

University Physics Laboratory
Phys 152L Section 041
Summer 2010

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NATURE OF COURSE: This is the second semester of the two-semester University Physics Laboratory, designed to accompany the University Physics lecture course (Physics 152). In order to enroll in this lab **you must have previously passed or be currently enrolled in Physics 152**. The normal procedure is to take 151L along with 151, and 152L along with 152.

LAB SCHEDULE: Attached to this syllabus is the weekly schedule of the experiments. It is expected that student's will have read the material for the given experiment before coming to class.

MATERIALS NEEDED:

1. The manual of experiments; available at the University Center bookstore.
2. Two (2) notebooks or folders in which you will be recording your results and writing a summary of your experiment. If you want to print off your lab reports, two folders will be better than a notebook. If you choose to use a notebook, you will have to cut out and tape or glue your graphs into the notebook.
3. A scientific calculator.
4. The Physics 152 textbook. If you don't have a book from concurrent enrollment in Physics 152, you can get one from textbook rental under the Physics 152L course number.

YOUR NOTEBOOK:

1. Make sure the following information appears on the front cover of your lab notebooks:

Your Name

The course number (Physics 152L)

Your Section Number (041)

The name of your Teaching Assistant (Matthew Norton)

2. In order to give the assistants time to grade your experiments, and yet give you time to collaborate with your lab partners and write up your results, the ODD numbered experiments are to go in one notebook and the EVEN numbered experiments in another. Thus you will need to have two notebooks, one labeled ODD and the other labeled EVEN.
3. Write-ups for each experiment are due in the lab the following lab period. For example, you will perform lab 1 on Thursday May 27, then you will turn it in on Tuesday June 1. The last write-up of the semester will be due on the day of the second lab exam.
4. **Each write-up will be graded on a 20-point basis.**
5. **You will be penalized 2 points per business day for late notebooks.** Since this is a summer lab, it will move very quickly, so if at all possible, do not fall behind.
6. If you know you will miss an experiment then you will need to speak with me to arrange for a make-up day. This should be done as quickly as possible after the lab you missed. It is your responsibility to arrange for the makeup time, get your notebook me at the right time and get your graded notebook back in time to use it in the next lab.

THE LAB EXAMS: There will two in-lab exams (40 points each). The exam for your section will be in the usual lab room (SL-1218) during your normal lab time, except that it will only be 50 minutes long. The lab will be set up to accommodate 12 students at a time, so if there are less than 12 students in your section, then everyone will take the exam during the first half of the lab period. If there are more than 12 students in your section, some of you will be asked to come an hour later than usual, taking the exam during the second half of the lab period. Arrangements for doing this will be made at the meeting before the exam.

In studying for the lab exam, you may find your lab notebooks, lab manual, lab handouts, and 152 textbook useful. We will try to make arrangements in each section so that you can get your graded notebook back from your teaching assistant a couple days before the exam if you want it for studying. Or, you might wish to photocopy the relevant sections of your notebook. More guidelines for the exam will be given later. **You will not be able to use your lab manual or physics textbook during the lab exam.**

GRADES: The course grade will be comprised of the grades received on your lab reports, (75%); the lab exam, (25%). The reports should follow the guidelines given in the introductory sections of your lab manual. Additional information will be given by the TA or professor at the beginning of each laboratory. Take note of any comments that your TA makes when grading your laboratory and try to incorporate them in subsequent write-ups.

GRADE SCALE

The following scale will be used when I assign the final grades.

$$A \geq 90\% > B \geq 80\% > C \geq 70\% > D \geq 60\% > F$$

These are just the high boundaries; I can lower them if the need arises. However, I will not raise them, so 90% and above, will guarantee you an A, and so on.

Note: All lab reports and the lab exams are course requirements. Incomplete Grades will not be given out unless a student obtains written permission from the instructor. It is the student's responsibility to make sure that the TA has a recorded grade for all the work submitted during the semester. In addition, **if you are missing any lab grades, you will not be able to receive anything higher than a B in the class.** Even if a lab is late, some points are better than no points at all.

HELP: The teaching assistant and the faculty will be around to help you with the lab experiments. If you need any help in writing up your experiments or understanding the material, you may go to your teaching assistant, the faculty instructor, the Physics Tutor Room (SL-2328), or any other sources that you may find convenient. Any of the Physics students in the tutor room can help you with any of the basic Physics courses (151, 152). Please let the professor know if you have trouble obtaining adequate help, or if there is any dispute that arises between you and your teaching assistant.

CHEATING: SIUE policies on Academic Dishonesty and Academic Misconduct will be strictly followed.

SPECIAL ACCOMMODATIONS: Students with special needs are encouraged to contact the instructors or Disability Support Services {RH1218, x3726} prior to the third week of the course. If official university business requires you to miss a class, please contact the instructor in a timely fashion.

Laboratory Write-up Instructions

The write-up of the experiments are to be kept in two scientific notebooks. Your name, course #, section # and Laboratory TA's name should be on the outside of the notebooks. Also put the word **EVEN** on the cover of one notebook and the word **ODD** on the other.

Students are strongly encouraged to use a word processor and graphing program to create the write-up and then place this in the notebook. Each write-up must include the following headings, in this order:

Your name and lab partners name(s)

Experiment number and title (1 point)

The beginning pages are for recording the raw data. Neatness is not important but you should at least organize your data and your thoughts so you can analyze the data later.

Description (2 points)

A brief description of the experimental set-up and the purpose of the experiment.

Procedure (2 points)

A brief outline of the procedure used during the experiment.

Data & Calculations (3 points)

Data tables and calculations based on the data must be included. A sample calculation must be given for each formula used to analyze the data. If you have repetitive calculations you do not have to show each calculation.

Analysis & Results (6 points)

A summary of the results of the experiment including any graphs made. Graphical representation of data is far superior to tables of data since trends can be easily seen in a graph. The most important parts of any experiment are the analysis and understanding of the data. We expect each student to be able to explain the data using the concepts learned in the Physics 152 course.

Uncertainty Analysis (2 points)

There are experimental uncertainties associated with all measurements. Identifying the source of those uncertainties and estimating their magnitude is important and should be attempted in each write-up.

Executive Summary (4 points)

About one half page. The instructor should be able to read this section first and learn what you did, your results, and how successful the data were described by the appropriate equations.

**UNIVERSITY PHYSICS LAB
LABORATORY SCHEDULE**

The sections and faculty instructors for **Phys 152L** this semester are:

Sec. 041 Tuesday & Thursday 11:00 am - 12:50 pm M. Norton

The schedule of experiments is given below. Changes will be announced when necessary.

			Sections:	
			041	041
Week	Exp	Activity	Tuesday	Thursday
1	1	Orientation meeting	May 25	
1	1	Non-Linear Graphs		May 27
2	2	The Mechanical Equivalent of Heat	June 1	
2	3	Simple Harmonic Motion		June 3
3	4	Standing Waves in a String	June 8	
3	5	Electrical Potential Mapping		June 10
4	6	Electrical Measurements, Ohm's Law	June 15	
4		Exam #1		June 17
5	7	Electrical Measurements, Series & Parallel Circuits	June 22	
5	8	The Oscilloscope		June 24
6	9	Circuits with frequency dependent response	June 29	
6	10	Magnetic Fields & Ampere's Law		July 1
7	11	The LRC Resonance Circuit	July 6	
7		Exam #2		July 8
8		Last Class Meeting	July 13	