SYLLABUS FOR PHY 121: University Physics I

Spring 2010

INSTRUCTOR: Dr. Gary B. Adams

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CLASSES:			OFFICE HOURS: (Tentative)		
PHY 101	8:35- 9:25	MWF PSF-101	3:05- 3:55	MWF	PSF-462
PHY 101	9:40-10:30	MWF PSF-101	2:00- 2:50	TTH	PSF-306
PHY 121	10:30-11:45	TTH PSF-173	2:00- 2:50	M	PSH-352 Help-Study

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

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. A detailed list of topics can be found on the accompanying lecture schedule.

The textbook is University Physics, by Young and Freedman, Twelfth Edition, (Addison Wesley, 2008.) You may use either the expanded edition or Volume 1 only. 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, then you must buy Mastering Physics separately at the bookstore or online at the Mastering Physics web site. Also required is a Turning Point transmitter (available at the bookstore) or Turning Point ResponseWare software (see our class webpage).

II. COURSE FORMAT AND POLICIES

A. General

The course during this semester commences on TUE Jan. 19 and concludes on TUE May 4. A reading schedule and a schedule of lectures and examinations is distributed with this syllabus. A schedule of homework assignments will be

posted on the class web site (available from my home page).

Lectures are on MWF from 2:00-2:50 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, which is distributed with this syllabus. To more fully prepare for lecture, 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. You are expected to record your response to these questions using your Turning Point transmitter or software. You must register your Turning Point transmitter or software in order for your responses to be graded. A guide to Turning Point, including instructions for registration, 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 at 7:30 AM THUR Jan. 21; the last recitation meetings are on FRI Apr. 30. 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 will open with either a graded group exercise or a short quiz.

Help-Study Sessions are for the students' benefit, but participation is optional. Beginning MON Jan. 25, the Help-Study Hall (PSH-352) will be staffed by volunteer faculty and Teaching Assistants several hours each day between 8:40 and 5:00. 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. If you currently have a working ASU email account, then you need do nothing. If you have not recently used your ASU email account, then double-check to make sure that your email is properly being redirected to your favorite email address.

B. Turning Point

You will use your Turning Point transmitter to answer Multiple Choice questions during the lecture period. Your answers will be graded, and your Turning Point grade will count 5% of your overall class grade. For the first two weeks, Turning Point questions will be considered practice questions, as you learn to use your Turning Point transmitters. Beginning TUE Feb. 2, Turning Point questions will be graded. You are always encouraged to discuss Turning Point 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 Turning Point questions over the course of the semester, so the maximum possible Turning Point score will be about 150 points. The final Turning Point grade will be determined as a percentage out of 135 points (or ∼90% of all possible points should the number of possible Turning Point points change.) Your maximum Turning Point grade is 100%, i.e. more than 135 points will not be counted as extra credit. Since only 90% of all possible Turning Point points are required for a perfect Turning Point score, no opportunity is provided to make up missed Turning Point 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 Turning Point transmitter is in working order, and that your response is recorded. See the Turning Point 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 using Mastering Physics (MP); however, there will be five to ten problems during the semester which have to be written up and handed in at recitation. A guide to using MP can be found on the course web site. Due dates for MP homeworks are available on the Assignment List at the MP web site. In general, assignments made on TUE are due by 11:59 PM the following MON, and assignments made on THUR are due by 11:59 PM the following WED, but the official due dates are always the ones found at MP. 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 many 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 2000 homework points will be possible. The final homework grade will be determined as a percentage of 1800 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 1800 points will not be counted as extra credit. 665 HOMEWORK POINTS ARE REQUIRED FOR A PASSING GRADE IN THE COURSE.

The following policies govern written homework:

* Written HW's 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 and Graded Group Exercises

Every recitation will begin either with a graded group exercise or a quiz. There will be 14 recitations over the course of the semester; there will be approximately nine graded group exercises worth 10 points each and five quizzes worth 20 points each. Your lowest graded group exercise score will be dropped, and your lowest quiz score will be dropped. Since one of each score will be dropped THERE ARE NO MAKE-UP QUIZZES OR GROUP EXERCISES FOR ANY REASON. Exception: once (AND ONLY ONCE) during the semester, you may arrange with your TA to attend an alternate 121 recitation; a list of 121 recitations for our class can be found on our course website. Group exercises will be distributed at the beginning of recitation. Your TA will assign groups

of three or four students, and groups will be rearranged once or twice as the semester proceeds. Exercises will be the same for all groups in a given recitation. Exercises will be solved as a group, but each student will write up his or her own solution; solutions will be graded individually. Quizzes will be similar to simpler problems, and will be on material already covered in the lectures and/or homework assignments. Quizzes will be announced on Blackboard on the FRI before a THUR or FRI quiz.

E. Examinations

The four tests will cover material as indicated in the lecture schedule. Each test will consist of 10-15 multiple choice questions (MC) and 2-4 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 a location to be announced on our 121 update webpage.

Examinations are governed by the following policies:

* THERE WILL BE NO MAKE-UP TESTS for any reason. If you miss one of the four tests FOR ANY REASON, that test automatically becomes your dropped test.
* The full drop policy is explained in detail on our course webpage.
* 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. You are required to know all definitions and basic physical principles covered in the course. Non-trivial derivatives and integrals, numerical values of physical constants, and some case-specific formulas will be provided when 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:

Turning Point (total points out of 135): 5%
Homework (total points out of 1800): 8%
Quizzes and Group Exercises (drop 1 of each): 7%
Tests (best 3 of 4): 60%
Final Examination: 20%

A MINIMUM OF 665 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 2010 General Catalog). The deadline for course withdrawal is Apr. 9. Other deadlines are also given in the Catalog.