

PHYS 141 Principles of Physics I

Summer 2017 Section 0181

**Meets May 30, 2017 - July 7, 2017
MTuWThF 5:30pm - 6:50pm PHY 1201**

**TuTh 7:00pm - 9:00pm PHY 3219 Lab
MW 7:00pm - 7:50pm PHY 1219 Discussion**

Instructor: Dr. Sergio Picozzi



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Teaching Assistants:

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Overview

Physics 141 is the first part of a two-semester series in general physics. The purpose of this class is to give you a deep understanding of the fundamental principles that govern physical systems, how they may be used to accurately predict the behavior of objects when they interact with their environment, and how these simple principles lead to more complex phenomena. Topics will include acceleration, force, Newton's laws of motion, drag, friction, gravity, momentum, energy, torque, equilibrium, thermodynamics, fluids. Besides the physics concepts themselves, this course is also designed to develop your general ability to think analytically and converse about physical systems. This course is calculus-based and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools.

Lectures will be given on M-T-W-Th-F in room 1201 in the Physics Building. Students are **required** to attend lectures, where the course material will be presented and exams will be administered. In other words, *attendance is mandatory*.

Years of experience have convinced me that the most effective way to teach introductory physics is by working out in full detail problems from the textbook (or from other sources, when available) in front of the class. In physics, concepts and principles are but empty shells unless they are applied to the solution of quantitative or qualitative problems. In my approach, concepts and principles will emerge and will be elucidated along the way while problem solutions are worked out. In a nutshell, my technique consists in “teaching by doing”.

You will also have **discussion sessions** and **lab sessions** each week. The discussion session is designed to help you explore and practice the application of physics principles and equations to problem-solving, collaborating with your classmates. Your Teaching Assistant will lead you through the process. The lab sessions present you with rather open-ended investigations that you must plan, carry out, evaluate and explain in teams—there is no “cookbook” for them!

Required and Optional Course Materials

The **textbook** for the course is: “*University Physics with Modern Physics*”, 14th edition. Publisher: Pearson Education, Inc. (ISBN-13: 978-0-321-97361-0). The single hardcover volume contains all the material.

Laboratory work will be carried out with the assistance of the **Expert TA** software, whose website is (theexpertta.com). This website is how you will access your lab manual and additional assignments. The table below displays the class codes that you will use to purchase access to your section of the lab. In order to purchase your code, you should visit <https://www.theexpertta.com/registration/>, at which point you will be prompted to enter a class code. When you enter your class code, you will be prompted to register and pay.

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To summarize: the required materials for PHYS 141 are the textbook, and access to Expert TA.

Homework

Homework problems from the textbook will be assigned throughout the term. The assignments will have to be turned in on the due date in paper format and they will be graded for completion.

Turning in late homework is not allowed under any circumstances.

Obtaining homework solutions from online resources is tantamount to COPYING, and as such it constitutes a serious violation of the Honor Code (see below).

Graded work

Laboratory work will be graded partly on your team's lab reports and partly on your individual efforts.

There will be three in-class exams.

On exam day, bring a pocket calculator (graphing calculators are discouraged, although not prohibited) and writing tools (pens or pencils). Paper will be provided.

All exams are closed-book and closed-notes. However, you should prepare and bring a formula sheet containing equations and values of fundamental constants, but EMPHATICALLY NO PROBLEM SOLUTIONS.

NO MAKE-UPS WILL BE GIVEN UNDER ANY CIRCUMSTANCES.

The overly intense schedule of summer courses does not permit us to make arrangements for make-ups.

Course grade break-down:

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| 30% | Labs |
| 10% | Homework |
| 60% | Exams (20% each) |

The final grade will be set at the end of the semester after all work is completed. In assigning the final grade, I will be following the University of Maryland's grading policy, quoted below:

- A denotes excellent mastery of the subject and outstanding scholarship. (90-100)
- B denotes good mastery of the subject and good scholarship. (80-89)
- C denotes acceptable mastery of the subject and the usual achievement expected. (70-79)
- D denotes borderline understanding of the subject. It denotes marginal performance, and it does not represent satisfactory progress toward a degree. (60-69)
- F denotes failure to understand the subject and unsatisfactory performance. (< 60)

I will be using + and – for final grades. The above scheme indicates only the range for each letter grade. Within a given range (e.g., A) the cutoff points for + and - will depend on the performance of the class as a whole, and thus they cannot be predetermined.

Grade recording:

Scores on all of your graded items will be recorded on ELMS soon after grading is complete. Please check your scores periodically and let me know if you think there is an error; I will do all that is necessary to investigate and correct mistakes. However, *do allow for a few days to insure that all the grading for an item is completed before you conclude that a grade is missing; it may simply be that your TA is still working on that item. No haste is necessary and no panic is warranted: grades are official records and we take them very seriously. Before the course is over all of your grades will be properly recorded.*

Course Policies

Attendance:

LECTURE ATTENDANCE IS REQUIRED. Students are responsible for all material covered in lectures. It is the students' responsibility to record accurately and to be aware of the specific lectures' contents. This is one of the reasons why attendance is necessary. *No lecture-related material will be made available online. If you incur an absence, you should arrange to obtain class notes and related information from your classmates.*

REVIEWING WITH CARE THE PROBLEMS WORKED OUT IN CLASS IS BY FAR THE BEST WAY TO PREPARE FOR AN EXAM.

Policy on collaborating:

Working together with other students is part of the course; in fact, the discussions and labs are specifically meant to promote teamwork. Working together to figure out the homework solutions is also encouraged. However, this simple criterion applies: never look at someone else's written solution. Talking about how to work out a problem is fine if it helps you to understand it better, but copying a solution simply defeats the purpose of the whole exercise.

Honor Code:

The University of Maryland has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. I will ask you to sign the Honor Pledge on exams; I will not ask you to sign it on each homework assignment, but it should be understood that the Honor Code still applies. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. Violations will be taken very seriously and may result in an XF grade for the course and possible suspension. For more information on the Code of Academic Integrity or the Student Honor Council, please visit the following website: <http://www.studenthonorcouncil.umd.edu/SHC/Default.aspx> .

Religious observances:

If you need to miss class, a deadline, or an exam due to a religious observance, please notify me in advance, preferably at the beginning of the semester.

Students with disabilities:

Accommodations will be provided to enable students with documented disabilities to participate fully in the course. Please discuss any needs with me at the beginning of the semester so that appropriate arrangements can be made. *Students who are registered with DSS, and who are planning to take examinations at DSS facilities, are required to let me have the pertinent authorization forms in editable electronic format at least one week prior to each exam date.*

Weather and emergency closures:

If the University is closed due to weather or some emergency situation on a day when homework is due, then that homework must be turned in at the beginning of the next class when the University is open. If the University is closed on the scheduled date of an exam, then the exam will be given during the next class period when the University is open. If the University is closed on any non-exam day, including just before an exam, then the exam will still be given according to the original schedule. In these or other exceptional circumstances, I will attempt to send out information by email.

Course announcements by email and email usage:

I will be sending important announcements to the class, specifically to each student's umd.edu email address. If you use some other email system, please make sure that mail sent to your umd.edu address is successfully forwarded to the address you use most regularly. *I will be communicating with students outside of class exclusively via email. I will not be using CANVAS, as that system is rather unwieldy, and I am asking you to please do the same.*

I will be happy to respond to your inquiries, communications, and requests via email, in as timely a fashion as practicable. Using that tool, I will be happy to clarify doubts and misgivings you may harbor, or to make arrangements to discuss any issues that you would like to address with me in person. So I do welcome your communications. However, I am also asking you to be judicious in your use of electronic mail. For example, any question that can be asked in person, either in class or out of class by appointment, should preferably be asked in person. Any information that you could equally well receive from a classmate, particularly in reference to things that have been said in class, or locate on one of the UMD websites, should preferably be derived from those sources. Most importantly, any information that is provided within this document should be derived from it. So please read this syllabus with great care.

Copyright Protection of Course Materials

Unless indicated otherwise, any lecture handouts, exams, homework and exam solutions, and the lectures themselves (including audio and video recordings) are copyrighted by me and may not be distributed or reproduced for anything other than your personal use without my written permission.

Tentative Course Schedule

PHYS 141 Summer 2017 --- Prof. Sergio Picozzi

Week Beginning:

In Class Activities:

May 30

Chapters 1-2-3

Jun 5

Chapters 3-4-5

Jun 9

Exam 1

Jun 12

Chapters 6-7

Jun 19

Chapters 8-13

Jun 23

Exam 2

Jun 26

Chapters 9-10-11

Jul 3

Chapters 17-19-20-12

Jul 7

Exam 3

Examination Schedule

Exam 1: Friday 9 June, Chapters 1, 2, 3, 4, 5

Exam 2: Friday 23 June, Chapters 6, 7, 8, 13

Exam 3: Friday 7 July, Chapters 9, 10, 11, 17, 19, 20, 12