

Inver Hills Community College

BIOL 1154: Principles of Biology I

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 3

OJT Hours/Week: *.*

Prerequisites:

This course requires any of these five prerequisite categories

1. Both of these groups

1. One of these two

EAP 0099 - Academic Writing (Minimum grade: 1.67 GPA Equivalent)

ENG 0099 - Introduction to Academic Writing (Minimum grade: 1.67 GPA Equivalent)

And

2. One of these two

READ 0093 - Reading College Texts (Minimum grade: 1.67 GPA Equivalent)

READ 0094 - Reading Workshop (Minimum grade: 1.67 GPA Equivalent)

Or

2. ENG 1108 - Writing And Research Skills (Minimum grade: 1.67 GPA Equivalent)

Or

3. A score of 250 on test Accuplacer NG Reading

Or

4. A score of 250 on test Accuplacer NG COMP Reading

Or

5. Both of these

A score of 18 on test ACT English

A score of 21 on test ACT Reading

Corequisites: None

MnTC Goals: Goal 02 - Critical Thinking, Goal 03 - Natural Science

Introduces important biological principles and is intended for biology and biology-related majors. This course is the first of a 2-semester course series and, also serves as a prerequisite for other biology courses that are part of the Biology Transfer Pathway. There is an emphasis on molecular and cellular levels of biology surrounding the core theme of evolution. Topics include chemistry of cells, cell structure and function, metabolism, genetics, and evolution. Labs emphasize the process of scientific inquiry where students learn to propose and test hypotheses, as well as analyze, synthesize and communicate results. Students also learn the proper use of microscopes and the safe handling of chemicals, tools and other lab equipment while conducting hands-on experiments. Prereq: Requires one year HS chemistry or a college chemistry course.

B. COURSE EFFECTIVE DATES: 08/01/2007 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Introduction to scientific methods: 15%
2. Chemistry of cells: 10%
3. Cell structure and function: 15%
4. Metabolism: 15%
5. Cell division: 10%
6. Genetics: 10%
7. Molecular biology: 10%
8. Evolution theory and evidence

D. LEARNING OUTCOMES (General)

1. 1.) Understand and apply knowledge of biochemistry, general cell structure and physiology, metabolism, genetics, and evolution.

2.) Recall, explain, and apply concepts, knowledge, and vocabulary of biology at the level necessary for success in a second semester general biology course for science majors.

3.) Demonstrate understanding of scientific theories in biology.

4.) Demonstrate quantitative reasoning skills at a level appropriate for second semester science majors.
2. 5.) Formulate and test hypotheses by performing laboratory experiments in biology that include the collection of data, statistical analysis, graphical presentation of results, and interpretation of sources of error and uncertainty.

6.) Communicate experimental findings both orally and in writing.

7.) Understand and apply knowledge of use of the microscope and other biological laboratory equipment, and apply that knowledge in the proper conduct and interpretation of laboratory investigations.

8.) Demonstrate current standard lab /field safety practices and procedures.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 02 - Critical Thinking

1. 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.
2. Imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.
3. 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.
4. Recognize and articulate the value assumptions which underlie and affect decisions, interpretations, analyses, and evaluations made by ourselves and others.

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. 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.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted