

Basic Physics for Science and Engineering I

PHYS 0174, Fall 2021

343 Alumni Hall

Mo and Fri: 2:00-2:50 PM

Wed: 2:00-3:50 PM

Final Exam: **Friday 12/17 12:00-1:50 PM**

General Information:

Instructor: Michael Hatridge

Instructor Office: 203 Allen Hall

Office Hours: For the present, office hours will be via zoom:

Tues. 11AM-12 PM (<https://pitt.zoom.us/j/93401871534> Passcode: 644097)

Friday 10 AM- 11AM (<https://pitt.zoom.us/j/95763359789> Passcode: 855845)

or by appointment

Email: hatridge@pitt.edu (include PHYS 174 in all email subject lines so I can find them easily)

Zoom link for live class: <https://pitt.zoom.us/j/91341681960> passcode 859165 **for classes from 8/27 through 9/10**

Textbook:

- *Fundamentals of Physics* (11th edition) by Halliday, Resnick, and Walker can be purchased (both halves) via university for \$150.
- Online experience through the publisher's WileyPLUS platform; this is not required, acquire only if you think you'll find it helpful.
- 10th edition is same paper minus online access and so is perfectly fine.
- Other recent editions are also suitable.

Other resources:

- Open Stacks University Physics
- Halliday, Resnick, and Krane
- Flipped lecture videos by my fellow Pitt Physics teacher D. Nero
(https://www.youtube.com/playlist?list=PLD932dho4NOoCOMO9vxVn_uoFNhyRVvol)

Pre-requisite: High school algebra and geometry

Co-requisite: Math 0220 (or 0235)

Important Dates:

Monday, Sep. 6 – Labor Day (university closed)
Friday Oct. 15 – Fall Break for students (no classes)
Nov. 21-26 – Thanksgiving break (no classes)
Friday Dec. 10 – Last day for undergraduate classes

Course Calendar

The course calendar is posted together with this syllabus on Canvas as a pdf file. It notes approximately which topics will be covered which class. The three midterm exams (see grade breakdown below) are also listed, should they need to be moved you will be given warning in class/via Canvas.

Course description:

Physics 0174 is the first term of a two-term calculus-based introductory lecture- demonstration sequence in physics primarily for students intending to major in a field of science or engineering. Calculus is used as needed, and should be taken at least concurrently. Topics covered in Physics 0174 include: kinematics, Newton's Laws of Motion, work, kinetic and potential energy, conservation of total mechanical energy, linear momentum, rotational kinematics and dynamics, rigid body motion, angular momentum, gravitation, elasticity, simple harmonic motion, waves and sound, and thermodynamics. The laboratory course associated with Physics 0174/0175, Physics 0219, should be taken after Physics 0174.

Course learning objectives

Students should be able to:

- Demonstrate conceptual understanding of the laws of physics covered in the course;
- Understand mathematical descriptions of kinematics, being able to translate between equations, graphs, and physical motion;
 - Apply Newton's law to a multitude of physical setups and predict the motion of simple systems;
 - Utilize the relationship between force, work, and energy to study mechanical and thermal systems;
- Demonstrate analytical problem solving skills;
- Able to translate physical intuition into mathematical equations required to solve a problem.

Course Grade Weights:

Lecture questions	5%
Recitation Quizzes	10%

Homework	20%
Exams 1-3	40%
Final Exam	25%

Lecture questions are performed using an electronic ‘clicker’ service, see technology below. You receive 80% credit for attempting the question, and an additional 20% credit for answering correctly. The **Recitation quizzes** are offered during the recitation sections. The content of the quizzes will cover concepts and homework due prior to recitation. There will be three **midterm examinations** during the semester, each worth 13.33% of your final grade.

COVID:

The current (as of 8/20/21) plan for this course’s instruction format is that classes will be offered simultaneously in Alumni Hall and via zoom (link: <https://pitt.zoom.us/j/91341681960> passcode **859165**) from 8/27-9/13, and thereafter in person only. At present office hours will be offered via zoom, should this change during the semester I will update this syllabus and notify you via Canvas (see Canvas information below). Information about Pitt’s COVID policy can be found at <https://www.coronavirus.pitt.edu/>; health and safety requirements for students, faculty, etc. can be found at <https://www.coronavirus.pitt.edu/healthy-community/pitts-health-rules/>. In the unhopd for event that we must further modify the course during the semester updates will be made to this syllabus and posted to Canvas. If you are required to isolate or quarantine, become sick, or are unable to come to class, contact me as soon as possible to discuss arrangements.

Technology for this course:

Course website: Canvas, accessed via <https://canvas.pitt.edu/>.

- The University of Pittsburgh provides a web-based resource called Canvas, which is a portal to web sites for individual courses. A Canvas site for this course has been created and there you can view announcements, send email to the instructor, and download course material such as the syllabus.
- Use your Pitt email username and password to login to Canvas. If you have forgotten your username and password or need to set up an account, contact the help desk at 412-624-4357, or 4-HELP. Once you have logged into the system simply click on the link for this course to access the available material.
- **Note: users can configure which site changes trigger email notification, I recommend activating email notification for course announcements.**

Course Homework: Achieve, <https://achieve.macmillanlearning.com/courses/5k9ycr>

- The course ID is 5k9ycr. The course will go live ~Wed. 8/25, if you try to register before then the course may not appear.
- The price is \$38.
- Please register using your name as listed on your Pitt ID and with your university email account to ensure you are correctly identified to receive credit for your homework.
- No late homework or homework turned in not via Achieve will be accepted.
- Students may wish to produce homework neatly on paper to show to TAs and for studying for exams.

Clicker Questions: Tophat, accessed via my.pitt.edu or your device's app store.

- Log in using your Pitt login, the access for this semester is free.
- The course id is 955121, an invite will be sent to your Pitt email ~Wed. Aug. 25.
- Questions will be answered in class using a laptop, tablet, or phone with the Tophat app running and open to this course.

Recitations sections/instructors for this course:

11260	M 3:00-3:50	102 Thaw	Peter Hu
11200	M 3:00-3:50	104 Thaw	Ryan Koester
29072	W 4:00-4:50	11 Thaw	David Nero
32064	W 4:00-4:50	105 Allen	Ryan Koester
26000	F 3:00-3:50	103 Allen	Peter Hu
32468	F 3:00-3:50	11 Thaw	Ryan Koester
21146	F 3:00-3:50	11 Thaw	Ryan Koester

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. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.

To learn more about Academic Integrity, visit the [Academic Integrity Guide](#) for an overview of the topic. For hands-on practice, complete the [Understanding and Avoiding Plagiarism tutorial](#).

Disability Resource Statement:

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346 (Fax), as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course. For more information, visit www.studentaffairs.pitt.edu/drsabout.

Religious Observances

The observance of religious holidays (activities observed by a religious group of which a student is a member) and cultural practices are an important reflection of diversity. As your instructor, I am committed to providing equivalent educational opportunities to students of all belief systems. At the beginning of the semester, you should review the course requirements to identify foreseeable conflicts with assignments, exams, or other required attendance. If at all possible, please contact me (your course coordinator/s) within the first two weeks of the first class meeting to allow time for us to discuss and make fair and reasonable adjustments to the schedule and/or tasks.