



## MASTER COURSE OUTLINE

### A. BIOL 2022 Anatomy and Physiology II

### B. COURSE DESCRIPTION:

This course is the second semester of a two-semester course in human anatomy and physiology. Topics include the endocrine system, respiratory system, cardiovascular system, lymphatic and immune system, digestive system, urinary system, reproductive system, and acid-base balances. Human embryology and development may also be covered. Prerequisite: BIOL 2021.

**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:

- Endocrine system
- Cardiovascular system
- Lymphatic and immune systems
- Respiratory system
- Digestive system
- Urinary system
- Male and female reproductive systems
- Acid-base balances
- Human embryology and development

F. GOAL TYPES, OBJECTIVES, AND OUTCOMES:

| <b><u>GOAL TYPE</u></b> | <b><u>OBJECTIVES</u></b><br>Students will be able to                                                                                                                                                                                                                                                                                                                               | <b><u>OUTCOMES</u></b><br>The student will successfully                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>MnTC Goal 2a</u>     | 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.                                                                                                                                                                                                          | <ol style="list-style-type: none"> <li>1. complete an analysis of scientific findings relevant to human anatomy and physiology.</li> <li>2. summarize the findings, an explanation of the context of the findings, and of the sources of possible bias in the analysis above.</li> </ol>                                                                                                                                                                                                                                                                       |
| <u>MnTC Goal 2b</u>     | imagine and seek out a variety of possible goals, assumption, interpretations or perspectives which can give alternative meanings or solutions to a given situation or problem.                                                                                                                                                                                                    | <ol style="list-style-type: none"> <li>1. determine and justify hypothesis/hypotheses prior to experimentation.</li> <li>2. present data to support or contradict hypothesis/hypotheses after concluding experimentation.</li> </ol>                                                                                                                                                                                                                                                                                                                           |
| <u>MnTC Goal 2c</u>     | 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.                                                                                                                                                                                                          | <ol style="list-style-type: none"> <li>1. predict and discuss expected results prior to experimentation.</li> <li>2. explain how assumptions affect interpretation of the results.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                  |
| <u>MnTC Goal 2d</u>     | recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analyses and evaluations made by ourselves and others.                                                                                                                                                                                                                        | <ol style="list-style-type: none"> <li>1. analyze experimental information and support conclusions based on an evidence-supported interpretation of the information.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                |
| <u>MnTC Goal 3a</u>     | demonstrate understanding of scientific theories.                                                                                                                                                                                                                                                                                                                                  | <ol style="list-style-type: none"> <li>1. complete an analysis of an experiment related to human physiology that will include identifying the independent, dependent, and control variables as well as the steps of the scientific method.</li> <li>2. define and explain the principles of experimentally- verifiable biological theories, including cell theory, the theory of evolution, and other theories relevant to anatomy and physiology.</li> <li>3. define and explain the pertinent vocabulary terms related to outcomes 1 and 2 above.</li> </ol> |
| <u>MnTC Goal 3b</u>     | formulate and test hypotheses by performing laboratory simulations 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"> <li>1. choose and perform an in-depth analysis of the use of the scientific method in a researched study of human physiology including statistical and graphical analysis.</li> <li>2. explain the sources of possible bias, error and uncertainty in the experimental analysis above.</li> </ol>                                                                                                                                                                                                                           |
| <u>MnTC Goal 3c</u>     | communicate their experimental findings, analyses and interpretations both orally and in writing.                                                                                                                                                                                                                                                                                  | <ol style="list-style-type: none"> <li>1. document the use of the experimental method, types and uses of data collection, statistical</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                               |

|           |                                                                      |                                                                                                                          |
|-----------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
|           |                                                                      | and graphical analysis, in the study chosen in MnTC Goal 3b.<br>2. communicate the findings in oral and written formats. |
| <u>CS</u> | apply anatomical and physiological vocabulary appropriately.         | 1. define and explain the application of vocabulary terms related to anatomy and physiology.                             |
| <u>CS</u> | understand how normal physiological processes relate to homeostasis. | 1. explain how homeostasis is maintained through normal physiological functioning.                                       |

#### 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: 09/28/10; 01/24/18; 09/06/22; 03/05/24; 04/01/25

AASC Approval date: 03/06/18; 09/20/22; 03/19/24; 05/13/25

\*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.

| <b>*Riverland Community College Core Themes</b> | <b>MnTC Goal Number</b> |
|-------------------------------------------------|-------------------------|
| Critical Thinking (CT)                          | <b>2</b>                |
| Human Diversity (HD)                            | <b>7A, 7B, 7A/B</b>     |
| Global Perspective (GP)                         | <b>8</b>                |
| Ethical and Civic Responsibility (EC)           | <b>9</b>                |
| People and the Environment (PE)                 | <b>10</b>               |

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

Riverland