North Central Michigan College
Master Course Syllabus

Part 1:

Course Name: Introduction to Earth Science

Course Number: ESC 101

Credit Hrs. 4 Lecture Hrs. 3 Lab Hrs. 2 Clinical Hrs. 0 Variable Hrs. 0

Total Hours of Instruction: 5 Total Contact Hours: 88
(Total Contact hour's formula: (lecture hrs. + lab hrs. + clinical hrs) x 17.6)

Course Description:
An introductory, integrated study of the Earth that includes topics drawn from a variety of disciplines including: geology, hydrology, oceanography, meteorology, and climatology. Emphasis is on the observations made and data collected by scientists, how the components of the Earth are categorized and identified, the major forces and mechanisms that affect the Earth, and the role of Earth Scientists in society and understanding current events. This course includes field work, lecture and lab.

Prerequisite (s): None
Co-requisite (s): None

Course Objectives:
Upon successfully completing this course, you should be able to:

- Interpret observations of the world in terms of fundamental Earth processes, while demonstrating familiarity with the correct terminology used by scientists in that field.
- Use selected laboratory instruments and techniques to collect, analyze, and interpret data.
- Explain how and why scientists subdivide the geosphere, hydrosphere, and atmosphere into layers or zones; including major forces or mechanisms at work and landforms or environmental conditions unique to each.
- Identify rocks and minerals and interpret the conditions under which they formed.
- Use remote sensing imagery and maps in a variety of tasks, including: interpreting the geologic history of a landscape, explaining weather and climate conditions, and forecasting future weather.
- Identify and explain the interpretation of the data/observations used in climate change studies.
- Explain the major theories involved in Earth science, including the Theory of Plate Tectonics and the mechanisms for climate change (both natural and anthropogenic).

Reasonable accommodations can be provided for students with documented disabilities. Please contact Learning Support Services to arrange for these-(231)348-6687 or (231)348-6817, Room 533 SCRC.

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Part 2:

Lumina DQP outcomes and linked course objectives

- Interpret your observations of the world around you in terms of fundamental Earth processes, while demonstrating familiarity with the correct terminology used by scientists in that field. (DQP 2, 7)
- Effectively use selected laboratory instruments and techniques to collect, analyze, and interpret data. (DQP 4, 6)
- Explain how and why scientists subdivide the geosphere, hydrosphere, and atmosphere into layers or zones; including major forces or mechanisms at work and landforms or environmental conditions unique to each. (DQP 1, 2, 4, 7)
- Identify rocks and minerals and interpret the conditions under which they formed. (DQP 2, 4, 6)
- Use remote sensing imagery and maps in a variety of tasks, including: interpreting the geologic history of a landscape, explaining weather and climate conditions, and forecasting future weather. (DQP 2, 6, 7)
- Identify and explain the interpretation of the data/observations used in climate change studies. (DQP 1, 2, 4, 7)
- Explain the major theories involved in Earth science, including the Theory of Plate Tectonics and the mechanisms for climate change (both natural and anthropogenic). (DQP)1, 2, 4

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Part 2 continued:

Suggested Methods of Instruction:

Lecture, lab, field trips, discussions, links to relevant online resources.

Suggested Methods of Assessment and Evaluation:

Lab Reports, Projects/papers, Exams

Adopted Text at Time of Course Adoption/Revision:

Required Text: **Earth**, James F. Luhr Ed.

Optional Traditional-style Textbook: **The Good Earth: Introduction to Earth Science,** David McConnell et al.

Topics Covered During the Semester:

Sequence of topics and time allowance are at the discretion of the instructor

Week 1: Minerals
Week 2: Rocks
Week 3: Earthquakes and Volcanoes
Week 4: Plate Tectonics
Week 5: Fossils and Geologic Time
Week 6: Groundwater
Week 7: Streams
Week 8: Lakes
Week 9: Glaciers
Week 10: Oceans and Coastal Processes
Week 11: The structure and composition of the Atmosphere
Week 12: Weather Observations
Week 13: Weather Forecasting
Week 14: Climates
Week 15: Climate Change
Week 16: Comparing and Contrasting Earth to other planets

Part 3:

Use this reference sheet in Part 2 of Master Course Syllabus

Specialized Knowledge

1. Describes the scope and principal features of the field of study, citing at least some of its core theories and practices, and offers a similar explication of at least one related field.
2. Illustrates contemporary terminology used in the field.
3. Generates substantially error-free products, reconstructions, data, juried exhibits or performances as appropriate to the field.

Broad Integrative Knowledge

4. Describes how existing knowledge or practice is advanced, tested and revised
5. Describes and examines a range of perspectives on key debates and their significance both within the field and in society.
6. Illustrates core concepts of the field while executing analytical, practical or creative tasks.
7. Selects and applies recognized methods of the field in interpreting characteristic discipline-based problems.
8. Assembles evidence relevant to characteristic problems in the field, describes the significance of the evidence, and uses the evidence in analysis of these problems.
9. Describes the ways in which at least two disciplines define, address and interpret the importance of a contemporary challenge or problem in science, the arts, society, human services, economic life or technology.

Intellectual Skills – Analytic Inquiry

10. Identifies, categorizes and distinguishes among elements of ideas, concepts, theories and/or practical approaches to standard problems.

Intellectual Skills – Use of Information Resources

11. Identifies, categorizes, evaluates and cites multiple information resources necessary to engage in projects, papers or performance in his or her program.

Intellectual Skills – Engaging Diverse Perspectives

12. Describes how knowledge from different cultural perspectives would affect his or her interpretations of prominent problems in politics, society, the arts and/or global relations.

Intellectual Skills – Communication Fluency

13. Presents accurate calculations and symbolic operations, and explains how such calculations and operations are used in either his or her specific field of study or in interpreting social and economic trends.
14. Presents substantially error-free prose in both argumentative and narrative forms to general and specialized audiences.

Applied Learning

15. Describes in writing at least one substantial case in which knowledge and skills acquired in academic settings are applied to a challenge in a non-academic setting; applies that learning to the question; and analyzes at least one significant concept or method related to his or her course of study in light of learning outside the classroom.
16. Locates, gathers and organizes evidence on an assigned research topic addressing a course-related question or a question of practice in a work or community setting; offers and examines competing hypotheses in answering the question.

Civic Learning

17. Describes his or her own civic and cultural background, including its origins and development, assumptions, and predispositions.
18. Describes diverse positions, historical and contemporary, on selected democratic values or practices, and presents his or her own position on a specific problem where one or more of these values or practices are involved.
19. Takes an active role in a community context (work, service, co-curricular activities, etc.), and examines the civic issues encountered and the insights gained from the community experience.

The Degree Qualifications Profile was adopted by CRDAP: April 11, 2012