



Geology (GEOL) 201

Introductory Historical Geology (Revision 4)

Status: Replaced with new revision, see the **course listing** [↗](#) for the current revision **✖**

Delivery mode: **Individualized study** [↗](#) with a **Home Lab** [↗](#). This course is charged a **lab fee** [↗](#).

Credits: 3

Area of study: Science

Prerequisites: **GEOL 200** is strongly recommended.

Precluded: None

Challenge: GEOL 201 has a challenge for credit option.

Faculty: **Faculty of Science and Technology** [↗](#)

Overview

Historical geology is involved directly or indirectly in most aspects of geological studies. There are direct links with astronomy, biology, chemistry, and physics. GEOL 201 involves discussion of the basic aspects of the discipline, the techniques and evidence used in reconstructing the evolution of Earth, and current research in mass extinctions and global change.

Outline

- Unit 1: Introduction to Historical Geology
- Unit 2: Sedimentary Rocks and Historical Geology
- Unit 3: Life Through Time
- Unit 4: Geological Concepts of Time
- Unit 5: Planetary Beginnings and the Origin of Earth
- Unit 6: The Evolution and Structure of Earth
- Unit 7: Precambrian Time
- Unit 8: The Paleozoic Era
- Unit 9: The Mesozoic Era
- Unit 10: The Cenozoic Era
- Unit 11: Historical Geology Today and Tomorrow

Learning outcomes

Upon successful completion of this course, you will be able to

- outline the basic principles of scientific inquiry used by historical geologists and interpret basic geological cross-sections in terms of the sequence of depositional events, tectonic events, folding, faulting, unconformities, and nonconformities.
- identify and describe basic sedimentary depositional environments and explain how sedimentary features can be used to infer depositional environments.

- describe how the remains of living organisms can be preserved as fossils and explain how fossils can be used to correlate geographically separate rock strata.
- explain how the geological time scale is derived, using both radiometric dating methods and relative methods.
- describe the theory of plate tectonics and explain how the interior of the Earth became layered and how seismology can be used to study the layering of the interior of the Earth.
- explain the origin and evolution of Precambrian continental shields and the importance of cometary, meteoritic, and carbon isotopic studies to understanding the origin and evolution of terrestrial life.
- describe the overall geological history of the Paleozoic, Mesozoic, and Cenozoic eras, including the evolution of life.
- outline the leading theories advanced to explain glacial cycles and describe the types of geological inquiry that can be undertaken to unravel paleoenvironmental and paleoclimatic conditions.

Evaluation

To **receive credit** [↗](#) for GEOL 201, you must complete all labs and achieve a minimum lab average of 60 percent, achieve a course composite grade of at least **C- (60 percent)** [↗](#) and achieve a grade of at least C- (60 percent) on each of the examinations. The weighting of the composite grade is as follows:


Activity	Weight
Lab Assignments	30%
Midterm Exam	30%
Final Exam	40%

Activity	Weight
Total	100%

The **midterm and final examinations** for this course must be requested in advance and written under the supervision of an AU-approved exam invigilator. Invigilators include either ProctorU or an approved in-person invigilation centre that can accommodate online exams. Students are responsible for payment of any invigilation fees. Students are responsible for payment of any invigilation fees. Information on exam request deadlines, invigilators, and other exam-related questions, can be found at the **Exams and grades** [↗](#) section of the Calendar.

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** [↗](#).

Materials

Levin, H. L., & King, D. T., Jr. (2017). *The Earth Through Time* (11th ed.). New York, NY: Wiley.  (eText)

Gore, P. J. W. (2014). *Historical Geology Lab Manual*. New York, NY: Wiley.  (eText)

Other Materials

The course materials include a study guide, a student manual, laboratory assignments, and supplementary reading materials.

Challenge for credit

Overview

The challenge for credit process allows you to demonstrate that you have acquired a command of the general subject matter, knowledge, intellectual and/or other skills that would normally be found in a university-level course.

Full information about **challenge for credit** [↗](#) can be found in the Undergraduate Calendar.

Evaluation

To **receive credit** [↗](#) for the GEOL 201 challenge registration, you must achieve a grade of at least **C-(60 percent)** [↗](#) on the examination.

Activity	Weight
Examination	100%
Total	100%



[Challenge for credit course registration form](#)

Important links

- › [Academic advising](#) [↗](#)
- › [Program planning](#) [↗](#)
- › [Request assistance](#) [↗](#)
- › [Support services](#) [↗](#)

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

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