Physics 001
Fall 2019

Class Meeting Times: Mon, Wed, Fri: 10:10 – 11:00 am (in 1 Romano – the 'Old' Physics Lab)

Instructor: Kip Trout, B.S., M.S., Lecturer in Physics

Office Hours: Mon; Wed; Fri: 11:15 AM - 12:05 PM in 35 MCB (Elec. Lab – Back Right Office Closet)
Mon; Wed: 3:00 PM - 4:30 PM in 35 MCB (Elec. Lab – Back Right Office Closet)
Or – preferably - - - by Appointment

Phone: (717)-676-1274 (Between 9 AM and 9 PM only. I can receive **texts** at this number, too.)

Email: kxt7@psu.edu

You are strongly encouraged to use your Penn State e-mail account to communicate with the instructor of this course. Depending upon network servers and filters, the instructor may not receive email from a commercial account, e.g., yahoo; gmail; comcast, msn, aol, etc.

I do my best to keep up with my email. But I do receive a lot of it. Therefore, please allow me at least 24 hours to respond to your email. If the message is urgent, use my phone number above and call (or text).

Course Goals and Objectives:

- To help you become a better college student.
- To provide students with:
  - a working knowledge of the elementary physics principles covered in the course
  - physics principles' applications to everyday phenomena and to science/engineering
  - an enhanced conceptual understanding of the physical laws of the universe
  - increased problem solving abilities, especially as applied to physical systems
  - insights from historical and contemporary texts in science and religion so that they may create their own hypothesis on the source of the order found in the universe
  - the ability to synthesize knowledge across multiple domains, modes of inquiry, historical periods, and perspectives.

Materials:

- **CONCEPTUAL PHYSICS (MODIFIED MASTERING PHYSICS)**
  By, Paul Hewitt
  EDITION: 12TH
  PUBLISHER: PEARSON
  ISBN: 9780321940667

You will register for the course materials at Pearson's Mastering Physics website using the directions on the last page of this syllabus. The materials will include an electronic version of the textbook and other electronic materials for the course. A hard copy of the textbook is not required for the course, but **this electronic account at Pearson Mastering Physics IS REQUIRED.**

- **Lecture Notes and HW Solutions** (available through CANVAS)
- **Plenty of paper, pencils and erasers!**
- **Scientific Calculator** (with scientific notation and basic trigonometric functions)

Important:

- **You must have the lecture notes available to you during lectures. I recommend setting up your smartphone with wireless connectivity to the local PSU network, and then install the CANVAS Student app so that you can access the pdf versions of the lecture notes during class. That seems to work well for most students.**

- **Additionally, you should ALWAYS have your calculator with you at all times in this course. We WILL use calculators on occasion - even in lectures.**

- **This is a conceptual physics course but does assume a working knowledge of very basic arithmetic, algebra and geometry. If you know you have trouble with math, you should brush up on that NOW!**

Attendance: Attendance is required. An attendance sheet will be passed from the front of the classroom at the beginning of class each day. It is up to you to see that you have signed the attendance sheet to indicate your presence. **Poor attendance will have a negative impact on your final grade.**

POP In-Class Exercises: On occasion, as part of the lecture, the instructor may assign a short exercise to be performed in class. These exercises will NOT be announced ahead of time. They will sometimes be spur of the moment and then collected and graded. By the end of the semester, these graded exercises will make up **10 % of your course grade**. Because of the nature of these in-class exercises and their collaborative nature, **YOU MUST BE PRESENT IN CLASS TO RECEIVE CREDIT ON IN-CLASS EXERCISES.** There will be no opportunity for making up in-class exercises. Attendance is necessary for credit. To account for unavoidable absences due to illness, your three (maybe 4) lowest in-class exercise grades will be dropped at the end of the semester. Use these drops wisely. Attend class if at all possible.

Homework Assignments:

Generally speaking, homework will **NOT** be collected and graded because I don't have the time to grade it properly. But this will not always be the case. On occasion I may ask you to submit your homework, so you should take it seriously always and stay up to date with it. The reading assignments and homework assignments will be made as the course progresses – either in CANVAS or the Mastering Physics website. The anticipated topic coverage is listed near the back of this syllabus. The topics are numbered, but this numbering is not by class, but rather is meant only to provide a planned order of progression. The course has quite a wide flexibility as far as topic coverage, so if the class has interest in a particular area, we may delve deeper into that topic and eliminate others from our plan.

The course syllabus, PowerPoint presentations, solutions to assigned homework, quizzes and tests will eventually be made available on PSU's class management platform called CANVAS. Please check the solutions available in CANVAS first before taking time in class to ask about a homework problem. Sometimes seeing a homework solution is all that is necessary to find out where you went wrong.

Quizzes/Tests and Final Examination:

There will be 5 quizzes (take-home style similar to a graded homework), 3 mid-term tests, and a comprehensive final exam in the course. The quizzes will be multiple choice and will be taken electronically through CANVAS. **The quizzes will each be worth 4% of your course grade**.

You will be given roughly one hour for each test, and they will be written tests on paper given during a regular class period. The final exam will be a 2-hour comprehensive exam given during finals week in the period and location assigned to us by the registrar.

The final exam will cover all course material. The tests may cover material learned in lecture, reading assignments, homework problems, and other activities assigned in the course. The test format will likely always be multiple choice, but you should know the material and be prepared for any type of question.

You must also bring a pencil, eraser, calculator, and one form of picture identification to the tests. **The tests will each be worth 15% of your course grade, and the final exam will be worth 25%**.

The instructor will discuss and post the general test taking rules and procedures as we get closer to the first exam date.

A Few Brief Comments/Policies About Lectures:

It should be noted at this point that this is a *conceptual* physics course and therefore will lack the normal mathematical rigor of the discipline (to which some of you shout "hooray!"). The course will include more *philosophical/religious* discussion of the subject than you may normally find in a mathematical college physics course. (For example, do you personally believe in a universe that is deterministic or probabilistic, and why.)

The instructor may occasionally veer into topics/discussions that seem unrelated to physics in order to develop relevant analogies or to stimulate relevant thoughts about the science you are learning. This is appropriate for this type of science course and can be misunderstood if they are not expecting it.

In some parts of the course these discussions will encounter the boundary between science and religion, such as when we discuss the beginning of the universe, or the structure of space and time (e.g. the theories of relativity), or quantum theory. These discussions are meant to help students harmonize modern scientific knowledge with their own particular religious/philosophical beliefs. This is something your instructor believes can improve motivation toward the study of science, and based on past student evaluations of the course, students appreciate these discussions. [The author of your textbook discusses such ideas in Chapter 1. So this is pretty standard for this type of course.]

Therefore, the course is open to discussion of any religious or philosophical belief *as it relates to science or in light of science*. Keep in mind, however, this is a science course and there are limits to how far we will go. As you would expect, your views or beliefs are irrelevant when it comes to being graded in this course. You will be graded on your understanding of the science and ability to argue your points using scientific knowledge.

However, expect to be challenged during some lectures to think about your beliefs and how well or how poorly they fit with what we know to be scientifically true about the universe. These brief parts of the course should be fun for you as you allow your mind to consider the possibilities.

This is consistent with the university's new general educational goal to help you develop the ability to synthesize knowledge across multiple domains, modes of inquiry, historical periods, and perspectives, as well as the ability to identify linkages between existing knowledge and new information. Students who engage in integrative thinking are able to transfer knowledge within and beyond their current contexts.

Essay:

Toward the end of the semester you will write an essay (1000-1250 words) in which your personal religious beliefs or lack thereof regarding the 'origin of existence' are examined in light of your new understandings of the physical laws of the universe and modern scientific knowledge learned in the course. Specifically you will explain what your religious/philosophical belief was at the beginning of the semester as far as the beginning of the universe/life/existence (where did it all come from and how) and explain how our modern scientific knowledge base and the laws of nature or order in the laws of nature are either consistent or inconsistent with your viewpoints. You will answer how (if at all) your beliefs have shifted. Are you more hunkered down in your original beliefs or have things that you have learned shifted your beliefs or brought doubt to your original beliefs? Students are asked to apply specific scientific theories/laws/knowledge learned in class in this new context. The essay will be scored on a scale of 1 to 3 using a simple rubric. More details will be provided later in the semester.

Make-Ups:

If you become ill and are unable to make it to class on a day an assignment is due, you may send the work to me as an email attachment in MS Office format or via some other method that you arrange with the instructor. **Please remember in your communications to list your name and class (Physics 001) clearly!! If you contact me, do not assume I know who you are - - please always tell me!**

Be sure to read Mr. Trout's statement on **Academic Integrity** later in this syllabus. The rules for Make-Ups of tests is explained. The information is also available on Mr. Trout's webpage (www2.yk.psu.edu/~kxt7).

Grading:

Final grades in the course will (generally) be based on a comparison with the **highest score** in the class. At the end of the semester, the grades will be scaled so that the student with the highest grade at the end of the semester is pinned to be somewhere between 92% and 100% (usually), and everyone else is scaled accordingly. Then the grades are assigned as follows:

100% - 92%	A	79.9% - 78%	C+
91.9% - 90%	A-	77.9% - 70%	C
89.9% - 88%	B+	69.9% - 60%	D
87.9% - 82%	B	59.9% - 0%	F
81.9% - 80%	B-		

Quizzes (5 each worth 4%)	20%
Tests (3 each worth 13.3333%)	40%
POP In-Class Exercises (Total)	10%
Essay	5%
Final Exam (During Finals Week)	25%.
TOTAL	**100%**

The instructor reserves the right to revise this grading system if he believes it is providing unfair or unreasonable grades. You must ultimately be competent in the course material and have regular attendance in order to pass.

Be sure to read the university's most up to date official statements on

- Academic Integrity,
- Disability Accommodation,
- Counseling and Psychological Services, and
- Education Equity/Report Bias

at the following website: https://york.psu.edu/academics/support/academic-affairs/syllabus-statements

Additionally, your professor, Kip Trout, has the following policies and reminders for you in this course. It is important that you understand these policies. Please ask Kip Trout questions about these policies if you need clarification.

Academic Integrity Statement for Mr. Trout's Courses

Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. All University policies, Eberly College of Science policies, and University College policies regarding academic integrity/ academic dishonesty apply to this course and the students enrolled in this course. Each student in this course is expected to work entirely on her/his own while taking any exam, to complete assignments on her/his own effort without the assistance of others unless directed otherwise by the instructor, and to abide by University, Eberly College of Science, and University College policies about academic integrity and academic dishonesty. It is your responsibility to be honest - and that means totally honest - throughout your college career. Your instructor believes that deceiving an instructor in any way, including lying, is grounds for dismissal from the University. Your instructor will do everything he can to see that the policies regarding academic integrity are upheld.

MAKE-UPS:

To make-up a test, you must contact the instructor before or within 24 hours of the test. A LEGITIMATE EXCUSE MUST BE PROVIDED AND THE INSTRUCTOR MAY MAKE PHONE CALLS TO FOLLOW UP ON THE EXCUSE. Examples of legitimate excuses:

1. **Death of a family member or very close friend.**
2. **An incapacitating illness (stomach bug/horrible migraine/flu/etcetera).**
3. **Traffic accident or car breaks down.**

The test makeup must occur within one week; otherwise the grade will be recorded as a zero.

Archiving: It is recommended that you save all of your course materials including any graded materials you submit. These are like "receipts" and allow you to resubmit them to your instructor at some point if it becomes necessary. The instructor cannot be responsible for Acts of God. Saving your work would allow me to reconstruct my gradebook in the event that a disaster strikes.

Disability Accommodation: Penn State welcomes students with disabilities into the University's educational programs. The university is happy to provide you with all of the assistance to which you are legally entitled. However, those accommodations cannot be provided until your disability is properly documented in the Nittany Success Center. So, if you are expecting or requesting special accommodations in the course, then you should see the Director of the Nittany Success Center on the upper floor of the Pullo Performing Arts Center (located adjacent to the library) immediately. Additionally, you must follow this process for every semester that you request accommodations.

Counseling and Psychological Services Statement: Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional well-being. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention,

consultations, online chats, and mental health screenings. Contact the Counseling and Psychological Services at Penn State York at 717-771-4088 or 717-771-4045.

Penn State Crisis Line (24 hours/7 days/week): 877-229-6400
Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

Statement on Flu Outbreaks: In compliance with Pennsylvania Department of Health and Centers for Disease Control recommendations, students should NOT attend class or any public gatherings while ill with influenza. Students with flu symptoms will be asked to leave campus if possible and to return home during recovery. The illness and self-isolation period will usually be about a week. It is very important that individuals avoid spreading the flu to others. Ill students should inform their instructors (but not through personal contact in which there is a risk of exposing others to the virus) as soon as possible that they are absent because of the flu and follow up to make arrangements to make up missed assignments or exams. For health-related questions you can email the Director of the University Health Services, at uhsinfo@sa.psu.edu.

Snow Delay/Campus Closure Information: In the event of a campus closure, course requirements, classes, deadlines and grading schemes are sometimes adjusted. Information about course changes will be communicated to you in some reasonable manner as soon as possible.

For notification about campus closures, please refer to Penn State York's website at http://www.yk.psu.edu, call the weather hotline at 717.771.4079, or sign up for live text messages at PSUAlert (https://psualert.psu.edu/psualert/). This is a service designed to alert the Penn State community via text messages to cell phones when situations arise on campus that affect the ability of the campus - students, faculty and staff - to function normally.

On a wintry day, if there is any change in the regular class schedule, many of the local broadcast stations will be contacted, including WSBA 910 AM; WHP 580 AM; and WGAL-TV Channel 8 (TV). If the announcement indicates we are on a **SNOW SCHEDULE (2-hr delay)**, that means:

Typical M-W-F Times	Snow Time
8:00 - 8:50 a.m.	10:00 - 10:40 a.m.
9:05 - 9:55 a.m.	10:50 - 11:30 a.m.
10:10 - 11:00 a.m.	11:40 - 12:20 p.m.
11:15 - 12:05	12:30 - 1:10 p.m.
1:25 - 2:40 p.m.	**1:40 - 2:30 p.m.**
2:30 - 3:20 p.m.	2:30 - 3:20 p.m.

*All classes scheduled from 2:30 pm on meet at their regularly scheduled time.

Typical T-R Times	Snow Time
8:00 - 8:50 a.m.	10:00 - 10:40 a.m.
9:05 - 10:20 a.m.	10:50 - 11:45 p.m.
10:35 - 11:50 a.m.	11:55 - 12:50 p.m.
1:35 - 2:50 p.m.	2:05 - 3:00 p.m.
3:05 - 4:20 p.m.	3:05 - 4:20 p.m.

*All classes scheduled from 3:05 pm on meet at their regularly scheduled time.

So, we STILL HAVE CLASS if on a SNOW DELAY. Only in the case of CANCELLATION do we not have class.

WARNING: DO NOT CALL THE CAMPUS PHONE NUMBER TO ASK WHAT TIME YOUR CLASSES MEET WHEN WE HAVE A SNOW DELAY!! Be sure you have this information stored in your phone (or SOMEwhere) so that you already know!!

Some Dates of Interest: August 12 – Sept. 10, 2019: Apply for Graduation activation period
Sat. Aug. 31: Regular Drop Deadline
Sun. Sept. 1: Regular Add Deadline
Mon. Sept. 2: No Classes – LABOR DAY
Fri. Nov.15: Late Drop Deadline
Nov. 24 – 30: No Classes – THANKSGIVING BREAK
Fri. Dec. 13: Last Day of Classes – Fall 2019
Dec. 16 – 20: Final Exams
Fri. Dec. 21: Commencement

Syllabus subject to change:

I anticipate that we will follow the plans I've outlined here, but I may adjust things based on what actually happens in class. Be sure to check with a classmate after an absence to see if any assignment or course policy has changed. I may also change basis for the course grade; if I do so, I will communicate this in a reasonable method. Remaining in the course after reading this syllabus signals that you accept the possibility of changes and responsibility for being aware of them.

Suggestions From Your Instructor:

To do well in this physics class you should **practice, practice, practice!** The more you practice something, the better you get at it. This is true of almost everything in life. If you wanted to run a marathon, you must train. Likewise, if you want good grades, you must study and practice the course material.

Purpose of Course Parts

Lecture Notes: These are your main guide for what is important to study in the course! Many quiz and test questions will check your understanding of this material.

Reading From Textbook: This is meant to "fill the gaps" in the lecture notes and to provide you further insight into the material. Material learned in reading is important. It never hurts to read "extra" information as long as it is coming from credible sources. Sometimes reading additional information from the textbook book, from a different book, or from the internet can help things make more sense.

Homework Problems: These are to help you practice the information you are learning. Many of your test questions will be similar to (but not usually the same) as the homework and quiz questions.

Physics 001
Fall 2019

The following outline lists the tentative topics and tentative reading assignments for this semester. The topics are not listed by week or class, but rather are listed in a tentative order of progression.

TENTATIVE TOPIC		TENTATIVE READING ASSIGNMENT
Introduction		Ch:1
Newton's First Law / Linear Motion		Ch:2 – Ch:3
QUIZ 1 – Due: Friday, September 13th		
Newton's Second Law / Nonlinear Motion		Ch:4
QUIZ 2 – Due: Friday, September 20th		
Newton's Third Law		Ch:5
TEST 1 – Wednesday, September 25th		
Momentum / Collisions		Ch:6
Energy		Ch:7
QUIZ 3 – Due: Friday, October 11th		
Rotational Motion		Ch:8
Gravity / Tides		Ch:9
Projectile and Satellite Motion		Ch:10
TEST 2 – Wednesday, October 16th		
Special Theory of Relativity		Ch:35
General Theory of Relativity		Ch:36
QUIZ 4 – Due: Friday, November 1st		
The Atomic Nature of Matter		11.1-11.4; 11.8-11.9;
Light / Rainbows / Polarization		Ch:30; 28.5-28.6; 29.5
Nuclear Reactors / Fission / Fusion		12.6; 33.4; Ch:34
TEST 3 – Friday, November 15th		
Fluid Principles		13.1-13.7
QUIZ 5 – Due: Friday, December 6th		
The Atmosphere and Atmospheric Pressure		14.1-14.2; 14.4-14.5
Greenhouse Effect and Climate Change		16.3; 16.5; 16.8;
Electricity in the Home		Lecture Notes Will Suffice
Sound		Ch:20
FINAL EXAM		

Getting Started with CANVAS

Penn State uses a Course Management System called CANVAS. This is the place where many of your faculty members will store their syllabi, course materials, and sometimes quizzes, discussions, and places to turn in homework electronically. You can also see your course grades in Canvas if a faculty member chooses to use the gradebook. Your faculty members will tell you where to go to access your course materials - either in Canvas, or simply in class.

Communication in Canvas

Many times, faculty will also use the built-in communication tools like Canvas Inbox (mail tool) or announcements to keep you up to date. These are different from your official PSU email (webmail.psu.edu). Your faculty members will tell you how they prefer you to communicate with them. Just ask if you are not sure.

If you need technical help using Canvas

PSU has purchased a very robust help system for you. First, log-in to Canvas by clicking on the sign-in to Canvas button at

https://lmstools.ais.psu.edu/login/index.html.

Then in the bottom left corner of the Canvas screen, you will see a "?" Help icon. Click on the "?" and your help options will appear in a pop-up box - everything from chat, to phone, to guides, to email support. Please use the help options, they are great!! You can also look things up yourself in the Student Guide (one of the help options above!) available at
https://community.canvaslms.com/docs/DOC-4121

Setting up Notifications

Canvas has very powerful notification settings that you can use to get updates via email or text message on things like announcements, grade postings, messages, and calendar changes. However, these all depend on how your faculty member decides to use Canvas. If they are not using the announcement feature, for example, then obviously, you won't get a text message with those kinds of updates. The most important thing to remember is to talk to your faculty member (usually posted in the syllabus) about how they want you to communicate with them and which features they decide to use. To read more about notification settings, go to https://community.canvaslms.com/docs/DOC-1286

Canvas App

Lastly, Canvas has a student app that you can install on iPads, Android tablets, and smartphones. You can download these from the app store on your device. Use the technical support if you have questions.

Getting Started with Pearson's Mastering Physics

First, make sure you have these 3 things...

1. **Email**: You'll get some important emails from your instructor at this address.
2. **Course ID**: Ask your instructor for your Course ID!
3. **Access code or credit card**: An access code card may be packaged with your new book or may be sold by itself at your bookstore. Otherwise, you can buy instant access with a credit card or PayPal account during registration.

Next, get registered and join your course!

1. Go to **Pearson Mastering Physics webpage**. (https://www.pearsonmylabandmastering.com/masteringphysics/)
2. Under **Register Now**, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now.**
4. Enter your instructor's **Course ID** (**MPTROUT0376995**) and choose **Continue**.
5. If you have an account, or if you've ever used a Pearson MyLab & Mastering product, such as MyLab Math, MyLab IT, or Mastering Chemistry, then enter your existing Pearson account username and password and select **Sign in**. Otherwise, if you don't have an account, select **Create** and complete the required fields. Use your **PSU Student UserID (first part of your PSU email address)** as your username.
6. Select an access option.
   - Enter the access code that came with your 'textbook purchase' from the bookstore.
   - Buy access using a credit card or PayPal account.
7. From the "You're Done!" page, select **Go to My Courses**.
8. Select **Yes** and enter your **Course ID (MPTROUT0376995)** to join your course. Click **Continue**.
9. If asked, enter your **PSU Student UserID (first part of your PSU email address)** according to the instructions provided and click **Continue**. That's it! You should see the course home page for the course.

To sign in later:

1. Go to **Pearson Mastering Physics webpage** (https://www.pearsonmylabandmastering.com/masteringphysics/) and select **Sign In**.
2. Enter your Pearson account username and password from registration, and select **Sign In**. If you ever forget your username or password, select **Forgot your username or password?**

If you have a technical issue:

Contact **Pearson Support**. (https://support.pearson.com/getsupport/s/)