

PHYS022

Room: E330

Pre-requisite or co-enrollment: Physics 12

Lab Instructor:

Dr. Varuni Seneviratne vsenevir@uvm.edu

Room: Innovation E237

Office hours: To be announced

Teaching Assistants: To be announced

Course Objective:

“A normal person sees a failed experiment; a scientist sees progress” **Steven Magee**

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 runs with a lab session on Thursday where you will be completing your most of your work. You will have until Monday midnight to finish up your reports, which you will submit your reports via Blackboard by Monday midnight. Lab times are for working on your Physics 22 labs and project, and also getting help in Physics 12 as you need.

There is no lab in the first week. After that, you will have a couple of short labs. Then, there will be a multi-week final project that will be a significant portion of your grade.

You are encouraged to discuss and collaborate with your classmates. You may work together to perform experiments in groups of up to three people. 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.

Physics 22 is a separate class from Physics 12 (they will be graded independently); You may use the Physics 22 time to help you solidify the concepts of Physics 12.

Required Course Materials:

The required information sheets for the lab is provided via Blackboard.

You will need certain 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 run software, write up your reports, and do video analysis.

As part of your final project, you may want to access the journal articles, books, websites ...etc.

Attendance:

Attendance at activity sessions is required. Not attending will negatively impact your grade. If you anticipate that you will be unable to attend your regularly scheduled lab, you must reschedule it with Dr. Seneviratne at least one week prior to the lab that you will miss. If you miss a lab due to unforeseeable circumstances beyond your control, (such as serious personal illness or a death in the family), contact Dr. Seneviratne as soon as possible. Be prepared to provide documentation of the reason why you were unable to attend at the regular time.

Note, all sessions of Physics 22 are on the same day; there are no other days to attend. You must also go to section you've enrolled in, to work with your group.

Prerequisites:

This laboratory course is designed to accompany Physics 12. Students registered in Physics 22 must now be enrolled in Physics 12 or have previously completed Physics 12 or Physics 125. Physics 22 labs require a background knowledge that is best gained from concurrent enrollment in, or previous completion of, the accompanying lecture course Physics 12. For this reason, students who withdraw from Physics 12 during the add/drop period should withdraw from Physics 22 or risk being disenrolled.

Students withdrawing from Physics 12 after the end of the Add/Drop period may remain enrolled in Physics 22 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 22.

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

All of the TAs for Physics 22 will have office hours. We strongly encourage you to attend, especially if you are feeling stuck or frustrated. You are welcome to attend the office hours of any of the TAs, not just the one that will be grading your report or conducting your lab session.

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

Letter Grade	Numerical Grade
A+	97-100
A	93-96
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	<60

The grading for Physics 22 is independent of the grading of Physics 12. **There will be no final examination in Physics 22.** All grades will be posted on Blackboard to ensure privacy. It is each student's responsibility to verify the accuracy of the postings regularly. Report any discrepancies promptly.

Tentative Semester Plan

Week	Lab
1	No Lab
2	Charging by Induction
3	Mapping electric fields and equipotential surfaces
4	Circuit black box project (week 1 of 3)
5	Circuit black box project (week 2 of 3)
6	Circuit black box project (week 3 of 3)
7	Making Motors
8	Spring Break
9	Research Project (week 1 of 4)
10	Research Project (week 2 of 4)
11	Optics of the Eye
12	Research Project (week 3 of 4)
13	Research Project (week 4 of 4)
14	Extra credit presentation sessions (optional)
15	Physics 12 final exam review (optional)

Lab Reports

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

Your reports will be docked 5 points for every day (partial or full) it is late. Will start reducing soon after mid night Monday.

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, Tel #: 802-656-0739 email: access@uvm.edu.

Note, we do not have quizzes or exams in Physics 22, so extra time or a distraction free space for exams will not be pertinent.

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. If you previously took this or

another physics course, you are still expected to take data this semester and base your reports of your experience this term.

Cooperation with laboratory partners is encouraged during the setting up and data gathering parts of each experiment, but your analysis, conclusions, and write-up must be your own individual work.

Note, if you provide your work to another student and they submit it; you have both participated in the act of collusion, a violation of the Code of Academic Integrity. Write your own lab reports.

Religious Accommodation:

Students have the right to practice the religion of their choice. To facilitate that, students who anticipate religious holidays conflicting with their course work must submit in writing to their instructors by the end of the second full week of classes their documented religious holiday schedule for the semester. If you miss work for the purpose of religious observance, you will have the opportunity to make up this work. You must coordinate making up the work before the holiday.

Student Accessibility Services

In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact the Center for Student Success. Student Accessibility Services works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter. All students are strongly encouraged to meet with their TA, the lab coordinator, and the course instructor to discuss the accommodations they plan to use in each course. A student's accommodation letter lists those accommodations that will not be implemented until the student meets with their faculty to create a plan. Begin the process at: A170 Living/Learning Center; 802-656-7753; access@uvm.edu; or https://www.uvm.edu/academicsuccess/student_accessibility_services.

Sexual Assault, Relationship Violence, Harassment, and/or Discrimination Disclosure:

All course instructors (including graduate and undergraduate students hired for the course) are "Responsible Employees" or mandatory reporters, meaning we are responsible for reporting to the Title IX Coordinator instances of sexual assault, intimate partner violence, harassment, and discrimination disclosed to any of us, including the name of the person that disclosed the information, for institutional review. If you would like to speak confidentially with someone (i.e., someone not required to make a report for institutional review), you may contact the following resources directly for support: Campus Victim's Advocate, UVM Counseling & Psychiatry Services, and the Student Health Center. These resources are also listed at https://www.uvm.edu/aeo/resources_links.

Safety is a priority in these labs. Negligent or deliberate misuses of the equipment will not be tolerated, and may result in an F for the assignment or entire course.