

PHYSICS 171, Applied Physics I: Mechanics, Spring 2024

Lecture, M/W, KAP 144, 4:00-4:50pm, Chia Wei (Wade) Hsu

Discussion Section, M/W, OHE 230, 12:00-12:50pm, Chia Wei (Wade) Hsu

Office	PHE 610
Office Hours	Thur 9:30-11 am
email	cwhsu@usc.edu

Discussion Section, T/Th, LVL 16, 5:00-5:50pm, Ashton Lowenstein

Office	SSC 216A
Office Hours	Tue 1-2pm
email	alowenst@usc.edu

Teaching Assistants:

Hao He, hehao@usc.edu (Lab TA & grader)

Shiyu Li, lishiyu@usc.edu (Lab TA)

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 **10 am to 4 pm, 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>

TEXTBOOK (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. 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 Blackboard in the Assignments section. **They are due in class. Late homework is not accepted.** Homework makes up 20% of course grade.

MIDTERMS – There will be two midterms, held in class. The first will be on **Monday, Feb 12**. The second will be on **Monday, Mar 25**. Each midterm will be worth 15% of course grade.

FINAL EXAM– The final exam will be on **Wednesday, May 1st from 4:30pm until 6:30pm**. It will cover the entire class, with an emphasis on the last portion, and it will be worth 30% of your total course grade.

GRADING SUMMARIZED:

Item	Percent towards total course grade
Laboratory Grade	20
Homework	20
Midterm One	15
Midterm Two	15
Final Exam	30
Total	100

WEEKLY SCHEDULE:

Week	Start Date	Topics	Book chapters
1	1/8	Units, dimensional analysis, significant figures, vectors, vector products, coordinate systems	Chapters 1,2
2	1/15	Martin Luther King Day (University Holiday) on 1/15 1D motion	Chapter 3
3	1/22	1D motion continued, 2D and 3D motion, projectile motion, uniform circular Motion	Chapters 3, 4
4	1/29	Relative motion & reference frame, common forces, Newton's laws of motion	Chapters 4, 5
5	2/5	Newton's laws continued, Review for Midterm 1	Chapter 5
6	2/12	Midterm 1 on Mon 2/12: Chapters 1-5 Friction, drag force.	Chapter 6
7	2/19	Presidents' Day (University Holiday) on 2/19 Non-inertial reference frames & fictitious forces	Chapter 6
8	2/26	Centrifugal force, Coriolis force, work, kinetic energy, work-energy theorem, power	Chapter 7
9	3/4	Potential energy, conservative and non-conservative forces, conservation of energy	Chapter 8
	3/11	Spring Recess	
10	3/18	Center of mass, Review for Midterm 2	Chapter 9
11	3/25	Midterm 2 on Mon 3/25: Chapters 6-8 Linear momentum, impulse, momentum conservation	Chapter 9
12	4/1	Elastic, inelastic, and super-elastic collisions, rocket propulsion. Special relativity: time dilation and length contraction.	Vol 3, Ch 5
13	4/8	Fixed-axis rotation: torque and angular acceleration, moment of inertia, rotational kinetic energy	Chapter 10
14	4/15	Rolling motion, angular momentum, torque, angular impulse	Chapter 11
15	4/22	Gyroscope. Review for Final.	Chapter 11
	5/1	Final Exam on Wed 5/1, 4:30-6:30 pm: Comprehensive	

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.