

PHY152 PHYSICS LABORATORY SYLLABUS, SPRING 2014

REGISTRATION: Students must register for the labs separately from the lectures.

This course will...	How will this be achieved?	Means of Assessment
reinforce the understanding of the basic laws of physics as discussed in lecture. [1], [4]	1) Experiments conducted act as a concrete demonstration of concepts discussed in lecture. 2) Answer Section VII questions from the Manual on your own.	1) Lab reports, Exams 2) Exams
develop skills used to analyze and present experimentally acquired data. [2], [3], [7]	1) Lab reports require analysis and presentation, in tabular and graphic form, of data taken during experiments to determine physical quantities. 2) Lab reports require analysis and propagation of errors.	Lab reports, Exams
help students gain familiarity with the use of spreadsheet programs. [7]	Lab reports require the use of spreadsheet programs for tabulation and plotting of data.	Lab Reports
help students learn to predict results of new experimental outcomes. [2]	Answer Section VII questions from the Manual and discuss with the TA	Exams
teach students a variety of measurement techniques. [4]	By having the student perform experiments, they gain hands on knowledge of various measurement techniques.	Lab reports, Exams

Numbers in brackets refer to Physics Department learning outcome goals located here: <http://www.physics.buffalo.edu/undergraduate.html>

GRADING / EVALUATION:

20 % of your grade is determined from your lab reports.

50 % of your grade will be determined by a comprehensive final examination.

30 % of your grade will be determined by mid-term exam.

If you have a grade of 0 for 5 or more lab reports, or your final average is less than 30%, you will receive an F in this class. If your final average is between 30% and 45% you will receive a D in this class. The grade distribution for students with a final average above 45% is listed below.

Grade	A	A-	B+	B	B-	C+	C	C-
Percent of students that receive grade	15%	15%	15%	20%	15%	8%	6%	6%

Of the students with a final average greater than 45%, the top 15% will receive an A, the next 15% will receive an A- etc. A final average of 92% or higher will guarantee an A.

TEXT: Electricity and Optics Laboratory Manual for Physics 152, 1st Edition.

CO-REQUISITE: This class is intended to reinforce material discussed in PHY-102. It is expected that you will have mastery of that material after it has been presented in PHY-102. You are also expected to have mastery of PHY-101 as well.

MID TERM EXAM: The two-hour, out of class mid-term exam will contain:

- Questions similar to those found in the manual in section VII for any experiment completed prior to the exam. These are an excellent way to prepare for the exam.
- You may be given a set of data and you will be asked to carry out simple analysis based on what you have learned in the lab.
- The exam will draw heavily on the techniques used to analyze data or methods used in conducting the experiment. It will be very difficult to do well on the exam without writing your own lab reports.
- The exam will not be returned. You will have a limited time frame to review your exam.
- The exam will be on Saturday, 3/15 at 9:00 AM and will cover EC0, ES1, ES2 and ES4.

FINAL EXAM: The comprehensive three-hour final exam will contain:

- Questions similar to those found in the manual in section VII for every experiment. These are an excellent way to prepare for the exam.
- A set of data and you will be asked to plot and then carry out simple analysis based on what you have learned in the lab.
- The exam will draw heavily on the techniques used to analyze data or methods used in conducting the experiment. It will be very difficult to do well on the exam without writing your own lab reports.
- The exam will not be returned. You will have until the end the third week of the Fall semester to review your exam.

EXAM MAKEUPS: Details will be posted on the UBLearns website. There are deadlines to ask for makeup exams. Please read the announcements carefully. Since the day/time for the exam has been announced before the start of the semester, you should make arrangements to clear your schedule now. Make-ups are only given for a very narrow set of documentable circumstances such as an exam conflict or a medical emergency.

LAB REPORTS:

- Reports are due one week after each experiment is completed. When a student hands in his/her report, the TA signs on the last page of the student's lab notebook or textbook. This entry serves as a receipt for the student. **No signature means no valid claim that you handed in the report!!**
- Lab reports are collected at the start of each session. **LATE REPORTS WILL NOT BE ACCEPTED.** Students who are late for the laboratory may be asked by the TA to attend the makeup session.
- You will work with lab partners in taking data, but you must prepare the report by yourself. The UB rules for Academic Integrity will be enforced. See: <http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml>

CHECKING YOUR PROGRESS:

- Grades will be posted on the UBLearns lab webpage for each experiment one to two weeks after your report is due.
- Each missing or late report counts as a zero. **Five or more “zero” reports (missing/late/cheating) will result in a failing grade for the course.**
- You are encouraged to see your TA each week to go over your lab reports-it will help you prepare for the final exam.
- No lab report grades will be changed after the last day of classes. You are encouraged to verify that your grades were properly recorded.

PREPARATION FOR THE LABORATORY:

Students should check [UBLearns](#) frequently. Additional course information such as handouts to supplement the text, schedule changes and important announcements can be found there. Each student **MUST** read the appropriate section of the PHY 152 manual before coming to lab week, and bring the manual to the lab session. Before coming to the lab, you are expected to understand the relevant material, and how the

equipment is used in the experiments. The General Information and Data Analysis pages should be read before the first session, and referred to as needed.

DATA COPIES: You will be required to leave a copy of some or all of your data with your TA each week. You can use the lab photocopier to make copies of the data as needed, \$0.25 per page.

ATTENDANCE / MAKEUPS: You must attend all sessions.

- If you have a valid medical or family reason for missing a regular session, notify your TA and arrange for a makeup.
- If possible try to arrange with your TA to make up the missed experiment during the same week the experiment is given. Otherwise arrange the makeup during the scheduled makeup sessions.
- There will be one makeup session for individuals who missed labs near the end of the semester. If you need to do a make-up, it will be done at your regularly scheduled lab period during makeup week. All students will go to the makeup session to hand in the last lab reports, and those that don't need a makeup are free to go. Those needing to do a makeup lab will do it at that time.

You can only make-up a maximum of two labs. If you need to make-up more labs, you need to contact the Lab Supervisor and give a reason why you missed so many labs. Labs missed for Physics Lecture examinations or unplanned events (e.g. snow storms) must be made up at the end of the semester, but do not count toward the 2 makeup limit.

HELP: Your TA will have two office hours per week. For technical matters, a student can attend the office hour of any TA in the course. A list of TA names and office hours will be posted on the UBLearns lab website and on the Lab Bulletin Board.

LAB LOCATION:

PHY 152 labs are located on the third floor of Fronczak Hall (Rooms 300, 306, 308, 324, and 326; see floor plan)

LAB WEBSITE / WEBSITE POSTINGS:

The lab website is <http://ublearns.buffalo.edu>. All relevant information about the lab will be posted on [UBLearns](http://ublearns.buffalo.edu).

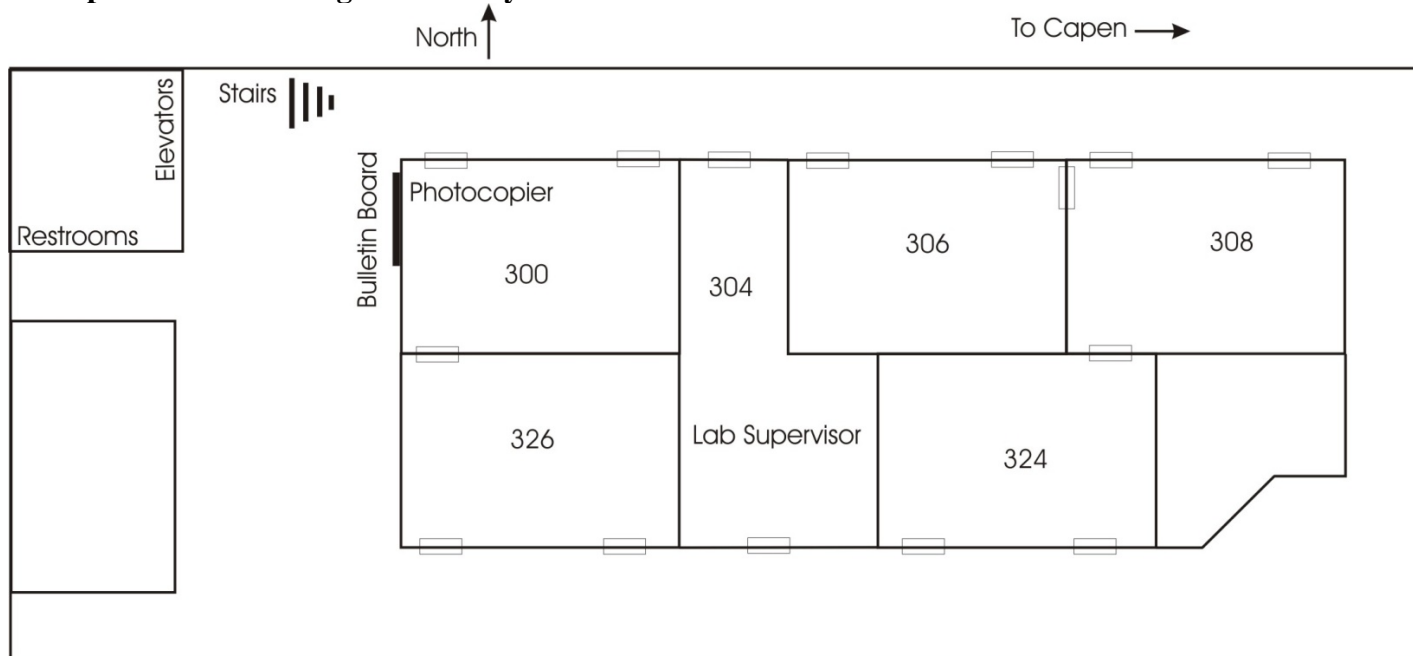
- The students are advised to check the website before each lab session for last minute announcements. They should also check the website before preparing lab reports. Hints or questions that must be included in the report will be posted.
- Before each experiment make sure that you check the lab website for useful information such as data tables, special instructions, etc under the heading: "Lab Materials".
- For each experiment you are required to download the corresponding blank data tables, print them out and bring them with you to the lab.

LAB BULLETIN BOARD: The lab bulletin board is located opposite to the 3rd floor elevators, in Fronczak Hall). The TA e-mail addresses and office hours will be posted there. In addition last minute notices will be posted on the bulletin board.

EMAIL/WWW: Your TA will give you her/his email address. You are advised to have an @buffalo.edu account, even if that account is forwarded

EXPERIMENTS: During the lab sessions you are expected to follow directions from the TA as well as those in the manual to perform the experiments. Students with disabilities or special requirements (e.g. military service) should inform the TA as early as possible.

Floor plan for the undergraduate Physics labs on the third floor of Fronczak Hall



Lab Schedule for PHY 152, Spring 2014

(check the bulletin board and UBLearns for last minute changes)

Dates	Experiment	Room
01/27 – 01/31	No Labs	----
02/3 – 02/07	EC0: Error Propagation	324
02/10 – 02/14	ES1: Introduction to Electrostatics	326
02/17 – 02/21	ES2: Electrostatic Charge Distributions	326
02/24 – 02/28	ES4: Equipotential Surfaces and Electric Field Lines	324
03/3 – 03/07	EC1: Electric Circuits I	326
03/10 – 03/14*	EC3: DC Circuits with Resistors and Capacitors	324
3/15*	Mid Term exam 9:00 – 10:50 AM	TBD
03/24 – 03/28*	EC4: Wheatstone Bridge	326
03/31 – 04/4	MP3: Geometrical Optics	306
04/7 – 04/11	MP4 Telescopes and Combination of Lenses	306
04/14 – 04/18	MP5: Physical Optics	306
04/21 – 04/25	Makeup lab session, MP4 due at regular lab session	308
04/28 – 05/02	Make-up lab reports due. TA's will be in their office during office hours and at the beginning of lab periods to collect make up reports. Possible makeup for snow or exam cancellations, if needed.	TA Office
05/05 – 05/09		
05/09	Last day of classes. No lab reports accepted after today.	
TBD	Final Exam	TBD

*Spring break runs from 3/17 to 3/22.

If you have any questions or concerns, please contact the lab supervisor, Mr. Scott Whitmire at sew1@buffalo.edu.