

DE ANZA COLLEGE | PHYSICS 2A | Winter 2024

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| Instructor: | Dr. Marx Akl Physics PhD in Solid State Physics and Computational Physics |
| Email: | aklmarx@fhda.edu (Please do not email me from Canvas as I don't check) |
| Homepage: | Class Material will be posted on Canvas. |
| Office: | S-13 |
| Office Hours: | Mon, Wed 11:20-12:35PM, Location: S-13 |
| Lecture Hours: | PHYS 2A, Scheduled time, RM S35 |
| Text: | Fundamental of Physics 9 th Edition, Vol. 1, Halliday, Resnick, and Walker |
| Required Calculator: | Casio FX-300MS, TI-30XIIS or equivalent |
| Prerequisites: | Mathematics 1A (may be taken concurrently) |

Note: Last day to drop a class with a "W" is (Please check De Anza academic calender). Students who do not drop by this date will be given the appropriate grade for their achievement in the class at the end of the quarter.

OBJECTIVE

This is a limited-calculus based course in Classical (Newtonian) Mechanics. The main objective of the course is for the student to understand the laws/theories and principles of Classical Mechanics in order to be able to describe the motion of a system so that we can better understand the physical world around us. The foundation laws of Classical Mechanics are Newton's Laws of Motion. Thus, we can equivalently state that the main objective is for the student to learn and understand Newton's Laws of Motion from a conceptual and practical viewpoint. Classical Mechanics is often divided into two parts:

- Kinematics** – The description of the motion of an object without regard to the forces causing the motion. We will describe the motion of an object (system) moving in 1-D and 2-D.
- Dynamics** – The description of the motion of an object with regard to the forces that cause the motion. We will use Newton's Laws of Motion to help us describe the motion of an object (system) with regard to the forces acting on an object.

In our study of Classical Mechanics we will analyze the kinematics and dynamics of systems moving in:

- Translational(Linear) Motion
- Rotational & Circular Motion
- Oscillatory Motion

In our study of kinematics we will learn how to analyze the motion of a particle in 1-D and 2-D. In dynamics we will learn to analyze the motion of a particle (system) by using Newton's Laws of Motion and other formulations of such laws (Work and Kinetic Energy Theorem, Conservation Energy, Linear and Angular Momentum). Law of gravity will also be discussed.

ATTENDANCE

10 % of the grade! You are expected to be in class at the beginning of each class for the rest of the quarter. If you stop attending the class it is your responsibility to ensure being dropped or withdrawn

from the course in order to avoid receiving an “F” in the course. If you miss a total of three times or less in the entire quarter, you will get the entire 10% on your final grade. If you miss more than three times total, you will lose the entire 10%.

HOMEWORK

Homework will be assigned on a regular basis but will NOT be collected. **However, it is your responsibility to have the homework completed before the following lecture.** It is essential to your success in this course that you put a solid effort into the homework. This is how you will learn physics and succeed in the class. (The quizzes you will be taking will generally be based on the homework). If you are having difficulties with the class/homework, here are some things that I recommend to help you succeed in the class:

1. Ask for help during class and attend office hours
2. Work together and discuss problems with other students in the class
3. Math & Science Tutorial Center (Student Success Center).

De Anza College Academic Integrity

“The following types of misconduct for which students are subject to disciplinary sanctions apply at all times on campus as well as to any off-campus functions sponsored or supervised by the college: cheating, plagiarism or knowingly furnishing false information in the classroom or to a college officer”

DISRUPTIVE BEHAVIOR POLICY

Any DISRUPTIVE BEHAVIOR during class will NOT be tolerated. If a student is in any way disruptive during the class, the student will be given a warning. If the problem continues, the student will be asked to leave the class and a formal disciplinary report will be filed with the college disciplinary officer. The incident will be recorded in your college record and will be sent with your transcripts to any university/college requesting student records.

ELECTRONIC DEVICE POLICY

WITH THE EXCEPTION OF SPECIFIED CALCULATORS, THE USE OF CELL PHONES, LAPTOPS, OR OTHER ELECTRONIC DEVICES IS NOT PERMITTED DURING CLASS!!! NOT TAKING ELECTRONIC DEVICES ARE PERMITTED WITH INSTRUCTOR’S PRIOR PERMISSION.

Failure to comply with policy will result in professor collecting electronic device and forwarding your name to the division dean and college disciplinary officer for disciplinary action and having the incident recorded in your college records which will result in adverse consequences in your education.

QUIZZES

There will be a quiz every week/Chapter. The quizzes will be based on homework and lecture material from the corresponding week. Therefore, it is to your advantage to attend every lecture and have **ALL** the homework completed. If you miss a quiz you will get a **ZERO** for that quiz. **NO MAKE-UP QUIZZES!** Lowest quiz score will be dropped at end of quarter.

If you show me a medical documented reason for absence on a quiz, I will do a makeup quiz and you have to come and take it during office hours indicated above in my presence the same week. If you don’t I will replace that grade with your final exam grade.

Other than medical documented reasons there are NO exceptions to this whatsoever!

EXAMS

There will be one 50 minute Midterm and a comprehensive lecture Final Exam. Exact dates for exams will be given at least four days prior to each exam. The exam/quiz format may be work-out problems, multiple-choice, conceptual, or a combination of the three. Only one of the listed calculators can be used during the exam. The key to the success on the exams is preparation; **DO THE HOMEWORK**, attend the lectures, read the textbook and make sure you understand it, and ask questions if you don't understand. **There are no make-up exams**. If you miss an exam you will get a **ZERO** for that exam. If you show me a medical documented reason for absence on the midterm, I will replace that grade with the Final Exam Grade. No makeups of any sort. You have to take the final exam to pass this class regardless of your previous grades.

Note: If there is a dispute in the grading of any exam homework, quiz, or exam I will consider looking at them a second time **only** if it is handed back to me **within 2 school days** after I return them.

GRADING

Grades will be based on the following components with the weights shown:

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|------------|------|
| Attendance | 10 % |
| Quizzes | 53 % |
| Lab | 17 % |
| Midterm | 10 % |
| Final Exam | 10 % |

Grades will be determined as follows:

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|---------------|-----|
| 88% ---> 100% | = A |
| 76 %---> 87% | = B |
| 65% ---> 75% | = C |
| 54% ---> 64% | = D |
| 0 ---> 53% | = 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.

Office Hours:

M,W 11:20 AM 12:35 PM In-Person S-13