

Physics 011 – Elementary Physics – Fall 2020

Instructor

Dr. Juan M. Vanegas

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Office: E205, Innovation Hall

Office hours: MW 2:00 pm – 3:00 pm, or by appointment. All office hours will take place online through MS Teams.

Class and Exam Schedule – Remote modality

This course will meet remotely at the designated times listed below. Class meetings will take place in MS Teams and exams will be delivered through BlackBoard using the Respondus Monitor/LockDown Browser. Students will be expected to attend each class meeting at the designated time and participate in class activities (see *Class Format and Grading* section below for more details on how in-class participation will be graded)

Class times: MWF 12:00 (noon) – 12:50 pm, Online through MS Teams
 T 1:15 – 2:30 pm, Online through MS Teams

Midterm exams:

1. Wednesday Sept. 30th, 6:40 – 9:40 pm, Online through Blackboard
2. Wednesday Oct. 21st, 6:40 – 9:40 pm, Online through Blackboard
3. Wednesday Nov. 11th, 6:40 – 9:40 pm, Online through Blackboard

Final exam: 4. TBA, Online

Technical support for students

Students, please read this technology check list to make sure you are ready for classes:

<https://www.uvm.edu/it/kb/student-technology-resources/>

Students should contact the Helpline (802-656-2604) for support with technical issues.

Prerequisites or Co-requisites

High school algebra and trigonometry. PHYS 021 is not a co-requisite for this class, but it is required for many academic programs. Please check with your advisor.

Required Course Materials

Textbook

College Physics: A Strategic Approach, 4th edition, Pearson. Authors: Knight, Jones, and Field.

Access cards are available for purchase from UVM Bookstore as online eText with Mastering Physics, or loose-leaf bundle + online eText with Mastering Physics.

Alternatively, you can purchase the online textbook directly from the publisher when registering for Mastering Physics (see below). Please be aware that whatever option you choose to purchase needs to include **Mastering Physics with eText Access**.

Mastering Physics with Learning Catalytics

Homework assignments, quizzes, and in class activities will be offered through Pearson's Mastering Physics and Learning Catalytics online systems. You will need to visit <https://www.pearson.com/mastering> and register if you don't already have an account. The Mastering Physics course ID is **vanegas89817**. If you have not purchased the access card from the UVM bookstore, you will have the option to Buy **Mastering Physics with eText Access** using a credit card or PayPal. If you are waiting to receive financial aid and cannot purchase access right away, there is a link at the bottom of the registration page that allows you to get temporary access without payment for 14 days.

Laptop computer, tablet, or smartphone.

In class activities through Mastering Physics, Learning Catalytics, MS Teams, and Blackboard require the use of an electronic device with a compatible web browser to deliver assignments and submit answers. Please let the instructor know if you need assistance using your own device to attend class.

Microsoft Teams

In class activities and office hours will take place through MS Teams. Installation instructions are available here: <https://www.uvm.edu/it/kb/student-technology-resources/>. Students will be added to a Team called "PHYS011C Elementary Physics (202009-QF-Crosslisted)". If this team does not appear in your list of "Teams" on the app, please let the instructor know. Students will be divided into groups at the beginning of the semester and will have their own group "Channel" within the class Team to carry out group work during class sessions.

Class sessions may/will be audio-visually recorded for students in the class to refer back to, and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live.

Class Format and Grading

In contrast to traditional lecture courses, PHYS011 follows a flipped classroom model in which students spend most of their class time working through hands-on and group activities facilitated by the instructor and teaching assistants. Some of these activities include conceptual tutorials, analytical and numerical problem solving, and “virtual labs” (due to the current COVID-19 pandemic). In this format, students are expected to prepare for class by completing assigned readings and pre-class activities, including watching videos, short assignments, and/or quizzes. Selected homework problems to be completed after class will be assigned to consolidate the students’ knowledge, while balancing the additional time needed to complete the pre-class activities.

The grade for the class will be computed based on the following:

Pre-class activities:	15 %
In-class activities:	25 %
Homework assignments:	15 %
Midterm exams:	30 % (3 x 10 % each)
Final Exam (cumulative):	15 %

Pre-class activities

Student preparation is an essential component of the flipped classroom model as the class material will not be covered in the same way as in a traditional lecture format. Pre-class activities, quizzes, and textbook readings will be assigned through Mastering Physics. Pre-class activities may include watching videos, reading questions, short problems, and tutorials. These activities are expected to take no more than 30 minutes, but it is essential that they are completed *before* class! To encourage timely completion of these activities, full credit will only be given if completed before the beginning of class, and up to 50% will be given if completed after class but before the end of the day. Students will not be able to make-up missed pre-class activities.

In-class activities

Students will work individually and in groups during class on selected activities including numerical/analytical problems, conceptual tutorials, context-rich problems, and virtual labs. Student groups will be assigned by the instructor. Many of these activities will be delivered electronically through Learning Catalytics (part of Mastering Physics). Students need to regularly attend and participate in class activities as they constitute 25 % of the overall class grade. Due to the interactive nature of these activities, students will not be able to make-up activities if they miss class. Students will be allowed to miss 4 class sessions without impacting their grade in order to accommodate unforeseen circumstances (sickness, etc.). If students anticipate missing a large number of class periods, they need to contact the instructor as soon as possible to determine the best course of action.

Homework assignments

Selected homework problems will be assigned to solidify students' knowledge and reinforce the skills learned in class. These problems will be assigned through Mastering Physics and are expected to be completed by specified dates. Late assignments will incur a 10 % decrease in the maximum credit for each day late, but will not lose more than 50 % of the total credit no matter how late they are to encourage students to complete all exercises.

Exams

Students will be expected to take exams online at the scheduled evening times.

Students will have close to 3 hours to take midterm exams. A grade of zero will be recorded for any missed exam unless circumstances beyond the student's control prevent participation at the scheduled time. If you anticipate a problem, please contact the instructor as soon as possible. Documented evidence of such circumstances will be required in order to schedule a makeup for any exam. All exams will be closed-book with no notes or other materials to be brought into the exam; a student should need only pen or pencil (and eraser) and a calculator (**no smartphones or any other electronics are allowed during exams**). A formula sheet will be provided for each of the midterm and final exams. The final exam will be cumulative. Questions on the exams will be similar to homework and in-class assignments and will include numerical/analytical problems as well as conceptual questions.

Exams will be delivered in BlackBoard and proctored using Respondus Monitor, automated exam-proctoring software that uses artificial intelligence to flag suspected cases of academic integrity violations during exams. The software will make a video/audio recording of you taking your exam, but a proctor is not watching you take the exam.

After the video recording of you taking your test is processed, faculty are notified if there are points in your video where academic dishonesty may have occurred. The faculty member then reviews only these flagged video segments. Monitor has been reviewed by UVM's information security team and meets the institution's requirements for data security and privacy.

For Respondus Monitor to work, you will need to:

1. Download the Respondus LockDown Browser. The LockDown browser will prevent you from accessing other websites or applications during an exam.
2. Have a webcam. It can be either type that's built into your computer or one that plugs in with a USB cable.

(Note: Taking exams with an iPad using Respondus Lockdown Browser is not recommended. If you have no choice but to use an iPad, please contact your faculty

member WELL BEFORE the exam because they must configure the exam to allow it to run on an iPad.)

Carefully follow the steps in this article

<https://www.uvm.edu/it/kb/article/blackboard-respondus-monitor-for-students/>

that will guide you through the process of

- Installing Respondus LockDown Browser
- Testing your computer/webcam/network
- Getting help with Respondus LockDown and Monitor
- Ensuring a successful exam experience

System Requirements for Respondus Monitor:

For the most current information about system requirements, please check the above web site. As of August 2020, Google Chromebooks and Linux Operating Systems will not work. If you do not have other options, please contact the instructor right away.

Course Topics

1. Representing Motion
2. Motion in One Dimension
3. Vectors and Motion in Two Dimensions
4. Forces and Newton's Laws of Motion
5. Circular Motion, Orbits, and Gravity
6. Rotational Motion
7. Equilibrium and Elasticity
8. Momentum
9. Energy and Work
10. Using Energy
11. Thermal Properties of Matter
12. Fluids
13. Oscillations
14. Traveling Waves and Sound
15. Superposition and Standing Waves

Student Learning Accommodations

In keeping with University policy, any student with a documented disability interested in utilizing ADA accommodations should contact Student Accessibility Services (SAS), the office of Disability Services on campus for students. SAS 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 recommended to discuss with their faculty the accommodations they plan to use in each course. Faculty who receive Letters of Accommodation with [Disability Related Flexible accommodations](#) will need to fill out the Disability Related Flexibility Agreement. Any questions from faculty or students on the agreement should be directed to the SAS specialist who is indicated on the letter.

Contact SAS:

A170 Living/Learning Center;

802-656-7753

access@uvm.edu

www.uvm.edu/access

Student Responsibilities and Rights – Academic Integrity

Students are strongly encouraged to work together on problems during in-class activities and outside of class. However, each student must submit their own independent work unless specifically asked to submit a group answer. Submitting somebody else's work as your own will be considered academic dishonesty and will be reported to the Center for Student Conduct.

The following policy addresses plagiarism, fabrication, collusion, and cheating:

<http://www.uvm.edu/policies/student/acadintegrity.pdf>

Grading Appeals:

<http://www.uvm.edu/policies/student/gradeappeals.pdf>

Religious Holidays

Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time.

<https://www.uvm.edu/registrar/religious-holidays>

FERPA Rights Disclosure

The purpose of this policy is to communicate the rights of students regarding access to, and privacy of their student educational records as provided for in the Family Educational Rights and Privacy Act (FERPA) of 1974.

<http://catalogue.uvm.edu/undergraduate/academicinfo/ferparightsdisclosure/>

Promoting Health & Safety

The University of Vermont's number one priority is to support a healthy and safe community

Center for Health and Wellbeing

<https://www.uvm.edu/health>

Counseling & Psychiatry Services (CAPS)

Phone: (802) 656-3340

C.A.R.E. If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380). If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website at <https://www.uvm.edu/studentaffairs>