Wetland Ecology and Biogeochemistry
Spring 2018
PCB 4932C – 4 credit hours

Tuesday 10:30-11:20, HPA1 272
Thursday 10:30-2:20, BSFS 105

Instructor: Dr. Lisa Chambers
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Office Hours: Tuesday 11:30-12:30 or by appointment

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Office Hours: Tuesday 9:30-10:30 or by appointment

Prerequisite: B or better in PCB 3044, or permission of instructor

Course Website: Webcourses, PCB 4932C

Course description: This course will offer an in depth examination of wetland habitats, ranging from freshwater to marine, with a focus on the intersection of the biotic and abiotic attributes that make these ecosystems unique. The role of wetlands in the broader context of global biogeochemical cycles, current research in wetland ecology and biogeochemistry, and hands-on field and laboratory research techniques will be introduced.

Course goals:

- Understand the physical, biological, and chemical processes that define a wetland ecosystem.
- Understand the ecological function of wetlands within the landscape and in relation to global biogeochemical cycles.
- Discuss human valuation of wetlands, ecosystem services, and current laws and policies affecting wetland protection.
- Evaluate the application of wetland ecology and biogeochemical principles for water quality improvement and global climate change mitigation.

Required Text: Mitsch, W.J. and J.G. Gosselink. 2007. Wetlands, 5th ed. John Wiley & Son, Inc., NY. *Recommended supplementary text:* Reddy, K.R. and R.D. DeLaune. 2008. Biogeochemistry of Wetlands: Science and Applications. CRC Press, Boca Raton.

Performance Evaluation:

Midterm Exam	25%
Final Exam	10%
Campus Wetland Research Project	30%
Lab Assignments	30%
Participation	5%
Total =	100%

Exams: One mid-term exam and a final exam will be given. The final exam will include both new material and a comprehensive assessment of your knowledge from the course. Exams may include multiple choice, true/false, fill-in, short answer, and essay questions.

Lab Activities & Assignments: The scheduled laboratory meeting time will be used for a combination of class discussions, presentations, in-lab activities, field activities, and field trips. Each activity and field trip will include a written assignment due either at the end of class, or the following week (specific instructions will be provided with each assignment). **There are no make-up labs**. If you must miss a lab, review the missed exam/assignment policy outlined below and discuss the circumstance with the instructor to evaluate if the absence will be excused. Excused lab absences will be dealt with on a case-by-case basis using replacement assignments or adjusting point distributions. Unexcused lab absences will result in a zero for the missed assignment. **Late lab assignments will be deducted 20% every day past the due date.**

Campus Wetland Research Project: The class with be divided into small groups (3-5 students) based on individual research interests. Each group will formulate a research question that can be investigated over the course of the semester utilizing wetlands located on UCF's main campus. General group topics will focus on: water, soil, plants, and/or animals, but groups will have freedom to formulate their own ideas and hypotheses. Groups will be given limited time in class to work on their research projects; the research project will also require out of class time to complete. At the conclusion of the semester, each group will submit 1 co-written research report on their project (including introduction, methods, results, and conclusions) and present a cooperative 30 minute presentation to the class on their project.

Participation: Undergraduate students are expected to actively participate in discussions of peer-reviewed literature lead by the graduate students. Failure to engage in discussions by answering questions and/or providing comments and questions will result in a reduction in your participation grade.

Missed Exam/Assignment Policy: Make-up mid-term exams or lab assignments will be provided for students who must miss due to *official University business* at which your presence was required (e.g. a university-sponsored team event). Students who miss an exam/assignment due to a conflicting event (e.g., trips required for work, observing a holiday, presenting at a conference, etc.) will be evaluated on a case-by-case basis; it will be up to the discretion of the instructor to determine if the student is eligible for a make-up exam/assignment. All students with prior knowledge they will miss an exam or assignment are expected to inform the instructor of the conflict at the beginning of the semester, and absolutely no later than **1 week prior** to the scheduled exam/assignment. Additionally, some form of documentation (e.g., letter from your coach, doctor's note, conference program, etc.) must be provided **at least 48 hours in advance** of the scheduled exam/assignment to be eligible for a make-up. Acceptable forms of documentation can be determined through a discussion with the instructor.

Exams or assignments missed due to unforeseen illnesses of emergencies require the student to contact the professor promptly (e.g., within 24 hours or less) and provide documentation (a signed document from a doctor, police officer, judge etc.) **within one week**. The absence must

have been caused by a valid emergency as defined by UCF and/or the professor, including but not limited to: major illness, serious family emergency, jury duty, military obligation, etc.

No make-up exams will be given for the final exam. Missing an exam or assignment for any reason that the instructor deems as **unexcused will results in a grade of zero** for that exam/assignment. Failure to meet the deadlines outline above for informing the instructor of your absence or providing appropriate documentation will results in a grade of zero.

Late Assignments: All deadlines are final. Late assignments will be deducted 20% for every day past the due date. Assignments will not be accepted on weekends or holidays. Once graded assignments have been returned or an answer key provided, any outstanding assignments will result in a grade of zero.

Grading Scale:

A	94-100%	B-	80-83%	D+	67-69%
A-	90-93%	C+	77-79%	D	64-66%
B+	87-89%	C	74-76%	D-	60-63%
B	84-86%	C-	70-73%	F	<60%

Grading and Evaluation: Students will be graded and evaluated based on the performance evaluation criteria outlined above. Students can access their current scores at any time using the **Grade Book function of Webcourses**. Final grades will be rounded to the nearest whole number. No adjustments will be made to final grades.

Classroom Conduct and Expectations:

- Class attendance and participation is expected. Lecture and lab will rely heavily on in-class discussion.
- Students should keep up with assigned readings by completing them prior to the class in which they will be discussed. All students should be prepared to discuss and ask questions during class.
- You will be responsible for both material presented in class and those materials assigned as readings (including textbook chapters, journal articles, etc.).
- **Cheating or plagiarism of ANY kind will not be tolerated.** The instructor will pursue disciplinary actions to the fullest extent possible, including (but not limited to) an automatic zero on any assignment in which cheating occurred.
- Students must be respectful and courteous to each other and the instructor at all times. Demeaning, abusive or otherwise foul language is prohibited.
- Talking on the cell phone (and cell phone ringing) is disruptive. All cell phones must be silenced before class begins. Do not make or receive calls during class under any circumstances. If you must use your phone, leave the classroom.
- Laptops are allowed in class for taking notes. Surfing the net, checking social media websites, or doing non-related work on a laptop during class is viewed as disrespectful and you will be asked to turn-off your computer or leave the class.

Class Schedule (subject to revision):
The dates and assignments/subjects/readings in this schedule are tentative, and can be changed at the discretion of the professor.

Week	Topic	Reading	Lab Activity
1 (1/9, 1/11)	Introduction to wetlands and biogeochemistry; functions vs. values	1-2; Supp. 1	Is it a wetland? A walk through the UCF arboretum
2 (1/16, 1/18)	Wetland history, types, and classification	3 (p45-55); 13; Supp. 2	Field Validation and Exploring the National Wetland Inventory
3 (1/23, 1/25)	Wetland hydrology and the role of oxygen	4; Supp. 3	Investigating Water Budgets
4 (1/30, 2/1)	Wetland vegetation, succession, and fauna	7	Hydrologic Indicators – Field Identification
5 (2/6, 2/8)	Intro to soils; wetland soils	5	Soil Physical Properties and Field Identification
6 (2/13, 2/15)	Introduction to biogeochemistry	Supp. 4 & 5	Redox Chemistry
7 (2/20, 2/22)	Carbon cycle	6; Supp. 6	Greenhouse Gas Flux
8 (2/27, 3/1)	Nitrogen and phosphorus cycle	Supp. 7 & 8	Everglades Case Study/MudWatt
9 (3/6, 3/8)	Review, catch up		**Mid-term Exam**
10	Spring break- no class	-	-
11 (3/20, 3/22)	Treatment wetlands	19	Field trip: Orlando Wetlands Park (Christmas, FL)
12 (3/27, 3/29)	Wetland laws and policy	15	Wetland Delineation
13 (4/3, 4/5)	Wetland creation and restoration	18	Field trip: Disney Wilderness Preserve
14 (4/10, 4/12)	Wetland valuation, ecosystem services	11	**Campus Wetland Research: Group Presentations**
15 (4/17, 4/19)	Climate change and wetlands	10	**Campus Wetland Research: Group Presentations**

Final Exam: Tuesday May 1, 10:00-12:50

Supplemental Readings: Available on Webcourses from Biogeochemistry of Wetlands: Science and Applications, Reddy and DeLaune, 2008 (unless otherwise noted)

Supp. 1: Chapter 1, Introduction
Supp. 2: Chapter 1, Introduction (Wetland Ecosystems, Mitsch et al., 2009)
Supp. 3: Chapter 6, Oxygen
Supp. 4: Chapter 3, Biogeochemical Characteristics
Supp. 5: Chapter 4, Electrochemical Properties
Supp. 6: Chapter 5, Carbon
Supp. 7: Chapter 8, Nitrogen
Supp. 8: Chapter 9, Phosphorus

More on Academic Conduct:

Students are expected to follow UCF's standards for personal and academic conduct as defined and outlined in the Golden Rule (see: http://goldenrule.sdes.ucf.edu). Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty, please consult The Golden Rule, the University of Central Florida's Student Handbook (http://www.goldenrule.sdes.ucf.edu/) for further details. As in all University courses, The Golden Rule Rules of Conduct will be applied. Violations of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor's discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University.

The current UCF policy concerning **incomplete grades** will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next semester. Your instructor is the final authority on whether you qualify for an incomplete. Incomplete work must be finished by the end of the subsequent semester or the "I" will automatically be recorded as an "F" on your transcript.

As of Fall 2014, all faculty members are required to document students' academic activity at the beginning of each course. In order to document that you began this course, we will document attendance during at least the first couple weeks of class. Failure to attend class will result in a delay in the disbursement of your financial aid and incur the wrath of the administrative bean counters.

Disability Access:

The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students who need accommodations must be registered with Student Disability Services, Ferrell Commons Room 185, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor.