

DEPARTMENT OF PHYSICS

Spring 2023

Physics 2C

April 2, 2023

University Physics – Fluids, Waves, Thermodynamics, and Optics

Web page: <https://canvas.ucsd.edu/courses/46988>

INSTRUCTOR: Prof. Liang Yang, liyang@physics.ucsd.edu
Office Hours: Mondays, TBD, Mayer Hall 5130

TAs:

Name	Office Hours	email	office hour location/zoom
Pathak Parashar	TBD	psparash@ucsd.edu	TBD
Maxwell Poore	TBD	mpoore@ucsd.edu	TBD
Aiden Sheckler	TBD	asheckler@ucsd.edu	TBD
Khang Ton	TBD	kton@ucsd.edu	TBD

TA Office hours will be finalized during week 1 and posted on Canvas/Piazza.

Course Format: Physics 2A-B-C-D is a lecture course covering mechanics, electricity and magnetism, waves and modern physics. Physics 2C is a calculus-based science-engineering general physics course covering fluid mechanics, waves in elastic media, sound waves, temperature, heat and the first law of thermodynamics, kinetic theory of gases, entropy and the second law of thermodynamics, electromagnetic waves, geometric optics, interference and diffraction.

Public Health: Please review [UC San Diego Return to Learn Plan](#).

Stay home if you're feeling ill

CLASS STRUCTURE AND SCHEDULE:

Textbook: Halliday & Resnick & Walker, Fundamentals of Physics, 11th Edition, Vol. 1 Part 2 & Vol. 2 Part 4, John Wiley & Sons. 12th, 10th and 9th editions should work as well.

We will not be using Wiley Plus option, but some students may find it useful for self-guided studying.

Lectures: MWF 10:00am-10:50am Peterson Hall 108

All lectures will be video-recorded and available on podcast.ucsd.edu, typically within a few hours. No lectures will be held on Wednesdays at 5 pm

Quizzes: Wednesdays, Galbraith Hall (6PM-6:50PM) during weeks 4, 6, 8 and 10 – April 26, May 10, May 24, June 7, respectively.

We will provide the relevant formula sheet for each quiz. You are allowed to use calculator and pencils/blubooks only. We may check IDs during quiz submission.

Not allowed: books, laptops, tablets, phones or any other materials. Please turn your cellphones off during the quiz. Using a phone for any reason during the quiz or the final exam is violation of academic integrity. Talking to another student during the quiz or the final exam (for any reason) is a violation of academic integrity. If you have any questions or concerns during the quiz or the exam, raise your hand and ask the TA or the proctor.

There will be no make-up quizzes or exams. All quizzes/exams will need to be taken in-person only.

The quizzes will contribute to 45% of your overall grade, weighted equally at 15% each, with the lowest quiz score dropped.

You must purchase blue books for the quizzes and final exam – they are available at UC San Diego Campus Bookstore.

HW Assignments: Problem sets are assigned as selections from each text chapter and will be submitted via Gradescope. Grading will be done (by your section TA) primarily based on effort. Students are encouraged to collaborate on the homework problems in study groups, discussion sessions etc.

Discussions: Discussion sessions will be held on Fridays, Week 1-10 See your section schedule and locations below. During these sessions, students will be asked to work together in small groups on assigned problems, with help from Teaching Assistants. Attendance is required, total credit for attending discussion sessions is 15%.

DISCUSSION SCHEDULE: (Fridays, week 1-10)

APM 2301	APM 2301	APM 2301	APM 2301	YORK 3000A
8:00am-8:50am	9:00am-9:50am	12:00pm-12:50pm	11:00am-11:50am	2:00pm-2:50pm

A01	A02	A03	A04	A12
Parashar	Parashar	Sheckler	Parashar	Sheckler
15794	157595	157596	157597	157605

WLH 2208 9:00am-9:50am	WLH 2209 9:00am-9:50am	WLH 2112 11:00am-11:50am	WLH 2114 12:00pm-12:50pm	WLH 2114 1:00pm-1:50pm
A07	A08	A09	A10	A11
Ton	Poore	Sheckler	Ton	Ton
157600	157601	157602	157603	157604

Final Exam:

June 12, 8:00AM-11:00AM, location TBD

The final examination will cover all of the material of the course. Exam structure will be closed book with equation sheet but will be 3 hours instead of 50min with proportionally larger number of problems/questions. Level of difficulty of problems will remain the same.

Please check your final exam schedule and inform the instructor of any conflicts within the first two weeks of the quarter.

Clickers:

You will have the opportunity to participate in lecture by utilizing the in-class clicker system (iClickers). You are allowed (and encouraged) to discuss clicker questions with fellow students in class. We will not record answers and lecture attendance is not required.

Prerequisites:

PHYS 2A or 4A, and MATH 20C or 31BH. Recommended preparation: prior or concurrent enrollment in MATH 20D. Prior completion of PHYS 2B is strongly recommended. Trigonometry, vectors, and calculus will be used in lectures, problem sets and exams.

Academic

Achievement Hub: Academic support is provided to you (the student) each week during the quarter by the [Teaching and Learning Commons](#) (Academic Achievement Hub), via either [Supplemental Instruction](#) and/or online [Tutoring](#). Please see the schedules by program and course (SI leader Delaney's schedule is below). All academic support is free; no registration or appointment required.

SI Leader	Session Day	Session Time	Location
Yuntong Zhou yuz102@ucsd.edu	Monday	6:00 – 7:20 pm	https://ucsd.zoom.us/j/95730767695
	Wednesday	1:30 – 2:50 pm	Teaching Learning Common 1504

We will also use Piazza forums:

You need to try to solve problems and explain how far you got before asking for guidance or hints – do not expect TAs or instructor to do all the work for you in solving your homework!

Acad. Integrity:

Please read ["UC Policy on Integrity of Scholarship"](#).

All quizzes and the final exam are “closed book”. See Canvas for online quiz instructions. For in person final, you are allowed bluebooks, pencils and calculators only, as well as equation sheets that will be provided. No laptops, tablets are allowed. Turn off your cell phones. No texting, emailing or talking is allowed until you submit your scantron and leave the room. All work is individual; do not look at your neighbor’s quiz/exam. We will be selectively checking IDs when you submit your work.)

Any observed violation of these rules will be immediately reported to the [Academic Integrity Office](#).

A student found in violation of the UCSD Academic Integrity policy may be assigned an F grade in the course.

Grading Policy:

Quizzes	45% (Top 3 quizzes at 15%, Lowest quiz dropped)
Final Exam	30%
Discussion Sessions	15% (attendance required)
Homework	10% (graded based on efforts)

Add/Drop:

Use WebReg to add/change/drop/waitlist. Instructors/TAs **do not sign any add/drop cards.**

If you are on the waitlist, please remember that TAs or the instructor **cannot** move you from waitlist (registrar office does that automatically) or increase the enrollment size (set by fire marshal rules). For more info on Waitlists and other

procedures, see [1/ 2-series FAQ](#).

Other Resources: Throughout your time in college, you may experience a range of issues that can negatively impact your learning. These may include physical illness, housing or food insecurity, strained relationships, loss of motivation, anxiety, high levels of stress, alcohol and drug problems, feeling down, interpersonal or sexual violence, or grief. These concerns or stressful events may lead to diminished academic performance and affect your ability to participate in day-to-day activities. In order to support you during such challenging times, UC San Diego provides a number of resources to all enrolled students, including:

- Counseling and Psychological Services (858-534-3755 | caps.ucsd.edu)
- Student Health Services (858-534-3300 | studenthealth.ucsd.edu)
- CARE at the Sexual Assault Resource Center (858-534-5793 | care.ucsd.edu)
- The Hub Basic Needs Center (858-246-2632 | basicneeds.ucsd.edu)

Help is always available.

PHYSICS 2C TENTATIVE COURSE SCHEDULE

Week	Date	Topics	Chapter
1	Apr. 3-7	Class Overview Temperature scales, Temperature and Heat First Law of Thermodynamics.	18

2	Apr. 10-14		Conduction, Convection, & Radiation Ideal Gases, Molar Specific Heats	18 19
3	Apr. 17-21		Degrees of Freedom Entropy, Second Law of Thermodynamics	19 20
4	Apr. 24-28 Apr. 26	Wed 6 pm	Engines and Refrigerators Density and Pressure Quiz 1 (Chap. 18-19)	20 14
5	May 1-5		Archimedes' Principles Bernoulli's Equation Simple Harmonic Motion & Waves	14 15
6	May 8-12 May 10	Wed 6 pm	Superposition of Waves, Standing Waves & Resonance Sound Waves Quiz 2 (Chap. 20, 14)	16 17
7	May 15-19		Interference, The Doppler Effect Electromagnetic Waves, Polarization	17 33
8	May 22-26 May 24	Wed 6 pm	Reflection and Refraction Mirrors and Images Quiz 3 (Chap. 15, 16, 17)	33 34
9	May 29 – June 2		Geometrical Optics Optical Interference, Young's Experiment	34 34/35
10	June 5-9 June 7	Wed 6 pm	Diffraction, Diffraction Gratings Class Review QUIZ 4 (Chap. 33, 34, 35)	35 All
EXAM	June 12	Monday	FINAL EXAM, 8:00AM-11:00M (Monday)	ALL