



UNIVERSITY OF CALIFORNIA, SANTA CRUZ

PHYS 133: INTERMEDIATE LABORATORY

2024 Summer Session

Last Updated: 30 July 2024

Instructor:	Dr. Pablo Saz Parkinson	Dates:	June 24 – Aug 30
Office:	Natural Sciences II, Room 325	Days:	Tuesdays, Thursdays
Email:	sazpark@ucsc.edu	Time:	09:15 – 13:00
Web:	http://scipp.ucsc.edu/~pablo/	Place:	Nat. Sci. II, 110

Office Hours:

Tuesdays and Thursdays, after class, and by appointment (please e-mail).

Teaching Assistant:

Swosti Choudhury (swchoudh@ucsc.edu)

Attendance: Regular attendance to **all** labs and lectures is essential and expected.

Course Materials You will need a Physics 133 lab manual, which is available at the bookstore. See additional references mentioned in the lab manual (e.g. for statistics). Optional material includes a bound laboratory notebook, which you should bring to your lab sessions. You are allowed to keep an “electronic” notebook, if you choose. The contents of your notebooks will be examined at the end of the quarter and will count towards your final grade.

Course Description (from UCSC Course Catalog): Demonstration of phenomena of classical and modern physics. Development of a familiarity with experimental methods. Special experimental projects may be undertaken by students in this laboratory.

Prerequisites: PHYS 5C and PHYS 5D and one from CSE 5J, or CSE 14, or CSE 20, or ASTR 119, or by permission of the instructor. Enrollment is restricted to physics, applied physics, physics (astrophysics), and science education majors and physics minors.

Grading Policy

Grades will be determined based on the following weighting scale:

- Homeworks – $10\% + 10\% = 20\%$
- Lab Reports – $25\% \times 3 = 75\%$
- Lab Notebook – 5%

Assignments are due at 23:59 on the date specified. Late assignments will not be accepted unless by prior agreement with me. Late assignments will be penalized 10% per day and will not be accepted >1 week late. There is no final exam. For the first lab report, you will first submit a draft, followed by a final version a week later. Only the final report will be graded, but you should use the feedback received from your submitted draft to help you improve the final version. The third lab report will be due the day after your last lab session, and final day of the quarter, 30 August 2024. You do not need to turn in your lab notebooks, but be prepared to present them to me, or the TA, during the final week of labs, as they will count towards your final grade.

Policy on collaboration between students:

Students will be asked to work in groups (mostly in pairs) to complete all three experiments. You are allowed to pair up as you choose. Please e-mail me as soon as possible if you have a desired lab partner. Those who do not have paired up by the beginning of the labs, will be assigned a random partner (or partners). Your lab partner will be the same for all three labs you carry out in the course.

You cannot take data alone. You and your partner(s) must work together to obtain the data needed.

Although students will be collaborating during the gathering of data, and are also allowed to work together on homework assignments, **each student must write up their own individual solutions to their homework assignments as well as their own lab reports** and be able to justify all work handed in. Copying or sharing of material (e.g. plots and tables from lab reports) is not allowed, and we are required to investigate any suspected cases of plagiarism on homework assignments (see next paragraph).

Academic Integrity:

The following is taken from the Office of the registrar:

Academic integrity is the cornerstone of a university education. Academic dishonesty diminishes the university as an institution and all members of the university, and tarnishes the value of a UCSC degree.

All members of the UCSC community have an explicit responsibility to foster an environment of trust, honesty, fairness, respect, and responsibility. All members of the university community are expected to present as their original work only that which is truly their own. All members of the community are expected to report observed instances of cheating, plagiarism, and other forms of academic dishonesty in order to ensure that the integrity of scholarship is valued and preserved at UCSC.

In the event a student is found in violation of the UCSC Academic Integrity policy, he or she may face both academic sanctions imposed by the instructor of record and disciplinary sanctions imposed either by the provost of his or her college or the Academic Tribunal convened to hear the case. Violations of the Academic Integrity policy can result in dismissal from the university and a permanent notation on a student's transcript. For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the section on Academic Integrity at UCSC's web page for Undergraduate Education <https://ue.ucsc.edu>

Important Note:

This Course Outline is **tentative** and may be updated as the semester progresses. However, in the event of a major campus emergency, or significant changes to university guidelines and policies, the syllabus, deadlines, and requirements may need to be amended.

Tentative Course Outline and Schedule:

Week	Date	Key Topics	Assignments (Due by 23:59)	Notes
1	25 Jun	Course overview		
	27 Jun			No class (Out sick)
2	2 Jul	Statistics	HW # 1 out	Radiation Safety; 10:45/13:00
	4 Jul	Holiday		
3	9 Jul	Statistics (Cont'd) Lab I	HW #1 due	
	11 Jul	Lab I	HW #2 out	
4	16 Jul	Lab I		
	18 Jul	Lab I	HW #2 due	
5	23 Jul	Lab I		
	25 Jul	Lab I	Report I (draft) due	
6	30 Jul	Lab II		
	1 Aug	Lab II		
7	6 Aug	Lab II	Report I (final) due	
	8 Aug	Lab II		
8	13 Aug	Lab II		
	15 Aug	Lab III	Report II due	
9	20 Aug	Lab III		
	22 Aug	Lab III		
10	27 Aug	Lab III		View Lab Notebooks
	29 Aug	Lab III		View Lab Notebooks
	30 Aug	End of Quarter	Report III due	

Lab Pairings and Assigned Order of Completion

Lab #	Lab Name	Students
1	Atomic Spectroscopy	Dominic Doud & Anderson Compalas Gina Johnson & Shivani Kota
1	AC Circuits	Max Kogan & Sam Tyler Andreas Breitenbach & Josephine Tian Miles Davis & Joe Wang
1	Radioactive Decay	Malcolmn Madrone & Nigel Ruz Emily Piper & Alexzandra Quintero Samson Volker & Joseph Wang
2	Atomic Spectroscopy	Max Kogan & Sam Tyler Andreas Breitenbach & Josephine Tian Samson Volker & Joseph Wang
2	AC Circuits	Dominic Doud & Anderson Compalas Malcolm Madrone & Nigel Ruz Emily Piper & Alexzandra Quintero
2	Radioactive Decay	Miles Davis & Joe Wang Gina Johnson & Shivani Kota
3	Atomic Spectroscopy	Miles Davis & Joe Wang Malcolm Madrone & Nigel Ruz Emily Piper & Alexzandra Quintero
3	AC Circuits	Gina Johnson & Shivani Kota Samson Volker & Joseph Wang
3	Radioactive Decay	Max Kogan & Sam Tyler Andreas Breitenbach & Josephine Tian Dominic Doud & Anderson Compalas

Lab Partners:

Max Kogan & Sam Tyler
 Andreas Breitenbach & Josephine Tian
 Miles Davis & Joe Wang
 Dominic Doud & Anderson Compalas
 Gina Johnson & Shivani Kota
 Malcolm Madrone & Nigel Ruz
 Emily Piper & Alexzandra Quintero
 Samson Volker & Joseph Wang

Lab Pairings and Assigned Order of Completion (Section 2):

Lab #	Lab Name	Students
1	Atomic Spectroscopy	Matt Bernstein & Tyler Morris Alice Borjigin & Carmen Galmes Altafulla Arsh Sayyad & Zach Warner
1	AC Circuits	Jack Birkett & Alex Wang Auden Chen & Natalie Hultgren Violet Mcallister & Aya Westerling
1	Radioactive Decay	Stuti Garg & Ashai Moreno Jackson Falk & Holden Nix Luca Menotti & Colton Rogalski
2	Atomic Spectroscopy	Jack Birkett & Alex Wang Auden Chen & Natalie Hultgren Violet Mcallister & Aya Westerling
2	AC Circuits	Stuti Garg & Ashai Moreno Jackson Falk & Holden Nix Luca Menotti & Colton Rogalski
2	Radioactive Decay	Matt Bernstein & Tyler Morris Alice Borjigin & Carmen Galmes Altafulla Arsh Sayyad & Zach Warner
3	Atomic Spectroscopy	Jackson Falk & Holden Nix Stuti Garg & Ashai Moreno Luca Menotti & Colton Rogalski
3	AC Circuits	Matt Bernstein & Tyler Morris Alice Borjigin & Carmen Galmes Altafulla Arsh Sayyad & Zach Warner
3	Radioactive Decay	Jack Birkett & Alex Wang Auden Chen & Natalie Hultgren Violet Mcallister & Aya Westerling

Lab Partners:

Matt Bernstein & Tyler Morris
 Jack Birkett & Alex Wang
 Alice Borjigin & Carmen Galmes Altafulla
 Auden Chen & Natalie Hultgren
 Jackson Falk & Holden Nix
 Stuti Garg & Ashai Moreno
 Violet Mcallister & Aya Westerling
 Luca Menotti & Colton Rogalski
 Arsh Sayyad & Zach Warner