

Course Outline for: GEOL 1050 Earth History**A. Course Description**

1. Number of credits: 4
2. Lecture hours per week: 3
Lab hours per week: 2
3. Prerequisites: None
4. Corequisites: None
5. MnTC Goals: Goal #3 - Natural Science
 Goal #9 – Ethical and Civic Responsibility

This course provides interpretations of the evolution of our planet and its natural systems, including the scientific basis of these interpretations as well as the controversies faced as these developing interpretations have challenged existing social and religious standards. The interplay of scientific advancement and societal norms are probed in order to appreciate the broader context of our understanding of Earth's evolution. Lab activities demonstrate current application of the scientific method to questions of Earth's history.

B. Date last revised: April 2023**C. Outline of Major Content Areas**

1. Scientific method as applied to Earth history
2. Historic and modern principles of stratigraphic analysis
3. Absolute dating and concept of "deep time"
4. Controversies surrounding Earth's age
5. Biological succession
6. Controversies surrounding biological evolution
7. Climate change
8. Current debate regarding climate change

D. Course Learning Outcomes

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

1. Explain how the scientific method is applied to the study of Earth's history. (Goal 3a)
2. Distinguish between uses of terms like theory, fact and belief among scientists and nonscientists. (Goal 3a, 3b)
3. Interpret sequences of events using stratigraphic principles. (Goal 2a, 2c, 3a, 3b, 3c)
4. Explain how modern science has determined Earth's age (Goal 3a, 3c)
5. Describe how the relationship between geology and religion changed as a result of the discovery of "deep time". (Goal 2b, 2c, 3a, 9d)
6. Describe how theories of biological evolution have changed with advances in technology.(Goal 3a, 3c, 3d)

7. Discuss the convictions of various participants in the controversy over evolution, including their own attitudes. (Goal 2d, 9a, 9c, 9d)
8. Understand how issues of current climate change relate to our interpretation of past climate variation. (Goal 2c, 3a, 3d, 9d)
9. Articulate and support their own opinions about climate change. (Goal 2a, 2b, 2c, 2d, 3a, 9a)

E. Methods for Assessing Student Learning

Methods for assessment may include, but are not limited to, the following:

1. exams
2. papers
3. lab exercises
4. quizzes
5. assignments

F. Special Information

None