

**DE ANZA COLLEGE**  
**MATH AND SCIENCE DEPARTMENT**  
**PREPARATORY PHYSICS**

**ONLINE**

**ZOOM Link:** <https://zoom.us/j/8123392481?pwd=UnVSR3dBamhBeVBYY3FXRzYvdDNtdz09>

<https://discord.com/channels/796191263257788487/796191263257788489>

**PHYS D050, CRN 33160, Section 42Z (4 units)**  
**SPRING (Jan-Mar), 2021**

Tu, Thu: 5:30-7:20 pm-students are present in a remote online class  
Office Hours: Tu, 9.00-9.50 am, via ZOOM

Response via email-within 48-72 hrs.

Video/Audio Files of the classes are available in CANVAS in FILES.

Instructor: Len Filane, Ph.D.  
E-mail: [filanelen@fhda.edu](mailto:filanelen@fhda.edu)

**Disclaimer:**

All information in the syllabus is subject to a potential change.

**Textbook:** Walker, James S (2017). Physics 5-th Edition (Paperback), Pearson.  
**Complimentary Reading:** Das, Biman (2004). Mathematics for Physics with Calculus Addison-Wesley.  
Serway and Jewett, Physics for Scientists and Engineers, 9-th Edition,  
Brooks/Cole, 2014.

**Strongly Recommended:** Math 43 (or Math 43H) and Phys 10

**Description:** Basic problem solving techniques in Classical Mechanics as foundation for Physics 4A. Methods and strategies used to solve quantitative physics problems. Intended for mathematics, engineering, physics and science students. Emphasis on problem-solving activities, diversity in problem-solving approaches, and detailed presentation of solutions.

**Goals**

Examine critically 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.

- A. Review relevant mathematics
- B. Examine kinematics
- C. Analyze Newton's laws

- D. Investigate momentum
- E. Categorize and investigate energy
- F. Discuss rotation with applications to problem solving

### **Essential Student Materials**

Scientific calculator

### **Essential College Facilities**

Demonstration equipment from the physics stockroom including film loops and video presentations (only for in-person teaching)

### **Expanded Description: Content and Form**

- A. Review relevant mathematics
  - 1. Discuss basic algebra concepts
  - 2. Examine graphing techniques
  - 3. Explain trigonometry
  - 4. Analyze vector methods
- B. Examine kinematics
  - 1. Discuss displacement
  - 2. Define velocity
  - 3. Define acceleration
  - 4. Analyze the kinematical equations and problem solving
    - a. Discuss one dimensional kinematics
    - b. Discuss two-dimensional (2-D) kinematics
- C. Analyze Newton's laws
  - 1. Discuss Newton's first law
  - 2. Discuss Newton's second law
    - a. Define forces
    - b. Analyze in detail extensive problem solving utilizing the second law
  - 3. Discuss Newton's third law
- D. Investigate momentum
  - 1. Define momentum
  - 2. Explain the conservation of momentum
- E. Categorize and investigate energy
  - 1. Explain work
  - 2. Define the forms of energy
    - a. Discuss kinetic energy
    - b. Define potential energy
  - 3. Discuss the work-energy theorem
- F. Discuss rotation with applications to problem solving
  - 1. Explain rotational kinematics
  - 2. Analyze rotational dynamics
  - 3. Define angular momentum

### **Assignments**

- A. Daily and weekly readings from the text
- B. Weekly written assignments from the text and lectures

### Methods of Instruction

Lecture and visual aids  
Discussion and problem solving performed in class  
Quiz and examination review performed in class  
Discussion of assigned reading

### Methods of Evaluating Objectives

- A. The required readings will be evaluated through homework, quizzes, group discussions, collaborative projects (in-person class only). Grading will be based on logical step-wise problem solving, depth of concepts, and ability to apply mathematical problem solving.
- B. Exams are objective written tests to demonstrate the student's understanding of the course material. Grading will be based on the demonstrated ability to present logical, step-wise solutions.
- C. A two-hour comprehensive lecture final that includes the testing of verbal and conceptual understanding as well as mathematical and computational competency with respect to the theoretical basis and problem-solving aspects of the class. The comprehensive final will test the overall understanding of the learning outcomes listed in the student learning outcomes section.

### Exams and Quizzes:

There are at least two quizzes, 1 mid-term exam and 1 final exam. ***No re-take or make up exams will be given-no exceptions.***

**Students who are late to any exam or quiz will not be allowed to take it.**

### Grades:

Homework:	5% of the total semester grade
Quizzes	20%
Mid-term exam	25%
Final exam:	35%
Classwork :	15%

Final letter grades will be roughly based on the following total percentages:

**A:** 96-100%; **A-:** 90-95%; **B+:** 87-89%; **B:** 83-86%; **B-:** 80-82%; **C+:** 75-79%; **C:** 70-74%; **D+:** 65-69%;  
**D:** 55-64%; **F:** below 55%

I require that in remote learning during quizzes and exams you keep your cameras on.

I reserve the right to replace one activity with another, if I deem it necessary.

### Homework

Written HW is graded on a P/NP basis. I will give homework every class, as we move forward. I will collect homework on selected days only. If you write chaotically I would not be able to follow your work, hence I will not be able to grade it. HW that does not meet these requirements will be rejected and awarded NP. While doing your homework show your work in detail. Just showing the answer will not be accepted for any credit. HW is graded on P/NP basis, NP is assigned for less than 60% correctly done HW. All homework is to be done by the enrolled student and must be your own work. Any attempt to copy or re-use homework or share the same work between the students will result in zero credit. HW shall be submitted online upon my request. HW should be either scanned or photographed and emailed at [filanelen@fhda.edu](mailto:filanelen@fhda.edu)

**Late homework will not be accepted.** I will not accept any HW after the announced deadline. If you know that you will be absent in class, please email your homework to me prior to the beginning of the current class. If you have a question or an issue regarding your HW, then the best way to resolve it is during office hours.

Do not copy the solutions from the instructor's solution manual or online. If you do it, you will be guilty of plagiarism which is a violation of student conduct code, and may result in you being disciplined, suspended from class or expelled from the school.

### **Class Work:**

Your goal should be to demonstrate the grasp of the concepts, ability to solve problems and critical thinking skills. You should strive to ask relevant questions, volunteer relevant answers and actively participate in class discussions. You should diligently do all of the class assignments and submit them via email to me by the announced deadline. Late submissions will be given zero points. Class assignments are graded on P/NP basis, NP is assigned for less than 60% correctly done assignment.

### **Classroom Expectations:**

You should be in class ready to learn every day (ZOOM -in in case of remote learning). It is paramount to have an open learning environment in class. If you are behaving in a manner that inhibits me from teaching or anyone around you from learning, you will be asked to leave (log out in case of remote learning).

Learning is your responsibility, you own it. Please follow guidelines of good behavior. You are in an institution of higher learning- please, act like it. Respect oneself and others in the (virtual) room. You are expected to behave in a courteous manner both toward your classmates and me at all times. Profanity is unacceptable. Sarcasm is unacceptable.

I encourage participation in class and grade it.

**Please do not distract other students or me from the task at hand. I value students' inputs regarding curriculum and instruction, however, do not raise such issues during class, as it destructs everybody from the task at hand. You are welcome to discuss such issues, if they arise, at one-on-one (virtual) meetings with me.**

Violation of any of the rules of student behavior may result in the college taking disciplinary actions.

### **Student Conduct and Discipline**

Students enrolling in the College assume an obligation to conduct themselves in a manner compatible with the College's function as an educational institution. The following acts constitute misconduct for which College students are subject to discipline and suspension. Such misconduct, whether committed while on campus or off campus, at functions supervised or sponsored by the College, is subject to disciplinary sanctions (Ed. Code 76032 and 76033) administered by the College.

1. Continued disruptive behavior, continued willful disobedience, habitual profanity, or vulgarity, or the open and persistent defiance of the authority of, or persistent abuse of, college personnel.
2. Persistent, serious misconduct where other means of correction have failed to bring about proper conduct.
3. Dishonesty, such as cheating, plagiarism, or knowingly furnishing false information to the College.
4. Forgery, alteration, or misuse of College documents, records, or identification.
5. Violation of College policies or regulations, including regulations concerning the formation and registration of student organizations, the use of college facilities, or the time, place and manner of public expression.
6. Conduct off campus inimical to the welfare and well-being of the College community.
7. Class ZOOM video/audio files are posted in CANVAS (see FILES). Students are required to respect intellectual property of the instructor and not post such files on the social media.

### **Attendance**

Students are expected to be punctual and attend all classes in which they are enrolled. Students may be dropped by the instructor for failure to attend class in the following circumstances:

1. Failure to attend the first virtual class meeting,
2. Absence from a total of six virtual (6) hours of instruction,
3. At any point when it is concluded that absences have irretrievably affected the student's progress in his/her coursework,
4. Persistent tardiness.

**Attendance is mandatory.** If you are repeatedly late to class or leave early, you disrupt the learning process of everybody, yourself including.

**Grievance Policy and Procedure.** Please refer to the Student Catalog.

### **Important Dates:**

JANUARY 4

First day of winter quarter

JANUARY 16

Last day to add classes

JANUARY 18

Last day to drop classes without a W

JANUARY 18

Martin Luther King Jr. Holiday - Campus Closed

JANUARY 29

Last day to request "Pass/No Pass" for 12-week classes

FEBRUARY 12-15

Presidents' Holiday - Campus Closed

FEBRUARY 26

Last day to drop classes with "W"

MARCH 1

Last day to file for winter degree or certificate

MARCH 22-26

Final exams

MARCH 26

Last day of winter quarter

**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.