

Physics 4A Winter 2016

Section	PHYS-D004A-05	CRN: 33389
Instructor	Lana Sheridan	
Email	sheridanlana@fhda.edu	
Office	S13	
Office Hours	Tues 11:30am-12:30pm; Thurs 2:30-3:30pm; Fri 2:30-3pm	
Lecture Hours	M-F, 1:30-2:20 pm	
Lecture Room	S11	
Lab Room	S17	
Lab Hours	Wednesdays 2:30 pm - 5:20 pm	
Textbook	Physics for Scientists and Engineers (Vol. 1), 9 th Edition, Serway and Jewett	
Prerequisites	Physics 50 with a grade of C or better, or the equivalent (including high school physics); Completion of Math 1A with a C or higher and concurrent enrollment in Math 1B (or already completed).	
First Test Date	Friday, Jan 22	
Final Exam Date	Tuesday, Mar 22, 1:45-3:45 pm	

1 Topics

This course covers Newtonian Classical Mechanics using calculus. Students should leave this course with an understanding of how to make mathematical models of systems of interest and then apply basic Newtonian principles to discover how these systems behave. This sort of quantitative reasoning is useful not only for understanding the physical world we see around us, but also in any technical field including engineering and computer science. We will cover kinematics, which is motion of objects in 1 and 2 dimensions with some knowledge of their accelerations and other quantities, but without regard to forces acting on them. This will include projectile motion, circular motion, and relative motion. We will also cover dynamics, which determines the motion of objects by reasoning about forces acting on them, using Newton's laws. We will also introduce work, energy, linear and angular momentum, torque, rotational motion, simple harmonic motion, and gravitation. This will be chapters 1-13, and some of 15, in the textbook.

2 Attendance

In order to comply with federal guidelines De Anza College requires students to attend class and class attendance records to be kept. A student may miss a few classes for medical or personal reasons, however, unexplained absence of more than 2 consecutive days or frequent absence will result in a student being dropped from the course. Late arrivals count as absences at my discretion.

All labs must be attended unless there is a strong medical reason for absence.

3 Homework

There are two types of homework for this course.

- Uncollected homework - this will be set from problems at the end of each chapter in the textbook on a nightly basis.
- Collected homework - these will be worksheets with more challenging questions which you will have at least 5 days to work on; they count toward your grade.

3.1 Uncollected Homework

This homework will not count directly towards your grade, however, it is very important to do this homework as part of your study! This will make concrete the ideas discussed in the lectures by allowing you to apply them immediately. I will try to set almost exclusively problems that have answers in the back of the textbook. If you have difficulty with the homework you can come to office hours, ask me just before or after a lecture, work together with other students, or go to the Math and Science Tutorial Center (Student Success Center). Doing these problems will help you prepare for the tests.

The set problems should not be viewed as the only problems you can do: you are strongly encouraged to look through all of the problems at the end of each chapter and consider how each should be approached. **You should read the textbook.**

3.2 Collected Homework

Collected homework problems may contain more challenging problems. You will have a number of days to do them, so be sure not to leave them until the last minute. You will also be marked on the clarity of your logical reasoning, so be sure to use as much paper as you need to present your answer fully. You may wish to present each question on a separate piece of paper. You are encouraged to work with other students on these problems, however, you must write up your solution yourself. Identical solutions are not acceptable. Further, since you are allowed to work together, simply writing down the answer is not sufficient. You must make it clear that you understand the reasoning that got you to the answer. There may also be other small homework assignments that I will check throughout the course.

4 Tests

There are no scheduled quizzes in this course; there may be a short pop quiz from time to time.

There will be three tests set in class time, spaced at roughly three week intervals. The first will be on Friday, January 23. All three will count toward your final score, and there will be no make-up tests. In order to do well on the tests, read the textbook, and do the homework problems.

Note: If there is any dispute about marking, I will consider it only within two school days of the paper being returned to you. Grades for the final exam are final and not subject to dispute.

5 Cheating

In the case that a student is found to be cheating on a piece of work or test, the grade for that will be zero.

6 Evaluation

4 collected HWs & other HW	20%
3 tests	10% each (30%)
final	30%
labs	20%

Projected Grading Scheme:

85% → 100%	= <i>A</i>
70% → 84%	= <i>B</i>
55% → 69%	= <i>C</i>
46% → 54%	= <i>D</i>
0% → 45%	= <i>F</i>