

# Bemidji State University

## BIOL 2360: Genetics

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

Fundamental principles of heredity in plants, animals, and microorganisms. Includes both classical and molecular genetic approaches to studying organisms. Prerequisites: BIOL 1211 and BIOL 1212.

**B. COURSE EFFECTIVE DATES:** 11/17/1997 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Mitosis and meiosis
2. Mendelism
3. Mendelism extensions
4. Mendel and chromosomes
5. Chromosomal variation
6. Linkage, crossing over, and chrom. mapping
7. Microorganism genetics
8. DNA and mol. structure of chromosomes
9. Replication
10. Transcription
11. Translation
12. Mutation and repair
13. Gene definition
14. Techniques of molecular genetics
15. Genomics
16. Molecular genetics applications
17. Transposable elements
18. Mitochondria and chloroplasts
19. Gene expression in prokaryotes
20. Gene expression in eukaryotes
21. Cancer
22. Population genetics
23. Evolutionary genetics

**D. LEARNING OUTCOMES (General)**

1. predict patterns of inheritance and identify deviations and their causes in those patterns
2. understand the chromosomal theory of inheritance
3. break down the flow genetic material in a cell
4. compare and contrast genetic processes in prokaryotic and eukaryotic cells
5. analyze how mutation at the molecular level drives evolutionary change

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

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted