

Basic Physics for Science and Engineering I

PHYS 0174 (Section 1095), Fall 2017

Course information

Instructor: Roger Mong
Office: 214 Allen Hall
Office hours: Mon 3pm-4pm, Fri 4pm-5pm, or by appointment
Email: rmong@pitt.edu (Place "0174" somewhere in the subject title)

Textbook: *Fundamentals of Physics* (10th edition), Halliday, Resnick, and Walker.
(Any other recent edition is also suitable.)

Pre-requisite: High school algebra and geometry

Co-requisite: Math 0220 (or 0235)

Course website: <https://courseweb.pitt.edu/>

Recitations:

Monday 3pm	102 Thaw (11515)	11 Thaw (11437)	105 Allen (11438)
Friday 3pm	104 Thaw (25244)	11 Thaw (22743)	105 Allen (30985)

Teaching assistants:

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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 schedule (subject to change)

Aug 28	Introduction
Sept 11	Chap. 5
Sept 18	Chap. 6
Sept 25	Chap. 7
Oct 2	Chap. 8
Oct 10 [‡]	Chap. 9
Oct 16	Chap. 10
Oct 23	Chap. 12
Oct 30	Chap. 12
Nov 6	Chap. 13
Nov 13	Chap. 15
Nov 20	Exam 3
Nov 27	Chap. 17
Dec 4	Chap. 18

Aug 30	Chap. 1,2
Sept 6	Chap. 4
Sept 13	Chap. 5
Sept 20	Chap. 6
Sept 27	Exam 1
Oct 4	Chap. 8
Oct 11	Chap. 9
Oct 18*	Chap. 11
Oct 25	Exam 2
Nov 1	Chap. 12
Nov 8	Chap. 15
Nov 15	Chap. 16
Nov 29	Chap. 17
Dec 6	Chap. 18

Sept 1	Chap. 3
Sept 8	Chap. 4
Sept 15	Chap. 6
Sept 22	Chap. 7
Sept 29	Chap. 8
Oct 6	Chap. 9
Oct 13	Chap. 10
Oct 20*	Chap. 11
Oct 27	Chap. 12
Nov 3	Chap. 13
Nov 10	Chap. 15
Nov 17	Chap. 16
Dec 1	Chap. 17
Dec 8	Chap. 18

[‡] Class on held on Tuesday (No class on Mon, Oct 9)

* Classes held in Scaife Hall Auditorium #6

Students are expected to have studied the appropriate chapter prior to class.
The final examination is on Thurs, **Dec 14** at 10am.

Course Grade

Lecture questions	5%
Quizzes	10%
Homework	20%
Exam 1	40%
Exam 2	
Exam 3	
Final exam	25%

Lecture questions

A *Student Interactive Response System* has been implemented in the lecture hall. Students use hand-held radio transmitters “clickers,” to answer multiple-choice questions and the results are collected in real time.

- At the beginning of class, pick up the clicker assigned to you.
- If your clicker is missing, check nearby bins as it may have been misplaced. If you still cannot find it then record this on the clicker sheet.
- **Do not pick up a clicker not assigned to you.**
- At the end of class, place your clicker back into the proper bin. **Do NOT take the clicker out of the classroom!**
- You will receive full credit for each correct answer and half credit for an incorrect answer.

Quizzes

Weekly quizzes will take place during recitation. The quiz will cover the homework materials due prior to recitation.

Homework

- We will use the LON-CAPA system at <http://homework.phyast.pitt.edu/>
- Each student will receive his or her own unique set of problems. The problems assigned to you are similar, but not identical to those of other students.
- Homework assignments are due every Tuesday at 11:59pm. (First homework due Sept 12.)
- Each problem has a discussion board and you are encouraged to use this feature as ask questions and offer insights to other students. **You MAY NOT post solutions** to the problems on the discussion boards, doing so will be an academic integrity violation.
- You will also turn in **hand-written**, worked out solutions for each assignment in the next recitation after the due date for that assignment.
- Write out your homework while you are using the LON-CAPA system. The online homework questions will become **inaccessible** after the due date.

Logging into LON-CAPA: Your username is the same as your Pitt email account (in lowercase), your initial password is your PeopleSoft number. (If you have used LON-CAPA in a previous course, your password is the same as before.)

Religious Observances and Class Activities:

In case your religious observances conflict with class activities / tests / homework assignments due dates and such, please alert your teacher to such possible conflicts as soon as possible and in advance.

Academic Integrity

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity <<http://www.provost.pitt.edu/info/ai1.html>>. 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.

Disability Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Statement on Classroom Recording

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.