

**Physics 223 Syllabus Spring, 2018**  
**Laboratory for Physics 213**

Instructor of Record:

Bin Xiao – 225 Lewis Hall; [bxiao@olemiss.edu](mailto:bxiao@olemiss.edu)

Lab Physicist:

Dan Miller – 121B Lewis Hall; [dbmille2@olemiss.edu](mailto:dbmille2@olemiss.edu)

Required Materials: Notebook, calculator, and pencil.

Course information is available on the lab physicist's website:

<http://www.phy.olemiss.edu/lab/genlab/>

**Lab attendance: Attendance is mandatory. A zero grade will be assigned for absences.**  
**Missing three labs will result in a final grade of F.**

Graded Work

Outside of Lab:

- PreLab – PreLabs can be found on the lab physicist's website. PreLabs are to be printed out and completed in preparation for every lab. If it is incomplete or late there is a 10% penalty on the corresponding lab report or worksheet grade. The prelab is graded solely for completion.
- Lab Reports – Students are required to write two lab reports. Lab reports are due as announced. Lab reports must be submitted in paper form and electronically to Blackboard. Lab reports are considered late until both forms have been submitted.
- Extended data sheets – Some labs may have parts which can be completed outside of lab. Your TA will let you know when this is relevant and when the extended data sheet is expected to be returned.

During Lab:

- Quiz – Timed and at beginning of class. The focus is on the current experiment.
- Exam – Timed and at beginning of class. The focus is on the previous week's experiment.
- Students will complete a worksheet as they perform each experiment; it is due by the end of the lab.
- Math Exam – One math exam will be given to test requisite mathematics skills. Relevant topics and practice text may be found at the beginning of the Lab Manual Appendix, link provided on the webpage.

Late Policy: Lab reports are subject to the following late policy.

0-24 hours late: 10% deduction

24-48 hours late: 30% deduction

>48 hours late: zero grade

Plagiarism Policy:

As per the M book, in cases of plagiarism both the student who copied and the student who provided the copied material will be penalized in the same manner. Sharing lab reports for any reason is strongly discouraged.

Grades will be posted on Blackboard so that you can verify and keep track of your grades in lab. Keep all graded assignments until your final grade is posted at the end of the term. Grading mistakes will not be corrected without the TA-graded assignment.

Your final grade is based on: Quiz Avg: 10%. Exam Avg: 25%, Worksheet Avg: 40%, Lab Report Avg: 20%, Math Exam: 5%

Grading Scale:  $A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$

The instructor of record reserves the right to decide whether or not to curve any/all grades.

Additional Lab Rules:

- All recorded data should have units and a reasonable number of significant figures.
- See the lab physicist's website for how to write your report and anything not mentioned above.
- No food or open drinks are allowed in the lab. If you have a sealed drink you must keep the cap on.
- Cell phones must be face down, on the front corner of the desk during the quiz and exam.
- Under no circumstances are students allowed to share calculators during the quiz and exam.

# University of Mississippi

## Department of Physics and Astronomy

### Attendance Clarification:

- If you must miss lab for a justifiable reason (official university absence, medically documented illness, or death of a family member are the most common reasons) you **MUST** be prepared to provide documentation. In the case of an official university absence you should have something on university letterhead from a university faculty member requesting that I excuse your absence; in these cases it is your responsibility to notify me and provide documentation well in advance so that we can arrange for you to make up with a different section. In the case of illness, you will be required to provide a doctor's excuse **for the day you are absent**. A receipt from a medical clinic visit on Monday will not excuse you from lab on Tuesday; you must have a note that says you were not to return to classes until after the day of your scheduled lab. Should you suffer the loss of a family member, I will have to ask for a copy of the program from the ceremony; I know it sounds callous, but I have found that far fewer grandmothers pass away if I ask for proof. Greek events are not justifiable reason to miss lab, this policy is strictly enforced regardless of your roll within your organization. You will not be allowed to reschedule lab because of a test in another class, it is that instructor's responsibility to work around the courses which you are registered for, this syllabus should serve as adequate documentation should they request it.
- If you must miss for one of these reasons, the burden to communicate lies with the student. If you email me and say "I'm sick and have a doctor's note saying not to return until Wednesday, I will bring it to you when I return," I will assume you are coming to see me as soon as you have time on Wednesday; if you just show up to your regular lab the next week, you may not be afforded the opportunity to make up the lab you missed; had you talked to me when you returned to campus, you likely could have simply attended a different section that week, but after the week has ended that experiment has been taken down. I will always do my best to respond to emails, but keep in mind that I coordinate labs for over 300 students; occasionally an email is overlooked, or I forget to respond; please do not hesitate to send me another email the next day.

### Nonsense points

- You are expected to use common sense in this lab, do not leave it out in the hallway. Should you submit answers which a reasonable 12 year old would recognize are clearly incorrect, you may lose more points than are marked on the worksheet (e.g. In response to "Measure the length of the block," you submit "23 meters," that's about the width of a 100 seat auditorium...). Every experiment in this lab exists in reality; thus you should check to make sure your data is realistic. 1 meter is just over 3 feet; 1 meter per second is about 2.24 miles per hour (a ball fired with a velocity of 120 m/s would put a hole in the wall or you); objects in free fall near the surface of the earth accelerate at 9.81 meters per second squared (unless there is some force other than gravity acting on an object, it cannot accelerate at a rate greater than this); a 120lb person has a mass of about 55kg and a weight in standard units of about 500 Newtons. This department is not so financially well off that we will hand you a chunk of pure gold to identify.
- The importance of **units** cannot be overstated. Recognizing proper units will help you to both communicate more effectively and understand the quantities being explored. For each measurement recorded with the wrong units you will lose either 1 or 3 points, 1 point for the wrong prefix (something such as millimeters (mm) instead of centimeters (cm)), and 3 points for the wrong units entirely (something such as kilograms (kg, units of mass) instead of Newtons (N, units of force)).
- You are expected to read and double check the instructions in the procedure before requesting assistance from your TA. If you make a habit of asking questions which your TA is able to effectively answer by reading you the procedure verbatim, they have the authority to begin deducting points.

### Basic definitions to keep in mind

- **Mass:** A measurement of how much stuff (matter) something is comprised of.
- **Weight:** A measurement of force due to gravity. *Mass and Weight are NOT the same thing!!!!*
- **Force:** An action capable of accelerating an object. When you jump you exert a force on the ground to push yourself upwards, and the force of gravity acts to pull you back to the earth.
- **Heavy/Light:** These are vague terms and their definition changes depending on the context. One might say that "lead is heavier than cotton" to say that lead is more dense, "a truck is heavier than a car" to say that the truck has more mass, or "an object is heavier on earth than it is on the moon" to say that it has more weight. Refrain from using the words heavy and light in this lab. Rather, say "lead is more dense," "a truck has more mass," or "weight is greater on earth."

### Some helpful advise

It is far too common for students in this course series to be their own worst enemy. You already know how most of these principles work and employ them on a daily basis, we are really just showing you the math behind them. Most students create the difficulty associated with physics themselves: they decide before even entering the room that "physics is hard and I won't be able to understand this." Every semester we see hundreds of students over-complicate simple problems because "it can't be that easy." It is that easy, and you can do this. Stop telling yourself you can't and your odds of success will increase drastically. This is an incredibly difficult course to attempt to memorize your way through, every problem can be presented many different ways. If, instead, you learn the underlying concepts and principles, you will find the majority of this material to be intuitive and straightforward.