

Physics 181 - Advanced General Physics

Time and place: Mondays & Wednesdays, 11:35am-12:50pm, Dunham 220

Classesv2 site: https://classesv2.yale.edu/portal/site/phys181_s09

Instructor: Sohrab Ismail-Beigi, sohrab.ismail-beigi@yale.edu, Becton 307, 432-2107

Office hours: Tuesdays 2:00pm-3:00pm and 7:00pm-8:00pm

TFs: Susie (Sourpouhi) Bedikian, Daniel Guest, Ivan Stanic

Office hours:

Dan: Mondays 2-3pm, Sloan Physics Lab 3rd floor lounge

Ivan: Tuesdays 1-2pm, Sloan Physics Lab 3rd floor lounge

Susie: Wednesdays 9-10am, 72 Sloan Physics Lab (3rd floor)

Graders: Rongrong Ma, Tianqi Shen, Liyao Wang

Required Materials:

- 1. Textbook:** *Physics for Scientists and Engineers, A Strategic Approach*, Randall Knight, Addison-Wesley, ©2004 2nd Edition
 - 2. Student Workbook:** Available with the textbook at the bookstore.
 - 3. MasteringPhysics:** Registration code for online tutoring and homework system. Bundled with textbook. The web site is <http://www.masteringphysics.com/site>. The class name is YALEPHYSICS181SPRING2009.
 - 4. Turning Point ("clickers"):** Radio frequency remote polling device. Can be checked out of the Bass library. Each student will have a unique clicker with a unique ID. Don't check one out unless you are serious about enrolling in P181!
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Homework, exams, grading, and policies:

- 1. Weekly written problem sets (15%):** Each Wednesday, a written problem set will be handed out (and posted on line). The problem set is due by the start of lecture the next Wednesday in a box outside Sohrab's office or upon entry into the lecture hall before lecture. After this cutoff, the homework is late and will be graded out of a maximum of 50% if dropped off by 4:00pm that Friday in the box. Later than that, the homework will not be graded. At the end of the course, we will drop (ignore) the lowest written homework grade you have obtained. For grading issues, contact Sohrab first.
- 2. Pre-class online homework (15%):** Coming to lecture prepared is central to this course: otherwise you will not be able to follow what is going on, answer many of the clicker questions, or participate meaningfully in discussions. There will be a short online homework due by 11:00am before each lecture which will review material in the chapter to be covered that day. This is a sharp cutoff and no late online homework will be accepted. At the end of the course, we will drop (ignore) the lowest online homework grade you have obtained.
- 3. Midterms (20% each):** There will be two in-class midterms on Monday Feb 9th & Monday April 6th. If it will help your total class grade, we will drop the lower of your two midterm scores and instead double the weight of the final to 40%.
- 4. Final (20%):** The final exam is scheduled for Friday May 8th at 2:00pm.
- 5. In-class participation (10%):** Attendance is critical as asking and answering questions and working in groups during lecture is an integral part of the course. The participation component will be awarded if you answered at least 80% of the questions in class (right or wrong does not matter).
- 6. Participation bonus (+4%):** If you answer an in-class question correctly that at least 75% of your classmates get right and you do this at least 75% of the time during the entire semester, you

will get the bonus. Therefore, it is to your advantage to answer in-class questions correctly *and* to help your peers do the same.

- 7. Survey bonus (+1%):** We ask you to fill in a physics knowledge survey at the beginning and end of the course. If you fill both (regardless of how well you do), you will earn this bonus. The survey is under "Tests & Quizzes" on the *classesv2* web page for the course and called "Conceptual Survey in Electricity and Magnetism".

Grading will not be based on a curve. Students with grade averages above 95% will get an A, above 85% will get a B, etc.

The only **acceptable excuses** for missed homework or exams are written dean's excuses and permission of the instructor.

We encourage you to work in groups: this is a proven and effective way to enhance learning (and can be more fun). However, we expect the final work you hand in to be your own: your online and written homework as well as answering in-class questions using only your own clicker. Blind copying is both dishonest as well as detrimental to your learning and will inevitably catch up with you during the exams.

Joining the course late: Since we generally encourage to find the right level for them between PHYS 151/181/201/231 by shopping and comparing, inevitably a small number of students realize that they need to switch up or down after shopping period. Therefore, the last day a student can join 181 late is the lecture after the first midterm (Wed Feb 11th). Note that switching classes like this requires permission and signature of *both* instructors.

Resources:

- 1. Office hours:** You should take advantage of the TF and instructor office hours. Many students shy away and only discover this resource at the end of the term... don't be one of those students!
- 2. Study hall:** We continue last term's "Physics and Desert" which was held Su/Mon/Tue nights each week in the Siliman Dining Hall starting at 8pm for students in the first year Physics classes (15x, 18x, 20x). You are strongly encouraged to attend regularly and work in small groups. The idea is to work in groups and help each other. A few TFs and some instructors will be present to guide you or answer overall questions.
- 3. Classesv2 online discussion:** This is much like an online forum and is found on the *classesv2* website for Physics 181. It allows for posted and threaded comments and questions in a common shared area. The idea is to discuss concepts covered in class, physics in the news, etc. This is a public space and posts can not be deleted by you: so observe proper decorum and *think before you post*. Don't post solutions here as they will be removed.
- 4. Online Physics Applets:** Phet (<http://phet.colorado.edu/index.php>) ActivPhysics™ Online (<http://www.aw-bc.com/knight>). These are java applets that simulate many of the concepts we cover. They interactively allow you to change parameters and re-run simulations.
- 5. Residential College Math & Science Tutoring Program** (<http://www.yale.edu/mstutor/>). This is a program that provides in-college tutors for your math and science courses. Please check the web site for times and availability.
- 6. Individual Tutoring:** For students having particular difficulty in the class, individual tutoring is available. See your Dean to ask for the request form, which must be filled out by your instructor. It includes a question about previous use of class resources, so you should already have taken advantage of the available help.