



## COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/geos.html>

### 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, Canada and current events. A weekend field trip is optional. Previous study of chemistry is an asset. (T)

Prerequisite(s): English 12 **or** assessment.

Ω *Please note: the College electronically stores this outline for five (5) years only. It is **strongly recommended** you keep a copy of this outline with your academic records. You will need this outline for any future application/s for transfer credit/s to other colleges/universities.*

### 1. Instructor Information

(a)	Instructor:	Dr. Tark Hamilton		
(b)	Office Hours:	9:30-10:20 T&F, <b><u>.Or By Appt. Only:</u></b> 10:30-11:20 or 12:30-1:20 T-W-Th-F		
(c)	Location:	E200 (Far west end of Young Building)		
(d)	Phone:	250-370-3331	Field trips cell phone: 250-216-6448	
(e)	Email:	<a href="mailto:hamilta@camosun.bc.ca">hamilta@camosun.bc.ca</a> <i>read only Tuesday through Friday</i>		
(f)	Website:	<a href="https://faculty.camosun.ca/tarkhamilton/">https://faculty.camosun.ca/tarkhamilton/</a> (under construction)		

### 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 Texts & Materials (**Do Not Use Course Smart**)

Canadian Edition **Earth: An Introduction to Physical Geology**, E.J. Tarbuck, F.K. Lutgens, C.J. Tsujita & S. R. Hickock 3<sup>rd</sup> ed. Prentice Hall 2012. (Note: this is a new

book with >40% new content and Canadian examples. All of my test questions are based on this text. The 1<sup>st</sup> edition without Hickock is also adequate (more thorough)

**Laboratory Manual in Physical Geology**, AGI, 9<sup>th</sup> edition of Busch and Tasa, 2012

Recommended reading of other geology texts, a geological glossary (dictionary), a mineral identification book and web based research, readings, real and virtual field trips. Ensure if you buy a used copy of the 9<sup>th</sup> edition that all of the mineral and rock tables, templates at the back and figures are still attached. Content differs too much to use older editions.

**Earth: Animations Library.**

**Log into My Geospace once you register your new text book**

<http://earthobservatory.nasa.gov/> Weekly additions and archives of space station or satellite digital images of geological events and features around the globe.

**(b) Other**

Hand lens (needed in first 4 labs, Mineral and Rock quizzes and for field trips), protractor, drawing compass, coloured pencils (all needed for labs 4 onward for labeled drawings and colouring thin section sketches, maps and cross sections).

2 half day weekend field trips are required on Sunday Jan 26 and Saturday April 5, as scheduled below and announced 2 weeks in advance. These integrate your course learning with field observations. These and any field trips during lab periods will require your signed wavier to participate. One wavier does it for the whole term.

**4. Course Content and Schedule**

**Instruction** 14 weeks

**Classroom** 3 hours 1:30-2:20 Tue Wed & Thurs: **F210**

**Lab** 3 hours Fri – 1:30 - 4:20 PM **F300**

**(Lab attendance is mandatory, you must pass the lab to pass the course)**

Labs are due at the beginning of the following lab the week following their issue. If you ask in advance you might be able to attend my other lab section Wednesday at 9:30-12:20 AM but be sure you ask in advance as and both sections are usually full and the 2 labs might be a week apart (either before or after this section). There are no make-up labs. Access to the Geoscience Lab and its rocks, maps and displays **F300** is limited, use your lab time efficiently, **most labs require 1 hour of reading prior to coming to the lab** and 2-3 hours after the lab on your own to complete the exercises and fill in your report.

**Local Field Trips** during lab time & 2 weekend 1 day trips **required** reminder gives 2 weeks notice. Field trips count the same as 1 lab exercise towards your lab mark.

Labs, Tests & Midterm Schedule: Holidays: Feb 11, Mar 1

Period	Experiment	Pre-Lab Reading
Week of Jan 6	Lecture in Lab	Ch1 in both books
Week of Jan 13	Lab 1: Units, Density and Isostasy	1-29 & Lab Form
Week of Jan 20	Lab 2 Plate Tectonics	31-56 & Lab Form
Week of Jan 27	Lab 3 Minerals	57-88 & Lab Form
Week of Feb 3	Finish Lab 3 Minerals & Lab 4 Rock Cycle	89-102 & Lab Form
Week of Feb 10	Lab 5 Igneous & volc rocks	103-117 & Lab form
Week of Feb 10	<u>Reading Break Feb 13-14</u>	
Week of Feb 17	<b>Midterm Test 1</b> in Lab & finish Lab 5	<b>Term test</b>
Week of Feb 24	<b>Min Quiz</b> & in Lab & Lab 6 Sedimentary rocks & processes	127-139 & Lab F

Week of March 3	finish Lab 6 & Lab 7	Metamorphic rocks & Processes	155-174 & Lab Form
Week of March 10	Lab 8	Time, Relative & Absolute Dates	175-194 & Lab Form
Week of March 17		<b>Midterm Test 2</b> in Lab & Lab 10	Structures 227-248 &
Week of March 24		<b>Rock Quiz</b> Finish Lab 10 & Wapiti Pass Map	& Models 1-6
Week of March 31	Lab 16	Earthquakes & hazard	349-362 & Lab Form
Week of April 7		All labs due. <b>Field Trip in lab period or Lab Quiz 3</b>	

**Field Trips:** depart Camosun staff parking lot by the Wilna Thomas Building at 11 AM Sunday January 26 scheduled for afternoon low tide at Sidney and at East Sooke Park and Saturday April 5 for mid day low tide 1:30 PM of 1.0 m at Sooke.

Rides arranged by sign up in lecture 1 week in advance.

- Final exam at the end of the course is cumulative and will cover all course & lab material.

**Don't** make travel arrangements for the final exam period April 14-25. Only medical excuses will be allowed.

- At least a passing grade on lab marks must be achieved in order to write the final exam.
- You must pass both the lecture portion and the lab portion in order to pass the course
- Students are expected to come to lab on time – late arrivals will miss tests, quizzes or field trips as these begin promptly at the start of lab period. Prelab readings and assignments are due as you walk in the lab door. Without them you cannot do the lab. There is not time to read ~20 pages and to do the lab in the lab period.
- All lab reports must be stapled with your section number or lab day and time and your partner's name. All lab reports are joint projects of 2 people, these labs require partners for concepts, measurements, calculations and interpretations.

## 5. Basis of Student Assessment (Weighting)

(This section should be directly linked to the Intended Learning Outcomes.)

- Lab exercises** (due in lab at the beginning of the following lab period see schedule above) Labs 3 and 10 count double as they are 2 week labs. There will usually not be time to work on old labs as there will always be new work assigned. **You must attend and pass the lab to pass this course.** The lab and field trips are where the scientific inquiry occurs.
- 3 Lab quizzes during 1st hour of lab period No Late Starts! Along with regular lab assignments in weeks 9 covering: (mineral physical properties, formulas & identification), weeks 12 (rock identification and origin), and week 14 (tectonic, structural and seismic problems) 5%, 5%, 5%. Labs and lab tests combine to 25% of course. Lab marks are relative to your peers and the overall point total. Most people's lab marks pull up their course mark.**
- Midterm exams covering theory in weeks 8 and 11 (no late starts!) Written exams Wk6/7: 15%, Wk11: 25%: covering lectures through week prior to test**
- Weekly pop quizzes on assigned readings, new geological vocabulary terms and prior lecture notes may occur at beginning of each lab period or during Tuesday class.**
- Final exam cumulative as scheduled in week of April 22 or 14 = 35%.**
- I have a 1 test forgiveness policy for those who improve their test scores. For example, if you do better on the final exam than a prior exam I will replace the lower mark and its proportion with the mark from your final exam.**

## 6. Grading System

### 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	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	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 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.

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, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. <i>(For these courses a final grade will be assigned to either the 3<sup>rd</sup> course attempt or at the point of course completion.)</i>
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.

## 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 the College web site in the Policy Section.

No eating or drinking is allowed in laboratories in Fisher 300 as this space is also used for chemistry experiments.