Aquatic Ecology
IALL:3103:0EX1 (UI), IA LL 508I (ISU), IA LL 3103 (UNI)
Syllabus: Summer 2016

About the Instructor
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Academic Course Home
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Course Description: In this course, students will study the ecological principles of aquatic ecosystems at the population, community, and ecosystem levels. The course is divided into two 2-week sections which can also be taken independently as stand-alone sections. The first half focuses on the ecology of wetlands and streams with an emphasis on faunal and floral diversity. The second half will focus on limnology, the study of lakes. Students will investigate how physical and chemical environments of aquatic ecosystems affect the distribution and composition of aquatic biota, and vice versa. Lectures will cover such topics as the origins of lakes and their global distribution, biogeochemical nutrient cycling, phytoplankton and zooplankton ecology, and management of aquatic ecosystems, including wetland delineation and regulation. This course will have a strong field and laboratory component, in which students will learn field techniques and laboratory analyses commonly used by aquatic ecologists. For example, students will learn to sample and identify common plants and animals of streams and wetlands including use as indicators of environmental conditions, the relationship of hydrologic and soil conditions to flora & fauna, methods to measure underwater light climate and mixing regimes of lakes; nitrogen and phosphorus analytical techniques; phytoplankton, zooplankton, and macroinvertebrate identification and enumeration techniques; and measures of community metabolism in aquatic ecosystems. Students will also learn statistical analyses, interpretation of ecological data, and writing of scientific manuscripts through independent group research projects.

Pre-requisites: Introductory course in biology, chemistry, and/or physics or consent of the instructors.

Assignments:

Course Objectives:

Students will learn:

- field techniques and laboratory analyses commonly used by aquatic ecologists
- to sample and identify common plants and animals of streams and wetlands
- about the use of plants and animals as indicators of environmental conditions
- the relationship of hydrologic and soil conditions to flora & fauna
- nitrogen and phosphorus analytical techniques
- phytoplankton, zooplankton, and macroinvertebrate identification and enumeration techniques
- measures of community metabolism in aquatic ecosystems
- Statistical analyses, interpretation of ecological data, and writing of scientific manuscripts through laboratory reports.

Required Course Materials:

Textbook to Purchase: No textbook is required for this course.
Equipment: A sturdy, bound notebook for recording observations in the field. Statistical software is freely available from the internet (www.cran.rproject.org).

Course Requirements:
Courses at Iowa Lakeside Laboratory are inquiry-based in structure, typically consisting of a mix of lectures, exercises, field trips, and projects designed to teach students essential aspects of a particular topic and the process of forming and answering scientific questions about that topic. Teaching is often by the Socratic Method with an emphasis on interaction between student and teacher.

Course Grade:
Examinations are both formal and informal. Formal written examinations typically consist of a mix of essay questions and/or multiple choice questions. Laboratory and field examinations occur in most courses. Students enrolled in the two-week Wetlands & Stream Ecology will be receive a course grade based on the following scoring distribution:

- Group Research 25%
- Lab assignments, readings 50%
- Final Exam 25% (open-book)

Students enrolled in the two-week Limnology course will receive a course grade based on the following scoring distribution:

- Course participation 10%
- Quizzes 10%
- Class project 15%
- Lab assignments 40%
- Final Exam 25%

Students enrolled for the four-week Aquatic Ecology class will receive a grade based equally on the point distributions for each two-week course, with both halves of the class weighted equally.

All course letter grades will be based on the usual percentage breakdown: 93-100% = A, 90-92% = A-, 87-89% = B+, 83-86% = B, etc.

Course Schedule:
All Lakeside courses are immersion-based; students take one course at a time and meet or have assignments from 8 am to 5 pm, five days per week. Activities each day for all courses are determined by a combination of weather, topic, general understanding of the subject matter, and other considerations, but are ultimately designed to most effective meet course goals.

Policies and Instructions:
As a registered student in a Distance Education course through The University of Iowa, you are responsible for the policies and instructions posted below.

Special Modifications: If you are a person with a disability who requires an accommodation in order to participate in University of Iowa Continuing Education courses or programs, please contact Student Disability Services: 3015 Burge Hall, (319) 335.1462, or sds-information@uiowa.edu, or fax: (319) 335.3973. Reasonable
accommodations for students with physical, mental, or learning disabilities will be made. The Division of Continuing Education is committed to both Section 504 of the Rehabilitation Act of 1973 and Section 508 of the Workforce Investment Act of 1998.

**Academic Misconduct:** All forms of plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. All academic fraud is reported to the departmental DEO and the Associate Dean of Continuing Education. All incidents of academic misconduct (plagiarism and cheating) will be subject to the rules and regulations of the College of Liberal Arts and Sciences as defined and stated in the Academic Policies Handbook (http://clas.uiowa.edu/students/handbook).

In this class, students are not allowed to collaborate with others on assignments. Do not share your work with others or ask others to see their completed assignments since both are considered academic misconduct. If you need help, please contact the instructor by email. Students are responsible for understanding this policy; if you have questions, ask for clarification.

**Understanding Sexual Harassment:** Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit this site (http://www.sexualharassment.uiowa.edu/) for definitions, assistance, and the full University policy.

**Complaint Procedures:** If at any time you have concerns about this class or your performance in it, please do not hesitate to contact me. If you do not feel that your concern has been resolved satisfactorily, you may contact the Department Chair (contact information provided at the top of page one of this syllabus). If you still do not feel that your concern has been resolved satisfactorily, you may contact University College, 310 Calvin Hall, (319) 335-1497, uc-academics@uiowa.edu. All complaints must be made within six months of the incident.

**Administrative Home of the Course:** The administrative home of this course is the University College (UC), which governs academic matters relating to the course such as the add/drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various graduation requirements. Different colleges might have different policies. If you have questions about these or other UC policies, contact your academic advisor or the Division of Continuing Education, 250 Continuing Education Facility, (319) 335-2575, dce-registration@uiowa.edu. As a registered student in a Distance Education course through The University of Iowa, you are responsible for the policies and instructions as posted online: http://uc.uiowa.edu/students/admitted-university-college-programs/academic-standards.