# Physics 141 Policy

## Course Goals

The goals of Physics 141 are to

- improve your understanding of concepts taught in Physics 140.
- teach you quantitative techniques for reasoning from empirical data.
- teach you general methods for experimentally testing theoretical hypotheses.

## Course Structure

Physics 140 lecture and Physics 141 lab are taken concurrently. Particular efforts have been made to synchronize lecture and lab. This means that labs will not only refer to material covered in lecture, but lecture exams will also cover material covered in labs. Students in Physics 141 collaborate in groups of two or three. Each laboratory class is self contained: all data must be taken, analyzed, interpreted and reported before leaving the classroom. Most labs contain computational components and require the use of Python in a Jupyter notebook environment, which students need to fill out and submit electronically. Students are expected to familiarize themselves with each experiment before class so that they can complete a short quiz at the beginning of each class, with the exception being for fully computational labs, which will have pre-laboratory assignments in place of the quizzes. Pre-laboratory assignments must be completed before the start of each class to receive credit. Partners will receive the same score for the laboratory reports, but individual scores for the quizzes and the pre-laboratory assignments. There is no final exam.

**Lab Reports** The laboratory reports will include three main elements:

- Raw experimental data.
- Data analysis, including calculations.
- Questions and conclusions.

Since students in Physics 141 collaborate in groups, each report represents a combination of two or three separate students' analyses and ideas. Try your best as laboratory partners to share the work fairly; more importantly, share your difficulties and insights related to the problem in front of you. You will find that this is not such bad advice for other collaborative endeavors. Your GSI will have you change laboratory partners every week to ensure that your average score is a function of your own ability and is not significantly affected by your laboratory partners.

The **laboratory reports** will account for **80%** of the lab score.

**Saving and Submitting Lab Reports** Lab reports are submitted via Canvas. You only need to make one submission of files as a group to the Canvas assignment and it will count for all group members. To submit an assignment, login to the 'PHYSICS 141 FA 2021' course page, select 'Assignments', select the lab assignment, then click on the option to upload a file. Lab reports are due at the end of the lab period. Students will lose a minimum of 4 points (10% of total points possible) for late submissions. Instructions for downloading the lab reports in the proper format will be provided at the end of each template and state which files will need to be submitted. Note that any files saved locally on the lab computer are deleted when a student logs off. In the event that your lab computer crashes and needs a reboot, all of your work is lost; the only way to backup a file is to copy it to the temp folder on the network drive, where it can be recovered by your instructor. It is the student's responsibility to save copies of the lab report periodically during class.

**Pre-Lab Quizzes and Pre-Lab Assignments** At the beginning of each laboratory (with the exception of the fully computational labs) you will be required to complete a 5-minute Canvas quiz before we begin. Note that you are responsible for lecture material up to the time of the lab; if you took the lecture in a previous term, you may need to go back and review some key concepts. The quizzes are intended to ensure that you are adequately prepared. They are mainly based on the laboratory manual chapter for that week's experiments, but they may occasionally test your understanding of the physics concepts as well. The quizzes will start exactly on the hour. There are no make-ups for the quizzes, and you will lose precious time if you show up late. Your lowest quiz score will be dropped when calculating your final lab score.

For the fully computational laboratories, there will be a pre-laboratory assignment that must be completed before class. For these labs, there will be no quiz. If you submit the pre-laboratory assignment more than 10 minutes (i.e., 10 minutes after the start of class) late, you will receive no credit. Each pre-laboratory assignment will be graded and will receive the same amount of credit as a quiz.

The **pre-laboratory assignment and quizzes** will account for **20%** of the lab score.

**Absences** It is mandatory to attend every lab. Generally, laboratory make-ups are permitted only for absences due to medical reasons, family emergencies, religious holidays, and university sponsored events. Except for documented medical and family emergencies, permission **must** be obtained beforehand. Make-ups must be completed within one week of the regular schedule for the missed lab. To schedule a make-up, talk to your GSI as soon as possible and they will allow you to schedule a make-up lab through the calendar on Canvas. In order to receive credit, you must notify your GSI that the make-up is completed the same day that you complete it. If you receive a make-up, you are still required to complete the corresponding quiz on Canvas upon arriving to the make-up lab, or, for fully computational labs, are required to complete and submit the pre-laboratory assignment by the ten minute deadline following the start of your scheduled make-up lab.

**Note:** Make-up labs are **not** granted for exam scheduling conflicts. You must either ask for an alternate exam time that does not conflict with your lab schedule or enroll in an open section of lab that does not conflict with your exam schedule.

Since attendance is mandatory, we note that **any unexcused absence is grounds for a failing grade (F) in this course**, regardless of your average score. If you find yourself in this situation, please contact your instructor and/or the lead GSI Blake Hipsley (bhipsley@umich.edu) immediately to discuss the appropriate course of action.

In case your GSI has not arrived 10 minutes after the start of your scheduled class time,

1. Contact Michelle Coeman at 1241 Randall, if it is between 8 am - 5 pm
2. If she is unavailable, contact Student Services Office (SSO) located at 1440 Randall Lab, if it is between 8 am - 5 pm.
3. Leave, if it is after 5 pm.

Either way, your GSI will be in contact with you soon.

**Tardiness** It is imperative that each student be ready to begin class on the hour.

For labs with quizzes, if a student arrives a few minutes into the quiz, they may use the limited quiz time remaining to complete the quiz but will not be given extra time. Students who miss the pre-lab quiz entirely will receive zero points for the quiz. For the computational laboratories, if a student submits the report 10 minutes after class begins (i.e. 10 minutes after the hour), no credit will be given for the pre-laboratory assignment. Late students will not receive any credit for the portions of the lab completed by their partners alone (i.e. before the student has arrived).

**Grading** Because each laboratory is different, they will each have different grading criteria in which data, analysis, and questions will be given differing weights. Your GSI will grade every laboratory report in the same format and provide feedback to you through Canvas. If at any point you have concerns about the way you were scored on a quiz or lab report, you are expected to contact your GSI and explain the situation within one week of receiving your graded assignment.

Final grades will be determined based on the following scale:

| **Total Percentage Achieved** | **Grade Range** |
|---|---|
| 92.0 – 100 | A+ / A / A– |
| 80.0 – 91.99 | B+ / B / B– |
| 70.0 – 79.99 | C+ / C / C– |
| 60.00 – 69.99 | D+ / D / D– |
| $\leq$ 59.99 | F |

Each section is graded independently by its own GSI; however, we do recognize that not all GSIs grade with exactly the same criteria, so if your section's class median is below 92.0%, we will lower the A– / B+ cutoff close to the class median. Note that we will never raise the cutoff (i.e. the letter grades above are an absolute guarantee, no matter how "easy" your GSI is). The assignment of $+$ and $-$ to a grade is determined by the grading distribution in each section.

**Accommodations** Please contact the Lead GSI, Blake Hipsley (bhipsley@umich.edu) before the term begins if you need any accommodations. The lab reports of students with SSD certification (and other students in their group) will be graded out of the work they have done, given that they have completed at least two-thirds of the lab. Quizzes will receive extra time, starting 5 minutes before the hour and ending 5 minutes past the hour.

**Lab Cleaning Policy** It is mandatory to clean the table and restore the equipment to good order before you leave the lab. About 2,000 students take this lab course every semester, so we want to make sure that everybody has a clean and orderly place to start their labs. This includes reporting to your GSI any equipment that does not work and needs to be replaced. Your group will lose points from your lab report if you fail to clean up.

**Laboratory Safety** We have endeavored to make every aspect of the experimental procedures as safe as possible, consistent with the physical requirements of the phenomena being investigated. This does not mean that safety issues can be ignored or disregarded. The two common hazards that one must be aware of are the 115-volt AC power supply used for most of the equipment and the bits of felt dust flying off of the felt wheels used in the gyroscope laboratories. It is also possible to knock over equipment, drop heavy objects on your toes, etc. (wearing shoes is thus a requirement). If you see any obvious hazards, please report them to your GSI immediately. If a student commits deliberate safety violations that might endanger other students, they will be barred from the lab for the remainder of the term.

## Academic Integrity

Please familiarize yourself with the LSA policies on Academic Integrity (`http://www.lsa.umich.edu/academicintegrity/`). Note that suspected cases of academic dishonesty (cheating) will be forwarded directly to the Assistant Dean for Student Academic Affairs and any student found guilty will receive appropriate penalties decided based on the severity of cheating, in addition to penalties imposed by the College. Cheating includes copying answers to pre-lab assignments, using other groups' work during the lab, fabricating data, etc.

## In case all else fails . . .

For questions regarding details of course material, grading, attendance, performance, etc., the first person to talk to is your GSI. We expect that most issues will be resolved between you and your GSI without further intervention. However, from time to time, problems arise that the GSI is unable to adequately resolve. In such cases, you are invited to contact the Lead GSI, Blake Hipsley (bhipsley@umich.edu).

## Physics Department Offices

Please visit (or contact) the appropriate office below if you are in need of assistance during business hours:

**Introductory Physics Laboratories**
1241 Randall
(Laboratory Manager: Michelle Coeman – mjlove@umich.edu)
(Lead GSI: Blake Hipsley – bhipsley@umich.edu)

**Physics Student Services**
1440 Randall
(physics.sso@umich.edu)

**Computing and Technology Support (CaTS)**
2428 Randall
(https://cats.lsa.umich.edu/)

### *** Call 911 directly in the event of a medical emergency ***