SYLLABUS FOR PHY 121: University Physics I

Fall 2018

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CLASSES:				OFFICE HOURS:
PHY 101	7:30- 8:45	TTH	PSF-101	To Be Determined - Start MON 8/20
PHY 101	10:30-11:45	TTH	PSF-101	5 hours total - On MWTH
PHY 121	9:00-10:15	MW	PSH-356	See Webpage for Latest Info

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 class-meeting schedule.

The textbook is University Physics, by Young and Freedman, 14th Edition, (Addison-Wesley, 2015.) See our class webpage for a list of purchase options. 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 through our class Blackboard page; this is the only online place to pay for a Mastering Physics account for our class. Also required is Learning Catalytics; if you purchase Mastering Physics with etext (this is what you get with the package from the bookstore), then you automatically have access to Learning Catalytics. For our online testing, a WebAssign account is required; this is most cheaply ($23) purchased with a credit card at WebAssign.

II. COURSE FORMAT AND POLICIES

A. General

The course during this semester commences on THU Aug. 16 and concludes on THU Nov. 29. A reading schedule and a schedule of class meetings and

examinations is distributed with this syllabus. Your Reading Quizzes and Homeworks can only be found at your Mastering Physics account.

Class meetings are on MW from 9:00-10:15 in PSH-356. There is no lecturing at these class meetings. Instead, class time is spent on collaborative activities in small, assigned groups. You will, at times, be required to report your group's findings to the entire class. Minimal preparation for each class meeting is to do the reading assignment for that day, and to answer the Reading Quiz questions (at Mastering Physics) for that reading assignment. To more fully prepare for each class meeting, also take an advance look at the homework problems which will be assigned for that day (at Mastering Physics). A small number of Multiple Choice questions will be asked during each class meeting. These may cover the reading assignment, or may check your comprehension of some topic that has been covered in the small-group activities. You are expected to record your response to these questions by logging in to your Mastering Physics account and using Learning Catalytics. You must enter your ASU Posting ID with Learning Catalytics in order for your responses to be saved and graded. A guide to Learning Catalytics can be found at the course web site.

Recitation will meet weekly on THU from 3:00 to 3:50 PM in PSH-356. Most recitations will consist of small-group exercises which will be completed in teams of two or three students; the teams will be assigned by your instructor. These exercises will usually provide an introduction to the concepts and problem-solving strategies which will then be explored in detail in the following week's readings, classroom exercises, and homeworks; however, in some cases, the concepts will have already been introduced in the reading and the exercises will provide additional practice. While the exercises will be a group activity, each student must write up his or her own solutions, which will be collected at the end of recitation by your TA. There will be nine graded exercises over the course of the semester, and your lowest score of the nine will be dropped; there are no make-up exercises for any reason. The recitation exercises will count as 3% of your overall grade for the course. Quiz 1 will be given at the beginning of the fifth recitation meeting, on THU Sept. 20. Recitations are canceled on our five test days.

Help-Study Sessions are for the students' benefit, but participation is optional. Beginning MON Aug. 20, the Physics Success Center (PSF-186) will be staffed by volunteer faculty and Teaching Assistants several hours each day between 9:00 AM and 5:00 PM. TA's and LA's associated with this course will

keep some of their office hours in the Success Center.

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. Learning Catalytics and Classwork

You will use **Learning Catalytics** to answer Multiple Choice questions during the class meetings. For the first two class meetings, Learning Catalytics questions will be considered practice questions, as we learn to use the system. Beginning MON Aug. 27, at least some Learning Catalytics questions will be graded. You are always encouraged to discuss Learning Catalytics questions with your team, and with others at your table, 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 115 Learning Catalytics questions over the course of the semester, so about 345 LC points will be possible. However, about 310 LC points (or about 90% of all possible LC points should there be more or less than 115 questions) are all that are required to receive an overall LC grade of 100%. Your LC percentage will count a significant fraction (65% - 85%) of your overall Classwork grade for our class. Since only 90% of all possible LC points are required for a perfect Learning Catalytics score, no opportunity is provided to make up missed Learning Catalytics questions. It is your responsibility to make sure that your Learning Catalytics account is set up properly, and that your response is recorded. See our Learning Catalytics information webpage for more details.

Classwork will consist of small-group exercises which are usually related directly to the assigned homeworks. Your team will complete each exercise on a portable whiteboard at your table location. Several times during the semester, someone from your team will be selected to report your team's results to the entire class; all team members who are present on that day will receive a satisfactory or unsatisfactory grade based on the quality of that report. The teams will be rearranged several times during the semester.

There are expected to be a small number (less than 7) of unannounced pop quizzes given during the semester. There may possibly be a pop quiz at any class for which there is an associated Reading Quiz. When given, the pop quizzes will begin promptly at 9:00 and last for five minutes. The pop quizzes will be graded by other students sitting at the same table; they will then be collected and recorded by our LA's. Pop quizzes are expected to count 10% - 20% of your Classwork grade. Your Classwork grade will include your LC grade, plus a combination of your Pop Quiz grade and your Teamwork grade as assigned by your LA's, and will count 5% of your overall class grade.

C. Reading Quizzes and Homework

There is one **Reading Quiz** (RQ) for each of the 25 topics listed in our Topic and Reading Schedule (topic 21 is extra credit); all Reading Quizzes can be found only at Mastering Physics (MP). Each RQ is due at 1:00 PM on the day before the topic for that RQ is covered in our classroom. The final question on every RQ is an opportunity for you to ask for an in-class discussion of topics which you may have found confusing in the reading, or in the previous class. The Reading Quizzes will count 6% of your overall class grade.

There is one assigned **Homework** (HW) for each of the 25 topics listed in our Topic and Reading Schedule; all Homeworks can be found only at MP. Due dates for each HW are available on the MP Assignment list. In general, assignments for topics discussed in class on MON are due by 11:59 PM the following MON and assignments for topics discussed on WED are due by 11:59 PM the following WED, but the official due dates are always the ones found at MP. Please see the "Tips" for using MP on our class webpage for more information.

Using online HW-answer services (such as Chegg.com) to find answers for our RQ's or HW problems is not allowed. Any students found using such services for one of our HW's or RQ's will automatically receive a ZERO for that HW or RQ. Repeated incidents will result in an E as an overall letter grade for our course.

A total of approximately 1800 homework points will be possible. The final homework grade will be determined as a percentage of 1620 points (or $\sim$90% of all possible points should the number of total HW points change.) Your maximum homework grade is 100%, i.e. more than 1620 points will not be counted as extra credit. Your HW percentage will count 10% of your overall class grade.

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

D. Quizzes and Graded Team Exercises

Nine of the ten recitation meetings will consist of a **graded team exercise** which will be distributed at the beginning of recitation and completed within your assigned team. Exercises will be the same for all teams in a given recitation. Exercises will be solved as a team, but each student will write up his or her own solution; solutions will be graded individually and returned the following week. Your lowest graded team exercise score will be dropped. THERE ARE NO MAKE-UP TEAM EXERCISES FOR ANY REASON. The recitation exercises will count as 3% of your overall grade for the course.

As posted in the schedule, the four **Quizzes** will occur on THUR Sept. 20 (at recitation), WED Oct. 10 (in class before the review session for Test 3), WED Nov. 7 (in class before the review session for Test 4), and WED Nov. 28 (in class before the review session for Test 5). Each quiz will consist of a multi-part HW-style problem for which you will be required to show your work in detail. Quizzes may cover any topics introduced or explored during recitations or classes which have met before the quiz is given. TA's will grade the quizzes out of 25 points; partial credit will be given. The lowest of your four quiz scores will automatically be dropped when averaged; therefore, there are no make-up quizzes for any reason. Your quiz average will count as 15% of your overall class grade.

E. Examinations

The five **tests** will cover material as indicated in the class schedule. Each of the five tests will consist of about 10 multiple choice questions, and will be given online on computers provided by the physics department in the Physics Testing Center (PSH-563), under the supervision of recitation TA's or LA's. The online tests have a 50-minute time limit and the testing center will be open from 3:00 PM - 4:05 PM on the test days. On those days, recitation will be cancelled. The **final exam**, on WED Dec. 11 from 7:30-9:20 AM, will consist of 40 MC questions; it will be comprehensive, and it will be given in PSH-356 with assigned seating.

Examinations are governed by the following policies:

* In figuring your test average, the lowest of the five MC test scores will automatically be dropped.
* The use of hand calculators is permitted. For tests, TI solar calculators will be provided by the Department of Physics.
* Scratch paper will be provided. Bring only your writing instruments.
* A full set of test rules is available at the course web site.

* 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! You will be required to sign a statement of academic integrity for each test.
* An equation sheet will be provided; it will include any necessary constants and a few equations. Before the test, a copy of the equation sheet will be available on the class website.
* In the event of a fire alarm occuring during an examination, students will be asked to gather their belongings and leave the testing room as quickly as possible. Those students whose testing was interrupted by the alarm will then be given the appropriate amount of extra time to finish their tests, or else given an entirely new test, once the exam is able to resume.

F. Final Grades.

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

Learning Catalytics and other Classwork 5%
Reading Quizzes: 6%
Homework (total points out of 1620): 10%
Recitation Exercises (drop 1): 3%
Quizzes (drop 1): 15%
MC Tests (drop 1): 44%
Final Examination: 17%

A MINIMUM OF 816 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 80% of all possible points can expect to receive an A of some type (A-, A, or A+); students who earn 65-80% of all possible points can expect to receive some type of B, and students who earn 50-65% of all possible points can expect to receive a C or C+. 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 Fall 2018 General Catalog). The deadline for course withdrawal is Oct. 31.

H. Appendices

Additional, University-required information on commericial note-taking, accommodations, classroom behavior, and withdrawal details can be found in the Online Appendices.