MASTER COURSE OUTLINE

A. ESCI 1000 Introduction to Earth Science

B. COURSE DESCRIPTION:

This course covers the development of the earth throughout its history and relates to processes observed today. Special emphasis is placed on the study of plate tectonics, volcanoes, earthquakes, geologic structures, rock types, weathering and erosion, glaciation, and much more. Also studied is the interdependence between geologic processes and the environment with emphasis given to how human activities alter climate and other aspects of the earth system, plus how people cope with changing environmental conditions.
MnTC (Goal 3/NS and 10/PE); (3 Cr – 3 lect, 0 lab)

C. *Core Theme: People and the Environment **Discipline Area (if MnTC): Natural Sciences and People and the Environment

D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses the following Riverland Institutional Learning Outcome(s):
☐ ILO 1: critical thinking *(Core Theme Goal 2)*
☐ ILO 2: awareness of the larger global community *(Core Theme Goal 7 or 8)*
☒ ILO 3: ethical, engaged citizenship *(Core Theme Goal 9 or Goal 10)*
☐ ILO 4: communication and collaboration *(Discipline Goal 1 and by any learning outcome(s) involving communication or collaboration)*

E. MAJOR CONTENT AREAS:

- Introduction to geology
- Atoms, elements, and minerals
- Structure of the earth
- Plate tectonics
- Intrusive and igneous rocks and processes
- Volcanism and extrusive igneous rocks
- Weathering, erosion, and transport
- Sedimentary rocks and processes
- Metamorphic rocks and processes
- Geologic structures
- Earthquakes
- Glaciers and glaciation
- Streams, floods and groundwater
- Water, mineral, and energy resources

- Climate change

F. GOAL TYPES, OBJECTIVES, AND OUTCOMES:

GOAL	OBJECTIVES Students will be able to	OUTCOMES The student will successfully
MnTC Goal 3a	demonstrate understanding of scientific theories.	1. demonstrate an understanding of scientific theories pertaining to earth science i.e. the theory of Plate Tectonics.
MnTC Goal 3c	communicate their experimental findings, analyses and interpretations both orally and in writing.	1. identify a variety of rocks. 2. communicate analysis of rocks orally and in writing.
MnTC Goal 3d	evaluate societal issues from a natural science perspective, ask questions about the evidence presented and make informed judgments about science-related topics and policies.	1. demonstrate an understanding of how various geologic processes affect society. 2. demonstrate the ability to question the validity of the evidence presented that supports various geology-related theories.
McTC Goal 10a	explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems.	1. identify the characteristics of various ecosystems around the world. 2. explain how humans have adapted to these ecosystems.
MnTC Goal 10d	evaluate critically environmental and natural resource issued in light of understandings about interrelationships, ecosystems, and institutions.	1. explain how different geologic processes have resulted in the world distribution of various geologic resources. 2. demonstrate an understanding of how the extraction of these resource materials can affect the environment and ecology of the location.
MnTC Goal 10e	propose and assess alternative solutions to environmental problems.	1. explain the causes of various environmental problems such as acid rain, asbestos-related problems, problems caused by the burning of fossil fuels, etc. 2. identify alternate ways in which the problems above could be avoided.
MnTC Goal 10f	articulate and defend the actions they would take on various environmental issues.	1. discuss various ways of approaching different environmental problems. 2. defend the strategies in solving various environmental issues.
CS	process and evaluate current earth science relevant studies, reports, news, seminars, etc. from various print, online , or other sources.	1. demonstrate their understanding of current earth science issues through any combination of oral/online discussion, written works, or other assessment tools.
CS	analyze earth science relevant data gathered from analytical tools (real or simulated) or other sources to test hypothesis and come to logical conclusions.	1. demonstrate the use of any combination of real or simulated analytical tools, sensors, etc. in gathering data. 2. draw conclusions based on data analysis, and demonstrated

		through class or online discussions and/or written class reports.

G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of course management software. Students who have a disability and need accommodations should contact Accessibility Services at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request.

H. COURSE CODING INFORMATION:

Course Code C/Class Maximum 48; Letter Grade

Revision date: 10/12/10; 04/02/18; 11/05/24
AASC Approval date: 05/08/18; 11/19/24

*These five MnTC Goals have been identified as Riverland Community College Core Themes. Every course in the Riverland Community College curriculum shall meet outcomes from one of these themes.
**These five MnTC Goals have been identified as Riverland Community College Disciplines. Riverland's MnTC courses also shall meet outcomes from a Discipline Area.

NOTE: The Minnesota Transfer Curriculum "10 Goal Areas of Emphasis" are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.

***Riverland Community College Core Themes**	**MnTC Goal Number**
Critical Thinking (CT)	**2**
Human Diversity (HD)	**7**
Global Perspective (GP)	**8**
Ethical and Civic Responsibility (EC)	**9**
People and the Environment (PE)	**10**

****Riverland Community College Discipline Areas**	**MnTC Goal Number**
Communication (CM)	**1**
Natural Sciences (NS)	**3**
Mathematics/Logical Reasoning (MA)	**4**
History and the Social & Behavioral Sciences (SS)	**5**
Humanities and Fine Arts (HU)	**6**