

Physics 126: Analytical Physics II Laboratory

Syllabus, section 1&3, spring 2011

Prof. James McLean Office: ISC 228G (old Greene) Phone: 245-5897
Website: <http://www.geneseo.edu/~mclean/> E-mail: mclean@geneseo.edu
Summary Course Website: <http://www.geneseo.edu/~mclean/Analyt1Lab/>
(Full Course Website available in mycourses.geneseo.edu)

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: in ISC 219, Mon. 2:30–5:20 (Section 1) or Tue. 1:00pm–3:50pm.

Office hours: Mon 10:30–11:30, 12:30–1:20; Wed 10:30–11:30, 2:30–4:00; Thu 2:30–4:00

I am also available at other times. See my schedule on my web site. Stop by my office, or to ensure that I'll be there contact me by phone or email.

Required materials:

See the list on the “Information” page in the *Laboratory Manual*.

Required coursework and grading (with fraction of final grade):

40% Lab Abstracts: There will be 4 of these throughout the semester. Grading will be based both on the writing itself, and on evidence of a well-done experiment. See the “Lab Reports” page in the *Laboratory Manual* for more details.

30% Lab Results: For other labs, you will be required to report your results in other ways (worksheets, graphs, etc.).

15% Quizzes: At the beginning of the every lab.

10% Log Book: Checked at a few unannounced times during the semester.

5% Participation

- ***Although experiments are performed as teams, each student is required to submit his or her own unique work. See the note about plagiarism on the “Lab Reports” page of the Laboratory Manual.***
- ***Most Lab Results/Reports/Abstracts are due at the beginning of a lab. Late work will be penalized 20% per day (2.5% per hour, eight hours per day). Work submitted during lab, but after the beginning, is automatically considered 3 hours late.***

Missed Labs:

You will be required to make up any missed labs, preferably by attending another section.

See the “Information” page in the *Laboratory Manual*. Contact me as early as possible, preferably before the absence.

Sources of Help:

- The Physics Learning Center, in ISC 214, is staffed by physics majors. Check the schedule at <<http://physics.geneseo.edu/~pogo/Tutors/Tutors.htm>>.
- I have regular office hours, and am happy to meet with you at other times as well.
- SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional or learning disabilities. Students should consult with the Director in the Office of Disability Services (Tabitha Buggie-Hunt, 105D Erwin, tbuggieh@geneseo.edu) and their individual faculty regarding any needed accommodations as early as possible in the semester. Further information available at <<http://disability.geneseo.edu/>>.

General Comments:

- This course is a complement to PHYS 125: Analytical Physics II. However, it is still 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. Your preparation will be one focus of the weekly quizzes.

Schedule and Planned Abstract Due Dates

date	Lab	Abstract Due
1/17–18	(week of Martin Luther King Day)	
1/24–25	1. Standing Waves on a String	
1/31–2/1	2. Focal Length of a Convex Lens	
2/7–8	3. Focal Length of a Concave Lens	for lab 2
2/14–15	4. Interference and Diffraction of Light	
2/21–22	5. Plotting Electric Field Lines	
2/28–3/1	6. DC Circuits	for lab 4
3/7–8	7. Ohm's Law	
3/14–15	(Spring Break)	
3/21–22	8. Resistance and Resistivity	
3/28–29	9. Capacitance - RC Time Constant	
4/4–5	10. Oscilloscope Training	for lab 8
4/11–12	(GREAT Day)	
4/18–19	11. Very Short Time Constant	
4/25–26	12. Forces on a Current-Carrying Wire	for lab 9 or 11
5/2–3	Forces on a Current-Carrying Wire	