



MASTER COURSE OUTLINE

A. BIOL 1092 General Biology II

B. COURSE DESCRIPTION:

This course is the second semester of a two-semester course sequence in general biology. Topics include evolutionary biology, a survey of biological diversity, animal structure and function, plant structure and function, and ecology. This course includes laboratory exercises and experimentation that illustrate core principles covered in the course. Prerequisite: BIOL 1091.

MnTC (Goals 3/NS and 10/PE); (4 Cr – 3 lect, 1 lab)

C. *MnTC Discipline: Natural Sciences **Core Theme: 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:

- Natural Selection and Micro Evolutionary Change
- Macro Evolutionary History and the Origin of Life
- Taxonomy and Phylogenetic Relationships
- Prokaryote Diversity: Archaea and Bacteria
- Viruses
- Eukaryote Diversity: Fungi, Protists, Animals (Invertebrates/Vertebrates), Plants
- Plant Form and Function
- Animal Form and Function
- Ecology: Animal Behavior, Populations, Communities and Ecosystems
- The Biosphere and Conservation Biology

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

| <u>GOAL TYPE</u> | <u>OBJECTIVES</u> | <u>OUTCOMES</u> |
|-------------------------|---|--|
| <u>MnTC Goal 3a</u> | Students will be able to: demonstrate an understanding of scientific theories. | The student will successfully: <ol style="list-style-type: none"> 1. explain the history and methods of science (including the scientific method). 2. develop a hypothesis, design an experiment to test the hypothesis, perform or simulate data collection and draw a conclusion from the data. 3. compare and explain scientific observation vs. non-scientific observation and the differences between scientific theories, facts and principles and non-scientific use of those terms. 4. explain the limits, validity and application of the scientific method. |
| <u>MnTC Goal 3b</u> | 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 an appreciation of its sources of error and uncertainty. | <ol style="list-style-type: none"> 1. conduct research and present the compiled information. 2. explain how data is collected, recorded and analyzed. 3. identify the sources of uncertainty and error in relationship to that data. |
| <u>MnTC Goal 3c</u> | communicate their experimental findings, analyses and interpretations both orally and in writing. | <ol style="list-style-type: none"> 1. discuss experimental findings in oral and written formats. |
| <u>MnTC Goal 10a</u> | explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those ecosystems. | <ol style="list-style-type: none"> 1. examine the structure and function of major ecosystems and the interrelationships of the biotic and abiotic components in those ecosystems. |
| <u>MnTC Goal 10d</u> | evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems and institutions. | <ol style="list-style-type: none"> 1. discuss and critically evaluate ecological principles and current environmental and natural resource issues. |
| <u>MnTC Goal 10e</u> | propose and assess alternative solutions to environmental problems. | <ol style="list-style-type: none"> 1. propose and critically evaluate solutions to environmental problems. |
| <u>MnTC Goal 10f</u> | articulate and defend the actions they would take on various environmental issues. | <ol style="list-style-type: none"> 1. propose, articulate and defend actions on various environmental issues. |
| <u>CS</u> | understand the biological concepts as outlined in the Major Content Areas above. | <ol style="list-style-type: none"> 1. demonstrate their understanding through any combination of oral discussions, written homework assignments, laboratory reports, and examinations. |
| <u>CS</u> | safely and properly use the microscope and other laboratory equipment/facilities. | <ol style="list-style-type: none"> 1. demonstrate their proficiency with these tools during scheduled laboratory meetings. |

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| <u>CS</u> | utilize analytical tools to gather the biologically relevant data necessary to test hypotheses and come to logical conclusions. | <ol style="list-style-type: none"> 1. demonstrate the use of any combination of analytical tools/sensors/microscope in gathering data. 2. draw conclusions based on data analysis, and demonstrated through class discussions and/or written laboratory reports. |
| <u>CS</u> | distinguish between and critically evaluate primary and secondary scientific literature. | <ol style="list-style-type: none"> 1. evaluate and critique sources of scientific literature through classroom or online discussions. |

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/Class Maximum 48; Letter Grade

Revision date: 03/06/17; 09/06/22

AASC Approval date: 04/18/17; 10/18/22

| *Riverland Community College Disciplines | 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 |

| **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 |

*These five MnTC Goals have been identified as Riverland Community College Disciplines.

** These five MnTC Goals have been identified as Riverland Community College Core Themes.

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