



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

PHYS-101-003
Introduction to Physics
Fall 2018

COURSE OUTLINE

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 outline for their records, especially to assist in transfer credit to post-secondary institutions.

1. Instructor Information

| | |
|------------------|---|
| (a) Instructor | Mike Zhong |
| (b) Office hours | 1:30 to 3:20 p.m. Wednesdays to Fridays; 5:30 to 5:55 p.m. Tuesdays & Thursdays |
| (c) Location | F 346B |
| (d) Phone | 250-370 -3515 Alternative: _____ |
| (e) E-mail | zhongm@camosun.bc.ca |
| (f) Website | Online.camosun.ca |

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 completion of this course a student will be able to:

1. Demonstrate skill in the use of S.I. base and derived units.
2. Draw graphs (by hand), determine slopes of linear graphs, linearize non-linear data, and write an equation to represent a linear graph.
3. Solve technical problems involving one-dimensional kinematics for a single particle with constant acceleration.
4. Solve technical problems involving the dynamics of a single particle in one dimension using Newton's Laws of Motion.
5. Perform vector analysis using scaled diagrams with applications to displacement and force.
6. Define the terms work, kinetic energy, gravitational potential energy and power.
7. Solve technical problems using the work-kinetic energy theorem and conservation of mechanical energy.
8. Solve technical problems involving simple DC electric circuits, Ohm's Law, and electric power.
9. Define and describe the following properties of waves: period, frequency, wave speed and amplitude.
10. Define the properties of light, including the electromagnetic spectrum.
11. State and apply the Law of Reflection and the Law of Refraction.
12. Assemble simple experimental apparatus using written instructions.
13. Observe, record, organize and display experimental data in tables, graphs or charts.
14. Analyze linear graphs (determine area, slope, intercept, etc.).
15. Interpret experimental results in the context of the experimental objectives.

3. Required Materials

- (a) "Physics 101: Introductory Physics", adapted from "Physics Principles and Problems", Zitzewitz et al, McGraw-Hill Glencoe, 2009
- (b) PHYS 101 Lab Manual
- (c) Scientific Calculator, Drawing instruments (ruler, protractor, etc.)
- (d) Physics Graph Pack (available in the bookstore)

4. Course Content and Schedule

LEC M, W, Th, F 12:30 – 1:20 pm F316; LAB Tu 12:30-2:20 pm F316

5. Basis of Student Assessment (Weighting)

| | |
|-----------------------------|-----|
| (a) Final Exam | 50% |
| (b) Tests (best 3 out of 4) | 30% |
| (c) Weekly Quizzes | 5% |
| (d) Weekly Homework | 5% |
| (e) Laboratory Workbook | 10% |

PHYSICS DEPARTMENT POLICIES REGARDING TESTING:

- The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar on page 39, "students are expected to write tests and final exams at the scheduled time and place." Exceptions will only be considered due to emergency circumstances as outlined in the calendar. 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 POLICIES REGARDING LABS:

- Students must obtain an overall grade of 60% or higher in the laboratory component of the course order to obtain credit for the course.
- A lab may be waived or made up at a later time only in the case of documented illness or other extenuating circumstances. In the case that a makeup lab is required, the instructor must be contacted by phone or email within 24 hours of the missed lab.
- Unless otherwise stated by your instructor late penalties are as follows: **For overdue labs/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 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 | | 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 rd course attempt or at the point of course completion.) |
| CW | Compulsory Withdrawal: 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 to Assist Students to Succeed Throughout the Course

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.

OUTLINE:

1. Measurement (Chapter 1)
2. Graphical Analysis (Chapter 1)
3. Kinematics in One Dimension (Chapter 2 and 3)
4. Dynamics in One Dimension (Chapter 4)
5. Vectors in Two Dimensions (Chapter 5)
6. Work, Energy and Power (Chapter 10 and 11)
7. Waves (Chapter 14)
8. Light (Chapter 16, 17 and 18)
9. Direct Current Circuits (Chapter 20, 22 and 23)