

Syllabus for PHYS 0174

Basic Physics for Science and Engineering 1

Fall 2016

General Information

- **CRN:** 11496
- **Time:** Monday, Friday 2:00pm - 2:50pm, Wednesday 2:00pm - 3:50pm
- **Place:** Alumni Hall 343
- **Text:** Fundamentals of Physics, 10th Custom Edition, by Halliday, Resnick, and Walker
- **Instructor:** Brian Batell
Office: Allen Hall 401
Email: batell@pitt.edu
- **Office Hours:** Thursdays 2:00pm - 4:00pm, Fridays 11:00am - 12:00pm

Course Website We will use the PITT CourseWeb site for this course:

<https://courseweb.pitt.edu>

Log in with your University ID and password and navigate to the PHYS 0174 page. Here you will find announcements, lecture notes, a link to homework assignments through LON-CAPPA, grades, the syllabus, and other important materials. Please check this site regularly for course announcements.

Course Description PHYS 0174 is the first term in a two-term calculus based introductory lecture-demonstration sequence in physics primarily for science and engineering students. Calculus is used as needed and should be taken at least concurrently. Credit will not be given for both this sequence and the PHYS 0110, 0111 sequence. Subjects covered in Physics 0174 include: kinematics, Newton's laws of motion, energy, momentum, rotational motion, rigid body motion, angular momentum, simple harmonic motion, gravitation, mechanical waves, sound waves, and the kinetic theory of gases. The laboratory course associated with Physics 0174/0175, Physics 0219, should be taken after Physics 0174. Students planning to major in physics are urged to take the equivalent honors course (Physics 0475).

Learning Objectives:

- Demonstrate knowledge and understanding of the basic physics principles covered in the course by answering conceptual physics questions.
- Describe the dynamics of a physical system using multiple representations, including written statements, mathematical equations, diagrams, graphs, and be able to translate between representations.

- Demonstrate quantitative problem solving skills by applying physical principles and mathematical techniques to analyze and solve physics problems.

Recitation You will have a one-hour recitation session each week, which will be led by your teaching assistant (TA). The objectives of the recitation session are to clarify and deepen your understanding about the physics concepts covered in lecture and in the text, develop your problem solving skills, provide you with an opportunity to ask questions about physics concepts or homework problems, and assess your learning through a short in-class quiz.

The CRN, time, place, and TA for the recitation sessions is listed below:

11581	M 3:00-3:50 pm	102 Thaw	Banerjee, R. (RUB18@pitt.edu)
11497	M 3:00-3:50 pm	11 Thaw	Bi, R. (Runyu.Bi@pitt.edu)
11498	M 3:00-3:50 pm	105 Allen	Vashistha, H. (HAV17@pitt.edu)
23246	F 3:00-3:50 pm	11 Thaw	Bi, R. (Runyu.Bi@pitt.edu)
26033	F 3:00-3:50 pm	102 Thaw	Banerjee, R. (RUB18@pitt.edu)
24208	F 3:00-3:50 pm	104 Thaw	Vashistha, H. (HAV17@pitt.edu)
30296	F 3:00-3:50 pm	138 Gardner Steel	Guo, Y. (YUG31@pitt.edu)

Homework There will be one homework assignment each week. We will use the LON-CAPA online homework system:

<http://homework.phyast.pitt.edu/>

Your username for LON-CAPA is the same as your Pitt email account, but your initial password will be your PeopleSoft number which is available through my.pitt.edu. If you have used LON-CAPA in a previous course, then your password is the same as it was before. If you have any trouble logging into the system then click “Forgot Password” on the login screen and follow the instructions there. Please contact Dr. Batell or your TA if you have any questions about using the system.

Each problem in LON-CAPA is generated uniquely for each student in the course. Therefore the problems assigned to you will be similar, but not identical, to problems assigned to other students. Each problem has a discussion board and you are encouraged to use this feature to ask questions and offer insights to other students. The discussion boards will be monitored by Dr. Batell and the TAs. You MAY NOT post solutions to the problems on the discussion board! Posting a solution to a problem will be considered an academic integrity violation and will result in disciplinary action.

A homework set will be assigned after the Monday lecture and will be due the following Sunday at 11:59 pm. You must also turn in written, worked out solutions for each assignment to your TA in the recitation immediately following the assignment due date.

Lecture Questions The lecture hall is equipped with a Student Interactive Response System (SRS) which consists of hand-held radio transmitters, called “clickers”, used by the students to answer multiple choice questions. At the beginning of the semester you will be assigned a number that corresponds to a particular clicker and you will use that same clicker throughout

the semester. The clickers will be stored in bins on carts at the front of the room so that you may pick up your clicker as you enter the hall and then place it back there as you leave. Do not take your clicker out of the classroom! The clickers are checked at the end of every lecture so we know the last person to use a clicker should it turn up missing. The clickers in the lecture hall will not work with other SPS systems on campus.

Please observe the following rules for the clickers:

1. Memorize your clicker number and where it is located on the cart.
2. Pick up your clicker as you enter the classroom.
3. 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.
4. Do not pick up a clicker that is not assigned to you or use more than one clicker (such as when a friend is absent).
5. Answer the multiple choice questions by pushing the appropriate key on your clicker.
6. Record any sort of technical issue with your clicker (such as a dead battery, error light, etc.) on the clicker sheet at the end of class.
7. Place the clicker back in the proper bin at the end of lecture.

During the lectures the instructor may pose multiple choice questions. You will be given some time to think about each question and discuss it with your neighbors. During this time the SRS receiver will pick up all of the responses and tally the results. The questions are intended to motivate discussion with your peers and to provide the instructor with feedback on how well you understand the material. You will receive full credit (100%) for each question that you answer correctly and 80% for each question that you answer incorrectly. Failure to answer a question at all results in no credit (0%), so it pays to answer the question even if you get it wrong.

Physics Exploration Center You can earn extra credit by carrying out laboratory experiments at the Physics Exploration Center (PEC). The PEC is located in Thaw Hall 312 and is open from 9am to 4pm Monday through Friday. A TA will be available at the PEC to help with any questions you may have about the lab activity. One experiment will be available each week at the PEC. Performing these activities will reinforce physics concepts covered in the course and provide you with another opportunity to solve problems. You are not required to perform the experiments at the PEC, but you can earn extra credit by finishing reports on the PEC lab activity. Please hand in your report to your TA during recitation for grading.

Also, the Physics Help Room is located within the PEC and is staffed with TAs who can answer questions and help you with homework, physics concepts, math, and problem solving strategies.

Exams There will be two mid-term exams and one final comprehensive exam during the semester. You may bring a scientific calculator and one handwritten letter-size sheet (front

and back) with any notes to each midterm exam, and two sheets to the final exam. No other reference material or media, including books, laptop computers, smart phones, etc., is allowed during the exam.

The tentative dates of the exams are as follows:

- September 28 (Wednesday) - Mid-Term Exam 1
- November 2 (Wednesday) - Mid-Term Exam 2
- December 13 (Tuesday) 4:00 pm - 5:50 pm - Final Exam

Grades Your grade in this course will be based on questions asked in the lecture, the homework assignments, recitation quizzes, and exams. These grades will be weighted according to the table below:

Lecture Questions	5%
Quizzes	10%
Homework	20%
Exam 1	20%
Exam 2	20%
Final Exam	25%

Extra Credit You can earn up to a total of 4% extra credit by doing the weekly lab activity at the PEC and handing in the reports (see above).

Where to Get Help If you have any questions about the homework problems or anything else, you have several resources at your disposal. Dr. Batell holds weekly office hours on Thursdays 2:00pm - 4:00pm and Fridays 11:00am - 12:00pm, or by appointment. In addition, the Department of Physics and Astronomy provides free assistance for all students. The Physics Help Room is staffed with TAs who can answer questions on homework and physics concepts. This is a free service and you are encouraged to use it. The Physics Help Room is located in Thaw 312 (http://www.physicsandastronomy.pitt.edu/resource_room). You may also receive free tutoring through the Academic Resource Center (<http://www.asundergrad.pitt.edu/arc>).

Academic Integrity: All students are expected to adhere to the standards of academic honesty. Any student engaged in cheating, plagiarism, or other acts of academic dishonesty would be subject to disciplinary action. 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 (<http://www.provost.pitt.edu/info/acguidelinespdf.pdf>). This may include, but is not limited to the confiscation of the examination of any individual suspected of violating the University Policy.

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 students own private use.

Student Opinion of Teaching Surveys: Students in this class will be asked to complete a Student Opinion of Teaching Survey. Surveys will be sent via Pitt email and appear on your CourseWeb landing page during the last three weeks of class meeting days. Your responses are anonymous. Please take time to thoughtfully respond, your feedback is important to me. Read more about Student Opinion of Teaching Surveys here: <http://www.cidde.pitt.edu/omet/student-information/>.

If you have any concerns about the course, please do not hesitate to contact me.