

# North Hennepin Community College

## BIOL 1001: Biology I

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 3

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

This course focuses on the concepts of biological chemistry, cell structure and function, cellular metabolism, molecular genetics and heredity reproduction and development. The course is intended for allied health majors and others not requiring a majors-level introductory biology. High school algebra and chemistry are recommended. (3 hours lecture, 3 hours lab).

**B. COURSE EFFECTIVE DATES:** 08/25/1997 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. This course provides an overview of cell and membrane structure and function, cellular metabolism, genetics (cell division, heredity, DNA replication, protein synthesis, control of gene function) and reproduction. The course also introduces students to laboratory techniques and experimental design. Students apply the major concepts and theories in weekly laboratories.

### D. LEARNING OUTCOMES (General)

1. Know the following concepts (MnTC Goal 3 a, b, c, d; ELOs 1, 2, 4 ):
  - a. The various cell architectures and the major cell structures and their functions;
  - b. Relationships between energy-releasing and energy-capturing processes of cellular metabolism;
  - c. The nature and function of enzymes;
  - d. Cellular division processes of mitosis and meiosis
  - e. Patterns of genetic inheritance;
  - f. Molecular characteristics of DNA, RNA, and proteins and the interrelating process of these materials in the cell;
  - g. Prokaryotic and Eukaryotic gene expression control mechanisms;
2. Demonstrate the following laboratory skills (MnTC Goal 2 a, b, c, d; Goal 3 a, b, c; ELOs 2, 3)::
  - a. Use the scientific method to think critically about scientific problems encountered in their society;
  - b. Accurately measure laboratory results using a variety of techniques;
  - c. Relate biological principles to techniques and results acquired in the laboratory;
  - d. Be able to use and understand all laboratory equipment employed during the semester.
  - e. DNA Technology, including recombinant DNA technology

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

### Goal 03 - Natural Science

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

## **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