

# North Hennepin Community College

## BIOL 1102: Principles of Biology II

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 0

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

This course requires either of these prerequisites

BIOL 1001 - Biology I (Minimum grade: 1.67 GPA Equivalent)

BIOL 1101 - Principles of Biology I (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

Principles of Biology II is a continuation of Principles of Biology I, and covers fundamental concepts of biology at the organismal level and above. Evolution, principles of ecology, and a survey of biodiversity are the major foci of this course. Students apply these concepts in rigorous laboratory exercises. This course, coupled with Biology I, prepares students for further, advanced studies in the biological sciences. Completion of both courses is a prerequisite for many upper-division biology courses. Audience: Biological and physical science majors or those planning to enter a professional program.

**B. COURSE EFFECTIVE DATES:** 05/31/2012 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. This course begins with a comprehensive study of population genetics and evolutionary processes, which serves as a foundation for the remainder of the course. A survey of current taxonomy and the major kingdoms and phyla is followed by an introduction to ecology. This includes the study of population and community ecology, energetics and ecosystems, and geochemical cycles. Students apply the major concepts and theories in weekly laboratories. The course includes field trips when weather permits.

### D. LEARNING OUTCOMES (General)

1. Demonstrate, understand, or articulate the following concepts (MnTC Goal 3 a, b, c; ELOs 1, 2, 4)
  - \*Microevolutionary processes, speciation theory, and population genetics;
  - \*The use of phylogenetics, including cladistics, in taxonomy and the study of genetic relationships;
  - \*The relationship between evolution and biodiversity;
  - \*Current taxonomic systems
  - \*The major phyla of animals, plants, fungi, protists, and prokaryotes
  - \*Ecosystem energetics and the trophic pyramid
  - \*Population ecology
  - \*Community ecology and interspecific relationships
2. Demonstrate the following laboratory skills (MnTC Goal 2 a, b, c, d; Goal 3 a, b, c; ELOs 2, 3, 4):
  - \*Use the scientific method to attack testable questions;
  - \*Accurately measure laboratory and field results using a variety of techniques;
  - \*Relate biological principles to techniques and results acquired in the laboratory;
  - \*Be able to use and understand all laboratory equipment employed during the semester.
3. Think critically about scientific problems encountered in their society (MnTC Goal 2 a, b, c, d; ELOs 3)

## **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. 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**

1. Knowledge of Human Cultures and the Physical and Natural World --Through study in the sciences, mathematics, social sciences, humanities, histories, languages, the arts, technology and professions.
2. Intellectual and Practical Skills - Including: Inquiry and analysis; Critical and creative thinking; Written and oral communication; Quantitative literacy; Information literacy; Teamwork and problem solving.
3. Personal and Social Responsibility and Engagement - Including: Civic knowledge and involvement - campus, local and global; Intercultural knowledge and competence; Ethical reasoning and action; Foundations and skills for lifelong learning.
4. Integrative and Applied Learning - Including: Synthesis and advanced accomplishment across general education, liberal studies, specialized studies and activities in the broader campus community