SYLLABUS
Fall 2022, GLY 6738 – ESTUARINE SYSTEMS
Section 099C. Williamson Hall, Room 210
Tuesday - Periods 4 ,5 (10:40 AM - 12:35 PM); Thursday – Period 5 (11:45 AM-12:35 PM)

INSTRUCTOR

Lead Instructor: Dr Thomas S. Bianchi, Department of Geological Sciences
Office: 205 Williamson Hall Ph# 352-392-6138 e-mail: tbianchi@ufl.du Office meeting: by appointment

COURSE DESCRIPTION

An overview of the biogeochemistry of estuaries around the world, with particular emphasis on the impact of global change on these dynamic highly productive systems. The class will begin with an introduction on the geological formation of estuaries followed by linkages with the hydrodynamics of these systems. We will then proceed with the chemical and biological components of these systems, as related to natural and anthropogenic changes, as related to the cycling of nutrients and organic geochemistry of these systems, which function as the interface for element cycling between continents and oceans.

Prerequisites: none

Course Objectives
Students who complete this course will be able to understand:
1) the basics of the processes controlling estuarine ecosystems;
2) the impacts of climate change on these important waterways;
3) estuarine systems based on their geological formation and how management issues will vary across systems

Course Structure
The course will require in-class participation. Prior to class each week, students will be expected to keep up with the assigned readings.

COURSE WEBSITE and COMMUNICATION

Course Website
The course will run via **Canvas** through the UF e-learning website; go to http://lss.at.ufl.edu/ and click on the Canvas Login button. The course site will be used to post relevant announcements, reading, lecture materials, links, assignments and quizzes, etc. You are responsible for checking this site for announcements and to verify that your grades are recorded correctly.

Questions and Comments on course logistics (e.g. assignments, grading etc.) and on content (e.g. science or policy questions directed toward any of the course instructors) should be posted in two respective discussion boards within the course website. Questions of a personal nature (e.g. medical emergency, legal, documented disability accommodation, etc.) should be sent to the TA via e-mail who will forward these to the appropriate faculty instructor as necessary. Public and private communication regarding the course and a method for resolving technical issues (e.g. visit the helpdesk website or call 352-392-4357).

Required Textbook
Estuarine Biogeochemistry, by T.S. Bianchi, 2007, Oxford University Press (about $85 to $110, depending on Amazon prices). In addition, there will be numerous selected readings posted or linked through the course website weekly.

ASSESSMENTS AND GRADING

Final Grade Calculation
20% In-class Activities (presentations and participation in class discussions

30% Paper/NSF Proposal (both comprised of 1st, 2nd, and final assignments)
50% Mid-term and Final Exams

Final Grade Scale
A = ≥93%, A- = 90-92.99, B+ = 87-89.99, B = 83-86.99, B- = 80-82.99, C+ = 77-79.99, C = 73-76.99, C- = 70-72.99, D+ = 67-69.99, D = 63-66.99, D- = 60-62.99, E < 60

***Note:** An earned grade of 'C-' grade or below does not qualify for major, minor, Gen Ed, or college basic distribution credit.

For further information on UF's Grading Policy, consult:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Class Discussion and Homework
Homework will consist of 1) writing a review (approximately 200 words), 2) answering questions about on assigned peer-reviewed papers and 3) assigned problem sets.

In-class activities will involve reading assignments of 1 to 2 published scientific papers each week. You will be responsible for reading these papers, some of which you will lead group discussions on throughout the semester - total number to be determined by class size. Each person will also be required to write a review (approximately 200 words) on each paper assigned to them. In-Class activities will involve reading assignments of 1 to 2 recently published scientific papers each week. You will be responsible for reading these papers, some of which you will lead group discussions on throughout the semester - total number to be determined by class size. The oral presentation (60% on your in-class grade) will be evaluated based on clarity and comprehensiveness, the remaining 40% will based on your participation in all class discussions. Students will be expected to lead discussion on numerous (depending on size of class) peer-reviewed papers assigned by the instructor. During student presentations all students are expected to have read the assigned paper(s) and to participate in critiquing and assessing the results and impact of the paper.

Exams
There will be mid-term and final exams both of which will be taken in the classroom. Each will be in the format of approximately 6 to 7 essay questions. The same exam will be administered to students enrolled in the 4000 and 6000 sections. Consideration of the depth of each answer will factored in when grading the exam with more emphasis on the broader scope of the field expected for graduate students. The final exam will NOT be cumulative.

Semester Paper/Proposal
Semester Paper (4000-level students)

The first assignment associated with the term paper will include:
1) A potential title and a 1 page abstract (single spaced) that clearly defines the topic you have chosen with a general outline of your proposed paper.

2) On a separate page, please list five references you used to put your abstract together. These references will be properly cited in the format of the journal Limnology and Oceanography (L&O). The format of the term paper and proposal will strictly follow that of L&O. Please consult the L&O (http://www.aslo.org/). The second assignment will consist of an annotated bibliography, with 20 properly cited references in the L&O format. Each reference will have a 4 to 5-sentence summary of the important finding in the paper. At least 80% of these references must be from peer-reviewed literature.
The final term paper will be 15 pages of double-spaced text (excluding title page, tables, figures, references, acknowledgements, and appendices). The term paper will be graded based on the quality of the writing, will be

graded based on the quality of the writing, comprehensiveness of the cited literature and the overall synthesis of the main goals of the paper.

Semester NSF Proposal (6000-level students)
The first assignment associated with the writing of an NSF proposal will include:
1) A potential title and a 1 page abstract (single spaced) that clearly defines the topic you have chosen with a general outline of your proposed paper.

2) On a separate page, you need to provide a list of five references and your hypotheses and objectives. All citations in the references will be properly cited in the format of the journal Limnology and Oceanography (L&O). The format of the term paper and proposal must strictly follow that of L&O. Please consult the L&O (http://www.aslo.org/).

The second assignment will consist of an annotated bibliography, with 20 properly cited references in the L&O format, along with any revisions on your hypotheses, and an outline of the "experimental approach" you plan to use to test your hypotheses. Each reference will have a 4 to 5-sentence summary of the important findings in the paper. At least 80% of these references must be from peer-reviewed literature. The final NSF proposal will be 15 pages of double-spaced text (excluding title page, tables, figures, references, acknowledgements, budget, and appendices). The NSF proposal will be graded based on the quality of the writing, comprehensiveness of the cited literature, and how effective the objectives and experimental approach adequately addressed the hypotheses stated in the proposal.

Grading Differences for 4000 and 6000 level students
In addition to the difference in term paper versus the NSF proposal for 4000 and 6000 level students in the class, respectively, there will be higher expectations for graduate in their in-class oral presentations, along with their overall contributions to class discussion.

Field trip: There will be required field trip for 1 to 2 nights at the UF- Whitney Marine Lab in St. Augustine, FL, or the UF-Nature Coast Biological Station, Cedar Key, FL. Details on dates and activities will follow.

Extra Credit
No mechanisms for extra credit are available.

COURSE AND UNIVERSITY POLICIES

Attendance and Absence
Students are expected to complete all requirements (exams, final paper, presentations) on the specified dates and will not be granted an alternate date unless they have an acceptable reason for their absence (e.g., absences due to medical emergency, observance of religious holidays, military obligation) or pre-arranged consent of the instructor. However, you may receive an extension on an assignment by pre-arranged consent of the instructor or in extraordinary circumstances. These requests must be timely and accompanied by all necessary written documentation.

'In-class activities' must be turned in by the end of the class period that the student had made a presentation. Students are expected to complete all requirements (quizzes, exams, presentation) on the specified dates. However, you may receive an extension on an assignment by pre-arranged consent of the instructor or in extraordinary circumstances. These requests must be timely and accompanied by all necessary written documentation. For further details on UF attendance policy please see https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/.

Classroom policy
Students are required to bring to each class meeting a laptop or similar device for use in taking notes, summarizing in-class activities, and accessing the internet. However, use of mobile devices and computers during class for purposes other than viewing readings or conducting sanctioned research is not allowed. Cell phones must be turned off during class. Students who receive or make calls or text messages or engage in other disruptive behavior during class will be asked to leave will not be allowed to turn in the assignment due on that day. Students should also bring pen/pencil and paper to each class.

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Academic Honesty Policy
UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Click here to read the Conduct Code. If you have any questions or concerns, please consult with the instructor or TAs in this class.

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.

Accommodations for Students with Disabilities
Please do not hesitate to ask for accommodation for a documented disability. Students requesting classroom accommodation must first register with the Dean of Students Office (http://www.dso.ufl.edu/drp/). The Dean of Students Office will provide documentation to the student, who must then provide this documentation to the Instructor when requesting accommodation. Please ask the instructor if you would like any assistance in this process. Please provide this information to your TA within the first two weeks of the semester.

Instructor Evaluation
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/.

Drop/Add/Withdrawal
A student can drop/add during the drop add period with no penalty. After drop/add, a student who drops will receive a W until the date listed in the academic calendar. After that date, the student may be assigned an "E" (fail). Note: it is the responsibility of the STUDENT to withdraw from a course, not the instructor. Failure to participate/complete the class is NOT a drop.

Campus Resources
Health and Wellness:
U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road,
Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

Academic Resources:
E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.
Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.
Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.
On-Line Students Complaints: View the Distance Learning Student Complaint Process.

Covid-19
If you are experiencing COVID-19 symptoms (Click here for guidance from the CDC on symptoms of coronavirus (Links to an external site.)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms (Links to an external site.).

Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. Find more information in the university attendance policies (Links to an external site.).

Course Schedule

Date	Topic	Required Text Reading	Instructor
Week 1	Physical Dynamics of Estuaries	Chapter 1	Bianchi
	Origin and Geomorphology	Chapter 2	"
Week 2	Distribution of Estuarine Types	Chapter 2	"
Week 2	General Circulation Patterns	Chapter 3	"
Week 3	Residence Times	Chapter3	"
Week 4	Chemistry of Estuarine Waters	Chapter 4	"
Week 4	Density Gradients and Salinity Mixing Diagrams	Chapter 4	"
Week 4	Coagulation and the Turbidity Maximum	Chapter 4	"
Week 5	Dissolved Oxygen and Redox Chemistry	Chapter 5	"
Week 5	Dissolved Carbon Dioxide and Other Dissolved Gases	Chapter 5	"
Week 6	Properties of Estuarine Sediments	Chapter 6	"
Week 6	Weathering and Watershed Soils	Chapter 6	"
Week 7	Chemistry of Estuarine Sediments	Chapter 6	"
Week 7	Applications of Radioactive and Stable Isotopes	Chapter 7	"
Week 8	**Mid-Term specific date TBA**		
Week 9	Organic Matter Cycling	Chapter 8	"
Week 10	Characterization of Organic Matter	Chapter 9	"
Week 11	Nutrient Dynamics	Chapters 10 and 11	"
Week 12	Nutrients Dynamics	Chapter 12 and 13	"
Week 13	Trace Metal Cycling	Chapter 14	"
Week 13	Organic Contaminants	Chapter 15	"
Week 14	Historical Reconstruction of Contaminants	Chapter 15	"
Week 15	Global Impacts of Estuaries	Chapter 16	"
Week 16	Global Impacts of Estuaries	Chapter 16	"
	Final Exam (TBA)		