**MOHAWK VALLEY COMMUNITY COLLEGE**

**UTICA, NEW YORK**

**COURSE OUTLINE**

**HISTORICAL GEOLOGY**

**GL102**

**REVIEWED & FOUND ACCEPTABLE 2/1/13**

**REVIEWED & FOUND ACCEPTABLE BY 1/10/17**

**GL 102 COURSE OUTLINE**

**Course Number:** GL102

**Course Title:** Historical Geology

**Credit Hours:** 4

**I. Course Description**

This course explores the physical and biological aspects of the Earth’s dynamic past over the last 4.6 billion years of its existence. Emphasis is placed on the geologic time scale, the concepts of physical and biological evolution, and plate tectonics. Laboratory topics include fossilization and taphonomy as well as the biological evolution and diversity of the Earth’s organisms through identification and examination of fossil specimens. Field trips may be taken during laboratory periods. An end-of-semester visit to the American Museum of Natural History in Manhattan is encouraged. Prerequisite: GL101 Physical Geology.

**II.** **Student Learning Outcomes**

**Lecture**

A. The student will be able to describe the basic scientific and geological principles that govern modern geology and paleontology.

B. The student will be able to describe how science

is an investigative process.

C. The student will demonstrate an understanding of the importance and necessity of organic evolution.

D. The student will demonstrate an understanding of the interconnectedness of the physical evolution of the earth and the above mentioned organic evolution.

E. The student will demonstrate an understanding of the necessity of deep time to achieve the earth’s current state.

E. The students will be able to illustrate the early evolution of the earth as it concerns the original of life on earth.

**Laboratory**

A. The student will use hierarchal keys and other pertinent scientific literature to classify and identify the major categories of vertebrates in the laboratory environment.

B. The students will be able to identify major evolutionary changes made to the vertebrates over time.

C. The student will apply the knowledge gained in the laboratory environment to classify and identify specimens in a museum setting.

**III. Organization and Procedures**

A. Time Allotment (4 credit hours)

1. Lecture: 3 hours per week for 15 weeks

2. Laboratory: 2 hours per week for 15 week

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**GEOLOGY 102 HISTORICAL GEOLOGY**

**LECTURE OUTLINE**

**Chapter 1:** Time and Terrestrial Change

**Chapter 2:** Floods, Fossils, and Heresies

**Chapter 3:** Evolution

**Chapter 4:** The Relative Geologic Time Scale and Modern Concepts of Stratigraphy

**Chapter 5:** The Numerical Dating of the Earth

**Chapter 6:** The Origin and Early Evolution of the Earth

**Chapter 7:** Mountain Building and Drifting Continents

**Chapter 8:** Precambrian History An Introduction to the Origin of Continental Crust

**Chapter 9:** Early Life and Its Patterns

**Chapter 10:** Earliest Paleozoic History: The Sauk Sequence

**Chapter 11:** The Later Ordovician: Further Studies of Plate Tectonics

**Chapter 12:** The Middle Paleozoic: Time of Reefs, Salt, and Forests

**Chapter 13:** Late Paleozoic History: A Tectonic Climax and Retreat of the Sea

**Chapter 14:** The Mesozoic Era: Age of Reptiles and Continental Breakup

**Chapter 15:** Cenozoic History: Threshold of the Present

**Chapter 16:** Pleistocene Glaciation and the Advent of Humanity

**Chapter 17:** The Best of All Possible Worlds?

**Appendix I:** The Classification and Relationships of Living Organisms

**GEOLOGY 102 HISTORICAL GEOLOGY**

**LABORATORY OUTLINE**

**Week Topic**

1 Fossilization

2 Classification: Linnaeus & Cladistics

3 Introduction to Invertebrates

4 Survey of Invertebrates

5 Survey of Invertebrates

6 Introduction to Vertebrates

7 The Fishes

8 The Amphibians

9 The Reptiles

10 The Dinosaurs

11 Morphometrics

12 Dinosaurs of the AMNH

13 Dinosaurs of the AMNH

14 Final Projects