Table of contents

• Contact info
• Where to get help
• Calendar
• Basic course information
• How to turn in homework

Below items are available in the online version after the 1st lecture, to be discussed in the 2nd lecture.
• How the course is graded? Q&A with Professor Hong
• What is cheating anyway? Q&A with Professor Hong

Contact info

Instructor
T. M. Hong
Professor
tmhong@pitt.edu

Instructional support
Zehan Li
Graduate Teaching Assistant (Head TA)
ze6@pitt.edu
Hezi Zhang
Graduate Teaching Assistant (TA)
hez11@pitt.edu
Tom Reynolds
Undergraduate Teaching Assistant (UTA)
tfr4@pitt.edu
Mark Vrabel
Undergraduate Teaching Assistant (UTA)
msv13@pitt.edu
Michael Knaus
Undergraduate Teaching Assistant (UTA)
mak309@pitt.edu
Jeffrey Socash
Undergraduate Teaching Assistant (UTA)
jms570@pitt.edu
Gareth Chapman
Undergraduate Teaching Assistant (UTA)
gjc26@pitt.edu

Where to get help

There are a lot of resources. I recommend that you to find the one that works for you.

Office Hours
All of us listed above will offer a total of about 18 office hours per week. That’s a lot! You are free to visit any of us. Please check CourseWeb for the specific hours and locations.

Resource Room
The Department of Physics and Astronomy provides a Resource Room staffed by physics graduate students. It is free. The drop-in hours will be available here (after week 1):
http://www.physicsandastronomy.pitt.edu/resource-room

Peer Tutoring
The School of Arts & Sciences Undergraduate Studies offers Peer Tutoring, either by appointment or by drop-in. It is free. Information is available online.
https://www.asundergrad.pitt.edu/connected-community/peer-tutoring/

Your own peers
The best teachers may be your own peers that you meet in the course. I encourage you to form a study group or a homework group! Sizes between 3-5 are typically best for coordination.
**Calendar**

- **August 28 (Mon)**: First lecture
- **September 11 (Fri)**: Last day to add/drop courses
- **October 4 (Wed)**: Hour exam I
- **November 8 (Wed)**: Hour exam II
- **November 22-26**: Thanksgiving
- **December 8 (Fri)**: Last lecture
- **December 13 (Wed)**: Final exam 10-11:50am

**Basic course information**

**Webpage**

CourseWeb for this course can be accessed through your [http://my.pitt.edu](http://my.pitt.edu) account.

**Course goal**

You must have an interest in E&M. Acquaintance (or concurrent enrollment) of calculus is needed. This is the calculus-based course, so we will use calculus. Satisfactory performance in Physics 174 or equivalent. You will further develop your interest in E&M. You will be prepared for the intermediate-level course in E&M (Physics 1351).

**Required text**

Halliday, Resnick & Walker, *Fundamentals of physics*, custom 9th ed. ext., Wiley, 2011. You may be pleased to hear that the original authors David Halliday and Robert Resnick were physics professors at Pitt! Halliday was an undergraduate and received his PhD both at Pitt; Resnick was a Pittsburgh native. This textbook is truly local.

We’ll follow Ch. 21-36 roughly 1 chapter a week (there are 14 weeks of class). The topics can be broadly grouped: electro- and magnetostatics, circuits, electrodynamics, waves. *Read the material before coming to class to absorb the material.*

**Other books that may be helpful**

- Feynman, Leighton & Sands, *The Feynman lectures on physics II*, Addison-Wesley, 1964

**Total percentage**

Effort (5%) + homework (15%) + two 1-hour exams (2x 20%) + final (40%) = 100%

Effort points – For participation (not correctness) in clicker questions during lectures.

The total percentage will be translated into a letter grade. This is explained later.

**Extra credit**

**Labs**

There will be a self-directed labs roughly every two weeks at 312 Thaw Hall at the Physics Exploration Center ([www.phyast.pitt.edu/~pec](http://www.phyast.pitt.edu/~pec)). Turn-in the worksheets in the Assignment box for extra credit (approximately 0.2% each). Announced in class.

**Turning it in**

See Homework for instructions, with the following differences.

- Write Mailbox V-1 in the info box, instead of T-1.
- Write your name, not your HID.
Homework - How to turn it in

You will do homework in two different ways each week, both are due Friday.

Online
Later this week, the online enrollment information will appear on CourseWeb. You will need to self-enroll. The first weekly online homework will be assigned on Friday. The online problems are meant to give you repetition and are sometimes simpler.

Handwritten
I will post on CourseWeb custom homework that I write for you to extend your knowledge beyond the textbook. I am particular about formatting, so please pay attention.

• Paper size: Standard 8.5x11", i.e., printer-size paper. Some notebooks say 8.5x11" but are not when you measure it with a ruler. Sometimes I make copies/scans of your homework. So if it jams or might jam the copier feed, it is not acceptable.

• Handwritten: The answers should be handwritten—not typed—solutions on one side.

• Info box:
  o No name: Your name cannot be written anywhere on the homework to preserve the anonymity for grading. You will be given an individual Homework ID (HID) on CourseWeb that you will write.
  o Recitation time: For example you can write “Thu 2pm”. (Not the TA’s name)
  o Mailbox: Write “Mailbox T-1” as the destination of your homework.

• Credit: Collaboration is encouraged, but you must write your own solutions and understand them. You must give credit to your collaborators below the info box.

• Where to turn in: In the box labeled Assignments in front of the mailroom on the 1st floor of Allen Hall. Here’s how you get there.

Go to Allen Hall & walk up one floor. You’ll see the big door that says Physics Office with people in it. Please do not bother them! Instead, make a left towards the bathrooms. It dead ends quickly, so make another left. Below the mailboxes, around the middle, you’ll see a golden flap that you can put your homework in. It’s labeled Assignments. Please put it there normally. Sometimes students flick it with gusto and it ends up elsewhere (not in our pile).
Homework - Example write-up

Physics 175
Fall 2015
Prof. Hong

Assignment 4.0

1. a) Draw vectors \( \vec{A}, \vec{B}, \vec{A} + \vec{B} \)

   b) Write them in Cartesian coord.

   \[ \vec{A} = (3, 2) = 3 \hat{i} + 2 \hat{j} \]

   \[ \vec{B} = (-1, 2) = -1 \hat{i} + 2 \hat{j} \]

   \[ \vec{A} + \vec{B} = (3 - 1, 2 + 2) = (2, 4) = 2 \hat{i} + 4 \hat{j} \]

   c) Write the magnitudes

   \[ |\vec{A}| = \sqrt{3^2 + 2^2} = \sqrt{9 + 4} = \sqrt{13} \]

   \[ |\vec{B}| = \sqrt{(-1)^2 + 2^2} = \sqrt{1 + 4} = \sqrt{5} \]

   \[ |\vec{A} + \vec{B}| = \sqrt{2^2 + 4^2} = \sqrt{4 + 16} = 2\sqrt{5} \]

2. Consider C at (1, 2). Suppose \( Q_A = Q_B = Q_c \)

   a) What is the force on C due to \( A \) & \( B \)?

      By symmetry, \( F_C = 0 \) in all directions.

3. Consider C at (0, 2). Suppose \( Q_A = Q_B = -Q_c \)

   a) What is the force on C? Write \( Q_A > Q > 0 \) r.h.s.

      Due to translational invariance, y-axis coord. doesn't matter.

      \[ F_{B \rightarrow C}^x = \frac{Q \cdot (-Q)}{r^2} \]

      \[ F_C^x = F_{B \rightarrow C}^x + F_{A \rightarrow C}^x = \frac{kQ^2}{q} \frac{-1 + \frac{1}{q}}{q} = -\frac{kQ^3}{q} \]

      \[ F_{A \rightarrow C}^x = -k \frac{Q \cdot (-Q)}{r^2} \]

      Direction to the left makes sense since B is closer to C and pulls harder than A.