



COURSE OUTLINE

The course description will be 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:	Mon:11:20, 1:30; Tue: 10:30, 1:30; Wed: 11:30 & Thur: 1:30		
(c)	Location:	Y200		
(d)	Phone:	250-370-3331	Alternative Phone:	
(e)	Email:	hamilta@camosun.bc.ca Monday through Thursday		
(f)	Website:	https://faculty.camosun.ca/tarkhamilton/ (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

Canadian Edition **Earth: An Introduction to Physical Geology**, E.J. Tarbuck, F.K. Lutgens, C.J. Tsujita & S. R. Hickock 3rd ed. Prentice Hall 2012. (Note: this has Canadian content and access to on-line exercises. All of my test questions are based on this text. The 1st Canadian edition without Hickock is more complete & OK.)

Laboratory Manual in Physical Geology, AGI, 9th edition of Busch and Tasa, 2011

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 that all of the mineral and rock tables, templates at the back and figures are still attached. Page numbers and questions differ in older editions.

Earth: Animations Library on CD ROM or on line via student password (available in new packaged edition only)

(b) Other

Hand lens (needed in many labs and field trips), protractor, drawing compass, coloured pencils (all needed for labs 4 onward for drawing and colouring).

2 half day, weekend field trips are required on a Saturday or a Sunday, announced 2 weeks in advance. These integrate your course learning with field observations.

4. Course Content and Schedule

Instruction 14 weeks

Classroom 3 hours 9:30-10:20: Mon & Tue F334, Wed F302

Lab 3 hours Thurs – 9:30-12:20 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 1 day early that week on Wed at 12:30-3:20 but be sure you ask as the 2 labs might be a week apart (either before or after this section and all sections are full). There are no make-up labs. Access to 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. It is better to turn in partial labs than none at all, as lab points are cumulative!

Local Field Trips during lab time & 2 weekend 1 day trips **required** 2 weeks notice. One will be on a Saturday, the other on a Sunday. Field trips count the same as 1 lab exercise towards your lab mark. You must sign a waiver to attend field trips.

Labs, Tests & Midterm Schedule: Holidays: Sept 3, Oct 8, Nov 12

Period	Experiment	Pre-Lab Reading
Week of Sept 3	<u>Field trip</u> during lab period, don't be late	handout
Week of Sept 10	Lab 1: Units, Density and Isostasy	1-29 & Lab Form
Week of Sept 17	Lab 2 Plate Tectonics	30-46 & Lab Form
<u>Field Trip Saturday Sept 29: 9:00 AM to 3:30 PM-Sidney:Roberts Bay: Morning low tide</u>		
Week of Sept 24	Lab 3 Minerals	47-74 & Lab Form
Week of Oct 1	Finish Lab 3 Minerals & Lab 4 Rock Cycle	75-88 & Lab Form
Week of <u>Oct 8 Thanksgiving</u>	<u>Midterm Test 1</u> in Lab & Lab 4 Rock Cycle	Term test
Week of Oct 15	<u>Min Quiz</u> & Lab 5 Igneous & volcanic rocks	89-108 & Lab Form
Week of Oct 22	Lab 6 Sedimentary rocks & processes	109-132 & Lab Form
Week of Oct 29	Lab 7 Metamorphic rocks & Processes	133-150 & Lab Form
Week of Nov 5	Lab 8 Time, Relative & Absolute Dates	151-166 & Lab Form
<u>Field Trip Sunday Nov 11: 11:00 AM-7PM-Sooke to Botanical Beach: Afternoon low tide</u>		
Week of Nov 12	<u>Midterm Test 2</u> in Lab & Lab 10 Structures	195-212 & Term test
Week of Nov 19	<u>Rock Quiz</u> Finish Lab 10 & Wapiti Pass Map & Models 1-6	
Week of Nov 26	Lab 16 Earthquakes & hazard	297-308
Week of Dec 3	<u>Field Trip</u> or <u>Lab Quiz 3</u>	

•Final exam as assigned by the registrar will be in the week of Dec 10 or 17 at the end of the course will cover **all** course & lab material.

Don't make travel arrangements for the final exam period before exam dates are announced in Mid-October. 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
- Theory Quizzes may occur on Mondays in lecture to test readings for week ahead and comprehension for last week's material. These collectively only earn a 2% attendance mark but help on exam question styles.
- 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.)

- (a) Lab exercises** (due in lab at the beginning of the following lab period) Labs 3 and 10 count double as they are 2 week labs. There will 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.
- (b) 3 Lab tests during 1st hour of lab period along with regular lab assignments in weeks 7 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.
- (c) Midterm exams covering theory in weeks 6 and 11 (no late starts!)**
Written exams Wk6: **15%**, Wk11: **25%**: covering lectures through week prior to test. You may bring in a 1 page double sided study sheet for each exam and a calculator.
- (d) Weekly pop quizzes on assigned readings, new geological vocabulary terms and prior lecture notes may occur at beginning of each lab period or during Monday class.**
- (e) Remedial short paper at instructor's discretion on the science and technology in a pre- approved refereed geological journal article due wk8. Worth 5%.**
- (f) Final exam cumulative as scheduled 35%.**
- (g) 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 preceding 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 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. (For these courses a final grade will be assigned to either the 3 rd course attempt or at the point of course completion.)
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.

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 allowed in laboratories or while in F300 as this room is also used as a chemistry lab.