

PHYSICS 133

Intermediate Laboratory

"Life isn't about waiting for the storm to pass,
it's about learning to dance in the rain."

INSTRUCTOR: Joseph Connell UC Santa Cruz
Email: jomaconn@ucsc.edu Summer 2022
Office Hours: after class or by appointment June 20 – Aug 26

CHERISHED TEACHING ASSISTANT: Conghao Zhou – zhou.conghao@ucsc.edu

CLASS MEETINGS: TuTh 1:00 – 5:00 PM in Nat Sci 2 110. You are required to attend all sessions. If you are late or must miss a meeting, please send me an email in advance so your lab partner can be accommodated.

LAB MANUAL: Posted on Canvas Files, you must read it ahead of time to keep up with the course. We will focus on statistics during the first few weeks, so please preview that material. I encourage you to supplement the lab manual's statistics sections with other resources.

GRADING: Please submit your work to Canvas before midnight on the due date.

- Three Statistics Homeworks – 30%
- Three Lab Reports – 70%

COURSE GOALS: We will learn to:

- Practice statistics topics and calculations essential to work in physics
- Understand the importance of uncertainty on all measurements
- Make measurements with common physics laboratory equipment
- Analyze data, always with uncertainties (Excel and Python), and draw conclusions
- Present our findings in convincing and detailed yet concise lab reports with plots

INCLUSIVITY & CONDUCT:

- Let's do our best to make this summer course enjoyable and welcoming to your classmates.
- All students work at different paces. It is OK if an experiment or analysis takes you longer than your classmates, but be careful to not fall too far behind. This course is a huge time commitment; keep up!
- Ask questions and clarify often; it is a small class and we have time to talk. If something is unclear, other students could also benefit from a discussion.
- You will collect data with a partner and may talk with other students when you are stuck, but you must produce your own analyses and write your own reports.
- If something is bothering you about the course or classmates, please inform me or the TA.

SCHEDULE

Summer 2022: June 20 – Aug 26

WEEK	DATE	TOPIC	DUE midnight
1	6/21	Welcome! Intro Lectures	
	6/23	Statistics	
2	6/28	Statistics, Oscilloscope	
	6/30	Statistics, Radiation Safety	HW1
3	7/5	Statistics, Lab 1	
	7/7	Lab 1	HW2
4	7/12	Lab 1	
	7/14	Lab 1	HW3
5	7/19	Lab 1	
	7/21	Lab 1	
6	7/26	Lab 2	Report 1
	7/28	Lab 2	
7	8/2	Lab 2	
	8/4	Lab 2	
8	8/9	Lab 2	
	8/11	Lab 3	Report 2
9	8/16	Lab 3	
	8/18	Lab 3	
10	8/23	Lab 3	
	8/25	Lab 3	Report 3

DRC: There are no exams or timed assignments in this course, so the usual DRC accommodation process is not necessary unless you want me to know. UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you have a disability and require accommodations to achieve equal access in this course, please submit your [Accommodation Authorization Letter](#) from the DRC to me. You can visit the DRC website at drc.ucsc.edu or reach the DRC staff by email at drc@ucsc.edu.

Title IX: The Campus Advocacy Resources and Education (CARE) Office (831) 502- 2273, care@ucsc.edu can provide confidential support and assist with academic, housing, work, and transportation adjustments, and implement interim and safety measures. To make a Title IX report, please contact Tracey Tsugawa, Title IX Officer, (831) 459-2462, ttsugawa@ucsc.edu.