SYLLABUS FOR PHY-121: University Physics I

FIRST SUMMER SESSION, 2002

INSTRUCTOR: Dr. Gary B. Adams

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OFFICE HOURS:

Daily (except for examination days) 1:00-2:00 PM (in the Help-Study Room)

I. INTRODUCTION

PHY-121 is the first part of a three-semester sequence in introductory physics offered to engineering and other science and pre-professional majors. The prerequisite for PHY-121 is MAT-270. A working familiarity with basic differential and integral calculus will be assumed.

PHY-121 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 are rotational kinematics and dynamics, Newtonian gravitation, and simple harmonic motion.

The textbook is Fundamentals of Physics, by Halliday, Resnick, and Walker, Sixth Edition, (John Wiley & Sons, 2001.) Reading assignments and homework problems are keyed to this textbook. The Problem Supplement #1 is optional; any problems assigned from that book will also be made available on the web.

II. COURSE FORMAT AND POLICIES

A. General

The course during this Summer Session commences on Tuesday, May 28 and concludes on Friday, June 28. 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. Roll is not taken, but attendance is strongly advised. Students are responsible for any information imparted to the class during lectures.

Recitation sections occur daily from 9:20 until 10:00. 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. Assignment to recitation sections will occur during the first morning's lecture. 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 1:00 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-121, 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 June 3, 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 TA's:

Wen Xu	Wen.Xu@asu.edu
Yoshiko Oharu	Yoshiko.Oharu@asu.edu
Jim Corkins	corkins@asu.edu
Kevin Gibson	Kevin.Gibson@asu.edu
Kazuyuki Tamura	ktdawg@asu.edu

B. 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. The answers to all odd-numbered problems can be found in the back of the text; answers to the assigned even-numbered problems 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.

(4) Your recitation section TA 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 280 points; that is, an equivalent of two drops is built in to the system. More than 280 points will not be counted as extra credit; i.e., your maximum homework grade is 100 percent.

A MINIMUM OF 90 HOMEWORK POINTS IS REQUIRED
FOR A PASSING GRADE IN THE COURSE

C. 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. Quizzes will be the same for all recitation sections. There are four drops; i.e. the final quiz average will include your 12 best quizzes. THERE WILL BE NO MAKE-UP QUIZZES.

D. 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, JUNE 28, 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 2001 offering of PHY-121 are 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. Some students do better on the multiple choice parts of the tests, while others do better on the problems. As a result 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 two test sections, except that YOU CANNOT DROP BOTH SECTIONS OF TEST 4. Here are three examples to help you understand your options:

TEST	MC1	PROB1	MC2	PROB2	MC3	PROB3	MC4	PROB4	AVERAGE
possible	60	60	60	60	60	60	60	60	100%
Student A	50	48	45	52	20	45	30	55	81.9%
Student B	45	44	48	15	45	44	50	38	76.7%
Student C	40	52	40	45	10	12	45	56	77.2%

Student A had trouble with the multiple choice in Tests 3 and 4. Dropping those two sections gives student A 295 out of 360 possible points for a test average of 81.9%. Student B did poorly on the problems of Tests 2 and 4. With drops of those two sections, student B has a test average of 276 out of 360 or 76.7%. On the other hand, student C drops all of Test 3, yielding an test average of 77.2% (278 out of 360).

(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 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.

(9) If a student believes there to have been an error in grading his or her examination, the complaint should be put in writing and handed, together

with the examination, 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.)

E. Final Grades.

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

Homework: 10% Quizzes: 10% Tests: 80%

A MINIMUM OF 90 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. Grade scales used during previous years can be found at the course web site listed at the bottom of this page.

F. Withdrawal and Incompletes

Withdrawal policies are established by the University (see the 2002 ASU Calendar at http://www.asu.edu/calendar/academic.html.) The deadline for unrestricted course withdrawal is June 4. Other deadlines are also given in the Calendar. The important point to remember is that after June 4 (and before any other withdrawal deadline) one will receive either a W or an E depending respectively upon whether or not one is "passing" the course at that time as certified by the instructor. In particular, a cumulative homework score of less than 20% at the time of withdrawal will be interpreted as failing. Performance on examinations will also be taken into consideration.

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 calendar year. You MUST have a passing grade at the time that you request an incomplete, otherwise your request cannot be considered.

Beginning May 28, 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**