COURSE SYLLABUS

COURSE TITLE: PHYS-090: College Prep Physics 2

CLASS SECTION: B-01 ie this is a blended class

TERM: fall 2022

COURSE CREDITS: 4

DELIVERY METHOD(S): two in person classes and 3 asynchronous lectures posted weekly to D2L

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.

<HOLD FOR 2021F COVID-19 LANGUAGE>

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 note that physics questions will NOT be answered via email but must be brought to my 'office' or to the physics help centre. You should however notify me of illness etc. by email

OFFICE: F314B note **office hours will not be in my office this term but IN THE Na'tsa'maht center , which is a safe semi outdoor space this is the hexagonal building that sits at the end of the Ewing building**

HOURS: mon-1.00 to 2.00, tues-3:30 to 4:30, wed from 9.00 to 10.00 and Thurs. from 2:30 to 3.30 and **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 develop a foundation in vector algebra and use these skills to explore two-dimensional motion (kinematics, dynamics, work and energy and momentum) and objects in equilibrium. They will also examine electrostatics and electromagnetism (forces, fields and electric potential energy), including applications of electromagnetic induction. Students will further develop scientific measurement and communications skills through laboratory experiments and written reports.

PREREQUISITE(S):

One of:
• C in Physics 11
• C in Camosun Alternative
And one of:
• C in Pre-calculus 11
• C in MATH 073
• C in MATH 077
• C in MATH 139

CO-REQUISITE(S):

Not applicable

EXCLUSION(S):

COURSE LEARNING OUTCOMES / OBJECTIVES

This course meets the required outcomes in the Adult Basic Education: A Guide to Upgrading in British Columbia's Public Post-Secondary Institutions: An Articulation Handbook: 2019/20 Edition (https://www.bctransferguide.ca/docs/ABE1920.pdf)

Upon successful completion of this course a student will be able to:

1. Develop measurement skills and apply these skills in laboratory data analysis. In particular:
1. Review problems involving involving SI units, significant figures in calculations, and uncertainties in measurements.
2. Define vector and scalar quantities.
3. Perform addition, subtraction and scalar multiplication of vectors in two-dimensions using graphical and trigonometric techniques.

2. Solve technical problems involving kinematics of particles in one- and two-dimensions.
1. Define and differentiate between kinematic variables (position, displacement, velocity, speed, acceleration).
2. Solve technical kinematics problems involving constant acceleration in one-dimension (horizontal and inclined surfaces, and free fall) and two-dimensions (projectile motion).

3. Apply knowledge of dynamics to solve problems involving forces and conservation of momentum and energy in two-dimensions. In particular:
1. Use the language and concepts of dynamics to describe forces, energy and momentum.
2. Analyze and solve dynamics problems in two-dimensions using free body diagrams including:

1. Newton's Laws in two-dimensions
2. Momentum in two-dimensions
3. Energy conservation
4. Uniform circular motion
5. Torque, translational and rotational equilibrium.

4. Use knowledge of electricity to solve problems involving electrostatics. In particular:
1. Describe and explain basic electrostatic phenomena.
2. Solve technical problems involving electrostatic forces and fields in two dimensions.
3. Solve technical problems involving electric potential and electric potential energy.

5. Use knowledge of magnetism to solve problems involving electromagnetism. In particular:
1. Describe and explain basic electromagnetic phenomena.
2. Solve technical problems involving electromagnetic forces and magnetic fields in two dimensions.
3. Solve technical problems involving electromagnetic induction, including applications of Faraday's Law and Lenz's Law
4. Describe and explain the functioning of devices that operate using electromagnetic induction.

6. Observe and analyze experiments in a laboratory involving kinematics, dynamics, conservation of momentum/energy, electrostatics and electromagnetism and draw appropriate conclusions from these experiments. Laboratory assessment will include:

1. Collecting data through observation:

1. record a measurement to the appropriate level of precision.
2. recognize that all measured values have anuncertainty.

2. Constructing graphs:
1. choose appropriate scales.
2. determine line of best fit.
3. label correctly.

3. Drawing conclusions from observations and data
1. identify and discuss sources of error.
2. calculate and interpret the slope of a line.
3. relate conclusions to objectives.
4. Calculating experimental error:
1. determine % error and % difference where appropriate.
5. Writing formal laboratory reports.
6. Participating in experimental design

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Required 1) The texts are 'physics 1 workbook' by for dummies publishing and ' physics 090 supplement'

2) physics 090 lab manual

3) some sort of notebook for taking lecture notes as well as a thin folder with paper and graph paper for writing up and submitting lab reports

4) erasable pens for reports are allowed

5) a scientific calculator- basic nonprogrammable but with trig functions

You must have access to a reference -here are some acceptable options:

The online free open stax text details to be announced in class, the text that some of you may have purchased for 07 will also work as a reference book here, 'physics' by Giancoli – any edition will be appropriate

Students will be assigned reading on various topics which can be found by using the index of any of these books but if you do not wish to purchase the book you can work on the readings in the physics study room using the extensive reference library that is in there. 'physics' by Coletta from the study room is also at an appropriate level

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

A) There are three main threads to this course that must all be separately completed-experiments with their reports as explained further down this syllabus, your progression through the workbook and then supplement as you read each section then complete the associated practice in the workbook attempting to stay somewhat in step with the posted lecture material topics, finally you are to watch the posted videos and take notes on each

B) The two in person classes shown on your schedule will be used primarily for lab work (experiments), testing , summarising lesson topics for each week before you watch the lessons so that you will be prepared to take effective notes and reviewing before each test so that yo will be a position to study appropriately for each test

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

Approximate time line for d2L posted lessons

WEEK or DATE RANGE	ACTIVITY or TOPIC		OTHER N
Week 1	Measurement and math preliminaries		
Week 2 and 3	Kinematics 1-d		
Week 4	2-dim vectors		
Week 5	Forces A (gravity and Newton' laws)		
Week 6	Forces B (2-dim methods for force including equilibrium and torque definition)		
Weeks 7 and 8	Forces C (projectiles -the result of gravity in 2- dime- and centripetal force		
Week 9	Work and energy		
Weeks 10 and 11	Impulse and collisions		
Week 12 and 13	Electric and magnetic fields		
Week 14	Review		

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 most weeks as announced through the term and will include certain assigned, related, exercises from the homework **you must obtain 50% or more in the lab to pass the course!!**	20% in total
Tests in term time -5 tests will be written (after each of these topics -kinematics and vectors, forces A and B, forces C, energy, fields-The precise dates will be announced at least 1 week before the test and full details of each test reviewed in class. The student's worst (or a missed test) will be dropped	40% in total
2 Hour final exam written in the exam period on a time and day that will appear in 'my Camosun' after admin. Sets the time	25%
All homework -mainly work completed at home from the 'tutorial pack' (marked on completion) but additional work will be given on occasion	15% in total
Note re homework-**you will keep a record** sheet in your work book which I will initial as you proceed through the book- you will submit this record sheet at the end of term with your final exam. Individual hw will not be submitted but will be checked for completeness on a weekly basis in class during the lab block or during any tutorial	100% total
You must take notes while watching the recorded lessons and these notes are part of the home work that must be completed	

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 partly an in person course so students are expected to attend the in person classes scheduled unless they are unwell.

On Monday, Wednesday and Friday an online lesson will be posted to D2L. The lesson can be found after I record it by signing onto D2L and going to 'contents'. After it is available I will post a news item to that effect. Usually the lesson will involve 2 videos-this way neither video is a full hour. To do ell in the tests it is essential that you takes notes when you watch the recordings and this task should be made somewhat easier by the in person lecture of the week which will generally be a summary of important points to watch for in the recordings

Submission of work

Only lab reports and 'conceptual questions' (when assigned) are to be submitted for detailed marking and only printed or hand written work will be accepted no online marking will occur.

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)

The home work from the workbook should be done in the workbook (or supplement) and the pack brought to lab periods to be checked for completion by the instructor.

Note that instructors will not give their notes to students who have missed a class but A student who is unwell will unavoidably miss class and should ask the instructor on their return which topics were missed so they can be given reading from the text to catch up on the notes that they missed.

Email

Now that we are back with some in person classes and office hours 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 lab or test please let me know via email so that I will have a record. Please see remarks further down this page for details as to missed tests and labs

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 generally a study guide of similar questions will be handed out or done on the board in class if time permits before each test to help you prepare

There will be no make up tests allowed unless medical documentation is provided **and** you have missed more than 2 tests- this is why you will generally be writing 5 tests even though the traditional number for courses of this level in physics is 2 or 3 only

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

Any student who misses more than one test will have the extra weighting added to their final exam 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!!!

Your worst lab mark will not be included in the lab grade that you attain

If a student misses and in class lab it can not be made up on campus but an alternate lab exercise **may** be given to the student to do at home if they have missed more than 1 lab and have a valid medical reason

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.