

# PHYS 121 Fundamentals of Physics I

**Summer 2016 Sections 0181-0182**

**Meets May 31, 2016 - July 8, 2016  
MTuWThF 5:30pm - 6:50pm PHY 1201**

**0181 TuTh 7:00pm - 9:00pm PHY 3306 Lab  
MW 7:00pm - 8:00pm PHY 1201 Discussion**

**0182 MW 7:00pm - 9:00pm PHY 3306 Lab  
TuTh 7:00pm - 8:00pm PHY 1201 Discussion**

**Instructor: Dr. Sergio Picozzi**



Email: [sergio.picozzi@gmail.com](mailto:sergio.picozzi@gmail.com) (*preferred*)  
[spicozzi@umd.edu](mailto:spicozzi@umd.edu)

Office: 3102 John S. Toll Physics Building

TEL: 301.405.6088

Office Hours: By appointment

**Teaching Assistants:**

Harry Arnold

[harryarnold@gmail.com](mailto:harryarnold@gmail.com)

Jesus Caloca

[jesuscaloca2.718@gmail.com](mailto:jesuscaloca2.718@gmail.com)

**Coordinator in charge of the labs:**

Bill Norwood

[bnorwood@umd.edu](mailto:bnorwood@umd.edu)

## 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.

**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 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.

*To summarize: the required material for PHYS 121 is the textbook and the access code for MasteringPhysics.*

## **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.**

**Reviewing with care the problems worked out in class is by far the best way to prepare for the exams.**

## Graded work

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

You will also earn points for **attendance**.

**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:**

20%	Labs
20%	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)

### **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.

#### **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 <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 121 Summer 2016 --- Prof. Sergio Picozzi**

*Week Beginning:*

*In Class Activities:*

May 31

Chapters 2-3

Jun 6

Chapters 4-5

**Jun 10**

**Exam 1**

Jun 13

Chapters 6-7

Jun 20

Chapters 7-8

**Jun 24**

**Exam 2**

Jun 27

Chapters 9-10-11

Jul 5

Chapters 12-13

**Jul 8**

**Exam 3**

## Examination Schedule

**Exam 1: Friday 10 June, Chapters 1, 2, 3, 4, 5**

**Exam 2: Friday 24 June, Chapters 6, 7, 8**

**Exam 3: Friday 8 July, Chapters 9, 10, 11, 12, 13**

# 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:**    **MPPICOZZI53178**    (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

