Introductory to Physics II, PHYS0111-Section 1100
Fall Term 2024, T&TH 11-12:15 pm
Official website for the course http://canvas.pitt.edu

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1. Instructor and Teaching Assistants

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Office Hour: T&TH, 12:20-1:00 pm, outside Alumni 343; F 11-12:30 pm on zoom; or by appointment.

* Graduate TAs
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2. Textbook, Course Description, and Objectives

This is the second term of the introductory physics sequence PHYS 0110-0111. The lectures are based on OpenStax College Physics. The textbook is available online and at the University Bookstore. Although copies of the textbooks are on reserve in the Benedum Engineering library, we encourage students to purchase the book or its equivalent, such as Physics by Cutnell, Johnson, Young, and Stadler. The latter is an excellent book that contains answers to odd-numbered problems and useful for testing your understanding of physics. As a reference book, you do not need the most recent edition of the book.

The course covers many chapters in the book, spanning from Ch13-15 and from Ch18-29. These chapters cover a wide range of topics, ranging from thermal physics to electricity and magnetism (E&M). For thermal physics, we will study microscopic motions of atoms and molecules and their effects at a macroscopic level, such as temperature and pressure. For E&M, the subjects can be divided into two major parts: statics and dynamics. For the former, we investigate how static electric charges interact with each other (Coulomb's law), and how electric fields and electric potentials behave for different charge distributions. For the latter, we study charges that are in motion, creating electric currents, magnetic fields, and waves. The entire E&M phenomena can be summarized concisely by Maxwell's equations, which unfortunately we will not discuss in details in this course. At

a practical level, electricity and magnetism help us understand how electronic circuits work, how light propagates in space, and how matters interact with light.

Since the course covers many subjects in a short time, we will proceed on average of one chapter per week. It is considerable amounts of work in terms of reading, comprehension, and exercising. In order not to fall behind, you must work diligently and seek help whenever necessary.

This course consists of two components. The first is the lecture. The second is a smaller recitation section that meets one hour per week, taught by a graduate TA. In a recitation class, there will be discussions about how to use physical concepts to solve problems that you may encounter in homework. For most of the weeks in the term, you are also expected to take a short quiz in a recitation class.

3. Prerequisites

Mathematics is the language of physics. This course will require knowledge of high-school algebra, trigonometry, and simple geometry. If you learned these subjects some time ago, please read relevant materials or textbooks to refresh on definitions, concepts, and problem-solving techniques.

4. Study Resources

A *Resource Room* will be available throughout the semester to help students understand physical concepts and overcome difficulties in homework assignments. The room, 312 Thaw Hall, is available from 9am to 5pm, Monday through Friday, during the term. In addition, tutoring is available through the Academic Support Center (WPU 311).

5. Homework

Homework is an integral part of the course. We will use Achieve online homework system to manage the assignments and grading. To register please follow the following steps:

* Go to https://achieve.macmillanlearning.com/ to log in or create an account if you do not already have one.
* Click on “I Need to Enroll in a Course”.
* Enter your course ID as: 883cxa
* You then have three options:

A. Purchase Access Online: Select the access period you want to buy. Add it to your cart. Create an account. Follow the check-out process.

B. Start with a Grace Period: You can get 14 days of free access. Select this, create an account, and you're in. You will need to purchase long-term access to use the product beyond 14 days.

C. Already have a code: Simply enter the code you have either purchased or received. Create an account and you are in.

* Check the course name "PHYS 0111 Spring 25".
* For "Student ID" entry, enter your Pitt PeopleSoft 7-digit ID number.

Payment: Achieve kindly agreed to offer our students a good price. For detailed help on registration and other Achieve aspects, go to Achieve Tech Support.

There will be one homework assignment each week. The starting date of each assignment is set 10 days before the due day, which is always on Tuesday at midnight (11:59pm). Late homework will be accepted but be penalized for each day of delay. The assignment will be closed permanently two weeks after it is due. Note the first HW assignment (HW1) is due on Jan 14, 2025.

All homework assignments should be completed on Achieve, and no paper copies are accepted. Each problem may be generated uniquely for each student in an assignment. Therefore, the problems assigned to you will be similar, but not necessarily identical, to problems assigned to other students.

If you have questions and requests concerning homework assignments, please direct them to the Instructor/TA office hours or send them by email (see "Instructor and TAs" for information). Questions or requests posted on the website (in any form) will not be answered! We do not use Achieve or Canvas websites for communication. Solutions to the homework problems will be available online at Achieve after the due dates.

When extra credits or points are given for certain assignments, such as Departmental Pre- and Post-Assessment, they will be treated as parts of homework.

6. Recitation and Quiz

To help you develop problem-solving skills, there is a recitation class each week, and it is mandatory. It is important for you to attend the recitation class that is originally assigned to you.

The recitation classes provide opportunities for you to ask questions, and your TA will help address those questions. Your TA will also discuss problem-solving strategies and run an *in-class quiz* for most of the week during the term.

The information about times/sections/rooms is given on the University's course schedule, copied below for your quick reference.

Time	**Section**	**Location**	**TA**
W 12:00-12:50 PM	24474	105 Allen Hall	Cory Ives
W 1:00-1:50 PM	32664	105 Allen Hall	Cory Ives
W 2:00-2:50 AM	16542	105 Allen Hall	Cory Ives
W 3:00-3:50 PM	15788	105 Allen Hall	Cory Ives
TH 1:00-1:50 PM	21519	105 Allen Hall	Mohamed Ismail
TH 2:00-2:50 PM	15789	105 Allen Hall	Mohamed Ismail
TH 3:00-3:50 PM	15790	105 Allen Hall	Mohamed Ismail
TH 4:00-4:50 PM	19740	105 Allen Hall	Mohamed Ismail

7. Exam

There will be two mid-term (75-min in-class) exams and a 1-hour-50-min cumulative final exam. These exams are tentatively scheduled as follows:

* Midterm1: Feb 6 at 11:00-12:15 am, 343 Alumni Hall
* Midterm2: March 13 at 11:00-12:15 am, 343 Alumni Hall
* Final: April 29 at 10-11:50, 343 Alumni Hall

All midterms will be held during the regular class times and in Alumni 343 unless otherwise announced. There will be no make-up midterm exams unless there is a

legitimate reason, such as sickness or death in the family. Supporting materials are needed in these special cases. The location and timing of the final exam are set by the University and will be announced once it becomes available.

For each midterm exam, you are allowed to bring one (double-sided) summary sheet of handwritten or typed formulas. The very act of creating such a summary sheet should help you organize concepts in your mind. For the final, you are allowed to bring three such formula sheets.

8. Grading Police

Your final grade for the course is determined by the two midterms (20%x2), the final (30%), the HW (10%), the quizzes (10%), and attendance/in-class responses (10%).

Late and Absent Assignments: We do not accept late homework assignments nor makeup quizzes unless there is a legitimate reason (such as athletes going out for games on behalf of the University, being in emergency room during a recitation, or a case as strong). Supporting materials are required in these circumstances.

9. Course Schedule (tentative)

The schedule (subject to change) lists the material covered, exam dates, and assignments. You are recommended to read the relevant chapter or material BEFORE coming to class.

Week of	**Due**	**Reading Assignments**
Jan 8		Ch13 kinetic theory, ideal gas
Jan 12	HW1: temperature and ideal gas, Q1	Ch14 heat and heat transfer
Jan 19	HW2: heat, Q2	Ch15 thermodynamics
Jan 26	HW3: thermodynamics, Q3	Ch18 electric force and field
Feb 2	HW4: Coulomb's law and E field	Ch19 potential, midterm1 (2/6)
Feb 9	HW5: electric potential, Q4	Ch20 current, ohm's law
Feb 16	HW6: current and resistance, Q5	Ch21 DC circuits (ckts), instruments
Feb 23	HW7: DC ckts and instruments, Q6	Ch22 magnetism
March 2	Spring break	
March 9	HW8: magnetic field, Q7	Ch23 induction, AC ckts.
March 16	HW9: induction and AC ckts	Ch24 EM wave, midterm2 (3/13)
March 23	HW10: E&M waves, Q8	Ch25 optics

March 30	HW11: geometric Optics, Q9	Ch26 human vision, optical instruments
Apr 6	HW12: vision, Q10	Ch27 wave optics, interference
Apr 13	HW13: interference	Ch29 intro to quantum physics
Apr 20	HW14: quantum physics	final (4/29)

10. Academic Integrity

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy.

11. Disabilities

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact your instructor and Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648-7890 / (412) 383-7355 (TTY), as early as possible. DRS will verify your disability and determine reasonable accommodation for this course.