

## PHYSICS 171, Applied Physics I: Mechanics, Spring 2025

### Lecture:

**Time:** MW 4:00pm – 4:50pm

**Class Location:** ZHS 163

**Instructor:** Dr. Bo Shrewsbury

**Instructor's Office:** SSC 215A

**Instructor Office Hours:** Monday 5-6PM and Wednesday 3-4PM in SSC 215A

### Discussion Sections:

	SECTION 50781	SECTION 50782
<b>TIME</b>	TTh 12:00pm – 12:50pm	TTh 5:00pm-5:50pm
<b>LOCATION</b>	DMC 206	LVL 16
<b>INSTRUCTOR</b>	Dr. Bo Shrewsbury	Dr. Bo Shrewsbury

### TA Office Hours:

All laboratory TAs have office hours in **ACB 431** for the assistance of students in all 100-level physics courses. The offices will be staffed with at least one TA from **10am – 4pm, Monday through Thursday**. The schedule of every TA's office hours will be constructed during the first week of classes and will be posted on the door of the Office Hours room and maintained on the Departmental Website at <http://dornsife.usc.edu/physics/teaching-assistant-resources>.

### Textbooks (free, online):

<https://openstax.org/details/books/university-physics-volume-1>

### Laboratory:

The laboratory director is Dr. Gokhan Esirgen. His email is [esirgen@usc.edu](mailto:esirgen@usc.edu). His office is KAP B19, and his office phone is 213-740-1138. The laboratory grade is worth 20% of your total course grade. Your lab TA will help you figure out how to perform the experiments and how to troubleshoot when they are not working.

### Homework:

The homework will be problem sets, posted on Brightspace in the Assignments section. **Late homework is not accepted.** Homework will be graded for correctness and completion. The lowest three scores will be dropped and the remaining scores make up 15% of the course grade.

### Worksheets:

Worksheets will be given once per week, during one of the discussion sessions. They may be worked on in groups, but individual submissions are required. These worksheets will be graded based on participation. They make up 15% of the course grade.

### Midterms:

There will be two midterms, held in class. The first will be on **Wednesday, Feb 19**. The second will be on **Monday, April 1**. Each midterm will be worth 15% of the course grade.

### Final Exam:

According to the USC final exam schedule, the final exam will be on **Wednesday, May 7<sup>th</sup> from 4:30pm – 6:30pm**. It will cover the entire class, with an emphasis on the last portion, and it will be worth 20% of your total course grade.

### Grading Summary:

Item	Percent towards total course grade
Laboratory Grade	20%
Homework	15%
Worksheets	15%
Midterm 1	15%
Midterm 2	15%
Final Exam	20%
Total	100%

### Weekly Schedule:

*This is a tentative schedule and may be subject to change.*

Week	Start Date	Topics	Book Sections
1	1/13	Introduction, Units, Dimensional Analysis, Scalars & Vectors, Coordinate Systems, Vector Math, 1D Motion	Ch. 1, Ch. 2, Ch. 3
2	1/20	MLK Day on 1/20 1D Motion	Ch. 3
3	1/27	2D & 3D Motion, Projectile Motion, Circular Motion	Ch. 4
4	2/3	Forces, Newton's Laws	Ch. 5
5	2/10	Common Forces, Solving Problems, Friction, Centripetal Force, Drag Force	Ch. 6
6	2/17	Presidents Day on 2/17 Midterm 1 on 2/19	
7	2/24	Work, Kinetic Energy, Work-Energy Theorem, Power	Ch. 7
8	3/3	Potential Energy, Conservation of Energy	Ch. 8
9	3/10	Center of Mass, Linear Momentum	Ch. 9

10	3/17	Spring Break 3/17 – 3/20	
11	3/24	Collisions & Conservation of Linear Momentum	Ch. 9
12	3/31	Midterm 2 on 3/31 Fixed-Axis Rotational Motion & Kinetic Energy	Ch. 10
13	4/7	Moment of Inertia, Torque, Rolling Motion, Angular Momentum	Ch. 10, Ch. 11
14	4/14	Conservation of Angular Momentum, Gravitation	Ch. 11, Ch. 13
15	4/21	Simple Harmonic Motion, Energy in SHM, Pendulums	Ch. 15
16	4/28	Review	

### **Disabilities:**

Students who need to request accommodations based on a disability are required to register each semester with the Disability Services and Programs. In addition, a letter of verification to the instructor from the Disability Services and Programs is needed for the semester you are enrolled in this course. If you have any questions concerning this procedure, please contact the course instructor and Disability Services and Programs at (213) 740-0776, STU 301.

### **Assistance:**

In addition to lectures and discussion sections, the instructors and Lab TAs have office hours that can be used to answer questions you may have about concepts or particular homework problems.

### **Additional Assistance:**

#### **(a) Study Groups**

One of the most effective ways to learn new material is to teach it to others. To this end, we encourage you to work together in learning the material, and in doing homework assignments. If you have friends also enrolled in the course, in any section, feel free to discuss homework problems, *approaches* to solutions, and even solutions, though again you are cautioned not to simply copy each other's solutions.

#### **(b) Viterbi Academic Resource Center <http://viterbi.usc.edu/tutoring>**

The Viterbi Academic Resource Center office is located in the Ronald Tutor Hall of Engineering, Room 222, and provides two kinds of services. It provides free individual and group tutoring with tutors screened by the School of Engineering. For more information contact the Engineering Student Affairs Office, RTH 110. Other contacts: 740-3381,

[viterbi.tutoring@usc.edu](mailto:viterbi.tutoring@usc.edu).