

# Bemidji State University

## BIOL 3590: Cell Biology

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

Microscopic anatomy and physiological mechanisms of plant and animal cells. Gene control of cellular metabolism, mechanism of energy utilization in cells and pathways of synthesis of molecules. Lecture and laboratory. Prerequisites: BIOL 2360 or BIOL 3380; and CHEM 2211, CHEM 2212.

**B. COURSE EFFECTIVE DATES:** 09/01/2002 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Chemistry basics
2. Cellular energetics
3. Proteins
4. Protein regulation
5. DNA concepts
6. Central dogma
7. Gene Regulation Ch8
8. Membranes
9. Membrane transport
10. Metabolism
11. Mitochondria/chloroplasts
12. Cell transport
13. Cell communication
14. The cytoskeleton
15. Cell division cycle
16. Cell communities

### D. LEARNING OUTCOMES (General)

1. identify the structures and functions of important categories of biomolecules
2. analyze energy flow within a biological system, and relate energy production and utilization processes.
3. connect cellular signaling pathways with cellular outcomes and functional changes.
4. categorize sub-cellular structures, organelles, and compartments and compare their functions.
5. describe extracellular and intracellular relationships in a multicellular organism and transport processes
6. differentiate features of several specific cell types.

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

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted