PHYS 1530 Lab Syllabus - Spring 2026

Instructor Information

Lecture Instructor: Dr. Rebekah Purvis (Rebekah.Purvis@unt.edu)

Teaching Assistants:

Josh Rezek (joshuarezek@my.unt.edu)

Jeremy Meeder (jeremymeeder@my.unt.edu)

Meeting location information:

Physics Building Room 204

Section 501: Friday 1:00-2:50 pm

Section 502: Friday 3:00-4:50 pm

Section 503: Thursday 5:30-7:20 pm

You must attend the section you selected during registration.

Course Description

Physics 1530 is the companion laboratory to PHYS 1510, the first semester of General Physics with Calculus. The lab is a separate course and is separately graded, but it is tightly tied to the sequence and content of PHYS 1510.

The purpose of the laboratory is to give you experience in two areas:

- Experimental data analysis. Experiments will be related to principles discussed in lecture. Experimental labs will focus on deciding what to measure in an experiment, and how to analyze data in order to be able to apply physical principles to determine an unknown quantity.
- Computational modeling: Computational labs focus on building computational models based on physics principles discussed in lecture, on exploring these

models to observe the range of behaviors predicted by the models, and on using models to answer questions. No previous computing experience is necessary.

Course Structure

Labs are in-person, and attendance is required at every lab. You will work in groups so you can discuss your work and measurements with other students.

Course Materials

You do not need a lab manual for this class. Lab instructions will be made available through Canvas.

If you have a laptop computer or tablet, you are encouraged to bring it to lab. For the computational labs in particular, students will need to work individually on computers and the lab room is equipped with one computer for every two students.

Learning Objectives

In this lab you'll apply what you learn in lecture in two areas: Experimental data collection and analysis, and computational modeling.

By the end of the course, you should be able to:

Computational modeling

- Read and interpret a simple computational model written in VPython
- Identify physics principles and concepts within the model
- Explain an iterative calculation
- Modify and extend a computational model

Experimental data collection and analysis

- Collect and record data from a physical experiment
- Create plots of the data, and of quantities calculated from the data (for example, position and velocity)
- Interpret the slope of a graph of experimental data or derived quantities
- Use your data to determine unknown quantities by applying fundamental physics principles

The Lab Practical Exam at the end of the semester will cover these objectives.

Grading

Your final lab grade will be calculated as follows:

How your grade is computed

Percent	Task	Description
70%	Work done in lab plus PreLab and Lab follow-up assignments	Complete pre-lab assignments prior to the start of lab. Participate actively and thoughtfully in lab activities, and complete in-class assignments. Be prepared to answer questions about what you are doing and how it relates to the physics concepts discussed in lecture.
10%	Lab Report	One lab report is required. You will write a report in which you discuss the purpose of the experiment, the data collected, how you analyzed it, and what conclusions you drew.
20%	Lab Final Exam	The lab final is a practical test. You will be asked to collect, analyze, and interpret data; and to read, interpret, and modify a computational model.

Although you'll work with other students during labs, in the Lab Practical Exam you'll need to be able to demonstrate your own mastery of the course learning objectives. Collaboration is very helpful in learning, but make sure you can do things on your own.

Grades will be based on total points: A: 90-100, B:80-89, C: 70-79, D: 60-69, F: < 60

Late Submission Policy

Any work not completed within the time frame of the lab must be submitted by 11:59PM on the Saturday immediately following lab. Any work submitted after this time frame will not be graded and your grade will be entered in as a zero for that week's lab unless you have communicated with and received approval from your TA prior to the submission deadline.

Lab Calendar

This lab calendar may be revised as needed. Most recent revision: 2025-02-28

Tentative Calendar

Week	Prelab	Lab Activity
1	-	Comp: Welcome To VPython
2	Vector Calculations	Comp: Constant Velocity
3	-	Expt: Momentum Principle with Carts
4	Graphs in VPython	Comp: Constant Force
5		Comp: Gravitational Force
6	-	Expt: Spring Force and Young's Modulus
7		Expt: Reciprocity Lab
8		Lab Report Workshop

9	Arrows in VPython	Comp: Curving Motion
10	-	Comp: Energy of Orbits
11	-	Comp: Energy in a Mass Spring System
12	-	Expt: Collisions
13	-	Comp: Angular Momentum
14		Lab Practical Test
15		No lab - TAs available for tutoring/office hours for Final Exam review
16		Finals Week

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website at https://studentaffairs.unt.edu/office-disability-access. You may also contact ODA by phone at (940) 565-4323.