

# PHYS 121 Fundamentals of Physics I

**Spring 2017 Sections 0301-0307**

**Mon-Wed- Fri 3:00pm - 3:50pm  
Room: PHY 1412**

**Instructor: Dr. Sergio Picozzi**



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**Coordinator in charge of the labs:**

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## Overview

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, elasticity, fluids, gases, and thermodynamics. Besides the physics concepts themselves, this course is also designed to develop your general ability to think analytically and converse about physical systems.

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 a **discussion session** and a **lab session** each week, except at the beginning of the semester. The discussion session is designed to help you explore and solidify the physics principles and their consequences, collaborating with your classmates and TA. The lab sessions present you with rather open-ended investigations that you must plan, carry out, evaluate and explain in teams. You must attend the specific discussion and lab sessions for the course section you registered for. If you miss your normal day for a valid reason (such as illness), contact your TA right away. At the end of the semester there will be an opportunity to make up *one* lab session if you missed one for a valid reason during the semester.

## Required and Optional Course Materials

The **textbook** for this course is “College Physics: A Strategic Approach” by Knight, Jones and Field, published by Addison-Wesley / Pearson. It is available either as a single hardcover volume or as two paperback volumes. Either version works. PHYS 121 will cover material corresponding to the first 13 chapters, which is all in volume 1 of the paperback edition. The current edition of the book is the *third edition*. Note that there are actually two versions of the third edition: the original, and a “technology update”, which mainly has added QR codes to view online video demonstrations. I'm not requiring that, so either version will be fine. You will also need to purchase an access code for MasteringPhysics (it is one word) which we will be using for homework assignments. The code can be acquired either from the bookstore, along with the textbook, or directly from the publisher. This syllabus contains a set of instructions for gaining access to MasteringPhysics once you are in possession of the code.

**Laboratory work** will be carried out with the assistance of the **Expert TA** software, whose website is ([theexpertta.com](http://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.

Section	**Class Registration Code
301	USH22MD-DEFCFF-1HU
302	USH22MD-AD3E71-1HT
303	USH22MD-790DD0-1HS
304	USH22MD-51B846-1HR
305	USH22MD-ACE4E7-1HQ
307	USH22MD-1B44AD-1HP
401	USH22MD-B2B259-1HO
402	USH22MD-B1BD51-1HN
403	USH22MD-CB3BB0-1HM
SES1	USH22MD-934F13-1HL

*To summarize: the required materials for PHYS 121 are the textbook, the access code for MasteringPhysics, and access to Expert TA.*

## **Homework**

**Homework problems** from the textbook will be assigned throughout the term. The assignments will be in electronic format and will be carried out using the MasteringPhysics software.

**Turning in late homework is not allowed under any circumstances.**

**It is your responsibility to check MasteringPhysics frequently to make sure you do not miss any due date.**

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

## Additional Graded work

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

Three **midterm exams** will be given in class, plus a **final exam** at the end of the semester.

On exam day, bring a pocket calculator 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.**

*The lowest of three scores in the midterm exams will be dropped. No make-ups will be given under any circumstances. If you happen to miss one midterm, due to illness or any other reason, that is the score that will be dropped. If you miss the final exam, you will be receiving a grade of Incomplete (I) for the class, provided, of course, that you have a passing grade up to that point.*

### **Course grade break-down:**

30%	Homework
20%	Labs
30%	Midterm exams (15% each of two)
20%	Final exam

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 exams will be recorded on ELMS soon after grading is complete. When different teaching assistants are grading different parts of an exam, it may take a little longer to collect all the parts and add them together. 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 sufficient time to insure that all the grading for an exam is completed before you conclude that a grade is missing; it may simply be that some TAs are still working on that assignment. 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.**

As regards **attendance of laboratory sessions**, in case of illness or other overwhelming circumstances, we will follow the university policy posted at: <http://www.president.umd.edu/policies/v100g.html>. Please let me (not just your TA) know your situation as soon as possible, and I will tell you if I need documentation for the reason for your absence. In any case, whatever the reason for your absence, it is important that you contact me as soon as you reasonably can, and I will do my best to make accommodations.

### **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 not ask you to sign the Honor Pledge on exams or homework assignments, 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>.

**Policy on collaborating:**

Working together with other students is part of the course; in fact, the tutorials and labs are specifically designed around teamwork. Working together to figure out the homework is also encouraged, but you must turn in your own work. Talking about how to work the problem is fine if it helps you to understand it better, but ***COPYING A SOLUTION IS STRICTLY FORBIDDEN. IF CAUGHT ENGAGING IN SUCH ACTIVITIES, YOU MAY BE REFERRED TO THE STUDENT HONOR COUNCIL.***

**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 inclement weather or some emergency situation 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 is 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. Spread over five different courses, I will have hundreds of students this semester. Therefore, in order to help me serve you better and more promptly, it***

**is important to keep the number of emails I need to answer down to a manageable size. For example, any question that can be asked in person, either in class or at office hours, or even out of class by appointment, would 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, would 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.

# Physics 121 Sections 0301-0307

## Course Schedule

Spring 2017 --- Prof. Sergio Picozzi

<i>Week Beginning:</i>	<i>In Class Activities:</i>
Jan 23	Chapter 2
Jan 30	Chapters 2-3
Feb 6	Chapters 3-4
Feb 13	Chapter 5
Feb 20	Chapter 5
Feb 27	Chapter 5
	<b>Mar 1</b> <b>Midterm 1</b>
Mar 6	Chapter 6
Mar 13	Chapter 7
Mar 20	SPRING BREAK
Mar 27	Chapter 8
Apr 3	Chapter 8
	<b>Apr 5</b> <b>Midterm 2</b>
Apr 10	Chapter 9
Apr 17	Chapter 10
Apr 24	Chapters 11-12
May 1	Chapter 13
	<b>May 1</b> <b>Midterm 3</b>
May 8	Chapter 13

## Examination Schedule

**Midterm 1: Wednesday 1 March, Chapters 2 through 5**

**Midterm 2: Wednesday 5 April, Chapters 6 through 8**

**Midterm 3: Monday 1 May, Chapters 9 through 12**

**Final Exam: Tuesday 16 May, 1:30-3:30 pm, Cumulative**



# MasteringPhysics®

Dear Student:

In this course you will be using MasteringPhysics®, an online tutorial and homework program that accompanies your textbook. *If you have joined a MasteringPhysics course before and can still log in:* Save time by following the guide for joining another course by following the guide for joining another course (available from [www.masteringphysics.com](http://www.masteringphysics.com) > Tours & Training > Getting Started) instead of this page.

## What You Need:

- ✓ **A valid email address**
- ✓ **A student access code**  
(Comes in the Student Access Code Card/Kit that may have been packaged with your new textbook or that may be available separately in your school's bookstore. Otherwise, you can purchase access online at [www.masteringphysics.com](http://www.masteringphysics.com).)
- ✓ **The ZIP or other postal code for your school:** \_\_\_\_\_
- ✓ **A Course ID:**    **MPPICOZZI125511A**    (Provided by your instructor)

## 1. Register

- Go to [www.masteringphysics.com](http://www.masteringphysics.com) and click **Students** under **Register**.
- To register using the student access code inside the MasteringPhysics Student Access Code Card/Kit, select **Yes, I have an access code**. Click **Continue**.

–OR– *Purchase access online:* Select **No, I need to purchase access online now**. Select your textbook, whether you want access to the eText, and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. The purchase path includes registration, but the process is a bit different from the steps printed here.

- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under “Do you have a Pearson Education account?” Continue to give the requested information until you complete the process. The **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records. You can either click **Log In Now** or return to [www.masteringphysics.com](http://www.masteringphysics.com) later.

## 2. Log In

- Go to [www.masteringphysics.com](http://www.masteringphysics.com).
- Enter your Login Name and Password that you specified during registration and click **Log In**.

## 3. Join Your Instructor's Online Course and/or Open Self-Study Resources

Upon first login, you'll be asked to do one or more of the following:

- **Join a Course** by entering the **MasteringPhysics Course ID** provided by your instructor. If you don't have a Course ID now, you can return to join the MasteringPhysics course later. When you join a course, you may also be asked for a Student ID (follow on-screen instructions).
- **Explore the Study Area** or **Launch Your eText**, if these resources are available for your textbook.

## To Access MasteringPhysics Again Later

Simply go to [www.masteringphysics.com](http://www.masteringphysics.com), enter your Login Name and Password, and click **Log In**.

*After you have joined a course:* You can open any assignments from the **Assignments Due Soon** area or from the **Assignments** page. For self-study, click **eText** or **Study Area**, if these options are available.

## Support

Access Customer Support at [www.masteringphysics.com/support](http://www.masteringphysics.com/support), where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Registration Tips & Tricks video
- Additional contact information for Customer Support, including Live Chat