



GEOL-220 – Environmental Geology and Natural Hazards

University Arts and Science

Effective Term & Year: Fall 2022

Course Outline Review Date: 2028-09-01

Program Area: Math and Sciences

Description:

This course examines the nature of a variety of natural hazards including events such as earthquakes, volcanic eruptions, landslides, river flooding, severe weather, wildfire, and hurricanes. Current methods of analysis, prediction and mitigation are investigated. Laboratory activities concentrate on working from real-life situations in order to draw conclusions about natural hazard issues.

Program Information:

This course can be used as either a required course or an elective in University Studies programs and the Bachelor of Business Administration Degree.

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

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:

- Completed at least 1 of the following:
 - [GEOL105](#) – Introduction to Geology (3)
 - [GEOL106](#) – Physical & Historical Geology (3)
 - [GEOG101](#) – Introduction to Physical Geography 1 (3)

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. At the Course Outline Effective Date the following textbooks were in use:

Keller E. & DeVecchio, D. (2015) Natural Hazards: Earth's Processes as Hazards, Disasters, and Catastrophes. 3rd Ed. Upper Saddle River, N.J., Peason Prentice-Hall.

Please see the instructor's syllabus or check COTR's online text calculator <https://textbook.cotr.bc.ca/> for a complete list of the currently required textbooks.

Learning Outcomes:

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

- describe many fundamental concepts of environmental geology;
- analyze case histories of natural hazard situations;
- summarize how natural processes can be hazardous and threaten human life and property throughout the world;
- identify significant factors related to hazardous earth processes in the geosphere, hydrosphere and atmosphere;
- describe the current state of prediction and prevention capabilities with regards to various hazardous earth processes;
- critique the role of planning in landscape evaluation and land use;
- identify and locate significant factors that affect natural hazards by reading and understanding maps, graphs, tables, and diagrams;
- evaluate how populations can minimize natural hazards risk and use measures to protect themselves; and
- analyze assorted facets of global climate change and how this relates to environmental geology and natural hazards.

Course Topics:

- Overview of Environmental Geology and The Study of Natural Hazards
- Internal Structure of Earth and Plate Tectonics
- Earthquakes and Tsunamis
- Volcanoes and Volcanic Eruptions
- Landslides and Snow Avalanches
- Subsidence
- River Flooding
- Severe Weather
- Hurricanes
- Coastal Erosion
- Climate Change
- Extinctions

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

Evaluation and Assessments

Assessment Type: On-Campus (face-to-face)

Assessment Type	% of Total Grade
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Lab Assignments	30%
Research Project and Presentation	20%
Midterms	20%
Final Examination	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

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.

