



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Physics & Astronomy**

**PHYS-070-D02**  
**General College Physics 1**  
**Fall 2020**

**COURSE OUTLINE**

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Dear Students, the first information that you will need to submit is an attendance note, whether you are in the class or on the waitlist. Since there is a substantial waitlist for this course, please e-mail a note to me at [ploughe@camosun.bc.ca](mailto:ploughe@camosun.bc.ca) to confirm your attendance by 5 pm on Tuesday July 7. This is important as this attendance note will hold your space in the course. To ensure that waitlisted students will have a chance to take the course, I will begin the deregistration process for students who have not submitted the attendance note by Wednesday July 8.

Also note that my class list email is from Camlink so you will receive all essential communication via your camlink email we will NOT be using the D2L email function in this class

The course description is available on the web @ <http://camosun.ca/learn/calendar/current/web/phys.html>

**Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this**

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**1. Instructor Information**

<b>(a) Instructor</b>	Elizabeth Ploughman
<b>(b) Office hours</b>	<b>Email office</b> questions about home work will be <b>answered</b> at these times: (mon- 9:30 -10-20, Tues, wed and fri- 2:30-3:20, Thursday 9:45-10;20) but <b>blackboard collaborate help appointments</b> will be set up where needed at <b>times that accommodate both the student's and the instructors schedules</b>
<b>(c) Location</b>	Online only
<b>(d) Phone</b>	<b>Contact</b> me via email since I will <b>Alternative:</b> not be in my office at all
<b>(e) E-mail</b>	<a href="mailto:ploughe@camosun.bc.ca">ploughe@camosun.bc.ca</a>
<b>(f) Website</b>	D2L

**2. Intended Learning Outcomes**

*(If any changes are made to this part, then the Approved Course Description must also be changed and sent through the approval process.)*

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

1. Develop basic measurement skills and apply these skills in a 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 involving 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 and 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

### 3. Required Materials

(a) **Texts the physics 070 Tutorial pack paper version is essential**, it is not only a summary of the theory but contain the majority of the homework that will be assigned (with numerous hints). In order for hw to be corrected the scans or pictures you will submit must be handwritten on the template in the workbook. This is so that all incoming hw for the course has the questions laid out in a matter that makes screen marking feasible (rather than every student's work having a different layout every question will be clearly seen with the solution below the question)

**Physics070 Course pack is the text by John Betts** . The students is advised that it will be helpful to have this as an appropriate level paper copy as a reference, some homework will not be assigned directly from this text but most will be from the tutorial pack.

Online searches for physics information at this level are just as likely to result in approaches to problem solving that you are not responsible for learning as they are to be helpful when it comes to basic physics as the students is required to learn certain methods as well as to understand the concepts. In other words you are encouraged to purchase this affordable text but realize that you can not complete the course without the tutorial pack

## Other

**for homework and tests:** calculator, paper for test solutions (you will be required to write test solutions by hand then scan or photograph them for submission), graph paper

**home lab supplies** please collect these items together and put them in a box for lab use.: paper clips, elastic bands, protractor, 10 nuts and washers , if possible 10 loonies, one 250mL drink in its container one 500mL straight sided water bottle , string, ruler, a tape measure if possible, regular size marbles, sticky tape like scotch tape or masking tape,

It is possible some further item may be needed as the term proceeds if that turns out to be the case you will be notified by email

If your phone supports a scanning ap (such as 'cam scan') you should get this app on your phone because photos of hw sometimes don't appear clear enough to read and mark (in which case you will be asked to resubmit the assignment) If your phone or device won't support a scan ap that is allowed but photos are more likely to take more of your time in the submission process

## 4. Course Content and Schedule

**Asynchronous blackboard collaborate lecture** links will be sent out to you on Tuesday, Wed, and Friday every week in the afternoon (after the recording links are sent to me from 'blackboard support' ) You should watch and take notes as in a live class. The lectures will follow the tutorial pack and fill in the missing theory so that you can, if you wish, add pages of your notes to the workbook in the appropriate places

**Live blackboard collaborate on Thursday at 11:30: review of the week lecture** this will include a test prep summary and a common question answer lecture which will be recorded, followed by a tutorial which will not be recorded

**Tests will be every Monday when there is not a holiday Monday and will be emailed to you at 1:30** every non holiday Monday. **note** that you should **not** be on blackboard collaborate or on D2L for your test but be ready to receive it **by email** then work out all your solutions by hand on paper (this is partly for mathematical ease but also largely to reduce the temptation of using technology for sharing solutions with others)

Tests will be due at the time given with each test. All tests will have equal weight even if some may be expected to require the full hour and others only a half hour. Every test will be primarily based on the week's work but include one question from earlier material (except for the 1t test)

**Lab exercises and assignments** will be emailed to you and also posted to D2L. assignments will be **daily** and small and should be posted to the D2L assignment box or emailed as an attachment if you can't access D2L that day. Home work is to be done daily by the student and submitted daily. Lab reports are to be submitted 2 weeks after the lab is assigned

**At home experiment note** you must write your own report but if a family member is agreeable to act as a 'lab partner' for doing the actual experiment this is allowed as you would normally work with a lab partner in the classroom lab situation. You will find most of the experiments that have been found for you to do at home with simple equipment are quite enjoyable if done with a friend. This can lead to increased noticing of important concepts and so is encouraged.

**Late penalties** An occasional assignment which is turned in one or 2 days late will be accepted but in general late work (where a whole week's worth of physics home work, for instance is submitted at once) will **not be accepted unless there is a valid serious documented reason**. This is partly because of the difficulty of marking on screen but largely because of the near impossibility of knowing whether the person submitting the hw. actually did it themselves when the class is remote

## 5. Basis of Student Assessment (Weighting)

*(Should be directly linked to learning outcomes.)*

- (a) Assignments 35% (these will each be 1/1 if submitted with the worked solution and correct answers) the answers are provided and if the student can not get the same answer as is shown in the pack they should send an email requesting help with the problem
- b) Tests 45% (these will be weekly tests, each including 1 cumulative problem and a number of problems from the week in which the test is issued)
- c) Labs 20% each will be actual experiment to be done at home with simple equipment backed up by some sort of theoretical exercise

### PHYSICS DEPARTMENT GUIDELINES REGARDING TESTING AND GRADING:

- Work must be submitted on time unless there is an emergency Holidays or scheduled flights are not considered to be emergencies.
- Students must write quizzes, tests, midterm tests, etc., on the date and time assigned by the instructor. Missed exams normally receive a zero grade. Instructors are not required to provide make-up tests. At their discretion, instructors may waive a test in exceptional circumstances such as medical issues or a documented illness.
- Any outstanding homework or labs must be submitted prior to the last day of classes, and will be graded according to the late policy outlined by the instructor.
- Refer to your instructor's information page for any additional policies regarding testing and grade calculation.

### PHYSICS DEPARTMENT GUIDELINES REGARDING LABS:

- Students must obtain an overall grade of 50% or higher in the laboratory component of the course order to obtain credit for the course.
- Lab completion is mandatory. A lab may be waived or made up at a later time only in the case of documented illness or other extenuating circumstances. If you will be unable to complete a lab due to illness it is your responsibility to notify your instructor.
- Unless otherwise stated by your instructor late penalties are as follows: For overdue labs (or assignments), a late penalty of 1 mark per day (10%) will be assessed for the first five days following the due date. After this date a complete report is still required and earns a maximum mark of 50%.
- At the discretion of the instructor, a student who is repeating this Physics course with a laboratory grade of 70% or higher may apply for lab exemption.
- Students will complete a minimum of 9 laboratory experiments including 3 formal reports (with full uncertainty calculations)

## 6. Grading System

(If any changes are made to this part, then the Approved Course description must also be changed and sent through the approval process.)

(Mark with "X" in box below to show appropriate approved grading system – see last page of this template.)

Standard Grading System (GPA)

Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

See material required given above

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @

<http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

## A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

### 1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5

70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

## 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

## B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.