Wetlands Ecology – Fall 2015

EES 6308C/ENV 4932 (Sections 4775, 4791, 4793, 1E18)

Catalog Description: 3 credits. Defining and classifying major wetland ecosystems, formation of wetlands, wetland functions and values; wetlands ecological engineering and management; and integrating wetlands into developing landscapes.

Instructor: Dr. David Kaplan, Environmental Engineering Sciences (dkaplan@ufl.edu, www.watershedecology.org)

Contact:

- Class website (UF e-Learning): https://lss.at.ufl.edu
- Course e-mail: use e-Learning for **ALL** correspondence
- Office Hours: immediately after class and by appointment

Time and Location:

- Tuesday, 11:45 – 1:40 (P5-6); Thursday, 12:50 – 1:40 (P6)
- CSE E122

Course Objectives:

By the end of the course, students will be able to:

1. Understand and explain the physical, chemical, biological, and ecological processes that occur within, around, and among wetlands.
2. Identify and discuss the variability of structure and function in wetland ecosystems.
3. Understand how structure and process drive wetland functions.
4. Provide informed opinions on human interactions (positive and negative) with wetlands.
5. Identify common wetland plant species.

Course Supplies:

- Required Textbook: Mitsch, W.J. and J.G. Gosselink. 2015. Wetlands, 5th ed. Wiley, NY.
- Assignments, readings, and announcements will be posted on the course website, so it is important to regularly check the class homepage (https://lss.at.ufl.edu).

Course Expectations:

- **Attend class** and arrive on time. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.
- **Complete assigned readings** PRIOR to the class for which they are assigned.
- **Participate in class discussions**, including your thoughts on the assigned readings and lecture subjects. Learning is more than passive accumulation of information, and I will be asking a lot of questions in class.

Grading Scale: A (≥93), A- (≥90 & <93), B+ (≥87 & <90), B (≥83 & <87), B- (≥80 & <83), C+ (≥77 & <80), C (≥73 & <77), C- (≥70 & <73), D+ (≥67 & <70), D (≥63 & <67), D- (≥60 & <63), E (<60). GPA information can be found: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

Grading Scheme and Assignments:

Graduate Sections:	
Participation	10%
Assignment 1 – Wetland Plant ID	15%
Assignment 2 – Literature Review	15%
Assignment 3 – Research Proposal	20%
Midterm Exam	20%
Final Exam	20%
Total:	100%

Undergraduate Section:	
Participation	10%
Assignment 1 – Wetland Plant ID	20%
Assignment 2 – Literature Review	20%
Midterm Exam	25%
Final Exam	25%
Total:	100%

- **Participation**: You cannot receive an A in this course without actively participating.
  - On-campus students: earn your participation grade by consistently attending class, asking and answering questions (*based on your reading assignments ahead of time*), and offering your opinion on course topics and current events.
  - EDGE Students: earn your participation grade by posting one question or comment about the current readings or lecture to the Discussion board each week; I will select one or more question to answer each Tuesday during lecture.

- **Assignments**: There will be three assignments over the course of the semester (two for undergraduate students).
  1. A semester-long, partially guided field exercise to find and identify **25-50 species** of wetland plants and create a wetland plant map (which will be shared with the entire class). The goal of this assignment is to develop field plant ID skills and provide students with a useful resource to use in the future.
  2. Development of a wetland-focused literature review exploring a specific wetland type (e.g., salt marsh, floodplain swamp) or a large, well-studied wetland system (e.g., the Everglades, the Pantanal), to be delivered as a conference poster. The goal of this assignment is to find, compile, and synthesize the state of the knowledge about the abiotic and biotic components of your chosen system and—critically—to **identify existing gaps in the scientific knowledge**. Students will also have the opportunity to develop (or hone) their poster-making skills.
  3. Graduate students will develop a group (*n*=3-5) research proposal to test one or more hypotheses motivated by the knowledge gaps identified in Assignment 2. The proposal will include project background, description, workplan, expected results, and broader impacts. The goals of this assignment are to provide students with the experience developing a research question (ideally aligned with their research projects, if applicable) into a proposal for submission to a funding agency. Proposals will be presented to the class during the last week of the semester.

- **Exams**: There will be two exams, a midterm and final, both given in class. Exam questions will likely be short or long essay format. All material from the assigned text, readings, and lecture notes will be considered for exam questions. Expect each exam to take 2 hours. Graduate and undergraduate students will take the same exam and be graded equally.

Field Trips: Several field trips may be organized to visit local ecosystems on weekend days. Participation is encouraged but not required. Details to follow.

Course Topics and Schedule: This schedule is tentative and subject to change based on the timing of fieldtrips, guest lecturer schedules, student interests, and current events.

Week	Date	Topic	Readings*, Assignments
1	8/25/2015	Course Overview, Wetland Basics	Chapters 1-2
	8/27/2015	Introduction to Ecology	Odum 1969
2	9/1/2015	Wetland Ecosystems	Chapter 3
	9/3/2015	Wetland Plant ID	Mangold & Parkinson 2013
3	9/8/2015	Hydrology – Key Terms & Water Budgets	Chapter 4
	9/10/2015	Hydrology – Models & Methods	---
4	9/15/2015	Hydrology – Effects on Wetland Function	Euliss et al. 2004
	9/17/2015	Introduction to Wetland Soils	Chapter 5, **Assignment 1a Due**
5	9/22/2015	Biogeochemistry – Intro and the C Cycle	Chapter 6
	9/24/2015	Biogeochemistry – Wetlands and Climate	Chapter 17; Schäfer et al. 2014
6	9/29/2015	Biogeochemistry – N, P, Fe, Mn, S & Hydric Soils	Vasilas et al. 2010
	10/1/2015	Catch-up	---
7	10/6/2015	Wetland Biota – Plant and Animal Adaptations	Chapter 7
	10/8/2015	Ecological Succession	---
8	10/13/2015	Ecological & Wetland Succession Models	van der Valk 1981
	10/15/2015	Review (in class)	**Assignment 2 Due**
9	10/20/2015	**Midterm (in class; material through 10/13/2015)**	---
	10/22/2015	Wetland Classification & Mapping	Chapter 13
10	10/27/2015	Human Impacts – Wetland Loss & Degradation	Chapter 14
	10/29/2015	Human Impacts – Wetland Management	Maltby 1991
11	11/3/2015	Wetland Laws & Protection	Chapter 15
	11/5/2015	Wetland Ecosystem Services	Chapter 16
12	11/10/2015	Quantifying Condition, Function, and Value	McLaughlin & Cohen 2013
	11/12/2015	Wetland Restoration & Mitigation I	Chapter 18
13	11/17/2015	Wetland Restoration & Mitigation II	Schmitz 2012
	11/19/2015	Treatment Wetlands I	Chapter 19
14	11/24/2015	Treatment Wetlands II	---
	11/26/2015	**Thanksgiving, NO CLASS**	---
15	12/1/2015	In-Class Presentations	**Assignment 3 Due**
	12/3/2015	Catch-up and/or Review (in class)	---
16	12/8/2015	**Final Exam (in class)**	**Assignment 1b Due**
	12/10/2015	**Readings Days, NO CLASS**	---

*Readings either refer to chapters in Mitsch and Gosselink (2015) or are posted under "Resources" on the e-Learning site. ***Complete assigned readings prior to the class for which they are assigned.***

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment*."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. **It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code**. Violations of the Honor Code at the University of Florida will not be tolerated. **Violations will be reported to the Dean of Students Office for consideration of disciplinary action**. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php.

Software Use: All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance:

- *University Counseling & Wellness Center*, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Training Programs
  - Community Provider Database
- *Career Resource Center*, First Floor, J. Wayne Reitz Union, 392-1601, www.crc.ufl.edu

Students with Disabilities Act: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter, which must be presented to the instructor when requesting

accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Distance Students: Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See http://distance.ufl.edu/student-complaints for more details.

Evaluations: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.