

Physics 1b Practical — General Information — 2012

Staff:

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Overview:

The course emphasizes understanding the basics of electricity and magnetism and their practical applications. There are *three* section meetings per week. Adequate preparation on your part is required to benefit from the classroom setting. Your job includes: reading the assigned sections of the text *in advance of class*, preparing questions of your own, and doing homework problems. Note that students who successfully improved their performance and enjoyment of Core physics often report that choosing to read the textbook in advance, i.e., before the section in which the material was first discussed, was a major improvement in their study strategy.

There is one lecture per week, consisting of demonstrations and their discussion. You will see examples of phenomena and illustrations of basic concepts. The emphasis is on the qualitative thinking needed to organize your approach to the problems you will encounter.

The text for the course is *Physics for Scientists and Engineers, volume 2*, eighth edition, by Serway and Jewett. The course handouts will be distributed in section and will be available in E. Bridge — in room 110 and in the East-West hall. This information sheet, the reading and homework assignments, and other handouts are also available from the course Web page, which you can get to from <http://www.pma.caltech.edu/GSR/physicscourses.html>. This, in turn, is easier to remember as the PMA Division “Physics Courses” page, which you can get to by following the chain: Caltech (home) → Academic Divisions → Physics, Mathematics, and Astronomy → Home → Physics → Physics Courses.

Homework:

Problem sets are due each Thursday in class (+ next Monday, too). They must be handed in on time to receive credit. In case of illness or other valid excuse, you and your TA can negotiate a modified due date. **The work must be your own and not copied from a group effort or a friend’s write-up.** You can seek out help and discuss the problems with anyone — to an extent you find productive. However, you should not consult anyone’s written, completed work, and your write-up must be all yours. A good guideline is that you should understand the problems well enough to be able to reproduce on your own any solution that you hand in. In the past, some students have achieved high homework grades yet fared poorly on tests and even failed the course. This shows poor judgment in using help. Try to find your own best way, so that you end up really learning the material. Remember that the difference between half and full credit on a single homework problem amounts to roughly $\frac{1}{5}\%$ of all the possible points available towards your final total. Instead of viewing each homework problem as a way to accumulate credit, think of it as an opportunity to focus your attention on the challenges of mastering the material of the course. The problems designated “QP”, if you work them on your own, can be particularly valuable as a way of anticipating the kinds of problems likely to appear on quizzes and the final exam.

Said another way: Virtually all the value of the homework as an aid to learning lies in the effort you make to figure out what to do. Having someone else tell you how to do it will decrease the time required to prepare your solution, but it will also rob you of an opportunity to learn something. From this perspective, the nearly weekly quizzes should be thought of as “homework you do by yourself.” They’re a good start but aren’t really enough by themselves.

Your other homework is to prepare for class on Monday and Wednesday by reading the assigned sections in the text and noting your questions and comments.

*Because your TA may choose to devote class time to particularly interesting or difficult topics and to pursue students' questions and comments further, there might be some important topics not completely covered by all sections. Hence, the assigned sections of your textbooks are essential resources as **the** systematic outline and exposition of the course material. Use them.*

Exams:

There will be six take-home quizzes and a final exam. These may cover material from the textbook, homework, or lecture demonstrations.

Grading:

Written homework: 25%

Written quizzes: 40%

Class participation: 5%

Final exam: 30%

Your recitation section TA will award 0 – 5% for class *participation* (as distinct from “attendance,” which is a necessary but not sufficient condition for participation).

Switching Sections and Time-Conflict Petitions:

Switching sections will require the signature of the TA whose section you wish to join. Time-conflict petitions require your TA's signature if the conflict is with a section time and Politzer's signature if the conflict is with Friday lecture.

Feedback, Questions, and Comments:

There will be an ombudsman in each house who has volunteered to give feedback to the teaching staff. An ombudsmeeting is scheduled for February 8; please be sure to pass on your comments in a timely way. Of course, we would be happy to hear from you personally before or after lecture or class, during office hours, via e-mail, etc.

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