

# Bemidji State University

## **BIOL 2610: General Ecology**

### **A. COURSE DESCRIPTION**

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

Introduction to the interrelationships of organisms and their environments, emphasizing the historic development of fundamental principles at the levels of individual, population, community, and ecosystem through examination of theoretical and empirical findings. Prerequisites: BIOL 1110, 1120 or BIOL 1211, 1212 or consent of instructor.

### **B. COURSE EFFECTIVE DATES: 05/18/2001 - Present**

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

1. Intro to ecology - subdisciplines of ecology
2. Evolution and adaptation, tradeoffs
3. Terrestrial plants: H<sub>2</sub>O loss vs. carbon gain
4. Animals: surviving winter - ectotherms
5. Animals: surviving winter - endotherms
6. Global climate patterns
7. Biomes
8. Ecosystem ecology - primary production on the land
9. Primary production in the water
10. Trophic levels - tradeoffs in eating and growing
11. Trophic levels - food chains and food webs
12. Trophic cascades
13. N cycling on land
14. Eutrophication
15. Mercury: the heavy metal that flies
16. Mid ocean fertilization with iron
17. Population ecology
18. Population growth
19. Population regulation
20. Population fluctuations and stability
21. Extinction and populations
22. Life history tradeoffs
23. Species interactions
24. Consumer/resource interactions
25. Competition
26. Mutualisms
27. Species diversity
28. Measurements of biodiversity, island biogeography
29. Succession and community development
30. Secondary succession and competition
31. Extinction and biodiversity
32. The prairie-forest boundary in Minnesota
33. Wolves, moose, and forests on Isle Royale

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

1. understand unifying concepts of ecology including: tradeoffs, evolution and adaptation, feedback & stability, scale.
2. be able to carry out some fundamental ecological calculations, including: population growth, diversity indices, and ecological efficiencies. Students will also learn the use of graphical models.
3. demonstrate knowledge of fundamental ecological patterns, such as: global distribution of biomes, population dynamics, the relation of trophic levels to productivity, ecological succession.
4. acquire familiarity with representations of some common forms of ecological data, and how these data illustrate basic ecological concepts.

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

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted