

# Bemidji State University

## BIOL 3723: Ecosystem Ecology

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

Fundamentals of the study of ecosystems, with emphasis on the integration of abiotic and biotic components in the development of ecosystem processes. Comparisons and interactions between terrestrial, wetland, aquatic, and atmospheric systems across the major biomes. Prerequisite: BIOL 2610.

**B. COURSE EFFECTIVE DATES:** 11/30/2003 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Aquatic Vegetation
2. Biogeochemical Cycling in Aquatic Ecosystems
3. Biogeochemical Cycling in Terrestrial Ecosystems
4. Carbon Fixation, Production & Energy Flow
5. Community Level Process & Invader Success
6. Disturbance: Ecosystem resistance & Resilience
7. Earth's Climate System
8. Ecosystem Management & Sustainability
9. Ecosystem Stability & Foodweb Structures
10. Geology & Soils
11. Global Biogeochemical Cycles
12. Historical Considerations
13. Hydrology
14. LTER Programs for Ecosystems studies
15. Landscape Heterogeneity
16. Linking Terrestrial & Aquatic Ecosystems
17. Nitrogen Cycle
18. Nitrogen in Aquatic/Wetland Systems
19. Role of Vegetation in Biogeochemical Cycles
20. Temporal Dynamics
21. Terrestrial Decomposition/ Aquatic Decomposition
22. The Ecosystem Concept
23. Trophic Dynamics

**D. LEARNING OUTCOMES (General)**

1. compare biomes in terms of ecosystem functions.
2. understand the interconnectivity between individual components of an ecosystem and between different ecosystems on a global-scale.
3. identify ecological functions at the ecosystem level.
4. assess the scale of interaction and integration between abiotic and biotic components.
5. learn a fundamental understanding ecosystem processes and the historical development of the ecosystem concept.

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

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted