

**PHYS 111 – Introductory Physics II**  
**Course Outline: Jan 2020 – Apr 2020**

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Please email us directly rather than using any LMS messaging function.

Lectures: Videos by the instructors will be posted a UVic LMS  
There will be synchronous activities during the lecture period.  
The lecture period is TF 10:30-11:30am and R 6:30-7:30pm UVic time.

Labs: Synchronous lab sessions will be roughly weekly starting on Jan 18 or 19.  
You must be registered in a lab section.  
As the lab work is novel no lab exemptions will be given.

Prerequisite: PHYS 110, and credit or concurrent registration in a calculus class.  
The calculus class (MATH 100, 109 or 102) must be at UVic if it is taken concurrently. We do not recommend MATH 102. We will structure the course assuming that you are taking MATH 101 in the same term you are taking PHYS 111.

Required Texts:  
Texts by Dr Keeler and Dr Laidlaw will be available electronically.  
A lab manual by Dr Martin will be available electronically.  
To access these resources and the assignments you must purchase the text.  
The purchase is done through the bookstore, and can be done online.

Other Required Supplies:  
To fulfill the requirements of this course you will need to ensure you have a computer, a working webcam, and a stable internet connection with enough bandwidth to support using applications such as Zoom.

In this course we will give an overview of, and teach the basic principles of, a number of areas of physics. You will learn to analyze physical systems and to identify the principles by which they operate. You will also learn to apply and interpret mathematical tools such as vectors, calculus, and symbolic manipulation to predict and understand the behavior of these systems. In the process we will stimulate your curiosity about the physical world and help you develop analytical thinking skills that you can apply in your future studies.

**Calendar Description:** Heat engines; harmonic motion; wave motion; geometric and wave optics; modern physics.

While we do not grade on a curve, in the past, courses like this have typically had roughly the following grade distribution:

A-range: 20%; B-range: 40%; C/D-range: 30%; F: 10%

**Marking:** There will be four overall evaluated components in two different schemes:

	SCHEME 1		SCHEME 2	
<b>Final exam</b>	<b>(1)</b>	<b>40%</b>	<b>(1)</b>	<b>50%</b>
<b>Biweekly quizzes</b>	<b>(4/5)</b>	<b>30%</b>	<b>(3/5)</b>	<b>20%</b>
<b>Weekly labs</b>	<b>(8)</b>	<b>20%</b>	<b>(8)</b>	<b>20%</b>
<b>Weekly assignments</b>	<b>(11)</b>	<b>10%</b>	<b>(11)</b>	<b>10%</b>

To determine your final grade we will combine the scores in each component according to the weights given above using whichever scheme maximizes your score. Based on that score we will use our academic judgement make a determination about the appropriate letter grade.

Descriptions of the letter grade's meanings [can be found here](#). Based on the assigned letter grade we will assign a corresponding percentage.

### **Final Exam:**

There will a final exam during the April exam period. The date and time is normally finalized in late February. The final exam will be offered remotely but synchronous and time limited. It will follow a format similar to the quizzes. Students who do not write the final exam will be assigned the grade "0% N". Students must get a minimally satisfactory grade on the final exam to pass the course; the exact threshold will be determined by the instructors based on their assessment of the difficulty of the final exam.

**The final exam will be remotely proctored.**

**The instructors will require students to provide support for their work.**

### **Quizzes:**

There will be 5 remote, synchronous, and time-limited quizzes. They will occur on Thursdays during the lecture period. Your score will be based on your best results. We will not offer make-up quizzes; students who are ill at the time of one quiz are accommodated by the omission of at least one quiz in the grading.

**The quizzes will be remotely proctored.**

**The instructors will require students to provide support for their work.**

### **Assignments:**

Assignments will be assigned and due approximately weekly. Prior to having access to an assignment you will be required to correctly answer questions closely based on that week's posted lecture material. We will not modify the due dates for assignments for an individual student. We believe that there is adequate time to undertake them.

### **Labs:**

There will be weekly lab exercises; labs will be due on the Friday following the scheduled lab session, but will be accepted until Sunday with late penalty via the LMS. Only submissions through the LMS will be graded. Email submissions are not accepted.

**Students who do not have satisfactory standing in the labs will be assigned the grade of "F" and will not be permitted to write the final exam.**

## Academic Integrity

The instructors take Academic Integrity in this course extremely seriously. You can find UVic's Policy on Academic Integrity in the Calendar; [here is a link](#).

In overview, your responsibilities are:

- For the final exam you must complete all work on your own without help from another person or from outside sources.
- For the quizzes you must complete all work on your own without help from another person or from outside sources.
- For the labs you must submit your own original work. You may seek help or advice from an instructor or another student. You may not copy or paraphrase from another student. You may not permit your work to be copied or paraphrased by another student.
- For the assignments you must undertake the work yourself. You may seek advice or help from an instructor, other students, a tutor, or other person, but you are responsible for understanding and undertaking the work you submitted.

The instructors are taking several active and passive measures to monitor the course to maintain the integrity of the course.

All quizzes and the final exam will be remotely supervised. You will be required to log in to Zoom through your UVic account and turn on your webcam showing yourself and the area surrounding you as you work. If you do not participate in the remote proctoring your grade for that course element will be set to 0.

The quizzes and the final exam will require you to provide numerical answers to questions. The questions will be marked based on whether the numerical answer is close to the correct numerical answer. The numbers in the questions you must answer will be randomized, the order of questions may differ between students, and you will only be able to answer questions in sequence. It will not be possible to "backtrack" during the quizzes and final exam.

In assessing work, instructors may require a student to support answers submitted on quizzes and the final exam. Examples of the kind of support that may be required include written solutions leading to the submitted answer, or the requirement to verbally explain the reasoning to the same, or substantially similar, problems.

If the instructors have a reasonable apprehension that an academic integrity violation has occurred they will forward it to their Chair as outlined in the Policy on Academic Integrity.

## Studies being done on this course

### #1 - Assignments

Assignment completion rates and behaviour in this course will be the subject of a study conducted by Mark Laidlaw and Richard Keeler. The purpose of this research is to

- Measure the percentage of students who complete the assigned homework
- Quantify the relationship between homework completion habits and assigned final grades.
- Assess the viability of different methods of automated assessment

The data collected include your score on individual assignments and the times at which you accessed and answered individual assignment items.

The anticipated benefit is to demonstrate whether assignments can be administered through UVic's CourseSpaces system, and to identify assignment completion habits correlated with success so they can be taught to future class sections. The data used in the study will be anonymous. The use of your data will not affect your mark in any way; no analysis will be done before grades are finalized.

Your data will be processed as follows: Using the student number, final grades will be associated with scores on each assignment and the times the assignment items were accessed. All identifying features such as student number are then removed from the data.

If you have questions about the methods and goals of the research, about how your data will be used, or about the use of your data, please contact Mark Laidlaw by email at [laidlaw@uvic.ca](mailto:laidlaw@uvic.ca). You may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or [ethics@uvic.ca](mailto:ethics@uvic.ca)).

### #2 – Exams

Exam results in this course will be the subject of a study conducted by Mark Laidlaw.

The object of the study is to characterize the difficulty of exam questions. The anticipated benefits of the study are to help standardize course grades from year to year, and to improve question design. The data used in the study will be anonymous and will be statistical in nature (for example: 53% of students who got a "B" answered question 20 correctly). The use of your exam data will not affect your mark in any way, as no analysis will be done before grades are finalized. You will receive a follow-up email with more details after the completion of the course. If you have questions about the methods and goals of the research, or about how your data will be used, please contact Mark Laidlaw by email at [laidlaw@uvic.ca](mailto:laidlaw@uvic.ca).

You may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or [ethics@uvic.ca](mailto:ethics@uvic.ca)).

### Approximate Schedule:

Topic	Lectures Available (Mon)	Assignment Due (Fri)
Harmonic Motion	Jan 11	Jan 22
Coupled Oscillations/Waves	Jan 18	Jan 29
Standing Waves	Jan 25	Feb 5
Wave applications	Feb 1	Feb 12
Geometric Optics	Feb 8	Feb 26
Collective Variables	Feb 22	Mar 5
Calorimetry	Mar 1	Mar 12
First Law	Mar 8	Mar 19
Second Law	Mar 15	Mar 26
Relativity	Mar 22	Apr 2 (note: Good Friday)
Modern Physics	Mar 29	Apr 9

### Quiz Schedule

Date (6:30-7:30pm)	Topic	Topic
Jan 28	Harmonic Motion	
Feb 11	Coupled Oscillations/Waves	Standing Waves
Mar 4	Wave applications	Geometric Optics
Mar 18	Collective Variables	Calorimetry
Apr 1	First Law	Second Law

### Lab Schedule

Lab Sequence	Synchronous Session	Report Due (Fri)
Lab 1 part 1	Jan 18, Jan 19	Jan 22
Lab 1 part 2	Jan 25, Jan 26	Jan 29
Lab 2 part 1	Feb 1, Feb 2	Feb 5
Lab 2 part 2	Feb 8, Feb 9	Feb 12
Lab 3 part 1	Mar 1, Mar 2	Mar 5
Lab 3 part 2	Mar 8, Mar 9	Mar 12
Lab 4 part 1	Mar 15, Mar 16	Mar 19
Lab 4 part 2	Mar 22, Mar 23	Mar 26

### Live Class sessions:

Jan 12, 19, 26, Feb 2, 9, 23, Mar 2, 9, 16, 23, 30, Apr 6

### Office hours held in class time:

Jan 15, 22, 29, Feb 5, 12, 26, Mar 5, 12, 19, 26, Apr 9