

BIOGEOCHEMISTRY OF WETLANDS & AQUATIC SYSTEMS

SWS6448

Term: Fall Semester

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**All correspondence to instructors and TAs concerning this course should use the messaging tool on the course website in Canvas.*

Office hours: Online during the weekly discussion session (Thursday 6:00-7:30pm) or by appointment.

Course Description/Objectives: This course is designed as an overview of the biogeochemical processes affecting elemental cycling in wetland and other aquatic systems. At the end of this course, students should be able to:

1. describe the concepts of biogeochemistry and the unique biogeochemical properties of wetland/aquatic systems
2. apply quantitative and qualitative approaches of studying biogeochemical cycles in wetlands and aquatic systems
3. summarize the biogeochemical processes operating in the major types of wetlands
4. relate the processes in the carbon, nitrogen, phosphorus, and sulfur cycles, to global issues such as productivity, pollution, and environmental change

Course Format: Web-based lecture and discussion.

Course Texts:

Required - Reddy, K.R., DeLaune, R.D. and Inglett, P.W., 2023. *Biogeochemistry of wetlands: science and applications*. CRC press. 713 pp.

Additional readings-

Mitsch, William J., Gosselink, James G., Anderson, Christopher J., Fennessy, M. Siobhan. 2023. *Wetlands*. Wiley.

Kadlec, R. H. and S. Wallace. 2008. *Treatment Wetlands*. Taylor and Francis. 1016 pp.

Madigan, M.T. and Aiyer, J. and Buckley, D.H. and Sattley, W.M. and Stahl, D.A. 2021. *Brock Biology of Microorganisms*. Pearson Education.

Schlesinger, W.H., and E.S. Bernhardt. *Biogeochemistry: An Analysis of Global Change*, 3rd Ed. 2013. Academic Press.

Course Website: All lectures, readings, assignments, and other course materials including exams will be accessible using Canvas via the UF e-Learning portal: <https://elearning.ufl.edu/>

Weekly Discussion: On Thursday 6:00-7:30pm of each week we will have a discussion session (Zoom meetings through course website) to discuss the course material, assigned readings, and to answer the weekly discussion questions. Attendance is required. Each student will be evaluated for participation based on their responses to the discussion questions.

Quizzes: Students will be required to complete quizzes after their review of materials for each week. Quizzes will be made available through the Canvas course management system during the week in which

the material for that quiz is covered (see course outline for schedule of topics). Each quiz is timed and will allow only three attempts, so it is strongly recommended that students review the lecture materials before making their next attempt. The week prior to each exam, the correct answers for the quizzes for that section will be made available. After answers are revealed, students will no longer be able to take those quizzes for credit.

Exams: Exams are time-limited, but they can be taken anytime during the window of the exam (exam week). Examinations will be administered online using the **Honorlock** service to ensure a secure testing environment (<https://dce.ufl.edu/services/online-proctoring/#honorlock>). Students should allow sufficient time to setup the service in addition to the time required to complete the exam (exams close at midnight). Each student must have access to a suitable computer with a web cam, microphone, and speakers. Students can go to the website <https://dce.ufl.edu/media/dceufledu/pdfs/Honorlock-Student-Guide-UF-Update.pdf> to get started, test their system, and prepare for an exam.

Paper/presentation: Each student will be assigned a specific wetland type and major process/issue. Students will individually prepare and write a research paper on their assigned topic. Papers will be completed in two phases with an initial submission (bibliography and outline) and a final paper. After the first submission, students will meet with others in the same topic area to prepare a 30-minute synthesis presentation to be given at a weekly discussion meeting later in the semester. Each student will be graded on the quality of their bibliography/outline (30%), contribution to the presentation (30%) and quality of their final paper (40%).

Make-up Exams/Assignments: All assignments including homework, quizzes, discussion post topics, and exams will be assigned in advance, with ample time for completion. Students are not permitted to miss exams except for approved and documented absences (hospitalization, death of family member, etc.) in accordance with the University policy on absences: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>. If an exam is missed for an approved reason, a make-up exam will be scheduled for the first week following the return of the student to class. Make-up exams may not be of the same format as that of the missed exam.

Grading System: Final letter grades will be assigned as follows using whole point values and based on the [UF policy for grades and grade points](#) effective May 11, 2009:

Total Points Accumulated	>611	611-592	591-564	563-544	543-524	523-496	495-476	475-456	455-428	427-408	407-388	<388
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
Grade Point	4	3.67	3.33	3	2.67	2.33	2	1.67	1.33	1	0.67	0

Point totals for each portion of the course are listed below:

Course Component	# Items	Total Points	~% of Grade
Quizzes	8	160	24
Discussions	11	220	32
Paper/presentation	1	100	15
Exams	2	200	29
Total		680	100

Class Demeanor: Students are expected to compose themselves in an adult and professional manner and give complete consideration and respect for the professor and fellow students. This includes all class correspondence, interactions with other students in chat discussions, or online posts.

Online Privacy: Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Online Course Evaluation Process: Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results/>.

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/process/student-conduct-honor-code>.

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.

Services for Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general wellbeing 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*
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- *Career Connections Center, First Floor JWRU, 392-1601, <https://career.ufl.edu/>*
- Student Success Initiative, <http://studentsuccess.ufl.edu>

Student Complaints:

- Residential Course: <https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/>
- Online Course: <https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint>

Course Schedule and Topics:

Course outline:

Semester Week*	Module	Topics Covered*	Book Chapter (Reddy et al. 2023)
1		Course welcome	
2	1	Biogeochemistry and Wetlands	1, 3
3	2	Electrochemical Properties	4
4	3	Carbon pt.1	5
5	3	Carbon pt.2	5
6	4	Oxygen and Plant Adaptations	6, 7
7 (Oct 7-12)		Exam 1	<i>(Modules 1-4)</i>
8	5	Nitrogen pt.1	8
9	5	Nitrogen pt.2	8
10	6	Phosphorus pt.1	9
11	6	Phosphorus pt.2	9
12	7	Iron and Manganese	10
13	8	Sulfur	11
14		Project presentations	
15		Thanksgiving Holidays	
16		Course Review	
17 (Dec 7-12)		Exam 2	<i>(Modules 5-8)</i>

* Dates for topics or exams are tentative, and subject to change.