MONROE COUNTY COMMUNITY COLLEGE
enriching lives

Course Outcome Summary

General Education Satisfier Course

ESC 151 Earth Science

Course Information

Division	Science/Mathematics
Contact Hours	75
Lecture Hours	45
Lab Hours	30
Total Credits	4

Prerequisites

English 090 and Reading 090 and MATH 090 or qualifying score on accepted placement tests

Course Description

This course is designed to introduce students to the geologic and geophysical processes that occur on the surface and the interior of the planet Earth. Attention will also be given to climatic, atmospheric, and oceanic systems as well as the solar system and the observable universe. The emphasis in this course is on the broad concepts and fundamental principles of Earth Science and the application to human-environmental interactions. This course will require laboratory work.

This course is approved as a General Education competency satisfier.

General Education Goal: Critical Thinking
Competency: Understand the elements of scientific inquiry and scientific principles in a natural science college laboratory course setting.
Learning Outcome: Students will use the scientific method to define a problem, utilize appropriate methods to solve the problem, and propose and evaluate a solution to the problem.

General Education Learning Objectives

A. Observe and describe natural phenomena and formulate hypotheses.
B. Plan and implement scientific experiments to test hypotheses.
C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
D. Evaluate experimental data and propose solutions based on this data.
E. Evaluate the proposed implications of a solution.

Course Outcomes

1. Apply the characteristics and physical properties of common rocks and rock forming minerals that make up Earth's crust to identify, classify, and explain how they formed.
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. Evaluate the proposed implications of a solution.

MONROE COUNTY COMMUNITY COLLEGE
enriching lives

Course Outcome Summary

General Education Satisfier Course

ESC 151 Earth Science

2. Describe the properties of Earth's interior and structural features, including the dynamic processes that influence plate tectonic processes and associated geologic hazards.
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. Evaluate the proposed implications of a solution.
3. Explain the pathways, variability, and interactions of water and the hydrologic cycle on Earth's surface and subsurface.
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. Evaluate the proposed implications of a solution.
4. Describe the various landscape forming processes that act on the surface of the Earth (e.g. weathering and erosion) and those that occur from within Earth's interior (mountain building, volcanism, earthquakes, etc.)
   - Applies to General Education Objectives
     F. Observe and describe natural phenomena and formulate hypotheses.
     G. Plan and implement scientific experiments to test hypotheses.
     H. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     I. Evaluate experimental data and propose solutions based on this data.
     J. Evaluate the proposed implications of a solution.
5. Explain the Earth-Sun relationship as a driver of atmospheric and oceanic circulation, and local/regional weather and climate.
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. E. Evaluate the proposed implications of a solution.
6. Apply the methods and principals of both relative and absolute age dating to conceptualize and interpret geologic time
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. Evaluate the proposed implications of a solution.

MONROE COUNTY COMMUNITY COLLEGE
enriching lives

Course Outcome Summary

General Education Satisfier Course

ESC 151 Earth Science

7. Describe the origin and nature of the solar system and other astronomical features and cosmological events observed in the universe.
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. Evaluate the proposed implications of a solution.
8. Describe and apply the procedures of the scientific method to interpret experimental results, perform data analysis, evaluate results, and draw conclusions
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. Evaluate the proposed implications of a solution.
9. Perform accurate quantitative measurements using laboratory instrumentation and geophysical models.
   - Applies to General Education Objectives
     A. Observe and describe natural phenomena and formulate hypotheses.
     B. Plan and implement scientific experiments to test hypotheses.
     C. Utilize scientific laboratory skills for data collection within a college laboratory setting.
     D. Evaluate experimental data and propose solutions based on this data.
     E. E. Evaluate the proposed implications of a solution

Last updated: January 16, 2024 By: Hans N. Lechner