

Fall 2020 Physics 21 – Introductory Lab – Syllabus

1 Credit, Pre-requisite or co-enrollment of Physics 11.
Asynchronous online course.

Lab Coordinator:

Dr. Donforth

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802-656-0052

Office hours by appointment on Microsoft Teams

Course Objective:

"An experiment is a question we ask the universe." - C.V. Boys

This course provides opportunities for hands-on investigation of the concepts and ideas of an introductory physics course focused on mechanics.

Course Structure:

The course will be run asynchronously and online. We will provide instructions on how to do labs; and you'll complete them at a time that works for you. There will be multiple times throughout the week when you can check in with a TA for help or assistance (see Session Schedule on Blackboard). You'll submit your reports via Blackboard at the end of the week. There are no labs the first two weeks. After that, you'll have a couple of short labs. Then, there will be a six week final project that will be the majority of your grade.

You are encouraged to discuss and collaborate with your classmates. You may even work together to perform experiments. However, each person must perform their own analysis and write up their own lab report (see Academic Integrity).

You should exit the course with a more solid understanding of physics and the world around you; and with a greater dexterity in applying physics concepts and calculating expected outcomes. You are welcome to use the Physics 21 times to ask for help with Physics 11. Physics 21 is a separate class from Physics 11 (they will be grade independently); but please use the Physics 21 time to help you solidify the concepts of Physics 11.

Required Course Materials:

The manual for the lab is provided via Blackboard.

You will need a tape measure that can measure at least 3 meters (10 feet). You will find it easier if the tape measure has metric units, but you may use one with only imperial units, you'll just have to convert your results for your reports.

You will need equipment for recording and reviewing videos of your experiments. A cell phone or laptop camera will be fine for shooting videos.

You will need a computer to write up your reports, do video analysis, and interface with the course TAs. You'll also need Microsoft Teams, and an internet connection.

As part of your final project, you may want to purchase a small amount of supplies. The project is designed such that you can complete it with recycled or scrap material if desired. You will also need occasional items that you should be able to find or find a substitute for, such as a pair of socks.

Prerequisites:

This laboratory course is designed to accompany Physics 11. Students registered in Physics 21 must now be enrolled in Physics 11 or have previously completed Physics 11, 31 or 51. Physics 21 labs require a background knowledge that is best gained from concurrent enrollment in, or previous completion of, the accompanying lecture course Physics 11. For this reason, students who withdraw from Physics 11 during the add/drop period must also withdraw from Physics 21 or risk being disenrolled.

Students withdrawing from Physics 11 after the end of the Add/Drop period may remain enrolled in Physics 21 Laboratory, but are expected to independently continue their study of the Physics concepts relevant to each laboratory experiment. Failure to do so may seriously jeopardize their chances of successfully completing Physics 21.

Reminder: Add, Drop or Section Changes must be done using the UVM Registrar's web page, or directly through the Registrar's office.

Attendance:

Attendance in this course is not required. Our expectation is that you will complete these labs on your own time, based on the instructions on Blackboard.

We strongly encourage you to attend virtual sessions, especially if you are feeling stuck or frustrated. We will offer several opportunities during the week to meet with TAs (see Session Schedule). You're welcome to attend the sessions of any of the TAs, not just the one that will be grading your reports.

You may use the Physics 21 sessions to get help with Physics 11 as well.

Grading:

Letter grades will be assigned to final course percentage as follows:

A	+	100-97.00	B	+	89.99-87.00	C	+	79.99-77.00	D	+	69.99-67.00	F	59.99 and below
		96.99-93.00			86.99-83.00			76.99-73.00			66.99-63.00		
	-	92.99-90.00		-	82.99-80.00		-	72.99-70.00		-	62.99-60.00		

The grading for Physics 21 is independent of the grading of Physics 11. There will be no final in Physics 21.

Labs are due on Sunday after the week's activities. Note, the lab term project has small assignments due every week as you progress.

Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact [Student Accessibility Services](#).

They work with students to create reasonable and appropriate accommodations via an accommodation letter to their professors as early as possible each semester.

Contact:

A170 Living/Learning Center

802-656-0739

access@uvm.edu.

Academic Integrity:

Students are expected to comply with the [University's Code of Academic Integrity](#).

Please consult the website of the “Center for Student Ethics & Standards” for details. In addition to the matters described there, please note that it is a serious offense to submit a report, or use data, from an experiment in which you did not actively participate. Discussion and cooperation with classmates is encouraged; but your analysis, conclusions, and write-up must be your own individual work. Plagiarism and collusion are referred to the Office of Academic Integrity, and will result in academic sanctions.

Monday, August 31, 2020 to Friday, September 04, 2020

No Labs

Monday, September 07, 2020 to Friday, September 11, 2020

No lab sessions. First assignment due: procure a tape measure.

Monday, September 14, 2020 to Friday, September 18, 2020

1st lab: Measurement

Monday, September 21, 2020 to Friday, September 25, 2020

2nd lab: Estimation

Monday, September 28, 2020 to Friday, October 02, 2020

3rd lab: Gravity and Height

Monday, October 05, 2020 to Friday, October 09, 2020

Lab Project: Pros/Cons of 3 Proposals

Monday, October 12, 2020 to Friday, October 16, 2020

Lab Project: Building Contraption

Monday, October 19, 2020 to Friday, October 23, 2020

Lab Project: Testing Contraption

Monday, October 26, 2020 to Friday, October 30, 2020

Lab Project: Data Collection Video

Monday, November 02, 2020 to Friday, November 06, 2020

Lab Project: Analysis

Monday, November 09, 2020 to Friday, November 13, 2020

Lab Project: Final Write-Up

Monday, November 16, 2020 to Friday, November 20, 2020

Extra Credit Challenge for Lab Project (optional)

Monday, November 23, 2020 to Friday, November 27, 2020

No Labs (Thanksgiving Break)

Monday, November 30, 2020 to Friday, December 04, 2020

Available for help with Physics 11 (optional)