



**School of Arts & Science  
PHYSICS DEPARTMENT**  
**PHYS 105-001**  
**General College Physics 2**  
**2007P**

## COURSE OUTLINE

The Approved Course Description is available on the web @ \_\_\_\_\_

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. Instructor Information

(a)	Instructor:	Elizabeth Ploughman		
(b)	Office Hours:	<p>Mon, Thur 11:30-12:20 Tue, Wed 1:30-2:20 Fri 10:30-11:20</p> <p>If you wish to see me at other times you are free to knock on my office door, if I'm not too busy I will be happy to assist you. If you know in advance that you will need help at a non official time then see me to make an appointment.</p> <p>Note that there will be NO help available after the 2:30 class on Mon wed or Friday so please see me BEFORE or save the question until the next day.</p>		
(c)	Location:	F314B		
(d)	Phone:	<p>370-3517</p> <p>Please DO leave a <b>voicemail</b> message, it <b>will be received</b> and responded to promptly. DO not leave email messages as they will not be received until I check my emails from my office. Let me repeat that important info. Is to be left in my voicemail which I check throughout the day.</p>	Alternative Phone:	
(e)	Email:			
(f)	Website:			

## 2. Intended Learning Outcomes

*(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)*

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

1. Define and describe the following properties of waves: period, frequency, wave speed, and amplitude. State the principle of superposition and understand the properties of waves undergoing constructive and destructive interference.
2. State the conditions for standing waves and identify nodes and anti-nodes. Solve problems of vibrating strings and air columns, including fundamental nodes and harmonics.
3. Solve technical problems involving the behaviour of light at an interface between media (laws of reflection, refraction, dispersion).
4. Solve technical problems involving geometric optics (lenses, mirrors, simple optical devices).
5. Solve technical problems involving the electrostatic force, the electric field and potential.
6. Solve technical problems associated with simple DC circuits and networks of batteries and resistors in series and parallel circuits, Ohm's Law and electric power.
7. Solve technical problems involving magnetic fields due to current-carrying wires, magnetic forces between wires and on charged particles, and the practical application of magnetism.

## 3. Required Materials

(a)	Texts	Physics by Giancoli
(b)	Other	lab manual

## 4. Course Content and Schedule

*(Can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)*

see timetable

## 5. Basis of Student Assessment (Weighting)

*(Should be linked directly to learning outcomes.)*

(a)	Assignments	Assignments will occasionally be given to be completed during class time with a partner. These marks will be added to the lab mark total. Other homework is for the student's practice only.
(b)	Quizzes	

(c)	Exams	<b>weighting</b> 060 final-50%, tests-40% labs-10%
		114, 104, 105 final-50%, tests-35% labs-15%
		<p><b>Tests</b> will be chapter tests for all classes. At least 5 days notice will be given for each test and a brief review will be conducted</p> <p>The worst test will be dropped to allow for the fact <b>that no makeup tests</b> will be given unless medical documentation is provided by the student</p> <p>the final exam will be a 3 hour cumulative exam with must be written at the scheduled time as per the calendar regulations</p>
(d)	Other (eg, Attendance, Project, Group Work)	<p><b>LABS</b> the worst lab will be dropped but all other labs must be completed</p> <p>.Makeup labs are not usually allowed unless there is a documented medical reason. All labs must be submitted together every week, one week after the experiment is completed. Late labs will be heavily penalized.</p> <p><b>labs are generally every week</b></p>

## 6. Grading System

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

### Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
95-100	A+		9
90-94	A		8
85-89	A-		7
80-84	B+		6
75-79	B		5
70-74	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 at [camosun.ca](http://camosun.ca) or 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.

<b>IP</b>	<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.
<b>CW</b>	<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.

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](http://camosun.ca) for information on conversion to final grades, and for additional information on student record and transcript notations.

## 7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

### 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](http://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.

### ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED

#### PHYS 105 General College Physics 2

Physics 105 continues the survey of General College Physics topics, including properties of vibrations, wave motion and sound, geometric optics, the properties of electric and magnetic fields and simple D. C. circuits. Together, Physics 104 and Physics 105 satisfy laboratory science requirements for students in non-science programs.

OFFERED:	Winter, Spring
CREDIT:	4
IN-CLASS WORKLOAD:	4 lecture, 2 lab (semester)
PRE-/CO-REQUISITES:	PHYS 104 or departmental assessment

#### REQUIRED MATERIALS:

Textbook: Physics, Principles with Applications, 6<sup>th</sup> or 5<sup>th</sup> edition, Douglas C. Giancoli  
 Physics 104/105 lab manual  
 Scientific calculator (any calculator is acceptable EXCLUDING personal computers)  
 Graph paper (must be either 10 lines/inch or millimeter graph paper)

#### 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 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.
2. Instructors are not required to provide make-up tests. At their discretion, instructors may waive a test or provide a make-up test only in the event of documented illness or other extenuating circumstances.
3. Refer to your instructor’s information page for any additional policies regarding testing and grade calculation.

#### DEPARTMENT POLICIES REGARDING LABS:

1. All assigned laboratory exercises and reports must be completed with an overall grade of 60% in order to obtain credit for this course. A lab may be waived or made up at a later time only in the case of documented illness or other extenuating circumstances.
2. At the discretion of the instructor, a student who is repeating this Physics course may apply for lab exemption.

## **STUDY TIME**

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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.

#### OUTLINE:

1. **Wave motion (Ch. 11.1, 11.7, 11.8, 11.11 - 11.13)**
  - 1.1 Descriptive Simple harmonic motion
  - 1.2 Properties of waves; wave speed
  - 1.3 Reflection and interference
  - 1.4 Standing waves in a string
2. **Sound (Ch. 12.1, 12.4, 12.6, 12.7)**
  - 2.1 Characteristics of sound; the human ear
  - 2.2 Vibrating strings and air columns
  - 2.3 Interference; Beats
  - 2.4 *OPTIONAL: The Doppler effect (12.7)*
3. **Light and geometric optics (Ch. 23) and (Ch. 25.1 – 25.6)**
  - 3.1 Speed of light. Electromagnetic spectrum
  - 3.2 Law of Reflection; Image formation in plane mirrors
  - 3.3 Image formation in plane and spherical mirrors
  - 3.4 Law of Refraction
  - 3.5 Total internal reflection and applications
  - 3.6 Image formation in thin lenses. Lenses in combination
  - 3.7 **Selected** optical instruments (magnifier, microscopes, telescopes, the eye) (25.1 – 25.6)
4. **Electric Fields (Ch. 16.1 – 16.8) and (Ch. 17.1, 17.2)**
  - 4.1 Basic idea of electric charge and its relation to matter
  - 4.2 Law of electrostatic force

- 4.3 Electric fields and field line (Qualitative)
- 4.4 Electric potential; Potential difference and E-field (17.1, 17.2)
- 5. **Electricity (Ch. 18.1 – 18.6) and (Ch. 19.1, 19.2, 19.4)**
  - 5.1 Electric current; the electric battery
  - 5.2 Ohm's Law; Resistance
  - 5.3 Resistance; Resistivity *OPTIONAL: Temperature dependence.*
  - 5.4 Power
  - 5.5 Emf and simple DC circuits (19.1, 19.2, 19.4)
- 6. **Magnetic fields (Ch. 20.1 – 20.4, 20.10, 20.11)**
  - 6.1 Properties of magnets
  - 6.2 The magnetic field
  - 6.3 Magnetic forces on moving charges; current-carrying wires
  - 6.4 Applications; Hall effect, Electric motors, Mass spectrometer
- 7. **OPTIONAL TOPIC:** Picked by instructor at the beginning of term. About 1 weeks worth of material. It is the decision of the instructor if students are responsible for material on the final exam.
  - Examples: Descriptive Relativity, Geophysics, Astrophysics