

# ENV 112 - HISTORICAL GEOLOGY

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## Course Description

Rocks and fossils of North America, the Great Lakes and the Grand Traverse region which reveal the physical, chemical, and biological evolution of the planet Earth are explored in classroom, laboratory, and field studies (including a required 4-day field excursion to Elliot Lake, Ontario). Group 1 lab course.

## Credit Hours

4

## Contact Hours

5

## Lecture Hours

3

## Required Prerequisites

MTH 100

## Corequisites

ENV 112L

## Recommended Prerequisites or Skills

## Competencies

ENV 103 or ENV 111 or GEO 105; ENG 111; MTH 111, MTH 120 or MTH 131

## General Education Outcomes supported by this course

Quantitative Reasoning

## Course Learning Outcomes

### Knowledge:

- Explain the structure of the geologic time scale, how the age of the Earth has been determined, relative dating, and numerical dating methods.
- Identify common rocks, fossils, minerals, and sedimentary structures.
- Explain the theory of evolution.
- Describe the process of fossilization.
- Explain tectonic processes including how tectonic boundaries form and change through time.
- Explain the major tectonic and evolutionary changes throughout Earth's history.

### Application:

- Determine relative ages and calculate numerical ages using radiometric age dating methods.
- Be able to interpret rocks and fossils with regards to the depositional environment or tectonic setting of formation.
- Construct geologic maps and cross-sections to interpret geologic history of an area.
- Evaluate the geologic history of an area to construct geological cross sections maps.

### Integration:

- Connect geologic events with the distribution of natural resources and the impact they have on local economies.
- Integrate key concepts from Physical Geology and Historical Geology into a field report detailing the geologic history of the Huronian Supergroup exposed near Elliot Lake, Ontario.

### Human Dimension:

- Work collaboratively while researching the Huronian Supergroup.
- See themselves as field geologists.

### Caring - Civic Learning:

- Describe how past geologic events and developments in evolution have shaped our world and modern ecosystem and how they have influenced the occurrence of resources.
- Describe how the development of natural resources have influenced the world.

### Learning How to Learn:

- Apply geologic investigation skills in real world applications.