

# Physics 7A Syllabus

## Physics for Scientists and Engineers

**Summer 2018**

**Dr. William Golightly**

### **Course Description:**

**Prerequisites:** High school physics; Math 1A; Math 1B (which may be taken concurrently).

**Topics:** Kinematics, mechanics, waves, and fluids.

**Lectures:** MTuWTh 8 am – 9:30 pm, in 1 Le Conte.

**Discussion/Laboratory (D/L) sections:** Every student must be enrolled in one discussion section and one lab section, both with the same number. Students meet with their section four times per week, two hours at a time. A total of seven meetings during the course of the semester will be devoted to a lab; the remaining will be centered on worksheets in the Physics 7A Workbook.

### **Instructor/GSI information:**

**Instructor office hours:** MTuWTh 2:30 – 3:30 pm in 384 Le Conte.

**E-mail:** [wgolightly@berkeley.edu](mailto:wgolightly@berkeley.edu)

**Physics 7A Course Center:** 105 Le Conte

**Course website:** Go to <https://bcourses.berkeley.edu>.

**Text:** The required text is Physics for Scientists and Engineers, vol. 1, 4th edition, by Douglas C. Giancoli. (The Cal Student Store sells a special custom edition, but the contents are taken from the 4<sup>th</sup> edition.) The Physics 7A Workbook comes with it, along with MasteringPhysics access.

**Midterms:** Midterm exams will be held during regular class time. Midterm 1 will be held on Thursday, July 12; midterm 2 will be held on Monday, July 30. To each exam, you will be allowed to bring one 8 ½ by 11 inch sheet of paper with handwritten notes and formulas, both sides. You should bring a calculator, but it cannot be anything too elaborate (i.e., nothing with full-blown keyboards on them, and of course nothing that can connect to the internet). Also, bring your Cal ID (or driver's license or passport if you're not a regular UC Berkeley student).

Midterms will be returned to you in D/L section. If you feel your exam has been graded incorrectly, you may request that it be reviewed. However, you must submit your exam for reviewing to your D/L section leader at the same meeting at which you receive your exam back.

Practice midterms will be posted to the website before each midterm. There will also be a practice final exam.

**Homework:** A total of 11 homework assignments will be given. You will be doing the problems online using MasteringPhysics. (A kit allowing student access comes with your books.) The homework assignments will be due on Mondays and Thursdays at 11 pm, beginning Monday, June 25. (There is also a practice assignment that you should do before you start any of the assignments, and is intended to simply acquaint you with MasteringPhysics.) In addition to the online homework, practice problems will be assigned from the textbook, which you will probably find helpful.

**Lab Schedule:** There will be one lab experiment held each week from week 1 through week 7.

**Class updates:** I will frequently be posting announcements on bcourses in which I let you know what material we'll be covering in our next lecture, as well as other information about the course.

**Final Exam:** The final will be held in two parts, both during regular lecture times. Part 1 will be held on Wednesday, August 8, and will cover the same block of material that the midterms cover. Part 2 will be on Thursday, August 9, and will cover the material since the second midterm. On Wednesday you will be able to bring the two sheets of notes you made out for the midterms; on Thursday you may bring one sheet for material covered since the second midterm.

**Grading:** Your grade will be determined as follows: Each midterm is worth 20%, the final is worth 35%, the labs are worth 15%, and the homework is worth 10%.

**Academic Misconduct:** Any form of cheating is a serious disciplinary offense. Students who are caught will be reported to the Center for Student Conduct.

### **Tentative Schedule:**

Week Material covered

- 1 1-D kinematics, vectors, 2-D kinematics, projectile motion
- 2 Forces, Newton's Laws, friction
- 3 Circular motion, work and energy, potential energy, conservation of energy
- 4 Center of mass, conservation of momentum, collisions
- 5 Rotational kinematics, torque, rotational dynamics, statics, rotational energy
- 6 Angular momentum, gravitation, oscillations, traveling waves
- 7 Standing waves, sound, fluid statics
- 8 Fluid dynamics, review