

Physics 4A Winter 2020

Section	PHYS-D004A-01 CRN: 01791
Lecture Instructor	Lana Sheridan
Email	sheridanlana@fhda.edu
Office	S13
Office Hours	Tu 11:30am-12:30pm, Th 11:30am-12:00pm, Fri 10:30-11:00am
Lecture Hours	M-F, 9:30-10:30am
Lab Instructor	Prof Luna
Labs	Monday, 10:30am-1:20pm, S11
Textbook	Physics for Scientists and Engineers, 9th 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).
Final Exam Date	Tuesday, March 24, 9:15-11:15 a.m. (confirm on De Anza's website)

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.

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 classes or frequent absence may 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.

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.

Assignments - these will be worksheets with more challenging questions which, if set as homework, you will have at least 5 days to work on. They count toward your grade.

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.

Assignments

Assignment problems may contain more challenging problems. When set as homework, 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. In addition, there may be assignments set in class time.

If you are absent on the day homework is due, you must scan or photograph and email the homework to me by no later than 2 hours after the class. You must then bring a hard copy of your homework to the next class. If you have an issue that prevents you from finishing the homework on time, you must talk to me or email me about it at as soon as you realize it and least 1 day prior to the due date. I will consider each request on a case-by-case basis. Late homework will be accepted only at my discretion and if accepted the final score will be penalized if there was no prior approval.

Quizzes

There will be approximately 6 to 10 short quizzes set in class time. The quiz questions will be based on the uncollected homework problems. There will be no make-up quizzes, however, each student's lowest quiz score will be dropped.

Tests

There will be two midterm tests set in class time. Both 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. The final exam may ask about any material taught in this course.

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.

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. Plagiarism, which includes copying answers found on the internet, is cheating. You are encouraged to use resources you find online, but you must write up answers on your own, in your own style, and you must understand what you are writing. You may work with fellow students on assignments, however, each student must write up their answers on their own, in their own style. Completely identical solutions are considered plagiarism.

Evaluation

assignments	13% in total
quizzes	13% in total
2 tests	24% in total
final	30%
labs	20%

Projected Grading Scheme:

95% → 100%	A+
88% → 94%	A
85% → 87%	A-
82% → 84%	B+
73% → 81%	B
70% → 72%	B-
67% → 69%	C+
58% → 66%	C
46% → 57%	D
0% → 45%	F

Student Learning Outcome(s):

*Critically examine new, previously un-encountered problems, analyzing and evaluating their constituent parts, to construct and explain a logical solution utilizing, and based upon, the fundamental laws of mechanics.

*Gain confidence in taking precise and accurate scientific measurements, with their uncertainties, and then with calculations from them, analyze their meaning as relative, in an experimental context, to the verification and support of physics theories.