

# Minnesota State University Moorhead

## BIOL 372: Aquatic Biology

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 3

OJT Hours/Week: \*.\*

Prerequisites:

CHEM 110 - Fundamentals of Chemistry AND CHEM 110L - Fundamentals of Chemistry Lab AND CHEM 210 - General Chemistry II AND CHEM 210L - General Chemistry II Lab; OR BIOL 111 - Cell Biology AND BIOL 115 - Organismal Biology

Corequisites: None

MnTC Goals: None

A general overview of aquatic ecosystems. This course includes basic physical and chemical properties of water (limnology), evolution and ecology of fishes (ichthyology), and resource conservation and management. With lab.

**B. COURSE EFFECTIVE DATES:** 02/21/2003 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Natural and restored wetlands, aquatic vegetation, wetland plant zonation
2. Lentic and lotic macroinvertebrates
3. Lotic macroinvertebrate colonization, diversity, richness, habitat use, trophic groups
4. Allochthonous and autochthonous inputs, nutrient cycles
5. Nutrient limitation, primary productivity, light intensity and BOD
6. Phytoplankton and zooplankton identification, zonation, movements
7. Limnology, including lake zonation patterns
8. Basic fisheries management techniques; trapping, marking, population and age estimates
9. Fish identification, ecomorphology, fish ecology in lentic and lotic systems
10. History of water ways in the USA and issues related to water quality, privatization and cultural impacts

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

1. Students will build upon previous knowledge of biology, botany, chemistry, physics, and ecology as they become familiar with a variety of aquatic systems, understand the importance of these systems and learn methods of assessment and management specific to aquatic systems.
2. Students will be able to implement and complete a hypothesis-driven aquatic biology field research project.
3. Students will be exposed to classic and current literature in aquatic biology.
4. At the end of the course, students will have a broad conceptual and applied knowledge of local aquatic habitats.
5. Student will have learned to write all of the components of a formal scientific paper through a series of informal and formal writing assignments.
6. Students will have learned to write scientific papers in the style of a peer-reviewed journal and become familiar with the scientific publishing process.
7. Students will have produced correctly formatted tables and figures that will be used in writing assignments.
8. Students will have effectively used library resources and incorporated citations into their writing projects.
9. Students will have used peer review, comments from the professor and other reviewers to learn the importance of peer review in scientific writing.
10. Student will have written over 20 formal pages and approximately 13 informal pages of scientific writing.

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

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted