De Anza College

Physics for Scientists and Engineers: Mechanics
4A
Fall 2025

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Office Hours 10:00–11:00 Mondays (remote) and 11:30–13:00 Fridays (remote) or by appointment

Class Meets MTWR 13:30–14:20, MLC105; F 13:30-14:20 ONLINE

> *"The scientist does not study nature because it is useful; he studies it because he delights in it, and he delights in it because it is beautiful. If nature were not beautiful, it would not be worth knowing, and if nature were not worth knowing, life would not be worth living."*
>
> — Henri Poincaré

N.B.: This syllabus is subject to change. Any modifications will be announced in class.

Prerequisites

- **Physics Requirement:**
  - Physics 50 with a grade of C or better, **or**
  - Equivalent preparation (including high school physics)
- **Mathematics Requirement:**
  - Completion of Math 1A with grade C or higher, **and**
  - Concurrent enrollment in Math 1B (or completion)

Course Description

Contents

This calculus-based course offers a rigorous introduction to Mechanics (Kinematics and Dynamics), providing students with a strong foundation in some of the fundamental principles of Physics. The course examines the motion of particles and rigid bodies through the study of kinematics, dynamics, work and energy, momentum, rotational motion, gravitation, and oscillatory systems. Emphasis is placed on cultivating problem-solving skills through logical reasoning, mathematical modeling, and graphical analysis. By the end of the quarter, students will have developed both the conceptual understanding and the quantitative tools necessary to analyze a wide range of physical systems.

Textbook Utilization: In the Textbook (see below), we will cover chapters **2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15**. I try to keep lectures as aligned with the Textbook as possible to make it easier and more convenient to prepare for class and review materials.

Required Materials

- Textbook: *Physics for Scientists and Engineers, Volume 1, 9th Edition (2014), Serway and Jewett. ISBN-13: 978-1-133-95415-6*
- Casio FX-300MS, TI – 30XIIS, TI-30Xa, or equivalent.

Teaching Philosophy

This course is designed to build a deep conceptual understanding and practical fluency in the core ideas of Physics that underpin Engineering and the physical sciences. Alongside technical proficiency, time permitting, we will explore the historical development of key ideas, examine real-world applications, and reflect on the broader scientific context. This course is designed not only to build problem-solving skills, but also to cultivate an appreciation for the intellectual richness and relevance of Physics.

Class Environment

The classroom is a space where curiosity is encouraged, questions are always welcome, and we learn Physics together through collaboration and mutual respect. We will work through challenges together, support each other's learning, and celebrate both effort and insight. It is a place where every student feels safe to participate, make mistakes, and grow. If you are having any difficulties with the material covered, please reach out to me during or outside of Office Hours. I am here to help! Do not wait! I welcome questions and feedback.

Grading

Weights of Various Components

Assessment Component	Weight
Quiz 1	16%
Quiz 2	16%
Quiz 3	16%
Quiz 4	16%
Lab Work	20%
Lecture Final Exam	16%
Total	**100%**

Percentage Ranges for Letter Grades

Percentage Range	Letter Grade
88% - 100%	A
76% - 87%	B
65% - 75%	C
54% - 64%	D
0% - 53%	F

- The final exam must be completed to pass the course.
- No extra credit assignments will be offered.
- The Final Exam is comprehensive.

Course Policies

No Class Website

- **Lecture Materials:** Lecture materials will not be posted on Canvas; all essential resources will be provided during class.
- **Grade Tracking:** Students are responsible for keeping copies of all graded work (quizzes, exams, etc.) to track their progress throughout the quarter.
- **Grade Disputes:** Since grades will not be posted on Canvas, your personal record of returned assignments will serve as the official basis for resolving any grade-related concerns.

Attendance Policy

Attendance Policy

- Attendance of all in-person and online lectures is required.
- Late arrival is 3 or more minutes (unless pre-authorized)

- **Punctuality Required:** Students must arrive on time and attend all class sessions. Consistent participation is essential for success in this course.
- **Consequences for Absences:**
  - 4 or more late arrivals or absences may result in being administratively dropped from the course
  - This action is at the instructor's discretion
- **Withdrawal Responsibility:** If you choose to stop attending, you must:
  - Officially withdraw through the registrar's office
  - Complete all required paperwork
  - Failure to properly withdraw will result in a grade of "F"

Homework

- Regular homework assignments will be assigned but **not collected**.
- Homework provides essential practice and forms the basis for quizzes and exams.

Quizzes

- **Schedule:**
  - Weekly quizzes every **Monday** during last 20 minutes of class
  - Covers the previous week's homework and lecture material (or as announced in class).
- **Preparation:**
  - Complete **all** homework before each quiz
  - Regular lecture attendance strongly recommended
- **Missed Quizzes:**
  - No make-up quizzes under any circumstances
  - Missed quizzes receive automatic **zero**
  - Lowest quiz score will be dropped at quarter's end
- **Grade Disputes:**
  - Must be submitted within **2 school days** after return
  - Include written explanation of disputed items
  - No regrade requests accepted after deadline

Quiz Strategy

Use the lowest grade drop policy strategically for one unexpected absence

Problem-Solving Standards:

- Full credit requires **complete step-by-step solutions**
- Correct answers without supporting work will receive no credit on quizzes or exams.
- Homework solutions should also show clear reasoning and methodology to build good habits.

Academic Support:

- Attend instructor office hours for clarification and guidance.
- Form study groups with classmates.
- Utilize the Math, Science, and Technology Resource Center. **Website:** deanza.edu/studentsuccess/mstrc/

Classroom Conduct Policy

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." Violating the Academic Integrity Policy will result in a grade of "F" in the class and the incident will be reported to the college disciplinary office.

Electronic Device Policy

- **Allowed Devices:**
  - Scientific/graphing calculators
  - Phones (silent mode required)
- **Prohibited Devices:**
  - Laptop computers (without exception)
  - Tablets (without prior approval)
- **Usage Rules:**
  - No video/audio recording of lectures
  - No disruptive notifications or calls
  - No non-academic use during class time
- **Special Cases:**
  - Note-taking devices require:
    - Advance instructor permission
    - Signed accommodation agreement (if applicable)

Classroom Expectations

- **Zero Tolerance for Disruptions:**
  - All students must maintain professional behavior conducive to learning
  - Disruptive behavior includes (but not limited to):
    - Side conversations during lectures
    - Use of electronic devices for non-course purposes
    - Interrupting instruction or student questions
- **Disciplinary Process:**
  - First offense: Verbal warning and private conference
  - Second offense: Immediate dismissal from class session
  - Third offense: Formal disciplinary reporting

Communication

Via e-mail ONLY **farghalnoha@fhda.edu**

Zoom Links

Zoom links for Office Hours and Friday lectures will be shared in class.

Student Learning Outcome(s):

- Examine new, previously un-encountered problems by critically analyzing and evaluating their constituent parts, to construct and explain a logical solution utilizing, and based upon, the fundamental laws of mechanics.
- Acquire skill and 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:

Zoom	M	10:00 AM - 11:00 AM
Zoom,By Appointment	F	11:30 AM - 1:00 PM