PHYS 111 – Introductory Physics II
Course Outline: Jan – Apr 2019

Instructor:	M. Laidlaw	R. Kowalewski	T. Martin
Sections:	A01	A02	A03
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Lectures: 10:30 – 11:30 TWF, ELL 168 (A01)
11:30 – 12:30 TWF, ELL 168 (A02)
1:30 – 2:30 TWF, ELL168 (A03)
We will post our office hours on the PHYS 111 "CourseSpaces" site.

Labs: Lab sections are normally held in Elliott 144. Labs start January 6.
You will be given your laboratory schedule at the first lab.
You must complete all labs and have satisfactory standing to obtain credit for the course. Students who miss their first scheduled lab (during the January 6th week) may be required to withdraw from the course.

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: "PHYS 111 Textbook" Keeler/Laidlaw
"PHYS 111 Lecture Notebook" Keeler/Laidlaw
"PHYS 111 Lab Manual"

You must purchase an electronic resource package that contains the workbook from the UVic Bookstore. This package also gives access to the mandatory assignments and additional course material. If you purchased and redeemed the package in a previous term you can use the same code you used then. We *recommend* that you purchase a hard copy of the workbook and text; these are sold at the bookstore for about $15 each – roughly printing cost.

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.

Organizational Details:

Midterm Exams:

There will be two midterm exams, scheduled for 2:00-3:30pm on Saturday February 8 and Saturday March 14. We will give instructions about exam location nearer the time of the exams. We expect you to write both midterm exams. **We will not offer makeup midterms. The alternate grading schemes detailed below are the accommodation in the case of illness or other conflict.**

Final Exam:

There will a final exam during the April exam period. The date is normally finalized in late February. Do not plan April travel before you know the exam schedule. You must write the final exam to get credit for this course.

Supplementary Course Material:

We will distribute all course material via the "CourseSpace" site for PHYS 111. This material includes an electronic (pdf) version of the workbook and textbook. We expect that this material will include guidance about what material to study in preparation for lectures and exams.

Assignments:

Assignments will be assigned and due approximately weekly.
Assignments will be administered through the "CourseSpace" site for PHYS 111. You must purchase the textbook package to be able to access the assignments. We have chosen to administer assignments though this system because the interactive nature provides prompt feedback that will help you learn the material.

Accommodations:

We are willing to arrange reasonable accommodations for:

- Conflicts between classes or examinations and your religious observances;
- Issues documented through CAL; and
- Other issues.

If you miss an exam for any reason, we expect you to contact us as soon as possible after the exam. If you anticipate missing a course requirement, we expect you to contact us a reasonable amount of time in advance.
If something comes up that adversely affects your performance, please talk to your instructor or the course coordinator. We can't help you if we don't know about the problem.

Lab Exemption:

Students who have previously attempted PHYS 111 may be eligible to be *exempted* from laboratory work; if you wish to apply for this exemption you must be registered in the course and apply before January 17. To apply for exemption contact the lab coordinator Doug McKenzie at dmckenzi@uvic.ca. Students who are exempted from laboratory work may write a laboratory exam on April 6.

Keys to Success

Don't cheat on exams, assignments, or in your labs. Cheating, plagiarism, and other forms of academic fraud are taken very seriously both by the instructors and the University. The *Policy on Academic Integrity* can be found in the Undergraduate Calendar. It is available online at:

http://web.uvic.ca/calendar2019-09/FACS/UnIn/UARe/PoAcI.html

You should note that the typical penalty for cheating on an exam is being assigned the grade F in the course. If the instructors have a reasonable apprehension that an academic integrity violation has occurred then they may take this into account in their exercise of academic judgment when assigning grades; this is separate from any disciplinary process.

There are several places where you can get help, both with Physics and with other issues:

- The Physics Aid Center (drop-in Physics Q&A held the Learning Commons)
- The Learning Commons (help with Math, Writing, and Learning Skills.)
- Your instructors. We have office hours for a reason.
- Center for Accessible Learning (472-4946)
- Counseling Services (721-8341)

Keys to success:

- Attend lectures – you won't be exposed to the material if you don't.
- Read the reference materials and notes.
- Read the workbook – we have put examples in it to illustrate key points and to serve as examples of concepts we believe are important.
- Do the assignments – We choose the problems to help teach the principles that are important for learning.
- Study – We expect that this class will take you around 12 hours per week between classes, labs, assignments, and studying.
- Ask for help if you find yourself falling behind.

What we expect you to do:

- Read the text prior to coming to lecture.
- Work through the workbook as the material is covered.
- Start your assignments well before the due date.
- When you come to office hours with a question bring your relevant work.
- Study continually; this isn't a class you can do well in with a "cram and memorize" strategy.

You may ONLY use <u>non-programmable</u> and <u>non-graphing</u> calculator models Sharp EL-510RN or EL-510RT for exams. They can be bought in the Bookstore for about $12. Use of a non-authorized calculator may result in dismissal from the exam, sanctions under the *Policy on Academic Integrity,* or both.

Marking and Grades:

To obtain credit in the course you must:

- Have a satisfactory score on the final (end-of-term) exam. In the past a score of roughly 40 has been minimally satisfactory.
- Complete all labs *and* have satisfactory standing in the labs.
- Have a score above 50 based on the following method of calculation:

	Scheme 1	Scheme 2	Scheme 3	Scheme 4
Assignments	10	10	10	10
Labs	14	15	15	0
Midterm I	13	15	0	15
Midterm II	13	0	15	15
Final Exam	50	60	60	60

Your score will be calculated from the version that gives the higher result. Students exempted from the labs will have their "lab exam" score used as their lab mark. Only students exempt from the labs will be eligible for scheme 4.

In all cases, we will use the score (as determined above) to guide our determination of an appropriate letter grade. Another factor we will take into account, through a Bayesian analysis, is which individual questions were answered correctly. Once we have determined an appropriate letter grade, we will assign a corresponding percentage grade.

The narrative descriptions of letter grades and their associated percentage grades are explained in the current Undergraduate Calendar. We will ensure that assigned grades correspond to the narrative descriptions. The official descriptions can be found online:
http://web.uvic.ca/calendar2019-09/FACS/UnIn/UARe/Grad.html.
In Physics, a discipline norm is that mastery combines very good comprehension with the ability to demonstrate that comprehension under time pressure, such as in a regular-length exam situation. Full engagement with course activities includes submitting essentially all assignments.

Marks in individual components typically roughly correspond to the following grades:

Exams:	0-40: F	40-60: C/D	60-80: B-range	80-100: A-range
Assignments:	0-50: F	50-80: C/D	80-100: A or B-range	
Labs:	0-50: F	50-70: D	70-100: A through C-range	

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%

We do not grade on a curve.
We will review all lab marks prior to assigning a final grade.
All instructors will review all final grades assigned.
We will normally not offer supplemental examinations or assign the grade E.
We will assign the grade F if you do not have satisfactory standing in the labs.
The grade N is a failing grade that indicates that you did not complete the required course work. We will assign an N if you do not write the final exam or fail to complete all labs.
We will assign the percentage grade 0% for all N grades

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 habitsand 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. 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).

#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.

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).