

PHY 121L: Basic Physics Lab I, Fall 2008

Instructor: Dr. Matt Marone Room 243 Science and Engineering Building

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Office Hours: By appointment

Laboratory: T 12:15-2:55 SEB 219

Laboratory Manual: The lab manual and a schedule of experiments can be found on line at <http://physics.mercer.edu/labs/manuals/manual121Lab.htm>. A printed copy of the experiment will be available each week. That copy will not be removed from the lab room, so you will need to print your own or download your own electronic version of the lab write up. You may print your filled in data table on the printer located in the lab.

Corequisite: PHY 161/Phy 141

General:

In this class we will conduct experiments concerning vectors, kinematics, projectile motion, statics, momentum, rotational dynamics, energy conservation, and thermodynamics. You will also learn how to use graphs to represent data and analyze experimental results. The basics of error analysis will be introduced, and you will learn how experimental uncertainty affects results. In some experiments, computers will be used to obtain data and analyze the results. You will come away from this class with hands on laboratory experience and the ability to conduct simple experiments. In some cases we will depart from the regularly scheduled experiment and try something a little different. It may be the case that only our section will do a particular experiment or try a different approach. In that case I will notify you and provide you with an alternate procedure.

Grades:

A (90 and above), B+ (85-89), B (80-84), C+ (75-79), C (70-74), D (60-69) F (below 60)

Your Final class grade will be derived from the average of your laboratory grades and additional bonus points derived from your **post-test assessment score**. You will bonus points added directly to your final grade based on the following schedule:

Less than 50%=0, 50-59%=1, 60-69%=2, 70-79%=3, 80-100%=4

You will **not** be graded on a “curve”.

Labs: Make-up labs will only be given to students with valid excuses as defined by the university handbook (illness, emergency, class trips with prior notification). Any

disputes concerning a test grade must be resolved within one week from the time the tests are returned or from the time the grades are made known to the class. Partial credit will be awarded depending how many steps were done correctly in a multi-step problem. The amount of credit will be at the discretion of the instructor. Students are required to take all data and begin data analysis during the scheduled laboratory period. All laboratory reports/ work sheets are due at the start of the next laboratory period. No late labs will be accepted. Students are required to work in groups for the purpose of acquiring experimental data.

Lab reports: Each lab will worth 100 points. The report will contain the following sections:

- 1) Experimental Description
 - a.) Objective of the experiment (**10 points**)
 - b.) Theory (**20 points**) behind the experiment including all important equations, expected results and methods of graphical analysis (For example: The slope gives the acceleration the intercept is the initial velocity). Explain the logic of the experiment and how it relates to the objective.
- 2) Data tables (**10 points**)
- 3) Graphs and graphical analysis. (**10 points**) It is important to relate the graphical results back to the theory section.
- 4) Conclusion and Discussion of results (**30 points**)
 - a.) State the numerical values of the results along with their uncertainty
 - b.) How do these results compare with what we expected?
This is a very important part of the report. In the theory section you outlined the logic. Now you need to state what you can conclude based on that logic.
- 5) Answers to Questions (**20 points**). Nearly every lab has several questions at the end of the write up. You must answer each question

A schedule of experiments can be found at <http://physics.mercer.edu/labs/>

Group lab reports: Students may choose to write an individual lab report, or to work together and turn in a group lab report. All students included in the group report will receive the same grade for that particular report. Groups will conduct a periodic “peer review” to assess the participation of fellow group members, and the distribution of workload. Satisfactory and unsatisfactory marks will be awarded in the peer review. Any student who receives more unsatisfactory marks than satisfactory marks, for a given peer review, must confer with the laboratory instructor, and is subject to loss of group report privileges. Loss of group report privileges means, that the student will only be

able to turn in an individual report. A student who loses group report privileges will still be required to work in a group for the purpose of acquiring data.

Honor code: You are bound by the Mercer honor code. The College's academic misconduct policy will be followed. All work, for which a grade is received, must be the **original** work of the **student** without aid or assistance of another party, or any printed and or electronic data/information. Academic misconduct cases will be referred to the honor council and the student will automatically receive a grade of incomplete (IC) pending a ruling by the honor council.

Cell Phone and Pager Usage: Out of courtesy for all those participating in the learning experience, all cell phones and pagers must be turned off before entering any classroom, lab, or formal academic or performance event

Classroom etiquette: You are expected to conduct yourself as a mature student, respectful of your classmates and instructor. You may be asked to leave the room if your behavior is disturbing the instructor or your fellow students.

Documented Disability Statement:

Students with a documented disability should inform the instructor at the close of the first class meeting. The instructor will refer you to the office of Student Support Services (SSS) for consultation regarding evaluation, documentation of your disability, and recommendations for accommodation, if needed. Students will receive from SSS the *Faculty Accommodation Form*. On this form SSS will identify reasonable accommodations for this class. The form must be given to the course instructor for signature and then returned to SSS.

To take full advantage of disability services, it is recommended that students contact the Office of Student Support Services, immediately. The office is located on the third floor of the Connell Student Center.

Important Dates

Late Registration Drop/Add August 19-22

**Last day for late registration, drop/add, and to apply for the Georgia tuition grant
August 22**

Holiday - Labor Day September 1

Fall Break October 9-10

Last Day for Course Withdrawal October 24

Thanksgiving Break November 26-28

Last class day December 5