



CAMOSUN COLLEGE
School of Arts & Science
Department of Chemistry and Geoscience

GEOS-100-002
Physical Geology
Winter 2019

COURSE OUTLINE

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

Ω 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.

1. Instructor Information

(a) Instructor	Dr. Leanne Pyle - Lecture/Field Trips
(b) Office hours	Monday & Wednesday 10:30-11:20
(c) Location	F344D
(d) Phone	250-370-3506 Alternative: _____
(e) E-mail	PyleL@camosun.bc.ca
(f) Website	D2L

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) 4th Canadian Edition Earth: An Introduction to Physical Geology, E.J. Tarbuck, F.K. Lutgens, C.J. Tsujita & S.R. Hickock, 2015, 4th ed. Pearson Canada Inc.

- (b) **Lab Manual:** Laboratory Manual in Physical Geology, AGI, 10th edition of Busch and Tasa, 2015, Pearson Canada Inc.
Ensure if you buy a used copy of the lab manual that it contains all of the mineral charts (p.90-98 in Ch.3) and rock tables and nomograms in chapters 5, 6 & 7. Also ensure that all templates at the back and figures are still attached including structural models 1-6 and the 3 geo-tools pages one paper and 2 plastic. Note that earlier editions of this manual have different exercises, figures and page calls. They are not suitable for doing the labs as too much has changed to be able to answer the intended questions.
- (c) On Line Physical Geology Textbook by Dr. Steven Earle, Thompson Rivers University: You may use this as an alternate supplemental textbook to enhance your understanding.
<http://open.bccampus.ca/find-open-textbooks/?uuid=52166cd1-e380-4e1b-9a6f-d891936e4749>
- (d) Recommended reading of other geology texts in the library or on line (c), a geological glossary (dictionary), a mineral identification book and web based research, readings, and participation in real weekend and on-line virtual field trips.
- (e) Satellite and Space station photos of Earth features, landforms and real-time processes are at: <http://earthobservatory.nasa.gov/IOTD>.
- (f) **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).

4. **Course Content and Schedule:** Instruction 14 weeks: Jan.7 through April 13

- (a) Classroom: Room F210, 3 hours/week, Monday, Wednesday, Friday
Section 001 at 11:30 am-12:20 pm, 002 at 12:30-1:20 pm
- (b) Lab: Room F300: 3 hours/week Section 001 on Monday; 002 on Tuesday, 2:30-5:30 pm
- (c) Lab attendance is mandatory, you must pass the lab to pass the course.
- (d) Labs are due at the beginning of the following lab the week following their issue. There are no make-up labs. Access to F300 is limited, use your lab time efficiently. Most labs require pre-lab preparatory reading and homework after the lab on your own to complete the exercises. It is better to turn in partial labs than nothing at all. Labs are always due at the start of the following lab period or as announced. Late labs get half marks for 1 week late and zero after that. Write your partner's name on each assignment.
- (e) One optional half day weekend field trip to be announced. This integrates your course learning with field observations and gives you practice relating the theory and terminology to real world observations and processes. Signed waivers are required to participate. An assignment done on-site during the field trip will be worth equal credit of one lab (i.e., replaces the final lab assignment).

Physical Geology Schedule

Date	Lecture Topic	Labs	Text Chapters
Jan 7	Introduction to Earth Science	<i>Lab 1</i>	Chapter 1
Jan 9	Origin of Earth and Earth's Structure		Chapter 1
Jan 11	Earth Systems Science		Chapter 1
Jan 14	Minerals: Groups and Identification	<i>Lab 3</i>	Chapter 2
Jan 16	Igneous Processes and Rocks		Chapter 3
Jan 18	Geohazards 1: Volcanoes		Chapter 4
Jan 21	Weathering Processes and Soils	<i>Lab 4</i>	Chapter 5
Jan 23	Sedimentary Processes and Rocks		Chapter 6
Jan 25	Metamorphic Processes and Rocks		Chapter 7
Jan 28	Plate Tectonics 1: How the World Works	<i>Lab 5</i>	Chapter 12
Jan 30	Plate Tectonics 2 (continued)		Chapter 12
Feb 1	Plate Tectonics 3 (continued)		
Feb 4	Geohazards 2: Earthquakes and Tsunamis	<i>Lab 6</i>	Chapter 10
Feb 6	Geology of the Oceans		Chapter 11
Feb 8	Building of Continents; Rock Deformation		Chapter 13
Feb 11	Mid-term Exam	<i>Lab 7</i>	
Feb 13	Telling Geological Time		Chapter 8
Feb 15	Geological Time and the Rock Record		Chapter 8
	Reading Break Feb 18-22		
Feb 25	Earth History – Precambrian (LP)	<i>Lab 2</i>	Chapter 8
Feb 27	Earth History – Paleozoic Era (LP)		Chapter 8
Mar 1	Earth History – Mesozoic Era (LP)		Chapter 8
Mar 4	Earth History – Cenozoic Era (LP)	<i>Lab 8</i>	Chapter 8
Mar 6	Mass Wasting & Landforms		Chapter 14
Mar 8	Hydrosphere 1: Fluvial Processes		Chapter 15
Mar 11	Hydrosphere 2: Fluvial Landforms	<i>Lab 9</i>	Chapter 15
Mar 13	Hydrosphere 3: Groundwater Processes		Chapter 16
Mar 15	Hydrosphere 4: Groundwater Issues		Chapter 16
Mar 18	Mid-term Exam	<i>Lab 10</i>	
Mar 20	Cryosphere 1: Glacial Processes		Chapter 17
Mar 22	Cryosphere 2: Glacial Landforms		Chapter 17
Mar 25	Aeolian Processes and Landforms	<i>Labs 11</i>	Chapter 18
Mar 27	Coasts and Sea Level Change		Chapter 19
Mar 29	Earth's Resources		Chapter 20
Apr 1	Climate change Impacts	<i>Labs 13</i>	Open Text Chapter 19
Apr 3	Geology of BC; Case Studies		Open Text Chapter 21
Apr 5	Geology of BC; Case Studies		Open Text Chapter 21
Apr 8-12	Course wrap-up/summary	<i>Lab 15</i>	

5. Basis of Student Assessment (Weighting)

- (a) Lab exercises = 25% of the course mark.
- (b) Midterm Exam 1 = 15% and Exam 2 = 25%.
- (c) Final exam, cumulative, as scheduled during final exam period = 35%. Final exam schedules are set by the College and posted on Camlink.

6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

(use texts, lab manual and course website links weekly)

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.