



**School of Arts & Science
PHYSICS DEPARTMENT**
PHYS 150-Section X02 A/B
Introductory Physics
Semester/Year – Q1 2014

COURSE OUTLINE

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

Ω Please note: this outline will be electronically stored for five (5) years only.
It is strongly recommended students keep this outline for your records.

1. Course Instructor Information

Instructor: Christopher Avis
Office Hours: M,T,W,Th,F: 11:30-12:20, or by apt.
Location: Tech 244
Phone: 250-370-4006
Email: avisc@camosun.bc.ca
Website Info: online.camosun.ca (D2L)

Lab Instructor Information

Instructor: Edgar Nelson
Location: Tech 218
Phone: 250-370-4435
Email: nelson@camosun.bc.ca

2. Intended Learning Outcomes

Upon completion of this course the student will be able to:

1. Define the scientific method and give examples of its application. Define and give examples of precision and accuracy.
2. Round measurements to the correct number of significant figures. Express numbers using scientific notation.
3. Use the SI system of units to express measurements. Identify and use SI base units, prefixes, and derived units. Perform unit conversions within the SI system. Use the Imperial and U.S. Customary system of units and perform conversions to and from the S.I. system.
4. Construct graphs using a Cartesian coordinate system. Plot data and label the graph correctly, including a title and axes labels. Analyze linear graphs, including drawing a best-fit line, calculating the slope and y-intercept, and writing the equation of the graph. Analyze non-linear graphs, change variables to produce a linear graph, and write the equation of that graph.
5. Define the following kinematic quantities: displacement, velocity and acceleration, distance and speed. Identify vector and scalar quantities. Define and calculate average and instantaneous velocities and speeds. Plot and read kinematic graphs. Use the kinematic equations to solve one-dimensional problems involving uniformly accelerated motion, including freefall.
6. State Newton's Laws and answer related conceptual problems. Construct free-body diagrams. Describe the concepts of net force, mass and weight. Solve one-dimensional dynamics problems involving normal forces, friction, tension, and applied forces. Calculate forces for objects in equilibrium.
7. Define the terms work, kinetic energy, potential energy and power. Use the work-energy theorem or the law of conservation of energy to solve problems. Calculate the power and efficiency of mechanical processes.
8. Assemble simple experimental apparatus using written instructions.
9. Observe, record, organize and display data in tables, graphs or charts.
10. Analyze linear graphs (determine area, slope, intercept, etc.).
11. Interpret meaning of experimental results in the context of the experimental objectives.

3. Required Materials

Textbook: Introductory Physics, Stewart et. al

Other: Physics 150 Laboratory Manual, Graph paper, Scientific Calculator

4. Course Content and Schedule

Lecture: Monday, Tuesday, Wednesday, Friday 10:30-11:20 CBA 121

Lab: Monday 1:30 – 3:20 Tech 222

Seminar: Tuesday, 9:30-10:20 AM Tech 173

5. Basis of Student Assessment (Weighting)

The student must be successful ($\geq 60\%$) in both the theory and laboratory assignments to pass the course. The approximate percentages used for the final grading are:

| | |
|------------|-----------------------|
| Homework | 10 % |
| Quizzes | 5 % |
| Tests | 35 % (Best 3 of 4) |
| Labs | Successful Completion |
| Final Exam | 50 % |

Tests have been scheduled as follows:

Tuesday Oct. 7th

Monday Oct. 27th

Monday Nov 17th

Monday Dec 1st

Please note the following class policies:

1. Homework will be assigned at the beginning of each week and will be due the Tuesday of the week after it has been assigned. Exercises handed out during the seminars will also count towards your homework mark. Late homework will be subject to a 10 % per day mark deduction.
2. Quizzes will consist of a series of short multiple choice questions drawn from the banks of questions posted on the class website (D2L). They will encompass the material covered in a given week and will be done in the final 10 minutes of each week's seminars.

PHYSICS DEPARTMENT POLICIES REGARDING TESTING:

1. The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar (p. 39) "students are expected to write tests and final exams at the scheduled time and place." Exceptions will only be considered for emergency circumstances as outlined in the calendar. Excursions, holidays or scheduled travel flights are not accepted.
2. 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.

PHYSICS DEPARTMENT POLICIES REGARDING LABS AND HOMEWORK:

1. All assigned laboratory exercises and reports must be satisfactorily completed in order to obtain credit for this course. Attendance is mandatory & you may be required to “sign in” at the beginning of each lab period. 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 absent from a lab period due to illness it is your responsibility to notify your instructor.
2. Lab exercises will be done on a bi-weekly basis during the scheduled lab period. Attendance is mandatory and you will be required to “sign in” at the beginning of each one. If, at the end of the lab period, it becomes necessary to complete your report at home, your data must be reviewed and signed (initialed) by the instructor before leaving the lab.
3. 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%.
4. At the discretion of the instructor, a student who is repeating this Physics course may apply for lab exemption.

6. Grading System

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 | Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite. | 1 |
| 0-49 | F | Minimum level has not been achieved. | 0 |

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 E-1.5 at camosun.ca 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, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 ^d course attempt or at the point of course completion.) |
| 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. |

7. Recommended Materials or Services to Assist Students to Succeed

STUDY TIME

It is recommended that between 5 and 10 hours per week (or more for students with a weak background) be spent studying for this course outside of class time.

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section. www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html