PHYS—220 Modern Physics Laboratory
Fall 2025

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Wed/Fri 2:00 P.M. — 5:00 P.M., RB104
Office hours: Tues, Thu 9:00 A.M. — 11:30 A.M.
or by "appointment".

Texts: There is no textbook for this class. All the reading material you will need will be provided for you either online or as hardcopy in class.

Grade: Your grade for this class will be the average ofthree formal write-ups and your lab logbook, all equally weighted.

Policies: One of the skills we hope you improve by participating in this course is your ability to work productively and enjoyably in teams. You should collaborate during the pre-lab work, experimental set up, data taking, analysis, and interpretation. The only portion of your experience in this class that will be done by yourself is the write-up of the lab. I ask that each of you hand in your own written work.

Lab writeups: Lab writeups have a fairly standard format. The typical sections (perhaps with slightly varying names) are:

- **Title and Author**
- **Abstract** Very short description of the experiment. See my link to the best abstract ever. It should say what you did, what you found, and why it is interesting.
- **Introduction** This section would include information about any historical background, theory, and motivation for the experiment.
- **Equipment & Procedure** List the equipment that you used and explain any important features of the apparatus. Describe the procedure that was used to collect the data.
- **Data & Analysis** Here you present the actual data and explain the analysis (including analysis of uncertainties) that was performed.

- **Results & Conclusion** This is the summary. Discuss your final result and what it means, how it fits in with other experiences, and what we have learned. Sometimes suggestions for improvements in the future are included here, as well as acknowledgments.

When writing mathematical sections of the report, clarity is important. Don't just *show* me what you did; *explain* what you did. Mix your prose and algebra, don't work the problem in algebra and then recap in prose at the end. Equations are shorthand for words, they should fit into the text when read as sentences. Solutions should read linearly down the page, although equations may be numbered to refer to later. Any equation that does not follow from the previous equation **must** be referenced.

Communication: I will work very hard with you to make this course as productive for you as I can. Unfortunately, issues can always arise, both personal and academic, that can interfere with your learning. Communication is key to finding the best solution we can to any of these issues. Please let me know as early as you can about any problems you see coming up or are currently experiencing. My contact information is at the top of this syllabus. Please feel free to contact me through any of those avenues at any time.