

Wetland Ecology and Management

Pymatuning Laboratory of Ecology, Session 1, May 2023

“Most of earth is covered by water and is blue. Most of the rest is green. Wetland ecology is the study of where green meets blue.” (modified from Keddy 2010)

Instructor

Robert (Bob) Booth, Lehigh University

Email: rkb205@lehigh.edu

Cell phone: 484-554-0590



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Course Description

This field-intensive course will provide you with a foundational understanding of wetland ecosystems, including their biota, hydrology, and soils. We will examine the ecology of marshes, swamps, and peatlands, investigate the factors controlling wetland structure and function, and learn about responses and feedbacks of wetlands to natural and human-induced environmental variability. Some specific topics include wetland classification and delineation, origin and development of wetlands, biotic adaptations to the wetland environment, wetland ecohydrology, wetland biogeochemistry and microbial communities, wetland vegetation dynamics, and wetland management and restoration. You will also learn common wetland plants and other wetland organisms. ***We will be in the field examining wetlands every day...prepare to get wet!***

Primary Learning Objectives

- (1) (Knowledge and Context) Describe the biophysical structure of wetlands, the major ecological processes that occur in wetlands, and the environmental factors that control the structure and function of wetland ecosystems. Understand the approaches and methods that scientists use to study the ecology of wetlands.
- (2) (Knowledge and Application) Acquire an understanding of the responses and feedbacks of wetlands to environmental variability and change at a range of temporal and spatial scales, and use this understanding as a foundation to discuss potential future changes in these ecosystems.
- (3) (Application) Apply knowledge of wetland ecosystems to address the specific challenges of wetland management and restoration, and directly apply your understanding of soils, vegetation, and hydrology to perform and defend field-based wetland delineation.

Optional Text

- (M&G) Mitsch & Gosselink. 2015. *Wetlands*. 5th Edition John Wiley and Sons.

Assessment

Midterm exam – 20% of course grade
Final exam – 25% of course grade
Participation in discussions/activities/fieldwork – 15% of course grade
Assignments and summaries/reports – 25% of course of grade
Plant collection - 15% of course grade

Field trips

- Almost every day we will be in the field. Appropriate field clothes are required. Raingear, sunblock, water bottle, and bug repellent are all highly recommended.
- Waders will be provided. However, you are also welcome to bring your own. At some sites knee-high rubber boots or an old pair of boots/sneakers will suffice. When we return from fieldtrips, you must wash off your waders/boots with the hose behind the PLE stockroom.
- A field notebook and pencil (not a pen) are required. PLE will provide you with a field notebook.
- Safety in the field is critically important. Be careful loading and unloading from vans, and be aware of poisonous plants (e.g., poison ivy), harmful insects (e.g., ticks), and other dangers. A field safety manual is posted on the course site – please look over the relevant sections.

Plant collection

You are required to make and turn in a plant collection of no less than 30 wetland species, including at least 5 species *that were not identified by the instructor*. Plants must be identified (typically to the species level), pressed, dried, linked with appropriate site information, and the wetland indicator status of the plant must be provided (for our region). Specimens may be collected during field trips, and I will provide some time for this at some sites. Just make sure that collecting doesn't interfere with field activities. However, collections are not allowed from every wetland we visit - we will let you know where collecting is permitted. If you collect on your own, please be sure you have permission.

Academic Integrity - Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz or exam will be imposed.

Disability Resources - If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346 (Fax), as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course. For more information, visit www.studentaffairs.pitt.edu/drsabout.

A schedule for the course and other materials will be posted on the course management site.