



School of Arts & Science  
**CHEMISTRY AND GEOSCIENCE DEPARTMENT**

**GEOS 100-001**  
**Physical Geology**  
**2006 Fall**

## COURSE OUTLINE

The Approved Course Description is repeated here from the College web site

### GEOS 100 Physical Geology

- (4 credits) F, W (3,3,0,0)

The origin, composition, age, and processes of Earth are introduced. We study mineral and rock composition, and properties, rock-forming processes, geologic structures, earthquakes, and the plate tectonic model. We apply this knowledge to the geology of BC. A weekend field trip is optional. Previous study of chemistry is an asset. (T)

### 1. Instructor Information

(a)	Instructor:	Alan Gell		
(b)	Office Hours:	M,W: 1:30-2:20 PM, 5:30 – 6:20, Th 2:30 – 3:20		
(c)	Location:	Fisher 344B		
(d)	Phone:	370-3446	Alternative Phone:	
(e)	Email:	gella@camosun.bc.ca		
(f)	Website:			

### 2. Intended Learning Outcomes

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

1. Analyze minerals for common physical properties.
2. Identify common rock-forming minerals on the basis of their properties.
3. Infer how samples of some rocks have formed.
4. Infer the relationship of rock-forming processes to plate tectonics.
5. Describe and interpret textural features of rocks.
6. Describe compositional features of rocks.
7. Classify common rocks based on texture and composition.
8. Apply techniques to determine the chronological order of events in Earth's history.
9. Calculate absolute ages of Earth materials and events.
10. Identify common geologic structures and use symbols to represent such structures on maps.
11. Identify, describe and interpret geological structures in three dimensions.
12. Determine the relationship of geological structures and plate tectonic boundaries.
13. Determine the location of an earthquake from seismic data.
14. Use seismograms to infer relative earth movements on faults.
15. Relate the nature and distribution of major earth features such as mountains, volcanoes and earthquakes to plate tectonics.

### 3. Required Materials

(a)	Texts	<a href="#"><u>EARTH: Canadian Edition, Introduction to Physical Geology by Tarbuck, Lutgens and Tsujita. &amp; American Geological Institute Laboratory Manual in Physical Geology 7<sup>th</sup> Ed. By Busch and Tasa</u></a>
(b)	Other	Drawing compass, protractor, coloured pencils, calculator

### 4. Course Content and Lab Schedule

Lectures: Mon, Tues (F300), Wed (F302), 11:30 – 12:30

Lab: Tuesday, 11:30 - 2:30 F300

#### Lecture Schedule by chapter and topic:

<u>Topics:</u>	<u>Chapters:</u>	<u># Lect. Hours</u>	<u>Finish</u>
1.) <u>Introduction</u>	1	2	(end week 1)
2.) <u>Minerals</u>	2 + 21	4-5	(start week 3)
3.) <u>Igneous (Plutonic &amp; Volcanic) Rocks</u>	3 & 4	6	(end week 4)
4.) <u>Weathering, Transport &amp; Sedimentary Rocks</u>	5, 6+(9, 10... 12, 13, 14, 18, 21)	6	(start week 7)
5.) <u>Metamorphism &amp; Meta. Rocks</u>	7 + (20, 21)	3	(start week 8)
6.) <u>Geological Time</u>	8	3	(start week 9)
7.) <u>Structures and Crustal Deformation</u>	15 + (18,20)	4	(end week 9)
8.) <u>Earth's Interior, Geophysics &amp; Earthquakes</u>	17, 16	6	(end week 11)
9.) <u>Ocean Floor, Plate Tectonics</u>	19+(17,18,20,21)	4	(start week 13)
10.) <u>Geology of Western Canada</u>	20 + supplement	4	(end week 14)

## Lab Schedule, due dates for lab reports, lab quizzes & Theory Midterm Exams

**Geos 100-01: Lab Thurs 11:30 - 2:30 in F300**

**Note: lab exercises are due at beginning of following lab. You are responsible to have read the relevant lab chapter BEFORE coming to lab as there is not time to read it and do the hands on exercises during the lab period alone. Field trips require appropriate footwear and clothing for steep terrain, weather and seacoast exposure.**

Week beginning	Activity
1 Sept 5	Course Intro & Field trip or Film (Attendance Mandatory)
2 Sept. 12	Lab 1 Earth Processes, Scales, Isostasy (Field Q's due)
3 Sept. 19	Lab 3 (Minerals 1 <sup>st</sup> part) (Lab 1 due)
4 Sept. 26	Lab 3 (Minerals Part 2)
5 Oct. 3	Lab 4 (Rocks and Rock Cycle) (Lab 3 due)
6 Oct. 10	Lab 5 Igneous Processes and Volcanics (Lab 4 due)
7 Oct. 17	Lab 6 Sedimentary Rocks & <b>Midterm 1</b> (Ch 1, 2, 3, 4) 1.5 Hours (Lab 5 due)
8 Oct. 24	Lab 7 Metamorphic Rocks & <b>Lab Quiz 1</b> on Minerals (1 hour) (Lab 6 due)
9 Oct 31	Lab 8 Dating Rocks (Lab 7 due)
10 Nov 7	Lab 10 Geologic Structures (long lab) (Lab 8 due)
11 Nov 14	Finish Lab 10 (due in class) & <b>Lab Quiz 2</b> on Rock types (1 hour)
12 Nov 21	Lab 16 Earthquakes, Seismology & Hazards & <b>Midterm 2</b> (Ch:5, 6, 7, 8) 1hr
13 Nov 28	Lab 2 Plate Tectonics (Earthquake Lab due in lab, Tectonics Due Nov 30)
14 Dec 5	Lab Quiz 3 on Dating, Structures, Earthquakes, Plate Tectonics

### 5. Basis of Student Assessment (Weighting)

*It is necessary to attend all labs and pass the lab portion, in order to pass the course*

(a)	Lab Assignments	10 X 2% and (2 X half day weekend field trips)
(b)	Lab Quizzes	3 X 5%:
(c)	Theory Exams	Midterm 1 - 10%, Midterm 2 - 15%, Midterm 3 - 15%, Final – 25%
(d)	Other (eg, Attendance, Project, Group Work)	
(e)	Quizzes	<i>In lecture on preassigned readings for the day, up to 5%</i>

### 6. Grading System

#### 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.
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.

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.

The 2 most important components of this course are the vocabulary and the hands on laboratory exercises. Both of these require doing the theory and lab readings prior to attending class in order to excel.