General Information
PHYS 102 Laboratory

"The great intellectual division of mankind is not along geographical or racial lines, but between those who understand and practice the experimental method and those who do not understand and do not practice it."

George Sarton (1884-1956)

SCHEDULE - SPRING 2011

Week of	Experiment
Jan. 10	None
Jan. 17	None
Jan. 24	Electrostatic Phenomena
Jan. 31	None
Feb. 7	Electric Field Mapping
Feb. 14	None
Feb. 21	Deflection of Electrons
Feb. 28	None; Mid-term recess
Mar. 7	Ampere's Law
Mar. 14	Resistivity and Circuits
Mar. 21	None; Spring recess
Mar. 28	None
Apr. 4	Electromagnetic Induction
Apr. 11	RLC Circuits
Apr. 18	AC Circuits
Apr. 25	Make-up period April 25-26 only (special sign-up); Last week of classes

LABORATORY ORGANIZATION

Your laboratory group will meet for three hours each week that an experiment is scheduled. Each session will begin with a ten minute quiz, discussed below. You and your partner should use the remainder of the time to collect and analyze the data for the experiment, and prepare a brief report of your results.

Attendance at the laboratory session is mandatory. If you must miss your regular meeting, there are two options:

a) You may attend another session during the week, with permission from the instructor in charge of the "host" section. Permission will not be granted if the section is full.
b) You may attend the make-up sessions after the last week of labs. Note, though, that you will not be allowed to make up more than one experiment this way. A sign-up sheet will be provided during the last week of labs for you to schedule your attendance.

DATA TAKING

It will be difficult to complete a lab if you have not read over the experiment before class. As you read, try to "think through" the experiment in order to decide what quantities you will vary, how the data should be plotted, and what you think the results should be. You may also want to lay out the data tables you think you will need, and make note of useful formulae. Remember to bring a calculator to class.

Once the apparatus is set up, you can start taking data. You and your partner will often need to work together to get the data and record it efficiently. In any case, you should both try all phases of the experiment, rather than becoming specialists. If at all possible, make a plot of the data as you go along. Your graph will very quickly tell you if the data are reasonable, if the parameters are being varied enough, and if the apparatus is working.

The apparatus you are using, although relatively simple, is remarkably expensive. Please be gentle so that neither you nor the apparatus is damaged. Particularly delicate or hazardous operations are noted in the lab manual as they occur. Please heed the warnings. If a piece of equipment does malfunction, please tell the instructor so it can be tagged for repair. We usually have a spare with which you can finish the lab.

REPORTS

A template will be provided for each exercise. Record the data as indicated, attach supporting plots, and answer the questions posed.

The laboratory assistants have been instructed to collect all reports at the end of the lab session. The report will be returned to you, graded, at the next regular meeting.

QUIZZES

At the beginning of each lab meeting you will be given a ten minute quiz. The questions will concern items which you should have noticed in reading over the experiment prior to the lab meeting. You may use the lab manual in answering the questions, but if you have thoughtfully read the experiment in advance you will not need the manual.

GRADES

The lab grade is based on quiz scores, performance during lab sessions and quality of the lab reports. The resulting score will be reported to the lecturer as your grade for the laboratory portion of PHYS 102.

Grading is a necessary evil but you should be aware that most students do reasonable work and get good scores. A good grade is not, therefore, the most valuable thing you can get from this course.