

Wetlands: Ecology, Hydrology and Restoration
Marine Studies Consortium
Fall 2018

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Office hours: Tuesdays after class, and by appointment in person or electronically

Course overview: Wetland ecosystems continue to decline at an incredible rate worldwide despite their intrinsic value. They are known for their complex food webs, rich biodiversity, critical nursery habitats, and the wide variety of services that they provide. This semester we will explore (figuratively and literally) the ecology of a variety of representative wetlands, drawing on lessons and examples taken from local New England fresh and saltwater environments. Course material focuses on ecological patterns with special attention paid to the physical and chemical forces that drive them. Diverse wetland habitat types will be compared and contrasted with regard to ecosystem processes (hydrology and biogeochemistry), ecosystem function (succession, adaptation and biodiversity), and ecosystem services. The evolving relationship between humans and wetlands will be addressed. This will be a reading intensive course and budgeting your time

Grading: Participation and engagement: 15%
Take home quiz: 10%
Mid-term exam: 20%
Lit. Review/Synthesis Poster: 20%
Lit. Review Oral Presentation: 10%
Final Exam: 25%

Course Text: Mitsch and Gosselink, 2015. *Wetlands: Fifth Edition*. Wiley & Sons. ISBN: 978-1-118-67682-0

Weekly Lecture Reading Assignments: The background readings for each week are listed on the syllabus and should be completed before class. Readings will come from your textbook or will be distributed in electronic form online via *Dropbox*. While tests will focus on lecture material, there may also be questions that draw on material from the readings. If you do the readings you'll have a much firmer grasp on the material, you'll come to class ready to participate, and you won't have to study as much come test time.

Weekly Scientific Reading Assignments: In addition to the background materials you are expected to read to fully grasp and engage with the weekly lecture, we will also be reading 2-3 materials directly from the scientific literature each week. These will be on topics mirroring weekly topics and will allow you to engage with the scientific method and develop a critical eye when it comes to reading and evaluating research. Every paper will have a **lead student** in charge of moderating the discussion of the paper, including providing a brief summary of the questions, methods, and major findings for the paper, as well as preparing a few discussion questions. Other students are expected to actively participate in the discussion. Both being a lead student and participating in the class discussion will influence your participation grade, which is

15% of the course total. These paper topics will be assigned in the beginning of the class and distributed in advance, and the specific papers will be distributed at least 1 week in advance.

Fieldtrip: This course includes a one-day, required, fun fieldtrip to SE Massachusetts/Cape Cod. When we head into the field you should be prepared with appropriate outdoor clothing (including rubber boots or other mud/water shoes), rain protection, food and water, bug spray, sunscreen, and whatever else you need to be comfortable in the wilderness.

Course Fee: There will be a \$15.00 course fee to cover the cost of the field trip. If you can't afford the course fee, just let me know privately what your situation is and we will find a way to accommodate you.

Engagement and Participation: There is only one class per week, so *attending all classes is critical*. If you know you will be unable to make it to class or meet an assignment deadline, I advise you to contact me as far in advance as possible. If you are sick or have an emergency, you'll need to provide some documentation to (1) prevent your participation grade from suffering and (2) obtain my whole-hearted interest and effort in making sure you catch up. Keep in mind that just showing up is not enough for you to get the most out of this course—successful students are active listeners and participants, and ask questions (either in class or out of class) when they need to.

Exams/Take Home Quiz: The exam dates are posted, and fixed. I can only allow students who miss an exam to make it up at a later date for **EXTREME, UNAVOIDABLE, OR EMERGENCY SITUATIONS**—**In other words, you must make every attempt to be present on exam days.** If you know of a conflict in advance, we can arrange for you to take the exam **BEFORE** the scheduled date (but as close to it as possible). **LEAVING EARLY FOR BREAK DOES NOT CONSTITUTE AN EXCUSED ABSENCE.** All exams will feature a variety of short-answer questions.

Exam Re-grades: Occasionally, mistakes are made when your exams are graded. If you feel there is an error, you can request a re-grade. Re-grade requests must be in writing and will not be done "on the spot." Questions to exam scores will NOT be answered the day that they are handed back. When asking for a re-grade, you need to include the following (if you do not follow these rules your exam will be returned without review):

1. Your entire exam. **DO NOT** mark it in any way. I scan/copy a random subset of the exams and any marks made on your exam after it was handed back will be interpreted as cheating.
2. Attach a note on a separate piece of paper to your exam explaining what needs to be re-graded. Do not just say "re-grade question 3"; you need to explain why your answer deserves more credit than was given. If it is an addition error with the score, explain which numbers were added up incorrectly.
3. Re-grade requests must be turned in within the week of when the exam was handed back. They will be returned to you one week later.

EXAM EXTRA CREDIT: All students will be able to correct their exams and submit their new answers to earn half-credit on any points missed, for a maximum of 10 points (i.e., you can in theory raise your exam grade one full letter). For instance, if you missed a 4-point short answer, submit a correction to earn up to 2 points. If you were awarded 2 out of 8 points (6 missed

points), correct it to earn up to 3 points. This extra credit is available to all students, no matter their original score. Exam corrections are due two weeks after I pass the exams back in class.

Lectures: I primarily lecture using the whiteboard/overhead doc cam, but I also use PowerPoint slides, including images and graphs from your textbook, as well as some material and images from other sources. The slides will be available as PDFs on Dropbox, usually before class starts. You can print these PDFs out and use them as a starting place to take notes if you find that helpful ... but **BE WARNED!** These slides are a poor substitute for being in class. Availability of PowerPoint slides has led some students to adopt a passive approach to the class, thinking that all the relevant notes already exist on the slides, however much of the material is covered verbally and through interpretation of pictures/figures and the text of the slides are simply discussion starters.

Cell Phones: Cell phones **MUST** be turned off and put in your bag as soon as class starts. If you must take a call or a text, you are asked to leave the lecture hall to do so. Cell phones are not required for this course and are very distracting. During exams, cell phones must be turned off and placed face down on your desk. If your cell phone rings during an exam you will earn a **ZERO** on that exam, no exceptions.

Laptops: I ask that people **NOT** use **laptops** during class. The class is at its most interesting when all students are engaged with the material and actively participating in the discussion; having a screen open distracts attention and encourages passive engagement. Additionally, studies have shown that handwriting notes may aid in the retention of information.

Code of Conduct and Academic Integrity: By enrolling in this course, you understand that the consequences for committing any acts of academic dishonesty **WILL** include a failing grade for the assignment, and **MAY** include failure in the class as a whole, academic sanction, and/or even dismissal from the university. You are all bound by (and should be familiar with) the honor codes and integrity statements of your respective institutions. Cheating or plagiarism will, at the least, result in a zero on the test or assignment for which you decided it was worth the risk, and could result in a failing grade for the entire course. Plagiarism at any level is easy to detect. (If you found it online, I can too!) Plagiarism is not limited to copying source material verbatim. Rearranging only a few words, following the same progression of thoughts or points as a source, and not properly citing your reference material are all examples of plagiarism and will be treated as such.

Students with special requirements: All students are entitled to equal access to learning opportunities. Your institution likely works with students who have special learning needs to provide and/or arrange reasonable accommodations. If you feel you merit particular consideration on exams or other assignments, you can speak with the appropriate office at your institution and provide me with documentation of your individual needs. If you have or think you may have a relevant disability, you should feel free to contact the appropriate representatives on your campus, and/or discuss with me.

WETLANDS FALL 2018: SCHEDULE AND ASSIGNMENTS

Wk.	Date	Topic	Lecture Readings	Activities/ Due Dates
1	4 Sept.	Introduction to Wetlands: What is a wetland, wetland types, wetland delineation and classification	<i>Wetlands</i> Ch. 1-3, pp 455-467 (skim Ch. 3)	
2	11 Sept.	Hydrology	<i>Wetlands</i> Ch. 4	
		Soils and Biogeochemistry: Redox chemistry, carbon, nitrogen, phosphorus, and sulfur cycles	<i>Wetlands</i> Ch. 5-6	
3	18 Sept.	Soils and Biogeochemistry: (cont.)	<i>See above</i>	
		Biological adaptations to wetlands: Focus on plant and animal adaptations to stress in salt marshes: anoxia and salinity	<i>Wetlands</i> pp 215-227, PDF supplement (Keddy pp. 18-28)	
4	25 Sept.	Biological Adaptations: (cont.)	<i>See above</i>	TAKE HOME QUIZ DISTRIBUTED
		Wetland Structure, development and succession (with temperate and tropical examples)	<i>Wetlands</i> pp 227-255, Ch. 8-9	
5	2 Oct.	Wetland Structure, development and succession (cont.)	<i>See above</i>	TAKE HOME QUIZ DUE
6	9 Oct.	No Class - Fall Break		
6	TBD	FIELD TRIP: Wetland Environments of Cape Cod		
7	16 Oct.	Ecological Concepts: disturbance and biodiversity	PDF supplement (Keddy Ch. 4, 9), supplemental articles	
8	23 Oct.	Ecological Concepts: food webs, herbivory, and competition in wetlands	PDF supplement (Keddy Ch. 5-6)	Lit. Review Topic due with bibliography-- present to class for feedback
9	30 Oct.	Ecological Concepts (cont.)	<i>See above</i>	IN CLASS EXAM
10	6 Nov.	Wetlands and Climate Change	<i>Wetlands</i> Ch. 17	
11	13 Nov.	Ecosystem services: Role of wetland ecosystems in the global environment Conservation, and Restoration	<i>Wetlands</i> Ch. 14, 16, 18	Posters Due
12	20 Nov.	No Class - Thanksgiving Week		
13	27 Nov.	Poster Session Catch-up, Student-directed exam review		Poster Session
14	4 Dec.	FINAL EXAM		