# University of Pittsburgh · Department of Physics & Astronomy Basic Physics for Science and Engineering 2, Physics 0175 - Section 1040 (10940) Spring Term 2022

*Official website of the course:* <u>http://canvas.pitt.edu</u> (login using your Pitt username and password)

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### **Instructor and TAs:**

- Instructor: Prof. W. Vincent Liu
- Office: 223 Allen Hall or Zoom (during COVID19)
- E-mail: BEST WAY TO CONTACT ME <u>liu.phyclass@gmail.com</u>
  - **Important Notice on Email:** Emails sent to any *other accounts* may be *delayed or lost* due to spam filtering; send at your own risk.
- Phone: (412) 624-9023
- Office hours: See Course Canvas
- Teaching Assistants/Graders:
  - Monica Leys (<u>MPL47@pitt.edu</u>).
  - Office hours: See Course Canvas

### **Textbook, Course Description and Objectives**

Text: Fundamentals of Physics by Halliday, Resnick & Walker 11th edition. Available online or in the University bookstores.

This course is the second half of a two-semester introductory physics course for students intending to major in science or engineering. The major goal of this physics course is to enable you to develop logical reasoning skills, to explain or predict diverse phenomena in everyday experience, and to become good problem solvers and independent thinkers.

In this course we will cover most of Chapters 21-36, skipping 34 (lenses), which includes material on Electricity and Magnetism, Circuits, Optics, and Wave Interference. It is highly recommended that you read the relevant chapter ahead of time. The lecture material will follow the text fairly closely, and many of the assignments will be drawn from the text. You are encouraged to purchase the text or have regular access to it. There will be a copy (or copies) on reserve in the Benedum Engineering Library.

Physics 0175 has two components. The first is the lecture. The second is a smaller recitation section that meets one hour per week, taught by one of our TAs. In recitation you will take a short quiz and discuss physics and the homework.

### **Prerequisites: Mathematics**

Mathematics is the language of physics. This course will require knowledge of calculus, and should be taken at least concurrently. Relevant text on the subject will help you brush up on some techniques and definitions.

### **Class Participation (Peer Instruction)**

I encourage you to participate fully in class discussions. Physics ideas build on previous material, so it is important to understand what is being taught each step of the way. I strongly encourage you to ask questions to clarify any doubts. There is no such thing as a dumb question. Chances are, if you are having trouble understanding a concept, others are also likely struggling with the same concept. Please stop me when this happens, so I can try again.

#### SRS Clickers

#### • **Special notice** regarding COVID19

- If the lectures are held on Zoom or in hybrid learning mode, in view of options of both synchronous and asynchronous class attendances, in-class questions will NOT be counted as extra credit.
- Otherwise, in-class questions will be used to offer extra credit to students by using SRS clickers. In this case, see the description below and the planned amount of extra credit (tentative) in "Grading Policy".

The Department of Physics and Astronomy has purchased a Student Interactive Response System (SRS). The system consists of hand-held remote controls (clickers) for every student, which is read by receivers in the room. The system will allow me to ask questions during the lecture and let you respond anonymously. At the beginning of the semester, you will be assigned a number that corresponds to a particular pad. The pads will be stored in two carts at the front of the room, so that you may pick up your pad as you enter the hall, and return it when you leave. Don't forget to return the pad, since other classes will also be using the system! The questions you answer during class will count for extra credit at the end of the semester (see <u>Grading Policy</u>). Most of the credit (80%) will be given for supplying an answer, even if incorrect. The rest of the credit (20%) will be for having the correct answer.

#### **Class Etiquette**

I assume that those who attend lecture will respect me as well as their classmates, and refrain from distracting activities during the lecture. These include: (1) talking (except during Class Participation, when talking is encouraged), (2) use of cellular phones (ringers should be turned off), (3) other distracting activities, such as newspaper rustling, video games, etc.

Asking a question during class is encouraged, and is not considered a distraction.

#### **Study Resources**

A <u>Resource Room</u> will be available throughout the semester for help in understanding physics concepts and completing homework assignments. The room is available from 9am to 5pm, Monday through Friday, to be held *online* by Resource Room TAs during COVID or in *room 312 Thaw Hall* during University normal operation. Please check the <u>Resource Room schedule</u>. In addition, tutoring is available through the Academic Support Center (WPU 311). The <u>Fundamental of Physics Student Companion website</u> is another place to look for extra study resources.

### **Physics Exploration Center (PEC)**

<u>Physics Exploration Center</u> (PEC) is a learning center (located in 311/312 Thaw Hall) where lecture demonstrations have been modified and turned into small experiments for you to explore.

Special notice regarding COVID19: PEC will not be open; PEC assignment will not be given until the University resumes full normal operation. We will make announcement when the University does.

#### Homework

Homework is an important part of the course. This course will employ the Achieve online homework system.

To register for Physics 0175 with Achieve:

- Go to <u>https://achieve.macmillanlearning.com/</u> to log in or create an account.
- Click on "I Need to Enroll in a Course".
- Enter your course ID as: ab5z5d
- 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 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 in order to use the product beyond the 14 days.
- C. Already have a code: Simply enter in the code you have either purchased or received. Create an account and you're in.
- Check the course name "PHYS 0175 Spring 22 LIU".
- For "Student ID" entry, enter your Pitt **PeopleSoft 7-digit ID number**.

Payment: Upon negotiation, Achieve has kindly agreed to offer our students with a best price available (check it out online there yourself!). For detailed help on registration and other Achieve aspects, go to:

#### Achieve Support

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

**Homework questions and requests**: <u>please direct to Instructor/TA office hours or send by email</u> (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.

#### Exam

There will be three mid-term exams (in class) and a 1 hour 50 min cumulative final examination. The exams are set on:

- Midterm Exam 1: Tuesday, Feb 8, Room: TBA
- Midterm Exam 2: Tuesday, Mar 1, Room: TBA
- Midterm Exam 3: Tuesday, Apr 5, Room: TBA
- Final: TBA (decided by University Final Exam Schedule), Room: TBA

The final examination is scheduled by the University; the exam time is taken from the official University "<u>Registrar/Final Exams</u>". The final exam location will be determined sometime during the semester. All midterm exams will be held during the regular class meeting time in the regular lecture room unless otherwise announced. The lowest performance of the three midterm exams will be dropped. An absent exam receives zero points and will be effectively dropped out. There will be no make-up midterm examinations under any circumstance (sorry, no exceptions).

For each exam, you will be allowed to prepare in advance and use during the exam one summary sheet of handwritten or typed formulas on both sides [double sided, single page of the standard letter paper size]. The very act of creating such a summary sheet should help you to organize concepts in your mind.

### **Recitation and Quizzes**

The recitation sections are mandatory. It is important for you to attend the recitation that was originally assigned to you. Your TA will discuss problem solving strategies and will also give in-class quizzes most weeks. The times/rooms are given on the University's course schedule, copied below for your quick reference.

Time	Location	ТА	
Tue 5:00-5:50 pm	Online Zoom or Thaw 102	Monica Leys	
Th 5:00-5:50 pm	Online Zoom or Thaw 102	Monica Leys	
Th 8:00-8:50 pm	Online Zoom or Thaw 102	Monica Leys	

# **Grading Policy**

The course grade will be based on: homework (20%), two midterm exams (20% each), the final exam (30%), and the recitation quiz (10%), where the lowest of the three midterm exams and the lowest quiz are dropped.

**Special planning for extra credit (tentative)**: If COVID condition permits and our Departmental clicker system is safe and available for our students to use, in-class extra credit is planned. The in-class SRS (*clicker*) questions will count for a total of 2.5%, added into the final grade.

*Letter grade boundaries:* The letter grade cutoffs will be calculated and curved uniformly--- based on the statistics of this class and the previous similar courses --- at the very end of the term. Here let me outline a general scheme (tentative): a total score around 93% is a probable cutoff for an A; a total score around 85% for a B; a total score around 70% for a C; less than around 50% will be most probably converted to below D. Final grade will be determined by your total weighted performance score according to the final letter grade boundaries for the entire class.

*Late and Absent Assignments*: We do not accept late homework assignments nor makeup quizzes unless there is a special, strong, justifiable reason (such as athletes going out for games on behalf of the University, being in emergency room during the recitation time with begaited evidence, on a case of strong)

with hospital evidence, or a case as strong).

#### **Course schedule (tentative)**

The schedule (subject to change) lists the material covered, exam dates, and assignments. You are responsible for reading the chapter in the text BEFORE coming to class.

Week of	Due	Tuesday	Thursday
Jan 10		Ch 21	Ch 21
Jan 17	HW1, QZ1	Ch 22	Ch 22
Jan 24	HW2, QZ2	Ch 23	Ch 23
Jan 31	HW3, QZ3	Ch 24	Ch 24, 25
Feb 7	HW4	Midterm Exam 1	Ch 25
Feb 14	HW5, QZ4	Ch 26	Ch 26, 27
Feb 21	HW6, QZ5	Ch 27	Ch 27
Feb 28	HW7	Midterm Exam 2	Ch 28
Mar 7		Spring recess	Spring recess
Mar 14	HW8, QZ6	Ch 28, 29	Ch 29
Mar 21	HW9, QZ7	Ch 30	Ch 30, 31
Mar 28	HW10, QZ8	Ch 31	Ch 31
Apr 4		Midterm Exam 3	Ch 32
Apr 11	HW11, QZ9	Ch 33 (skip Ch 34)	Ch 35
Apr 18	HW12	Ch 35	Ch 36, overall review
Apr 25	final exam week		

Homework (HW) will be due at 11:30 pm on Thursdays unless otherwise noted. Chapter (Ch.) numbers are from the textbook.

# **Academic Integrity**

"Students in this course will be expected to comply with 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. Furthermore, no student may bring any unauthorized materials to an exam."

#### Disabilities

"If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and the Disability Resources and Services no later than the 2nd week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call 648-7890 (Voice or TTD) to schedule an appointment. The Office is located in 216 William Pitt Union."

If you have any questions, please contact me at: <u>liu.phyclass@gmail.com</u>.