

Physics 2020: General Physics II, Spring 2009

Classes: MWF 11-11:50 AM (Lecture 100) and 1-1:50 PM (Lecture 200) in Duane G1B20

Lectures: Prof. Steven Pollock (Email: Steven.Pollock at Colorado.edu)
Office: Duane F1013 (10th floor, tower) Phone: (303)-492-2495
Office hours (tentative): After class every day (up front) for "quick questions"
Mon and Wed after 2 PM I will move to the Help Room until 3 PM.
Administrative type office hours: Friday after the 1-1:50 lecture in my office
And, any other times by app't, or "electronic office hours" by email

**Labs/
Recitation:** Prof. Andreas Becker (Email: Andreas.Becker at Colorado.edu)
Office: JILA A-904A (9th floor, JILA tower) Phone: (303) 492-7811
Office hours (tentative): Mon and Wed 10-11 AM in the Help Room
Administrative type office hours: Wed 2-3 PM in my office
And, any other times by app't, or "electronic office hours" by email

Course Web Site: <http://www.colorado.edu/physics/phys2020>

Lots of additional information and updates will be posted there. Check it often!

Text: *Physics: Principles with Applications, 6th Ed, D. Giancoli*
(Pearson, Prentice Hall), Starting in Chapter 16

There are many excellent introductory physics books. Giancoli's is one of the best. Others can be found on reserve at the Math/Physics Library. Prentice Hall maintains a great web site with resources for each chapter (Linked from the course web page).

Physics 2020 is the second semester of an algebra-based sequence in college physics. We emphasize *conceptual understanding* and problem solving skills. We will cover topics in modern physics, including electricity, magnetism, light, optics, and more: the foundations of our technological society. Our goals are for you to continue developing knowledge and intuition about how the world works, to learn to approach physics problems on both qualitative and quantitative levels, to relate classroom physics to the *real world* you live in, and to develop a deeper appreciation of the scientific method. We want you to learn to understand everyday phenomena of electricity and magnetism in terms of just a few basic and understandable physical laws.

This material largely involves discoveries less than 150 years old. (Of course, even the ancients knew some things about magnetism and light). We are so comfortable with technologies like TV and computers, it's easy to forget just how recent these developments are: some of you may have relatives old enough to remember the days before radio (the first licensed broadcast station opened in 1920). We live radically more convenient and perhaps longer and more enjoyable lives due to the revolution in electric-based technology. Modern health-care, industrial, and home tools are based on the existence of electrical power and electronics. By the end of this course, you should have a base of knowledge to allow you to better understand how many modern electronic devices work.

Any information in this syllabus is as accurate as possible at the time of writing. Announcements about changes of any kind will be made in class, and posted on the web, and will take precedence over this syllabus. You are responsible for what is said in class, whether or not you are in attendance.

Prereqs: General Physics I, some basic algebra, geometry and trigonometry. College level logic, enthusiasm, and curiosity will be helpful too!

Reading: *is an essential part of PHYS 2020!* Reading the text before class is *very important*. We will assume you have done the required readings in advance! Reading assignments will appear at each lecture (and on the course web page).

Grading: The grade weighting will be as follows:

3 Midterms (each): 12%

Final exam: 24%

Lab: 15%

CAPA: 15%

Written homework: 10%

Note: If you miss more than 2 labs, or the final, you can't receive a passing course grade!

Participation and Clickers: We will use clickers during lectures, to help you learn the material. You need to purchase an "iClicker" from the bookstore. Get the correct type! (iClicker - Radio Frequency Classroom Response System). Your iClicker responses count only as *bonus* (extra credit) points: they REDUCE exam weight by up to a max of 14% of midterm exam total (i.e. 5% of course grade). Clickers start counting the 2nd week of class. We also give you full clicker credit for the 3 days with your lowest scores, to accommodate dead batteries, sore throats, broken alarm clocks, and fresh powder. Please register your iClicker at www.colorado.edu/its/cuclickers/students/register.html (There may be occasional online surveys which can also add extra credit, stay tuned.)

Exams: There will be three midterms and a final:

Midterm 1: Tuesday, Feb 3 7:30 - 9:15 pm, location TBA

Midterm 2: Tuesday, Mar 3 7:30 - 9:15 pm, location TBA

Midterm 3: Tuesday, Apr 7 7:30 - 9:15 pm, location TBA

Final: Tuesday, May 5 10:30 am - 1:00 pm, location TBA

You may bring a single side of 8.5 in. x 11 in. paper for the first exam, with your own handwritten notes. We will let you add one more side for each exam (i.e. one side for Midterm1, two sides for Midterm2 etc.) Calculators with scientific notation are allowed and sometimes needed. (Of course, no phones, internet access, "electronic crib sheets", etc!)

It is your responsibility to make sure you have no conflicts with these exams!

Exam dates were published in the CU course schedule last fall. If you have a conflict, you should retake Physics 2020 in a semester when you can make it to all the exams. If you are absent for a serious medical reason, or with prior approval from Prof. Pollock or Prof. Becker, you may be excused from 1 midterm. Medical excuses must be submitted no later than 1 week following the exam. *There are no makeup exams.*

Students with disabilities, including non-visible disabilities, please let us know early in the semester (first two weeks) so that your academic needs may be appropriately met. Students with religious obligations that conflict with the exam dates should contact us early in the semester so that accommodations can be made. (Details below)

CAPA Homework: (Computer Assisted Physics Assignments) You will receive a weekly printed personalized homework assignment (every student's assignment is slightly different) with a CAPA ID # which changes each week. The ID number is printed on your personal assignment (or use the "PIN-Getter" link). You log onto CAPA to "hand in" your answers. *Work out your solutions on paper before you log on.* One advantage of CAPA is the instant feedback on how well you are doing. Also, you get the opportunity to change wrong answers without penalty. You get multiple tries, generally 5, on each problem, with *no* points taken off for wrong answers. If you get it wrong all 5 times, that particular problem is "closed out" but you can still work on others. You can log off and come back later any time, there is no time limit except the final deadline. CAPA will generally be due Mon at midnight (the week after Martin Luther King Jr. Holiday and Spring Break: Tues at midnight). There is an automatic extension until Tues morning at 8 AM, which is an absolute deadline. *Late entries will not be accepted by CAPA.* If you have problems of any kind please check the CAPA help page.

Written Homework: In addition to the weekly CAPA sets, there will be a longer, more in-depth homework assignment due on Thursday every other week at 5PM. These should be handed in to the TA boxes by the entrance to the Help Room. They will be graded by your TA and handed back during your lab session.

You are encouraged to work together on the homework, but in the end, you are responsible for generating your own solutions and understanding. Do not fall into the trap of working with a group where others routinely provide solutions; you will have tremendous difficulty on the exams which you must take alone.

Labs/Recitations: There is a 2-hour recitation or lab each week in Duane G2B88. *Please note: you must attend the recitation to which you are assigned!* Missed labs must be made up *the same week*, though there will be opportunities to make up *excused* lab absences at other times in the semester. *Complete your pre-lab homework before start of your lab section and turn it in to your TA upon entering the lab.* The pre-lab contributes 1/3, and the lab 2/3, to your total lab/recitation grade. See the Labs/Recitations link on our web site for details about pre-labs, grading, and making up missed labs. **If you miss more than 2 labs, you can't pass the course!**

Physics Help Room: The lecturers and TAs will have regular office hours in the Help Room (Duane G2B87), open from 9AM-5PM Mon-Fri. Times when specific TAs will be in the Help Room are posted on the Help Room schedule (see link on our web site), but you can drop by anytime. If you need to see your TA privately, contact them directly.

Lecture Notes and Solutions: Lecture Notes and solutions of the in-class concept tests, written homework and exams will generally be posted on CULearn and/or the course web site.

Etiquette: Please turn off all phones when entering any class. Please don't throw vegetables at the instructor. It is perfectly OK to interrupt the lecture by yelling "Question!", questions are always good! We encourage collaboration in this course, an essential skill in all professions. Social interactions are critical to scientists' success - most good ideas grow out of discussions with colleagues. As you study together, help your partners get over confusions, ask each other questions, constructively critique ideas. You learn the most from *teaching* others! Remember that this is about *learning*, not about passing a class - for all assignments, *the work you turn in must be your own: in your own words, reflecting your own understanding.*
