

EEOB 1930: Introduction to Biological Studies - Aquatic Biology

Instructor

TBD

Email:

Phone:

Course Logistics

One-week course held at Stone Laboratory, Put-in-Bay, Ohio.

Sunday check-in and orientation. Class meets Sunday evening; Monday-Friday, 8 am - 5 pm with breaks for lunch and dinner (further evening class activities may also be scheduled); and Saturday, 8 am – 12 pm.

Course Format

2 semester credit hours consisting of lecture, field work and laboratory time

This one-week, residential course immerses students in place-based learning from morning to night. Lectures and most lab work take place in classrooms at The Ohio State University's Stone Laboratory. Field work takes students to into creeks, streams, ponds, estuaries, and the open lake.

Course Description

EEOB 1930 introduces students to the components of freshwater ecosystems through experiential learning at The Ohio State University's Stone Laboratory. The course provides students with experiences in field and laboratory procedures while providing basic knowledge of biological and ecological principles in freshwater ecosystems. Overarching goals of the course include (1) classifying inland waters, (2) identifying the main structural components of aquatic ecosystems, (3) describing the general functioning of aquatic ecosystems, (4) identifying invertebrates, plants, and fish associated with different aquatic communities, and (5) discussing human impacts on aquatic communities.

Students learn common organisms associated with various aquatic ecosystems (e.g., large lakes, cold water streams, warm water streams, and warm water pond ecosystems) along with a description of each ecosystem's key features. They also gain a basic understanding of the properties of water, the physiochemical characteristics of lakes (i.e., relationship between physical, chemical, and biological aspects of aquatic habitats), lake seasonal dynamics, stream classification, and nutrient dynamics. Field and laboratory work are designed to enhance and reinforce major concepts discussed in lectures. Field trips will involve gathering physical and biological data from open lake research vessels; using a variety of methods to sample and identify plankton, macroinvertebrates, plants and fish from streams, estuaries and shallow bays; and experience with multiple types of lab equipment to analyze and draw conclusions related to water quality.

Course Materials

The Biology of Lakes and Ponds. 2005. Christer bronmark and Lars-Anders Hansson. ISBN: 0-19-851613-4. Oxford University Press

Specimen collection containers and/or other required supplies can be purchased through the Marion bookstore prior to arriving for the course.

Course Outline (Subject to Change)

Day	Time	Description	Readings
Sunday	4:00p - 5:00p 5:00p - 6:00p 6:30p - 7:30p	Orientation: Introduction to Stone Laboratory Dinner Course introduction and Lecture I : Properties of water, lake formation, and lake classification	Pgs. 1-6, 11-15, 24-31
Monday	7:00 - 7:45a 8:00 - 9:00a 9:00 - 12:00p 12:00 - 12:45p 1:00 - 2:00p 2:00 - 5:00p 5:00 - 6:00p 6:15 - 8:00p 8:00 - 9:00p	Breakfast Finish Lecture I : Properties of water, lake formation, and lake classification Field Trip : Lake sampling aboard the <i>R/V Gibraltar III</i> (Record physical attributes of the lake and collect phytoplankton, zooplankton, benthic macroinvertebrates, and fish for later identification) Lunch Lecture II : Prokaryotes, phytoplankton and zooplankton Lab : How to use a microscope and examination of organisms collected from <i>R/V Gibraltar III</i> Dinner Microscope work continued and Field Trip : Macroinvertebrate sampling and seining around Gibraltar Island and Terwilliger's pond on South Bass Island Lecture III : QHEI and Sampling Techniques	Pgs. 66-92; stop at mysids
Tuesday	7:00 - 7:30a 7:30 - 4:30p 5:00 - 6:00p 6:00 - 7:00p 7:00 - 7:30p 7:30 - 9:00p	Breakfast Field Trip: Mainland rivers (sack lunches) Dinner Lecture IV : Macroinvertebrate ecology and identification and how to use a dichotomous key Quiz I Lab : Macroinvertebrate and Fish ID	Pgs. 92 - 102; up to fish
Wednesday	7:00 - 7:45a 8:00 - 8:30a 8:30 - 9:30a 9:30 - 11:00a 11:00 - 12:00p 12:00 - 12:45p 1:00 - 5:00p 5:00 - 6:00p 6:00 - 7:30p 7:30 - 8:30p 8:30 - done	Breakfast Quiz II Lecture V : Physiochemical characteristics of lakes Lab : Open lab; continue to examine plankton, invertebrates and fish Lecture VI : Fish identification Lunch Field Trip : Shock boat near Gibraltar Island and South Bass Dinner Field Trip : Snorkel and Seine around Gibraltar Island Lecture VII : Seasonal lake dynamics Work on assignments	Pgs. 32-65 Pgs. 101-102 Pgs. 16-18

Thursday	7:00 - 7:30a 7:30 - 4:30p 5:00 - 6:00p 6:00 - 7:00p 7:00 - 7:45p 8:00 - 9:00p	Breakfast Field Trip: Mainland Rivers (sack lunch) Dinner Lecture VIII: Lotic systems and the stream continuum concept Research Lecture Guest Lecture	
Friday	7:00 - 7:45a 8:00 - 8:30a 8:30 - 11:45p 12:00 - 12:45p 1:00 - 5:00p 5:00 - 6:00p 6:00 - 6:30p 6:30 - done	Breakfast Quiz III Field Trip: Lake sampling aboard the <i>R/V Gibraltar III</i> to collect additional plankton, macroinvertebrate, and fish samples Lunch Lab: Open Lab Dinner Quiz VI Open Review	
Saturday	7:00 - 7:45a 8:00 - 9:00a 9:00 - 10:00a 10:00 - 12:00p	Breakfast Open Review Laboratory Practical Final Exam	

Major Assignments

Daily Assignments: You will receive written assignment based on laboratory activities for this course.

Assignments may include, but are not limited to, graphing data or theoretical relationships, data analysis, and critical thinking questions based on information gained during lecture, lab, or fieldwork during this course.

Quizzes: A written quiz consisting of 10-15 short answer, multiple choice, true and false, and/or fill-in-the-blank style questions. You will be tested on material covered in lectures and the textbook readings.

Group Project: You will be required to complete **one** of the following as outlined by your instructor: a) Group Presentation - Students will work with a partner to give a presentation about a Great Lake species of their choice or an issue that negatively affects Great Lakes water quality or b) Group Specimen Collection - At least seven phyla need to be present in your group collection consisting of at least 60 different species; i.e., 60 organisms. Detailed instructions on both projects will be handed out at the beginning of the course.

Laboratory Practical: An hour-long examination with questions pertaining to organism identification, structure, and function, performance-based assessments on microscope usage and sampling techniques, and other questions as decided by your instructor on material covered during the lab and field components of this course.

Final Exam: A two-hour long written exam consisting of essay, short answer, multiple choice, true and false, and/or fill-in-the-blank style questions. You will be tested on material covered in lectures and the textbook readings. The final exam will have some questions similar to your quizzes, but will also include more in-depth critical thinking questions.

Grading Information

Daily assignments based on class activities	10%
Quizzes (four, announced)	20%
Group Project	30%
Written Lab Practical	20%
Written Final Exam	20%

Grading Scale

93-100%	A
90-92.9%	A-
87-89.9%	B+
83-86.9%	B
80-82.9%	B-
77-79.9%	C+
73-76.9%	C
70-72.9%	C-
67-69.9%	D+
60-66.9%	D
<60%	E

Attendance Policy

Students are expected to actively participate in all class sessions, including lectures, fieldwork and laboratory time.

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed: illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Disability Services

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 614-292-3307, TDD 614-292-0901; <http://www.wds.ohio-state.edu/>.