Laboratory Syllabus
PHYS 101

SCHEDULE - FALL 2026

Week of	Experiment
Aug. 24	**None**; First week of classes
Aug. 31	**None**
Sep. 07	Kinematics in 1D
Sep. 14	Projectile Motion
Sep. 21	Forces
Sep. 28	**None**
Oct. 05	Uniform Circular Motion
Oct. 12	**None**; Mid-term recess
Oct. 19	Energy Conversions
Oct. 26	Collisions in Two Dimensions
Nov. 02	**None**
Nov. 09	**None**
Nov. 16	Angular Dynamics
Nov. 23	**None**; Thanksgiving break
Nov. 30	Physical Pendulum; Last week of classes
Dec. 7-8	Make-up period, two days only (special sign-up)

LABORATORY OBJECTIVES

The laboratory work associated with Physics 101 has two principal goals: To give you hands-on experience with the phenomena and models you will study in class; to develop basic experimental and analytic skills that will be used throughout your career in the sciences or engineering.

The laboratory exercises you will do here are not "experiments" in the sense of forays into the unknown designed and executed by an intrepid young scientist (you). Instead, they were chosen to illustrate physical phenomena, ingenious techniques, or useful methods. They were not intended to be extremely precise, and your results will be far from exact. You will be evaluated on your understanding of the material and your approach to problems, not merely the precision of your results, and you should allocate your effort accordingly.

As one of the earliest laboratory courses in your career at Rice, PHYS 101 will emphasize fundamental skills. You should develop the ability to:

1. Carry out common laboratory procedures correctly and safely.
2. Make measurements and report your results in a physically meaningful form, including estimates of uncertainties where appropriate.
3. Recognize when equipment or procedures are not working and undertake logical corrective action.

You will also communicate your results in short reports on each experiment. To see how these goals fit into the overall laboratory program at Rice, you can consult the overview of laboratory objectives at http://www.owlnet.rice.edu/~labgroup/.

LABORATORY ORGANIZATION

Your laboratory session will meet for three hours each week when an experiment is scheduled. Students must be physically in the lab room at Herzstein Hall, room 207, within 15 minutes of the start of the lab section. Students who arrive 15 minutes after the start of a lab section will be asked to leave.

During the first week of class, you will have to sign up for a lab session period using the lab preference form on Canvas. In the lab, you and your partner(s) will use 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 session for any reason, 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. The rule for getting into a “host” section is basically "first come, first served." Upon arriving at the lab room at the beginning of the lab section that you intend to join, you will write your name on the sign-in list on the blackboard at the front of the lab room to request a spot. The students enrolled in the lab section have priority over those not enrolled in the lab session. You cannot reserve a spot ahead of time.

b) You may attend the make-up sessions after the last week of labs. Note that you will not be allowed to make up more than one experiment this way. If you missed more than one lab during the semester, you could only make up one of the labs you missed, regardless of why you missed any of the labs. An online sign-up form for make-up will appear on the PHYS 101 Canvas page during the last week of labs for students to schedule their attendance. Make-up labs completed during the make-up sessions are graded by the student’s regular lab instructor. Students can only make-up for (in-person) experiments that they have

missed due to absences. The make-up will meet from 2 pm to 5 pm in Herzstein Hall, Room 207, on December 7th and December 8th.

LAB STRUCTURE

Each lab will have two components. To complete both components, students will use the Pivot Interactives platform from Discovery Education. Each lab's first part consists of one or more online lab exercises. These online lab exercises are labeled as "(Completely ONLINE; Could be completed before arriving at the lab room) on Pivot Interactives." It is recommended that students attempt to complete the online lab exercises before coming to the lab. These online lab exercises are designed to introduce analysis techniques, such as linearization of data and uncertainty identification and propagation, that students will need to complete in the in-class component of the lab. The second component of each lab is the in-class lab exercises. They are labeled as "(Must be completed in the Lab room)" on Pivot Interactives. **You must bring your own laptop or tablet to the lab room to complete the in-class lab exercises on Pivot Interactives. The computers in the lab room are not connected to the internet!!!** As you read through the instructions for the in-class lab exercises, try to "think through" the experiment 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 that you believe you will need and note useful formulas.

Although relatively simple, the apparatus you will use 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 instruction as they occur. Please heed the warnings. If a piece of equipment malfunctions, please tell the instructor so it can be tagged for repair. We usually have a spare with which you can finish the lab.

REPORTS

All reporting relating to the lab is to be submitted through Pivot Interactives. All components of each lab should be submitted on Pivot Interactives at the end of the lab session that you attend. Please click "submit" when you have completed all components of each lab, so your TA will know that your lab is ready to be graded.

GRADES

The lab grade is based on the quality of your responses on Pivot Interactives. The resulting score will be reported to the lecturer as your grade for the laboratory portion of PHYS 101. The lab grade accounts for 15% of a student's total grade for PHYS 101. However, if a student's total lab grade falls below 50%, the student will automatically fail the entire PHYS 101 course. To

ensure that no student is penalized or given an advantage for having a TA that is overly harsh or overly easy in grading, the final lab grades are normalized so that the average lab grade assigned by each TA is equal to the average grade of the entire class. This way, all students' final grades are assigned based on the same scale.

Grading is necessary, 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.