



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

**PHYS-272-X01 & X02**  
**Energy and Sustainability**  
**W2020**

## **COURSE OUTLINE**

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

$\Omega$  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.

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### **1. Instructor Information**

(a) Instructor	Dr. Julie Alexander	
(b) Office hours	M, T, 12:30-2:30, W 10:30-11:30, Th 12:30-2:00	
(c) Location	Tech 220	
(d) Phone	250-370-4437	Alternative: _____
(e) E-mail	jalex@camosun.bc.ca	
(f) Website	https://www.juliealexander.ca	

### **2. Intended Learning Outcomes**

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

1. Solve technical problems requiring the application of particle vibration and wave physics in elastic media, including sound waves, with attention to attenuation.
2. Solve problems involving electric fields for discrete charges and continuous charge distributions.
3. Describe the effects of magnetic fields, and perform calculations involving Faradays Law and Induction.
4. Use fundamental thermal physics, including thermometry conversions, to perform calculations involving radiative heat transfer.
5. Define and describe basic semiconductor theory with emphasis on photovoltaics.
6. Solve technical problems involving properties of the nucleus, radioactivity and nuclear energy.
7. Evaluate sustainability of alternative energy sources including wave, wind, solar and fuel cells.
8. Describe characteristics of alternative energy storage systems.
9. Observe record, organize and display data in tables, graphs or charts.
10. Observe and record sources of error and estimate/compute uncertainty in results.
11. Interpret meaning of experimental results in the context of the experimental objectives.
12. Write scientific reports in an acceptable, traditional format.

### **3. Required Materials**

- (a) Renewable Energy Resources, 3<sup>rd</sup> ed. By John Twidell and Tony Weir
- (b) Other Physics 272 Laboratory Manual

#### 4. Course Content and Schedule

There will be 2 one hour term tests. Students are also required to participate in a group presentation at the end of term. Detailed class schedule is on D2L..

#### 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:

2 Term tests	20%
Student Presentation	10%
Lab Reports	10%
Assignments	10%
Final Exam (3 hours)	50%

Midterm tests may be discounted from the grading distribution (see above) if all term work, including term tests, and labs have been completed and are 60% or higher. In this case, the final grade for the course may be based on a combination of the final exam (90%) and the lab mark (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 9 laboratory experiments including 3 formal reports (with full uncertainty calculations) and at least at least one lab using technology to perform data analysis.

## 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
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.