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

PHYS-101-003
Introduction to Physics
Winter 2019

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	Muyang (Mike) Zhong		
(b) Office hours	Tu & Th. 5:30 – 5:55 pm		
(c) Location	Y226		
(d) Phone	250-370-3392	**Alternative:**	
(e) E-mail	zhongm@camosun.bc.ca		
(f) Website	Course D2L		

2. Intended Learning Outcomes

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 Tu 6:00 – 7:50 pm F316; LEC Th 6:00 – 7:50 pm F316;
LAB Tu 8:00 - 8:50 pm F316; LAB Th 8:00 - 8:50 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 GUIDELINES REGARDING TESTING AND GRADING:

- The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar, "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 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.

- 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.

- 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 10 labs of which at least one will be completed as a formal report and one will involve manipulation and plotting of data using technology.

6. Grading System

[X] Standard Grading System (GPA)

[ ] Competency Based Grading System

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.

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.

9. Course content

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)