

SUNY Geneseo, Department of Physics and Astronomy

## PHYS 125: Analytical Physics II

Syllabus, Spring 2009

Prof. James McLean

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Course Websites: <http://www.geneseo.edu/~mclean/Analyt2/> and in [myCourses.geneseo](http://myCourses.geneseo.edu)

### Learning Outcomes:

This course covers four main areas: wave phenomena (including light), electricity, magnetism, and the use of integrals in physics. In this class you should become familiar with the concepts in these four areas, and proficient at solving elementary problems. For the most part, the style of problem solving will be very similar to Analytical Physics I.

### Times and places:

Lectures: in Bailey 135, Mon., Wed., and Fri. 8:30–9:20am

Exams: in Newton 202, three Thursdays during the term, 7:00–9:00pm

Final: in Bailey 135 on Thu., May 7, 8:00–11:00am

Labs: separate course PHYS 126, in Bailey 111

Review Session: in Bailey 10C, Thu. 2:10–3:00pm

Office hours: Mon. & Tue. 1:00–2:30pm, Thu. 1:00–2:00pm

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:

Textbook: *Fundamentals of Physics*, 8<sup>th</sup> ed. (2007), by Halliday, Resnick, and Walker

Online: Access to WebAssign online homework system. Available bundled with textbook.

Calculator: A scientific calculator that handles logarithms. A graphing calculator is NOT required for this course (although they seem to be popular).

### Required coursework (with fraction of final course grade):

30% Homework: Normally due at 1:00pm each Friday, but some on Wednesday.

51% Tests: 3 evening tests, each 2 hours long and worth 17% of course grade.

19% Final Exam: A comprehensive test, with emphasis on the last quarter of the course.

??% “No-Risk” Quizzes: A few, announced at least one class in advance.

Each quiz replaces 5% of the following test, but only if the quiz score is better than the test score. Thus quizzes can **only** improve your grade.

### Computer Based Homework:

Homework will be administered through the WebAssign system. Instructions for accessing this online system are available from the instructor.

There may also be occasions when a written answer to a problem is required.

Note that if there is a system-wide problem with the network, due dates may be extended.

However, individual computer difficulties will not be accepted as excuses for non-completion of assignments; the public computing resources at Geneseo are sufficient.

### Test Schedule:

Test 1:	Thursday, February 19	7:00 – 9:00pm	Newton 202
Test 2:	Thursday, March 12	7:00 – 9:00pm	Newton 202
Test 3:	Thursday, April 16	7:00 – 9:00pm	Newton 202
Final:	Thursday, May 7	8:00 – 11:00am	Bailey 135

### General Comments:

If you must miss a test for a college-sanctioned reason, contact me **before** the exam. If you miss a test due to an emergency, contact me **as soon as possible** and **with documentation**. Absences that don't fall into the above categories will result in a zero for the missed work!

For each test, scores may be scaled up to adjust for test difficulty. There will be no overall "curve" for the course grades. See my web site for more details on my grading policy. If you need to return materials to me outside of class, your best option is to bring it to my office. Slide it under my door if I'm not in.

After the due time, partial credit on homework will be given for neat written solutions.

### Help available:

This course involves covering a lot of material, so the pace will be relatively fast. If you have problems with the homework, it should be a warning to take immediate remedial action. If you find yourself getting into difficulties, do something about it—quickly! There are several resources available to you if you need 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.
- The Review Session on Thursdays will focus on homework and review.
- If you need help with math, you might find the Math Learning Center in 332 South Hall helpful. They have a web page linked from <http://math.geneseo.edu/>.
- SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional or learning disabilities. Students should consult with the Office of Disability Services (Tabitha Buggie-Hunt, 105D Erwin, [tbuggieh@geneseo.edu](mailto: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/>.

### Expected Schedule

Note that there is no lecture on the Fridays following tests: Feb. 20, Mar. 13, and Apr. 17.

WEEK OF...	LECTURE TOPICS	WebAssign HW	TEST ON THURS	LAB (PHYS 126)
Jan. 19 (only WF)	Ch. 16: Waves — I	1 (due 1/26)		(no lab)
26	Ch. 17: Waves — II ( <i>Sound</i> )	2		Standing Waves
Feb. 2	Ch. 35: Interference	3		Convex Lenses
9	Ch. 21: Electric Charge	4		Concave Lenses
16 (only MW)	Ch. 22: Electric Fields	5 (due W)	Test 1	Light Interference
23	Integration Over Objects	6		Electric Field Lines
Mar. 2	Ch. 23: Gauss' Law	7		DC Circuits
9 (only MW)	Ch. 24: Electric Potential	8 (due W)	Test 2	Ohm's Law
16 (no class)		SPRING BREAK		
23		9		Resistance
30	Ch. 25: Capacitance	10		RC Time Constant
Apr. 6	Ch. 26: Current and Resistance	11		Oscilloscope
13 (only MW)	Ch. 28: Magnetic Fields	12 (due W)	Test 3	Short RC Constant
20	Ch. 29: Magnetic Fields from Currents	13		(no lab)
27	Ch. 30: Induction	14		Forces on Current Carrying Wire
May 4 (only M)		15 (due T)		
7 (Th)		Final Exam		