COURSE SYLLABUS

COURSE TITLE: PHYS-070: College Preparatory Physics

CLASS SECTION: 002

TERM: fall 2021

COURSE CREDITS: 4

DELIVERY METHOD(S):

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.
Learn more about Camosun's Territorial Acknowledgement.

<For COVID-19 information please visit https://legacy.camosun.ca/covid19/index.html

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, ***you will be removed from the course and the space offered to the next waitlisted student.***

INSTRUCTOR DETAILS

NAME: elizabeth ploughman

EMAIL: ploughe@camosun.bc.ca

OFFICE: F314B note office hours will not be in my office this term but at a location to be announced

HOURS: mon and wed from 10:30 to 11:30, Tues. and thurs. from 10:30 to 11.00 and tues from 3:30 to 4:30 no office hrs. on friday

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

Students will explore one-dimensional motion (kinematics, dynamics, work and energy and momentum), electricity, heat, waves and optics. Students will apply concepts of measurement to develop graphical and data analysis skills in lab exercises and reports that introduce scientific communication skills.

PREREQUISITE(S):

One of:

• C in Pre-calculus 11; C in MATH 073; C in MATH 075; C in MATH 077; C in MATH 135; C in MATH 137; C in MATH 139

It is recommended that students who have been away from math courses for more than 5 years should

consult with the Mathematics department to ensure that their math skills are at a level appropriate for this course.

CO-REQUISITE(S):

See Pre-requisites

EXCLUSION(S):

Not Applicable

COURSE LEARNING OUTCOMES / OBJECTIVES

The learning outcomes in this course meet the required learning outcomes in ABE Advanced Physics as outlined in the 2018-19 BC ABE Articulation Handbook. Upon successful completion of this course a student will be able to:

1. Develop basic measurement skills and apply these skills in laboratory data analysis. In particular:
a. solve problems involving SI units,
b. maintain the correct number of significant numbers in calculations,
c. use uncertainties in measurements, and
d. define vector and scalar quantities.

2. Employ knowledge of kinematics to study problems involving one-dimensional motion. In particular:
a. use the language and concepts of kinematics to describe motion,
b. analyze and solve kinematics problems in one dimension,
c. construct and interpret displacement versus time curves,
d. construct and interpret velocity versus time graphs, and
e. solve problems involving uniform acceleration.

3. Apply knowledge of dynamics to solve problems involving forces and conservation of momentum and energy. In particular:
a. use the language and concepts of dynamics to describe forces and energy,
b. analyze and solve dynamics problems in one dimension using free body diagrams,
c. apply Newton's laws of motion in one dimension,
d. solve problems involving:
i. friction forces
ii. gravitational forces including Newton's Law of Universal Gravitation,
e. analyze and solve problems in kinetic and potential energy,
f. analyze and solve problems in energy conservation,
g. solve problems involving work and power, and
h. solve problems involving impulse and conservation of momentum in one dimension.

4. Use knowledge of electricity to solve problems involving electrostatics and DC circuits. In particular:
a. use the language and concepts of electricity to describe electrical phenomena,
b. analyze and solve problems using Coulomb's law,
c. analyze and solve problems involving Ohm's law,
d. define and distinguish between electric potential difference, resistance and current, and

e. solve simple DC resistance problems involving series, parallel and combination circuits.

5. Apply knowledge of heat energy to solve problems involving heat transfer and describe heat transfer mechanisms. In particular:
a. use the language and concepts of thermodynamics to describe the transfer of heat energy,
b. define and distinguish between temperature, heat energy and specific heat capacity,
c. analyze and solve problems in heat energy, and
d. demonstrate an understanding of the different mechanisms of heat transfer.

6. Use the language and concepts of physics to examine and describe wave phenomena and solve related problems. In particular:
a. define and distinguish between amplitude, wavelength, frequency, waves speed and period,
b. analyze and solve problems involving wave phenomena – refraction, reflection, total internal reflection,
c. describe various wave phenomena and the conditions which produce them,
d. solve problems involving the lens equation and the mirror equation, and
e. construct ray diagrams for mirrors and lenses

7. Observe and analyze experiments in a laboratory involving kinematics, dynamics, conservation of momentum/energy, electricity and heat and draw appropriate conclusions from these experiments. Laboratory assessment will include:
a. collecting data through observation:
i. record a measurement to the appropriate level of precision,
ii. recognize that all measured values have an uncertainty,
b. constructing graphs:
i. choose appropriate scales,
ii. determine line of best fit,
iii. label correctly,
c. drawing conclusions from observations and data
i. identify and discuss sources of error,
ii. calculate and interpret the slope of a line,
iii. relate conclusions to objectives,
d. calculating experimental error:
i. determine % error and % difference where appropriate

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Physics 070 ‘Tutorial Pack’, Physics 070 lab manual, duotang or similar folder for submission of lab reports, calculator that is not programable, pens, drawing instruments, paper including graph paper,

The text ‘Conceptual physics’ by Paul Hewitt will be used for reading assignments but is optional as you may purchase the e book version, or the hard copy (which is very expensive even as physics texts go) or sign a copy out on reserve from the library

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Refer to the topic numbers in the learning objectives and please note that this schedule is approximate. When deemed important extra time will be spent on the topics which the students in the class have the mmost difficulty with

WEEK or DATE RANGE	ACTIVITY or TOPIC		OTHER N
Week 1 and 2	Topic 1		
Week 3 ,4 and 5	Topic 2		
Week 6 and 7	Topic 3		
Weeks 8 and 9	Topic 5		
Week 10 and 11	Topic 4		
Weeks 12 and 13	Topic 6		
Week 14	review		
2 hours every week	Topic 7		

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines scan be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

EVALUATION OF LEARNING

component	weighting
Lab reports will be due on alternate weeks as announced through the term and will include certain assigned, related, exercises from the homework	20% in total
Tests in term time -5 tests will be written (after each of -topics 1 and 2, topic 3, topic 4, topic 5 and topic 6 -are completed). The precise dates will be announced at least 1 week before the test and. The student's worst (or a missed test) will be dropped	40% in total
Exercises completed during the weekly 'tutorial ' block (the mark here is based on completion)	5% in total
Work completed at home from the 'tutorial pack' (marked on completion)	10% in total
2 Hour final exam written in the exam period	25%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the Grade Review and Appeals policy for more information. http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf

COURSE GUIDELINES & EXPECTATIONS

attendance

This is an in person course so students are expected to attend unless they are unwell.

Submission of work

Only printed or hand written work will be accepted no online marking will occur. The home work from the tutorial pack should be done in the pack and the pack brought to lab periods to be checked for completion by the instructor. Lab reports must be submitted in class at the start of the next lab and all calculations must be done by hand in ink or erasable pen. (this is to reduce the temptation for partners to share calculations digitally

D2L

New material is NOT posted on D2L because this is a full time in person course , however the lessons recorded last year have been salvaged, misleading test dates etc from last year have been largely removed and the whole set of lectures given last year are stored like a video library on D2L under the heading 'old videos' in the contents

A student who is unwell will unavoidably miss class and should ask the instructor on their return which topics were missed so they can then go on the D2L site and watch the recordings that were made last year on those topics. Sign into D2L on the camosun home page then you will find the old videos in a module in the contents

Email

Now that we are back in person Individual emails about hw etc. will not elicit a response due to time constraints coupled with the daily nature of the course, neither will the instructor be available on evenings and weekends

BUT not withstanding the above email questions are welcome but will be responded to in the class rather than separately to each individual. For instance, if I know from various emails that students are having a problem with some home work questions then I can devote some class time to the issue and will go over the issue in class.

If you are sick and miss a single class please let me know and see me when you return to determine what topic you missed but if you will be away for more that a day then I will send you suggestions for keeping up (which videos to watch or reading that you can do if you prefer to catch up that way)

TESTS

Exact test dates will be announced as we complete the material but every test will always be approximately 1 week after the primary topic of the test is complete and you will always get at least 1 weeks notice . Announcements will be made in class and posted in the 'news' on D2L

There will be no make up tests allowed except under exceptional circumstances is provided

This is the reason that the worst test is dropped from you record

Any student who misses more than one test that is not given a rewrite will have the extra weighting split between their final exam and their term tests so that it is not a crisis if you do miss more than 1 test

The final exam must be written on the date assigned to it by administration. The only exception would be in accordance with the calendar regulations : if a student has an exam conflict (2 exams at the same time on the same day) the it is their responsibility to inform the instructor as soon as the conflict is discovered. In that case they will usually be given a time to write their exam with another class that is writing an exam. In the case of documented illness a different but similar exam will be given after the student is recovered

Labs

Must be done during the assigned lab period

A mark of below 50% for the lab average will lead to an automatic failing grade for the course

If a student misses and in class lab it can not be made up on campus but an alternate lab exercise will be given to the student to do at home

SCHOOL OR DEPARTMENTAL INFORMATION

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit http://camosun.ca/students/.

Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the Centre for Accessible Learning (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started: http://camosun.ca/services/accessible-learning/

Academic Integrity

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit http://camosun.ca/learn/fees/#deadlines.

Grading Policy

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf for further details about grading.

Grade Review and Appeals

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (http://camosun.ca/learn/calendar/current/procedures.html) and the Grading Policy at http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf to understand the College's expectations of academic integrity and student behavioural conduct.

Changes to this syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.