

# Minnesota State College Southeast

## **BIOL 1201: Introduction to Biology**

### **A. COURSE DESCRIPTION**

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science, Goal 10 - People/Environment

Introduction to Biology will serve as an overview of the principles and theories that drive the study of biology. Students will be exposed to several different disciplines within biology, including but not limited to, molecular and cell biology, genetics, evolutionary biology, and ecology. An emphasis will be placed on relationships between biology and current issues of particular interest to students. (Meets MnTC Goals 3 & 10) (Prerequisite: none) (4 Credits: 3 lecture/1 lab)

**B. COURSE EFFECTIVE DATES:** 07/20/2016 - Present

### **C. OUTLINE OF MAJOR CONTENT AREAS**

1. Cell Structure and Function
2. Genetics and Principles of Inheritance
3. Evolution
4. Ecology

## **D. LEARNING OUTCOMES (General)**

1. Describe the organic and inorganic chemical constituents of life and how they are organized in biological systems.
2. Recognize the structures of the cell, describe their individual functions, and relate these functions to intra-and intercellular processes.
3. Describe how and why substances are moved in and out of cells.
4. Describe how cells acquire energy from macromolecules.
5. Understand the mechanisms and regulation of mitosis and the cell division cycle.
6. Describe how genes are passed from parent to daughter generations using both Mendelian and molecular genetics.
7. Describe the basic molecular structure of DNA and relate this structure to genetics and biotechnology.
8. Differentiate between the biological definition of adaptation and the theory of evolution.
9. Understand evolution in a genetic context.
10. Describe the predominate theories that describe the origins of life.
11. Understand the relationship between evolution and classification of organisms
12. Describe the criteria for classification and levels of taxonomical classification.
13. Relate adaptation, population changes, and chromosomal inheritance to genetic changes in populations.
14. Define the concept of an organism and its relation to a community.
15. Describe how energy flows through ecosystems.
16. Describe how different populations interact in an ecosystem, how their actions impact that ecosystem and how the environment affects individual organisms.
17. Relate current human practices to the impact they have on the habitat of organisms and what effects this may have on human populations.

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

### 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. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

### Goal 10 - People/Environment

1. Explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems.
2. Discern patterns and interrelationships of bio-physical and socio-cultural systems.
3. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
4. Articulate and defend the actions they would take on various environmental issues.

## **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

## **G. SPECIAL INFORMATION**

This course was previously BIOL 2501.