ESCI 315 : Limnology

A. Course Description

Credits: 5

Prerequisites:

BIOL 111 General Biology I AND
BIOL 112 General Biology II AND
CHEM 111 General Chemistry I AND
CHEM 112 General Chemistry II AND
MATH 115 College Algebra AND
STAT 201 Statistics I

OR

BIOL 111 General Biology I AND
BIOL 112 General Biology II AND
CHEM 111 General Chemistry I AND
CHEM 112 General Chemistry II AND
MATH 208 Applied Calculus

OR

BIOL 111 General Biology I AND
BIOL 112 General Biology II AND
CHEM 111 General Chemistry I AND
CHEM 112 General Chemistry II AND
MATH 210 Calculus I

Lab Hours/ Weeks: Corequisites: None

Lecture Hours/ Week :

MnTC Goals: Goal LS - Upper Division Liberal Studies, Goal 10 - People/Environment

This course covers the biology, chemistry and physics of aquatic habitats with an emphasis on the ecology of lakes in Minnesota. The content and methods of modern limnological research are emphasized. Labs focus on field and lab investigation of water bodies in the metropolitan area. Most of the weekly labs take place outdoors. Intended for biology, environmental science and life sciences teaching majors and other qualified students.

B. Course Effective Dates: 05/06/2014 - 12/16/2018 12/17/2018 - Present

C. Outline of Major Content Areas:

See Course Description for major content areas.

D. Learning Outcomes (General)

1. Apply this experience with research methods in this field at the level necessary for success in senior undergraduate research.
2. Articulate and defend the actions they would take on various environmental issues.
3. Demonstrate quantitative reasoning skills and competency with algebra and statistics at a level appropriate for graduates of a bachelor’s degree program in biology.
4. Describe the basic institutional arrangements (social, legal, political, economic, religious) that are evolving to deal with environmental and natural resource challenges.
5. Design, propose, conduct, interpret, and present the results of an independent laboratory or field experiment in this subject area.
6. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
7. Explain and apply scientific knowledge in limnology, both theoretical and experimental, at the upper division level.
8. Propose and assess alternative solutions to environmental problems.
9. Read and interpret primary scientific literature in limnology.
10. Recall, explain and apply the concepts, knowledge and vocabulary of limnology at the level necessary for success in graduate study in this field.

E. Learning Outcomes (MN Transfer Curriculum)

Goal LS - Upper Division Liberal Studies
   None

Goal 10 - People/Environment
1. Propose and assess alternative solutions to environmental problems.
2. Explain the basic structure and function of various natural ecosystems and of human adaptive strategies within those systems.
3. Discern patterns and interrelationships of bio-physical and socio-cultural systems.
4. Describe the basic institutional arrangements (social, legal, political, economic, religious) that are evolving to deal with environmental and natural resource challenges.
5. Evaluate critically environmental and natural resource issues in light of understandings about interrelationships, ecosystems, and institutions.
6. Articulate and defend the actions they would take on various environmental issues.

G. Special Information

Note: Enrollment limited to Biology, Environmental Science and Life Science Teaching majors only, except by instructor permission. First day attendance required except by instructor permission. Overlap: BIOL 315 Limnology.