SUNY Geneseo, Department of Physics and Astronomy

Physics 126: Analytical Physics II Laboratory

Syllabus, section 4, spring 2021

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Course Website: http://www.geneseo.edu/~mclean/Analyt2Lab/ and in Canvas

Learning Outcomes (*or* **Why am I here?**)

As a result of taking this course, the student should be able to …

1. … explain many aspects of how electrical circuits function and the propagation of waves.
2. … communicate your experiences of the physical world in a clear, precise, and concise manner.
3. … demonstrate understanding of the methods used by physicists to quantitatively investigate the physical world, including mathematical techniques, some specific equipment (particularly the oscilloscope), and the limitations on both.

Times and places

Labs: ISC 219, Wed 4:00–6:50PM

Office hours: Either in-person at my office or via Zoom at https://geneseo.zoom.us/j/7708139384
Mon, Wed, Thu 1:30–3:30PM *(tentative)*
I am also available at other times; see the schedule on my web site. Feel free to phone or stop by my office. Email or phone can be used to make an appointment.

Required materials

Laboratory Manual, current year edition, available only through campus bookstore
Laptop computer with desktop version of Microsoft Excel installed

Required coursework and grading (with fraction of final grade)

28% Lab Abstracts: Four, each 7% of the final grade. Grading will be based both on the writing itself, and on evidence of a well-done experiment. See "Analytical Laboratory Reports" in the *Laboratory Manual* for more details.
Due one week after corresponding lab at 4:00PM

60% Lab Results: Twelve, each 5% of the final grade.
Due by Sunday, 11:59PM, following the lab

12% Pre-lab Assignments: For most labs, some preparation work will be required. Examples include quizzes on the *Laboratory Manual*, and spreadsheet preparation.
Due at the start of the corresponding lab

- ***Each student is required to submit his or her own unique work. See the note about plagiarism "Analytical Laboratory Reports" in the* Laboratory Manual.**
  - ***Labs* MAY *be performed in teams of two. In that case, it* MAY *be allowed to submit one Result per team. These exceptions will be explicitly announced.***
- ***Late Pre-labs will not be accepted. Other late work will be penalized 20% per day (2.5% per hour, 8 hours per day, 5 days per week). Work submitted during class period is automatically considered 3 hours late.***
- ***All electronic submission of work will be through Canvas Assignments. Nearly all submissions will be electronic.***

Procedures

Communication: Canvas Announcements will be used for important messages; you can configure Canvas to send you emails when these are posted. All messages will also be repeated in class. Email to the instructor is fine, but may not receive a response for a day, sometimes two. For urgent communications, call my office phone; leave a voicemail if there is no answer.

Missed Labs: You will be required to make up any missed labs, preferably by attending another section. See the beginning of "General Lab Information" in the *Laboratory Manual*. Contact me as early as possible, preferably before the absence.

General Comments

- This course is a complement to PHYS 125: Analytical Physics II. However, it is a separate course with a separate assigned grade. The sequence of topics is related to the topics in PHYS 125, but the timing and emphasis are noticeably different.
- In order to be prepared to execute each lab in the time available, carefully read the description in the lab manual beforehand. This is the focus of the Pre-lab Assignments.

Help Available

- If you have difficulties accessing any online materials (including needs for alternative formats), please let me know as soon as possible.
- ***Instructor office hours*** are regularly scheduled, and I am happy to meet with you at other times as well.
- The ***Physics Learning Center*** is staffed by physics majors and available at no charge. It will probably be running in remote mode. Check the schedule at https://www.geneseo.edu/~pogo/PLC/Tutors.htm.
- A ***list of potential tutors*** is often assembled by the Physics Department secretary, to assist you in contacting them for individual help. The fee is determined by the individual tutor.
- In Canvas, the Help menu on the left side of the screen provides quick access to…
  - ***KOALA (Knights' Online Academic Learning Assistance)*****,** run by the Office of the Dean for Academic Planning and Advising, which is particularly for help with online learning strategies. They will assist you with identifying resources and strategies for success.
  - ***Canvas Self Help Guides***, with help pages on many Canvas topics.
  - ***CIT Remote Help*****,** to chat (during the day) with CIT personnel for technology support.
- The web page ***cit.geneseo.edu*** is a good starting point for technology help, including ***Self Help Guides*** and calling the Help Desk (585-245-5588).
- Information about ***Student Success Resources*** provided by the college is available at https://wiki.geneseo.edu/x/2QBoC .
- SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with physical, emotional, or cognitive disabilities to ensure equal access to academic programs, activities, and services at Geneseo. Students with letters of accommodation should submit a letter to each faculty member and discuss their needs at the beginning of each semester. Please contact the Office of Accessibility Services for questions related to access and accommodations (Erwin 22, 585-245-5112, access@geneseo.edu, https://www.geneseo.edu/accessibility-office).

Schedule and Planned Abstracts

date	Lab	Abstract Due
Feb. 3	1. Focal Length of a Lens	
10	2. Standing Waves on a String	
17	3. Interference and Diffraction of Light	for lab 2
24	4. DC Circuits	
Mar. 3	(Rejuvenation Day)	
10	5. Ohm's Law	
17	6. Plotting Electric Field Lines	for lab 5
24	(Rejuvenation Day)	
31	7. Resistance and Resistivity	
Apr. 7	8. Capacitance - RC Time Constant	for lab 7
14	9. Oscilloscope Training	
21	10. Very Short Time Constant	
28	11. Electron Charge-to-Mass Ratio	
May 5	12. Force on a Current-Carrying Wire	for lab 11