MASTER COURSE OUTLINE

A. BIOL 2000 General Ecology

B. COURSE DESCRIPTION:

This course covers basic ecological principles including the characterization of communities, ecosystems and biomes, successional change, adaptation and natural selection, intra and interspecies interactions, population dynamics and carrying capacity, biogeochemical cycles, ecosystem energy flow, and the distribution of biological diversity. Inherent to the course will also be consideration of humanity's impact upon and dependence on the Earth's global ecosystem. Prerequisite: BIOL 1091, BIOL 1092 recommended
MnTC (Goal 3/NS and Goal 2/CT); (4 Cr – 3 lect, 1 lab)

C. *Core Theme: Critical Thinking **Discipline Area (if MnTC): Natural Sciences

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:

- The physical environment: variation, biotic vs. abiotic factors
- Levels of ecological organization
- Ecosystem dynamics: energy flow, trophic levels, food webs, biogeochemical cycles
- Biomes, geographical patterns, and island biogeography
- Adaptation and the niche concept
- Natural selection, speciation, and population genetics
- Population structure, growth, and sources of environmental resistance
- Life history patterns and demography
- Forms of species interactions coevolution
- Community structure, development and succession
- Soils and soil development
- Levels of biological diversity, richness, evenness
- Human impacts upon the environment, conservation and sustainability

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

GOAL TYPE	OBJECTIVES Students will be able to	OUTCOMES The student will successfully
MnTC Goal 2a	gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.	1. complete an analysis of scientific findings relevant to ecology. 2. summarize the findings, and explanation of the context of the findings, and of the sources of possible bias in the analysis above.
MnTC Goal 2c	analyze the logical connections among the facts, goals, and implicit assumptions relevant to a problem or claim; generate and evaluate implications that follow from them.	1. analyze the logical connections between the didactic learning in the course, the results of laboratory exercises and other practical applications. 2. state goals and hypotheses related to the laboratory exercises. 3. analyze the assumptions relevant to the experimental process.
MnTC Goal 2d	recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analysis and evaluations made by ourselves and others.	1. describe how scientific knowledge, ethical values, experiences, traditions and more impact how people interpret new ideas, and make decisions.
MnTC Goal 3a	demonstrate understanding of scientific theories.	1. demonstrate an understanding of scientific theories related to ecosystem dynamics, population growth and regulation, inter and intraspecific interactions, and other theories of ecological significance. 2. define and explain the pertinent vocabulary terms related to the outcomes above.
MnTC Goal 3b	formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and appreciation of it sources of error and uncertainty.	1. demonstrate an understanding of the scientific method through field and laboratory experiences, as relevant to ecological theories and based on experimental results. 2. explain the limits of science, i.e., experimental error and uncertainty.
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 relevant ecological issues. 2. demonstrate the ability to evaluate competing evidence and viewpoints.
CS	recognize the principles behind ecosystem dynamics, population growth and regulation, adaptation and natural selection, and many other fundamental ecological principles.	1. demonstrate their understanding of these principles through discussions, assignments/writings and/or other assessment tools.

CS	utilize analytical tools (real or simulated) to gather the ecologically relevant data necessary 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 laboratory reports.

G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. 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, B/Class Maximum 48, 24; Letter Grade

Revision date: 10/23/18; 09/06/22; 03/05/24
AASC Approval date: 10/23/18; 09/20/22; 03/19/24

*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**