



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

PHYS-104-001
General College Physics 1
Summer 2020

COURSE OUTLINE

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

* 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	Stephanie Ingraham
(b) Office hours	Monday- Friday 12:30pm- 2:30 pm
(c) Location	By email, phone, or Blackboard Collaborate
(d) Phone	250-634-8657 Alternative: _____
(e) E-mail	IngrahamS@camosun.bc.ca
(f) Website	D2L (online.camosun.ca)

2. Intended Learning Outcomes

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

1. Solve technical problems involving one-dimensional kinematics for a single particle undergoing constant acceleration along horizontal and inclined surfaces, and in free fall.
2. Solve technical problems involving the dynamics of a single particle in one dimension, the vector nature of forces, the net force on an object, free-body diagrams for single and two interacting objects, gravitational forces, and inertia.
3. Solve technical problems involving kinetic energy, gravitational potential energy, elastic potential energy, conservation of mechanical energy, and mechanical power, in one dimension.
4. Solve technical problems involving conversions between common temperature scales, specific heat capacity, latent heats, calorimetry, and heat transfer by radiation, thermal conduction and convection.
5. Solve technical problems involving nuclear energy (mass-energy equivalence, binding energy), demonstrate knowledge of nuclear fission, fusion, and fuel disposal problems.
6. Solve elementary technical problems involving graphical and trigonometric vector algebra in two dimensions, two-dimensional kinematics (motion), dynamics (forces), work and power.
7. Solve technical problems involving projectile motion, circular motion with constant speed, gravitational forces and planetary motion.
8. Solve technical problems involving hydrostatics (Archimedes' principle, Pascal's principle) and simple fluids in motion (Equation of continuity, Bernoulli's equation).
9. Assemble experimental apparatus using written instructions.
10. Observe, record, organize and display data in tables, graphs or charts.
11. Analyze linear graphs (determine area, slope, intercept, etc.).
12. Observe and record sources of error and estimate the range of uncertainty in results.
13. Interpret meaning of experimental results in the context of the experimental objectives.
14. Write scientific reports in an acceptable, traditional format.

3. Required Materials

(a) Texts
Physics by Giancoli, 7th Edition
(optional)

(b) Other
Ruler, protractor, scientific calculator.

4. Course Content and Schedule

Course content will be posted daily on d2L.

Tutorials will be held every Thursday from 1:30 – 2:30 pm.

Tests are scheduled for the following dates:

Test #1: Tuesday July 21st 12:30- 3:30 pm

Test #2: Tuesday, August 4th 12:30- 3:30 pm

Test #3: Tuesday, August 18th 12:30- 3:30 pm

5. Basis of Student Assessment (Weighting)

Homework- 15%

Short Quizzes- 15%

Midterms- 30%

Labs- 20%

Final Exam- 20%

COURSE SPECIFIC GUIDELINES

- Course content, announcements, and important class information will be posted on d2L. Students must check d2L regularly.
- Homework problems for a particular week will be marked for completeness. Problems will be assigned daily, and the homework will be due by 11:30 pm on Friday of each week. Any time after this will be considered late. See below for late policies.
- Short, multiple choice quizzes will be delivered through d2L. Quizzes will be biweekly, except for weeks in which there is a test, where there will be only one quiz. Quizzes will be based on lecture content. Each student is allowed one “dropped” or “missed” quiz.
- The lab for each week will be posted on Monday morning. It will be due by 11:30 pm the following Monday. Any changes in due dates or timelines will be posted on the D2L calendar. Any labs that are not completed will be assigned a zero grade.

PHYSICS DEPARTMENT GUIDELINES REGARDING TESTING AND GRADING:

- 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 final exam date, 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.
- 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.

6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

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.

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
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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.

Phys 104 Tentative Class Schedule

Note that the lecture topics may vary by one or two days. Any changes to labs or test dates will be posted on d2L.

Date	Lectures	Quiz/Test/Lab
WEEK #1		Lab 1- Data Analysis and Graphing
Monday, July 6 th	Course Intro Video, 1.1 – Measurements, Units and the SI System	
Tuesday, July 7 th	1.2- Scientific Notation and Metric Prefixes	
Wednesday, July 8 th	1.3 Unit Conversions	Quiz 1
Thursday, July 9 th	2.1: Vectors and Scalars / Position and Displacement; 2.2: Speed and Velocity	Tutorial
Friday, July 10 th	2.3: Average and Instantaneous Acceleration; 2.4: 1-D Kinematics Problems	Quiz 2
WEEK #2		Lab 2- Free Fall
Monday, July 13 th	2.5 – Applications to Vertical Motion	
Tuesday, July 14 th	3.1 – Vector Operations	
Wednesday, July 15 th	3.2 – Vector Components; 3.3 – Vector Operations with Components	Quiz 3
Thursday, July 16 th	3.4 – Kinematics in 2-D	Tutorial
Friday, July 17 th	3.5 – Projectile Motion	Quiz 4
WEEK #3		Lab 3- Mechanical Equilibrium
Monday, July 20 th	4.1 – Review of Forces; 4.2 – Objects subject to N1L	
Tuesday, July 21 st		Test 1- Modules 1, 2, 3.1-3.3
Wednesday, July 22 nd	4.3 – Objects Subject to N2L	
Thursday, July 23 rd	4.4 – Problems involving Friction; 4.5 – Situations involving Inclined Planes	Tutorial
Friday, July 24 th	4.6 – N3L and Connected Objects	Quiz 5
WEEK #4		Lab 4- Uncertainties
Monday, July 27 th	5.1 – Kinematics of Uniform Circular Motion	
Tuesday, July 28 th	5.2 – Dynamics of Uniform Circular Motion	
Wednesday, July 29 th	5.4 – Newton’s Law of Universal Gravitation; 5.5 – Gravity and Orbits	Quiz 6

Thursday, July 30 th	6.1: Work; 6.2 – The Work-Kinetic Energy Theorem	Tutorial
Friday, July 31 st	6.3 – Potential Energy ; 6.4 – Conservation of Energy	Quiz 7
WEEK #5		Lab 5- Atwood's Machine- Formal
Monday, August 3 rd	NO CLASS- BC Day	
Tuesday, August 4 th		Test 2- Modules 3.4-3.5, 4, 5
Wednesday, August 5 th	6.5 – Conservation of Energy with Non-Conservative Forces, 6.6 - Power	
Thursday, August 6 th	7.1 – Temperature and Thermometers, 7.2 – Thermal Expansion	Tutorial
Friday, August 7 th	7.3 – Heat and Thermal Energy; 7.4 – Calorimetry Problems with No Phase Change	Quiz 8
WEEK #6		Lab 6- Buoyancy
Monday, August 10 th	7.5 – Calorimetry Problems with Phase Change; 7.6 – Mechanisms of Heat Transfer	
Tuesday, August 11 th	8.1 – Density and Pressure; 8.2 – Solving Hydrostatics Problems	
Wednesday, August 12 th	8.3 – Pascal's Principle	Quiz 9
Thursday, August 13 th	8.4 – Buoyancy and Archimedes' Principle	Tutorial
Friday, August 14 th	8.5 – The Equation of Continuity and Bernoulli's Equation	Quiz 10
WEEK #7		Lab 7- Latent Heat
Monday, August 17 th	9.1 The Structure of the Atom; 9.2 – The Mass Defect and Binding Energy	
Tuesday, August 18 th		Test 3- Modules 6 and 7
Wednesday August 19 th	9.3 – Radioactivity; Alpha, Beta and Gamma Decay	
Thursday August 20 th	9.5 – Fission and Fusion; 9.6 – Nuclear Reactors	Tutorial
Friday August 21 st	Review	Quiz 11