



GEOL-105 – An Introduction to Geology

University Arts and Science

Effective Term & Year: Fall 2023

Course Outline Review Date: 2028-04-01

Program Area: Math and Sciences

Description:

An introduction to the major principles of physical and historical geology covering the origin and structure of the Earth, plate tectonics, volcanism and other mountain building processes, the erosion of the Earth's crust, and the formation and properties of minerals and rocks.

Program Information:

This course is intended for University Studies and Business Management diploma and degree students. It can also be used as an elective for BMGT diplomas and the Bachelor in Business Administration (Sustainable Business Practices) degree.

Delivery Methods: On-campus (Face-to-Face), Online

Credit Type: College of the Rockies Credits

Credits: 3

Course type/s: Sciences, Lab Sciences

Instructional Activity and Hours:

Activity	Hours
Classroom, Directed Studies or Online Instruction	45
Seminar/Tutorials	
Laboratory/Studio	45

Practicum/Field Experience	
Co-op/Work Experience	
Other	
Total	90

Course Requisites:

None

Flexible Assessment: Yes

In some cases students may be able to apply for recognition of prior learning outside the classroom. This flexible assessment process provides equivalent course credit. It is a rigorous process that may include external evaluation, worksite assessment, demonstration, standardized test, self-assessment, interview, products/portfolio, and challenge exam, or other measures as appropriate. Tuition fees apply. Contact an education advisor for more information.

Course Transfer Credit:

For information about receiving transfer credit for courses taken at either British Columbia or Alberta institutions, please see <https://www.bctransferguide.ca/> or <https://transferalberta.alberta.ca> . For more transfer credit information, please visit <https://www.cotr.bc.ca/Transfer>

All requests for course transfer credit from institutions in British Columbia or elsewhere should go to the College of the Rockies Enrolment Services office.

Textbook Resources:

Textbook selection varies by instructor and may change from year to year. The instructor will also supplement the course with materials that will be posted to COTROnline.

- Chris Johnson, Matthew D. Affolter, Paul Inkenbrandt, & Cam Mosher. An Introduction to Geology. Online:
[https://geo.libretexts.org/Bookshelves/Geology/Book%3A_An_Introduction_to_Geology_\(Johnson_Affolter_Inkenbrandt_and_Mosher\)](https://geo.libretexts.org/Bookshelves/Geology/Book%3A_An_Introduction_to_Geology_(Johnson_Affolter_Inkenbrandt_and_Mosher))
- Bradley Deline, PhD Randa Harris, MS Karen Tefend, PhD. Laboratory Manual for Introductory Geology. Online:
<https://web.ung.edu/media/university-press/Laboratory%20Manual%20for%20Introductory%20Geology%20Updated%20061620.pdf>

Please see the instructor's syllabus for additional information. In-class activities may include presentations and stories by guests or attendance of online events conducted by virtual meeting technologies.

Learning Outcomes:

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

- reflect upon the Ktunaxa story of creation, contrasting it with other Indigenous science and western scientific worldviews;
- outline respective ways to visit and learn from the homelands and waterways in Ktunaxa ?amak?is, the traditional territory of the Ktunaxa Nation;
- describe the four major spheres of the Earth and how they are interconnected;
- apply the evidence for the Plate Tectonic Theory and how it explains many of Earth's major processes;
- differentiate what happens at each stage of the Rock Cycle and how it relates to Plate Tectonics;
- recognize the identity of common rocks and minerals based on chemical and physical properties;
- describe the formation of various igneous, metamorphic, and sedimentary rocks;
- classify common rocks based on their mineralogy and texture;
- summarize the conditions that lead up to volcanism and earthquakes;
- explain the physical and chemical processes that break rock down into sediments and soils;
- recognize the factors that cause mass wasting and identify common land forms caused by mass wasting;
- define the factors that determine the amount of erosion from runoff and understand the various ways that a stream transports sediment;
- describe erosion features caused by surface and ground water and how they may impact on human communities;
- summarize the transformation of snow into glacial ice and describe the movement and the parts of the glacier and what processes go on at each part;
- identify major landforms caused by glacial erosion and deposition and describe how each formed;
- identify major landforms caused by wind erosion and deposition and describe how each formed; and
- identify major shoreline and sea floor landforms and describe how each formed.

Course Topics:

- Ktunaxa Creation Story
- Understanding the Earth: Introduction to physical geology and Plate Tectonics
- Earth materials and minerals

- Igneous rocks and intrusive igneous activity
- Volcanism, extrusive rocks
- Weathering, soils, sediments and sedimentary rocks
- Metamorphism and metamorphic rocks
- Earthquakes and Earth's Interior
- Mass wasting
- Surface water and erosion
- Ground water and subsurface erosion
- Glaciers and glaciation
- Wind erosion and deserts
- Shorelines and shoreline processes

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face) and Online, or Hybrid

Assessment Type	% of Total Grade
Lab Assignments	30%
Lab Exams	20%
Midterm	20%
Final Exam	30%
Total	100%

Grade Scheme

A+	A	A-	B+	B	B-	C+	C	C-	D	F
>=90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	<50

Pass requirements: A passing average (50% or higher) in both the theory and practical components.

Evaluation Notes: A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

Exam Attendance:

Students must attend all scheduled exams at the appointed time and place. Instructors may approve an alternate exam to accommodate an illness or personal crisis. Department heads will consider other written requests. Any student who misses a scheduled exam without prior approval will receive a "0" on the exam.

Academic Policies:

College of the Rockies policies related to courses can be found at <https://cotr.bc.ca/about-us/college-policies/> and include the following:

- Policy 2.4.3 Students with Documented Disabilities
 - Policy 2.4.4 Student Conduct (plagiarism, other cheating, behavioral misconduct)
 - Policy 2.5.8 Academic Performance
 - Policy 2.5.3 Grade Appeal
 - Policy 2.4.9 Student Concerns Re Faculty
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Course Changes:

The College of the Rockies updates course outlines regularly to meet changing educational, employment and marketing needs. The instructor will notify students in writing of any updates to this outline during the semester. The instructor reserves the right to revise, add or delete material while meeting the learning outcomes of this course outline.