

WETLAND ECOLOGY SYLLABUS

Meeting Times

Lecture: Tuesdays & Fridays 12:35-1:55pm, Hickman Hall, room 112

Lab: Tuesdays 9:15am-12:15pm, meet outside in front of EENR unless otherwise specified in the lab schedule.

Professor: Dr. Myla F.J. Aronson

Email: myla.aronson@rutgers.edu

Office: 105 Blake Hall, Cook Campus

Office hours: Monday 11:00-1:00pm, or by appointment.

Lab Instructor: Tracy Youngster

Email: tracy.youngster@rutgers.edu

COURSE DESCRIPTION

An overview of the ecology, management, restoration, and function of wetlands. Students will learn the hydrology, biogeochemistry, and soils of wetlands; covered through classroom exercises, case studies, and field trips. Students will learn the techniques for identifying and delineating wetlands through hydrological and soil features, as well as wetland plant identification. Labs and field trips will study hydrology, soils, and vegetation of common wetland types in New Jersey as well as explore the diversity of wetland ecosystems in New Jersey, including natural, restored, and mitigation wetlands.

Required Textbooks:

- Tiner, R.W. 2016. *Wetland Indicators: A Guide to Wetland Formation, Identification, Delineation, Classification, and Mapping*, 2nd Edition. Taylor & Francis.
- Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS. (on Sakai).
- Various readings throughout the semester (on Sakai).

Required supplies:

- Waterproof knee boots (rain boots)
- Field notebook (hard cover small notebook, i.e., composition book or mole skin)

Recommended Texts:

- Collins, BR and KH Anderson. 1994. *Plant Communities of New Jersey*. Rutgers University Press, New Brunswick, NJ.
- NRCS Wetland Flora Field Office Guides (on Sakai)
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/plantmaterials/technical/publications/?c_id=nrcs143_026853
- Other readings and materials will be posted on Sakai.

This syllabus and schedule is a guide for the course and is subject to change. I will email you by Sakai if any changes occur.

Course Objectives and Learning Goals:

By the end of the course the successful student will be able to:

1. Develop an understanding of wetland ecology and ecosystem processes, including hydrology, biogeochemistry, and species interactions.
2. Develop a comprehensive understanding of the methods used to delineate wetlands including plant identification, vegetation classification, hydrology, and hydric soil classification.
3. Successfully perform wetland determination and delineation based on the Federal Interagency Wetland Delineation Manual.
4. Identify the key wetland plants found in both southern and northern New Jersey.
5. Have a working knowledge of the management techniques, restoration, mitigation, and regulation of wetlands in New Jersey as well at the regional and national levels.
6. Utilize multiple sources, including web, scientific journals, and government reports and guides for understanding and communicating wetland ecology, determination, and management.

Assignments/Responsibilities and Assessment

You will be evaluated on your ability to successfully achieve these learning goals based on the following assessments:

- Lecture (45% of final grade)
 - Three exams will cover material from lecture, lab, and readings (10% first and second exams each, 15% final exam, total of 35% of final grade). The final exam will be cumulative. These exams will assess students' achievement of learning goals 1, 2, 5, and 6.
 - Attendance (10% of final grade)
- Lab (55% of final grade)
 - Lab Notebooks (20% of final grade). Lab notebooks will assess students' achievement of learning goals 1, 2, 5, 6.
 - Plant ID Quizzes (10% of final grade). Quizzes will assess the students' achievement of learning goal 4.
 - Assignments (15% of final grade). Assignments will assess the students' achievement of learning goals 2, 3.
 - Wetland Profile Presentations (10% of final grade). These assignments will assess the students' achievement of learning goal 6.

Assessment Scale

All assignments are due at the beginning of class. 10% will be deducted for each day that the assignment is late, up to three days, after which no assignments will be accepted. ***No extra credit will be awarded, but students are encouraged to submit work early for initial comments.*** To be fair, we ask that any requests for a grade change on any assignments must be in writing (email). Grade scale: 100-90%= A, 87-89%= B+, 80-87%= B, 77-79%= C+, 70-75%= C, 66-69%= D+, 60-65%= D, <60%= F.

Attendance and Participation

You are required to attend all course meetings and be prepared so that you can effectively participate in each class meeting. Lecture and lab attendance is mandatory. There are **NO**

MAKE-UP LABS! If an emergency arises, contact Dr. Aronson immediately over email and before the class period begins! It is urgent that you are ON-TIME for field trips; vans must leave promptly at the beginning of lab. If you are late, you will miss the van and you will not be given an opportunity to make up the lab.

If you miss a class period (either lecture or lab), you must, in addition to emailing me, report yourself absent on Rutgers' Self-reporting absence system: <https://sims.rutgers.edu/ssra/>.

If you miss more than one lab, no matter the reason, you will automatically lose 10% off your final grade. If you miss more than three lectures, no matter the reason, you will also automatically lose 10% off your final grade.

Academic Conduct and Integrity

All instances of plagiarism or other unacceptable and unethical academic conduct will be reported to the Office of Student Conduct might result in warnings or suspension according to Rutgers official rules.

All students are expected to follow University policies on academic integrity:
<http://academicintegrity.rutgers.edu/>

Write everything by yourself, in your own words, and never copy text from the internet or publications

Plagiarism is the most common form of cheating (intentionally or not). **Plagiarism** is defined as the use of any information, published or unpublished, without acknowledgement of the source. It is extremely important that you distinguish your own ideas from those of others. Your sources must always be acknowledged and provided. Violations are always reported to the Dean's Office, under University rules. **Cheating** is a special form of plagiarism that occurs when you use the work of another student in place of your own. If a student is caught cheating from another student – both students will be penalized. If you have any questions about these policies, please feel free to ask

Notice for Students with Disabilities

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodation. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

How will you succeed in this course?

- Attend all lectures and labs.
- Take notes on paper, not on your computer (studies show that students retain more knowledge when hand-writing their notes)
- Complete and review all readings *before* the lecture or lab for which they are assigned.
- Meet all deadlines.
- Give yourself plenty of time to review the readings and notes before each exam.
- Take advantage of office hours.

LECTURE & LAB SCHEDULE

Lectures are held in Hickman 112. Labs are outdoors and we will meet rain or shine in front of the ENR building. Some weeks, noted below, we will meet in an alternative location for lab. Additionally, some labs will extend into the Tuesday lecture time, so bring your lunch and water.

For field trips, you must be on time or you will be left behind. We will meet in front of the ENR building. Vans will leave at 9:15am, if you are late you will miss the lab. Always bring your lab notebook, and a pen or pencil. Most labs are outdoors: **dress appropriately** for the weather, poison ivy, and ticks. You must wear long pants and close-toed shoes. Bring your knee boots to every lab. You will not be able to attend the lab without appropriate clothing and you will not be given a chance to make-up the lab should you show up inappropriately dressed.

Tiner 2017 = *Wetland Indicators*

C&A 1994 = *Plant Communities of New Jersey*

Additional readings may be assigned and will be posted on Sakai.

Date	Lab Topic	Lab Location	Lecture Topic	Readings
Sept 4	Field Trip → Salt Marshes: Mitigation/ Restoration/Plant ID	NJ Meadowlands	Lab extends into lecture	Bertness & Ellison 1987 (on Sakai); C&A 1994: Ch 12
7	N/A	N/A	Introduction to Wetlands	Tiner 2017: Ch 1
11	Field Trip → Salt Marshes: Plant ID	Cheesequake State Park	Wetland Formation and Types	C&A 1994: Ch 12 (lab) Tiner 2017: Ch 2, 9 (lecture)
14	N/A	N/A	Wetland Classification *Field Notebooks due	Tiner 2017: Ch 8, 9
18	Field Trip → Red maple swamps/Emergent wetlands: Plant ID	Great Swamp National Wildlife Refuge	Lab extends into lecture	C&A 1994: Ch 8 (on Sakai)
21	N/A	N/A	Wetland Hydrology	Tiner 2017: Ch 2
25	Field Trip → Emergent wetlands: Plant ID	Black River Wildlife Management Area	Lab extends into lecture	C&A 1994: Ch 8

28			Vegetation Sampling Methods	Tiner 2017: Ch 4
Oct 2	Vegetation Sampling Methods – Emergent Wetlands	On-Campus Field Trip Meet in Lot 101 – Livingston Campus	Vegetation Analysis	Tiner 2017: Ch 4
5	N/A	N/A	Wetland Plant Ecology *Field Notebooks due	Tiner 2017: Ch 3
9	Field Trip → Cedar Swamps/Bogs/Plant ID	Brendan T. Byrne State Forest	Lab extends into lecture	C&A 1994: Ch 9
12	N/A	N/A	Wetland Invasions	TBA
16	Vegetation Sampling Methods – Forested Wetlands	On-Campus Field Trip – Meet at front entrance of Cook Student Center	Vegetation Analysis	Tiner 2017: Ch 4
19	N/A	N/A	Wetland Soils	Tiner 2017: Ch 5
23	Soil Sampling Methods	On-Campus Field Trip – Meet at front entrance of Cook Student Center	Wetland Biogeochemistry	Tiner 2017: Ch 5 Army Corps soil sections
26	N/A	N/A	Soil Microbial Ecology	TBA
30	Field Trip → Wetland Soils	TBA	Lab extends into lecture	
Nov 2	N/A	N/A	Wetland ID and Boundary Delineation Methods *Field Notebooks due	Tiner 2017: Ch 6
6	Wetland Indicators and Delineation	On-Campus Field Trip – Meet at front entrance of Cook Student Center	Challenges to Wetland Identification and Delineation	Tiner 2017: Ch 7
9			Wetland Mapping	Tiner 2017: Ch 10
13	Wetland Delineation	TBA	Lecture – TBA	TBA
16	N/A	N/A	Wetland Wildlife Ecology	
21	N/A	N/A	Wetland Restoration & Design	TBA

			*Field Notebooks due	
27	Field Trip → Delineation	Jamesburg Conservation Area	Field Trip → Delineation	
30	N/A	N/A	Urban Wetlands	TBA
Dec 4	Projects	TBA	TBA	TBA
7	N/A	N/A	Wetlands & Climate Change	TBA
11	Presentations	TBA	Presentations	
TBA	N/A	N/A	Final Exam	