

Physics Department
University of California, Berkeley
Physics 7C, Spring 2016

INSTRUCTOR: Steven Stahler
EMAIL: stahler@astro.berkeley.edu

OFFICE: 395 LeConte
OFFICE HRS: Tu 3:30 – 4:30 PM

LECTURE TIMES: TuTh 08:00 – 09:30AM

LOCATION: 4 LeConte

HEAD GSI: [REDACTED]
EMAIL: [REDACTED]

OFFICE: [REDACTED]
OFFICE HRS: [REDACTED]

TEXTBOOK:

D. C. Giancoli, *Physics for Scientists and Engineers*, custom edition for the University of California, Berkeley. ISBN: 978-0-558-22904-7.

P. A. Tipler and R. A. Llewellyn, *Modern Physics*, 6th edition, W. H. Freeman and Company, ISBN: 978-1-4292-5078

Mastering Physics: <https://www.masteringphysics.com/site/login.html>

INTRODUCTION:

We will be covering electromagnetic waves, physical optics, special relativity, and quantum physics in Physics 7C. This diverse range of topics presents unique issues in both teaching and planning the course. Indeed, the course essentially consists of three distinct parts:

- Light and optics (~ 5 weeks)
- Special Relativity (~ 3 weeks)
- Quantum Physics and its applications. (~ 6 weeks)

and it is because of this segmentation that we will be using two different texts.

For the first third of the course—where the focus will be on electromagnetic waves and their interaction with matter—we will be using five chapters from the third volume of the Giancoli textbook that was used in Physics 7A and 7B. For the rest of the course, we will focus on what is generally considered modern physics: special relativity, and quantum theory. Here we will be using the textbook by Tipler and Llewellyn. The presentation is more detailed and at a deeper level than that in Giancoli.

EXAMINATIONS:

There are three examinations scheduled for the course: two midterms and one final exam. These exams and quizzes are designed to assess your **understanding** of physics, as oppose to your

Physics Department
University of California, Berkeley
Physics 7C, Spring 2016

knowledge of the subject. As such, you will be asked to solve problems that you have never encountered before, either in your reading or in the homework.

The dates and times for the three exams for the course have already been scheduled for the course, and are as follows:

Midterm 1: Tuesday, February 21, 07:00PM – 09:00PM, Location: VLSB 2050

Review Session: Saturday, February 18, 02:00 -4:00PM, Location: 4 LeConte

Midterm 2: Tuesday, April 4, 07:00PM – 9:00PM, Location VLSB 2050

Review Session: Saturday, April 1, 02:00 -4:00PM, Location: 4 LeConte

Final Exam: Thursday, May 11, 7:00PM – 10:00PM, Location TBA

Please mark these days down now. The midterms and the final cannot be made up if you miss one! You must take the final exam to pass the course.

In Physics 7A and 7B it was often possible to make accommodations when scheduling conflicts for the evening midterms; students in one lecture section were allowed to take the midterm in another lecture section if necessary. There is only one section of Physics 7C, however. **As such, we cannot make accommodations for scheduling conflicts for Physics 7C, and all students must take their midterms on the scheduled day.**

EVALUATION OF STUDENT PERFORMANCE:

Your letter grade in this class will be evaluated using this weighting scheme:

Laboratory	5%
Homework	15%
Midterm 1..	20%
Midterm 2..	20%
Final	40%

In more detail, the last 40% of your class grade will be *either the final exam or* a combination of the final (counting for 30%) and the average of the first two midterms (counting for 10%), whichever has the higher score. We offer this alternative so that you will not be excessively penalized if you have a bad day on the final. To determine your letter grade, we will be following the Physics Dept guidelines for lower-division courses.

HOMEWORK POLICY:

Physics is a subject learned by doing, and at this level, that means specifically doing homework. Problems will be assigned every Friday, and will be due by 5:00 PM the following Friday.

Physics Department
University of California, Berkeley
Physics 7C, Spring 2016

You will submit your weekly assignment using Mastering Physics, which you should have already used previously. In any case, you will need to register for Mastering Physics, by entering an access code that you have purchased before or will now. After registering, you will enter the course code. This is **MPStahlerS17**.

Late homeworks are not allowed. However, the lowest homework scores will be dropped.

DISCUSSION SECTIONS:

Discussion sections in Physics 7C are scheduled for only one hour. In addition, on the weeks when no laboratories are scheduled, the three-hour laboratory section will also serve as a discussion session. In these discussion sessions, you will have an opportunity to ask about homework questions, as well as work through additional problems in much the same way that you used worksheets in Physics 7A and 7B. These problems will be posted in advance in Resources/DiscussionProblems. They are valuable practice, as problems of comparable difficulty will be appearing on the exams.

LABORATORY SECTIONS:

Unlike Physics 7A and 7B, laboratory sessions in Physics 7C are three hours long. There are, however, only seven labs during the semester, and laboratory sessions only meet during these seven weeks. Your scores on these labs contribute 5% of your final grade. The dates on which these laboratory sessions are held are in the course syllabus. Please write these dates down now. **You are required to complete all the labs in the course; you may not drop any labs. For each missed lab that is not made up, your course grade will be lowered by one sub-grade, eg, an A- to a B+.**

In addition, please note the following:

- With the exception of the last lab, if you miss a lab for any reason, you are allowed to make it up no later than the *following lab week*. **You will not be able to make up the last lab, however.**
- Lab manuals are available at the Bancroft/ Telegraph Copy Central. You must get a lab manual for the course, and we urge you to do so as soon as possible.
- You must finish the pre-lab questions for a given experiment *before* the lab session. GSIs will be collecting the answers at the beginning of each lab session. The pre-lab problems for each experiment are located toward the beginning of the relevant chapter in the lab manual. **Pre-labs count for half the points for the lab!**
- Lab write-ups are due by the end of the lab period, and should be no longer than 3 pages. Longer ones may receive deductions. **Write neatly.**
- On the lab write-ups, please put your name and SID number on each page. On the front page of the write-up, write your name, SID number, lab number, date, and your e-mail, lab section number and GSI. If you did your lab in a section other than your own, also write the lab section number, and GSI of that lab on your lab write-up.
- In grading lab reports, GSIs will adhere to the following rubric. This rubric will be applied separately for the lab and the prelab:

Score out of 5	Metric
5	Student shows mastery of material and answers all questions

Physics Department
University of California, Berkeley
Physics 7C, Spring 2016

4	Student shows good understanding, minor calculational mistakes.
3	Student shows good understanding of material with minor flaws, or omits one or two small parts in the writeup
2	Student shows working understanding, but with notable flaws; or, omits one or two large parts in the writeup
1	Student shows heavily flawed understanding of material, or omits a significant fraction of the writeup
0	Student did little or no work.

- If you absolutely cannot make your scheduled lab, you must attend an alternate session no later than the following *lab* week to complete the lab. When making up a lab please do the following:
 - Notify the GSI of your assigned lab section that you cannot attend that section. Give him the reason as well.
 - Find a lab session with open slots that fits your schedule.
 - Notify the GSI of the lab you wish to attend that you will be showing up.
 - After completing the lab, give your write-up to the GSI whose lab you are attending, unless you have made other arrangements with your usual GSI.

- **Please note that material from the laboratories may appear on exams.**