMENT IS DUE ON THE SCHOOL DAY AFTER IT IS ASSIGNED. The following policies govern homework:

- (1) ASSIGNMENTS WILL BE ACCEPTED ONLY DURING THE RECITATION SECTION ON THE DAYS THEY ARE DUE. To repeat, the due date is the school day after the assignment is made. Late homework will be graded but not credited.
- (2) HOMEWORK WILL BE ACCEPTED ONLY FROM ITS OWN AUTHOR. Don't attempt to have it delivered by a friend or relative.
- (3) Working with others is ENCOURAGED as a means of improving one's understanding through questioning and explaining, but 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. This INCLUDES homework copied from any available solutions manuals.
- (4) Your recitation section TA (or a grader) will grade one problem from each assignment for 10 points. The problem to be graded will be selected at random but will be the same for all recitation sections. The remaining problems will be counted for 1 point each for each complete (although not necessarily correct) solution. Since there are a total of 140 problems for

the session, with 20 problems graded for ten points and the rest graded for one point, there are a total of 320 possible homework points for the entire session. Your final homework grade will be calculated as a percentage of 288 points; that is, an equivalent of two drops is built in to the system. More than 288 points will not be counted as extra credit; i.e., your maximum homework grade is 100 percent.

LESS THAN 100 HOMEWORK POINTS IS AN AUTOMATIC E

#### D. Quizzes

There will be 16 quizzes. Each quiz will be given at the beginning of a recitation period; the quiz days are indicated by a "Q" alongside the date on the HW schedule distributed with this syllabus. Quizzes will be similar to one of the HW problems due on that day. There are three drops; i.e. the final quiz average will include your 12 best quizzes. THERE WILL BE NO MAKE-UP QUIZZES.

#### E. Examinations

The four tests will cover material as indicated in the calendar schedule which accompanies this syllabus. There is no comprehensive final examination; however, physics is a cumulative subject and material which is offered late in the session usually requires mastery of earlier material. As a result, TEST 4, GIVEN ON FRIDAY, AUG. 3, SERVES THE PURPOSE OF A FINAL EXAM AND IS REQUIRED FOR A PASSING GRADE IN THE COURSE. YOU MUST BE PRESENT ON THIS DAY. Each test will consist of 4-5 problems and 12-13 multiple choice 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 tests for this instructor's Summer 2005 offering of PHY-131 will be available at the Noble Library Copy Center, with solutions. These old tests will be used as recitation material by the TA's and they make good study guides. For the four summer test dates, see the calendar schedule which accompanies this syllabus.

Examinations are governed by the following policies:

- (1) THERE WILL BE NO MAKE-UP TESTS. If you miss one of the first three tests then that test must be your drop. You must be present for the fourth test.
- (2) Drop policy. We have adopted a more flexible drop policy during the summer session. The spring drop policy is that one test may be dropped. If you

choose, you may still drop any one of the first three tests; however, in order to offer more drop options we will grade the multiple choice and problem sections of the tests separately. A student then has then option of dropping any one MC and any one problem section, except that YOU CANNOT DROP BOTH SECTIONS OF TEST 4. Here are two examples to help you understand your options:

TEST	MC1	PROB1	MC2	PROB2	MC3	PROB3	MC4	PROB4	AVERAGE
possible	60	65	60	65	60	65	60	65	100%
Student A	50	48	45	52	20	45	30	55	74.7%
Student B	20	52	40	45	50	42	45	36	73.1%

For Student A the lowest multiple choice is the 20 in Test 3, and the lowest problem section is the 45 in that same test. Dropping those two sections gives student A 280 out of 375 possible points for a test average of 74.7%. On the other hand, student B drops MC #1 and Problems #4, yielding an test average of 73.1% (274 out of 375).

- (3) 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!
- (4) The use of hand calculators is permitted. However, your calculator MAY NOT contain stored physics equations.
- (5) Test paper (including scratch paper) will be provided. Bring only your pencils and calculators.
- (6) 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.
- (7) 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.
- (8) 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.

- (9) If a student believes there is an error in grading his or her test, the complaint should be put in writing and handed, together with the test, 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:

PRS: 5%                      Homework: 8%              Quizzes: 7%              Tests: 80%

A MINIMUM OF 100 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. The plus-minus grading system will be used. Grade scales used during previous summers can be found at the course web site listed at the bottom of this page.

#### G. Withdrawal and Incompletes

Withdrawal policies are established by the University (see the 2007 ASU Calendar at <http://www.asu.edu/calendar/academic.html>.) The deadline for unrestricted course withdrawal is July 20. Other deadlines are also given in the Calendar.

Incompletes are an alternative offered by the University for students who are succeeding in a course, but who, because of unavoidable circumstances, are unable to complete the coursework in the allotted time. Students who are granted an incomplete must, in general, repeat the course from the beginning and complete all work within one year. You MUST have a passing grade at the time that you request an incomplete, else your request cannot be considered.

*Beginning July 2, this information, plus updates, and other information of interest, such as answers to even-numbered homework problems and grades, will be available on the internet at <http://www.public.asu.edu/~gbadams>*