ORIGINAL COURSE IMPLEMENTATION DATE: January 2010
REVISED COURSE IMPLEMENTATION DATE: September 2026
COURSE TO BE REVIEWED (six years after UEC approval)**:** March 2032
Course outline form version: 29/08/2024

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: GEOG 116	**Number of Credits:** 4 Course credit policy (105)
Course Full Title: Earth Rocks **Course Short Title:** Earth Rocks	
Faculty: Faculty of Science	**Department/School:** Planning, Geography, and the Environment

Calendar Description:

An introduction to physical geology that explores the materials that compose the Earth and the processes that operate to form the Earth and its surface. Topics include minerals, rocks, earth resources, plate tectonics, geophysical hazards, and surficial features.

Note: Field trips outside of class time may be required. Please refer to the department website for field trip scheduling information.

Prerequisites (or NONE):	None.
Corequisites (if applicable, or NONE):	None.
Pre/corequisites (if applicable, or NONE):	None.

Antirequisite Courses *(Cannot be taken for additional credit.)*

Former course code/number:

Cross-listed with:

Equivalent course(s):

(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar	45
Supervised laboratory hours (science lab)	45
Total hours	**90**

Scheduled Laboratory Hours

Labs to be scheduled independent of lecture hours: **Yes**

Course Details

Special Topics course: **No**
(If yes, the course will be offered under different letter designations representing different topics.)

Directed Study course: **No**
(See policy 207 for more information.)

Grading System: **Letter grades**

Delivery Mode: **Face-to-face only**

Expected frequency: **Annually**

Maximum enrolment (for information only)**: 36**

Prior Learning Assessment and Recognition (PLAR)

PLAR is available for this course.

Transfer Credit *(See bctransferguide.ca.)*

Transfer credit already exists: **Yes**

Submit outline for (re)articulation: **No**
(If yes, fill in transfer credit form.)

Department approval	**Date of meeting:**	November 21, 2025
Faculty Council approval	**Date of meeting:**	January 23, 2026
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	April 24, 2026

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

Upon successful completion of this course, students will be able to:

1. Utilize basic geological skills and quantitative data analysis for geological investigations.
2. Explain the ethical issues faced when conducting geological science.
3. Describe geologic time, its major divisions, and the changes in the intensity of geological processes that are associated with different time periods.
4. Articulate scientific theories that explain the methods through which basic geologic processes function and interact within the Earth system.
5. Apply the scientific method in the investigation of geological processes with an emphasis on the unifying theory of plate tectonics.
6. Describe the genesis and economic use of Earth resources such as fossil fuels, metals, and non-metallic minerals.
7. Explain how landscape-forming processes act on the Earth's surface (weathering and erosional forces).
8. Explain how a knowledge of geology can aid in land-use decisions and the mitigation of geophysical natural hazards.
9. Demonstrate competence in communicating geologic concepts using various scientific methods including written, numeric, graphic, and oral.
10. Explore how the weaving of Indigenous Knowledge and geologic science systems complement each other for a deeper understanding of the recent local geologic history.
11. Critically reflect upon their learning from discussions in lectures and labs.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Final exam:	25%	Lab work:	40%	Quizzes/tests/midterm:	35%
	%		%		%

Details: Lab work includes lab assignments (10-15%) and lab exams (25-30%)

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Instructional Methods *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures, assigned readings, discussion groups, videos, online resources, laboratory assignments will be used in this course. Guest lectures and field trips may be used.

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)*

	Type	Author or description	Title and publication/access details	Year
1.	Textbook	Tarbuck, E.J., F. K. Lutgens, C. J. Tsujita, and S. R. Hicock	Earth An Introduction to Physical Geology 4th Canadian Edition.	2019
2.	Textbook	Plummer, C., Carlson, D. and L. Hammersley	Physical Geology, 17th Edition	2021
3.	OER	Earle, Steven	Physical Geology, 2nd ed.	2019
4.	Textbook	Cronin, V. and D.G. Tasa	Laboratory Manual in Physical Geology, 12th ed	2021

Course Content and Topics

Lectures:

1. Introduction to the field of geology and the scientific method
2. Mineral structure, composition, physical properties, and classification
3. Origins and properties of igneous rocks
4. Volcanoes, volcanic processes, and volcanic hazards locally and globally
5. Weathering and the formation of sedimentary rocks
6. Metamorphism and metamorphic rocks
7. Geologic time, relative dating, and absolute dating
8. Plate tectonics and earth's interior structure
9. Earthquakes, seismology, and seismic hazards with special focus on the Pacific Northwest
10. Mass wasting processes and hazards
11. Global mineral and energy resources
12. Glacial and fluvial geomorphology
13. Coastal and aeolian geomorphology

Labs:

1. Mineral properties, use, and identification
2. Rock forming processes and the rock cycle
3. Igneous rock formation, volcanic hazards, and igneous identification
4. Sedimentary rocks, processes, and environments, and sedimentary rock identification
5. Metamorphic rocks, processes, and resources, and metamorphic rock identification
6. Dating rocks, fossils, and geologic events
7. Interpretation of topographic maps, aerial photographs, and satellite images
8. Geologic structures, maps, and block diagrams
9. Earthquake hazards and human risks