

MSC 601: Regional Oceanography of the South Atlantic Bight

Course Syllabus

Spring, 2025 (2 Credits)

Instructors: Dr. Ata Suanda & Dr. Christian Briseño-Avena

E-mails: suandas@uncw.edu & brisenoavenac@uncw.edu

Zoom: <https://uncw.zoom.us/my/asuanda>

Meetings: T 1:00 - 3:00 pm ([Sync](#))

Location: DOBO 2012

Office Hours: Please email

Course Description

This course concerns oceanographic processes in our region, the South Atlantic Bight (SAB). The course covers, in a descriptive sense, regional processes and features relevant to ecosystem dynamics.

The course is a combination of lecture and seminar-style material covering physical, biological and chemical oceanographic concepts that are important to the SAB. A quantitative aspect of the course comes from hands-on oceanographic data access, analyses and interpretation. A hands-on field experience to participate in a 4-day research cruise is potentially available. The cruise is part of an interdisciplinary oceanographic sampling program extending from the mouth of the Cape Fear river out to the Gulf Stream.

As a student, you are expected to actively engage with course material. Particularly for seminar-style learning objectives where students read primary literature and lead in-class discussion. There will be many resources made available. The more you put in, the more you will get in return.

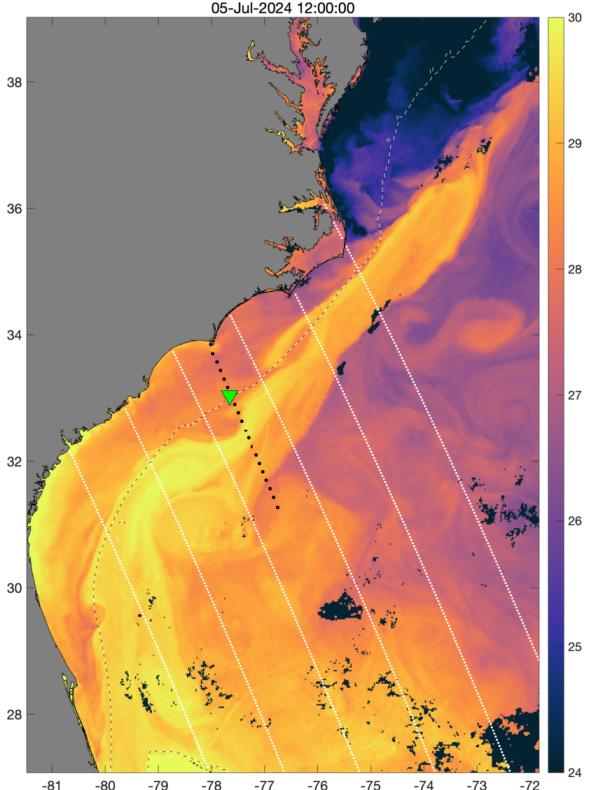


Figure 1: Satellite measured sea-surface temperature snapshot of the SAB.

1 Learning Objectives

This course is part of the career readiness requirement of the ACOS program and is considered an Advanced Topic in Applied Coastal and Ocean Sciences relevant to other graduate programs at UNCW. By the end of the course, students are expected to:

1. Have a broad understanding of biological, physical and chemical processes in the South Atlantic Bight, including coastal to offshore regions.
2. Know where and how to access oceanographic data from local observational programs and/or databases. Be comfortable to process, analyze, and present these data.
3. Be able to critically interpret results from primary oceanographic scientific literature.
4. Be able to present cohesive results from a research project assignment to a scientific audience.

2 Course Logistics

Guidelines

This course is delivered in the **synchronous face-to-face** format. It is expected that students will be on-time and present during class time and *participate* in class discussions, do supplemental reading, work with your classmates and ask the instructor for clarifications as you need them.

Software

In this course we will conduct data visualization exercises (Data Labs). Data exploration will utilize a programming language such as MATLAB, R, or Python. Some familiarity with at least **one** of these will be useful but not required. Computer resources are all available in UNCW computer labs and student licenses on personal computers by request. If you have any concerns, difficulties or questions about their usage, please contact one of the instructors as soon as possible.

References

There is no required textbook for this class. We will begin with historical primary literature from the region and follow this with contemporary issues in oceanography. For example:

1. Oceanography of the Southeastern U.S. Continental Shelf, by L.P. Atkinson, D.W. Menzel, K.A. Bush, editors. *AGU*, (1985).
2. Observations on the Gulf Stream by Benjamin Franklin *NOAA*, (1785).
3. The Gulf Stream : a physical and dynamical description by Henry Stommel. *University of California Press*, (1958)
4. **Link to live document** Course primary literature reading and reference list.
5. A compiled list from The Skidaway Institute of Oceanography **on South Atlantic Bight Studies**

Prerequisites

None. Familiarity with introductory physical, biological, and chemical oceanographic concepts are expected. A knowledge of basic statistical concepts and experience using a programming language will be useful.

3 Assignments and Grading

Assignments

Grading Policy

Your final grade for this course will be based on the following proportions:

Reading presentation Each student leads the class discussion on one paper from primary literature	15%
Hypothesis and research outline Outline of proposed research with references (2 page max)	15%
Data analysis assignments Completion of data visualization and interpretation assignments from Data Labs	30%
Final research project Student presentation on an approved research project	30%
In-class participation Present and are prepared for class meetings and actively engaged in discussion	10%

Grading Scale

Your course grade is converted from 100-Point System to A± System using the following table:

A	≥ 90
B	80 - 89
C	70 - 79
D	60 - 69
F	< 60

4 General course policies

COVID-19

The global pandemic continues to be a difficult time for everyone. If you are physically sick, ill, or experience COVID-19 symptoms, immediately contact the Student Health Center **(910) 962-3280**. If you are experiencing other hardship and difficulties impacting your learning, please talk to someone and do not suffer alone. The UNCW counselling center is available at DePaolo Hall, www.uncw.edu/counseling/about.html, **910-962-3746** or by email at CounselingCenter@uncw.edu.

Academic Integrity and Honesty

All members of the UNCW community are expected to follow the academic Honor Code. Please read the UNCW Honor Code carefully (as covered in the UNCW Student Handbook and available here: www.uncw.edu/odos/honorcode/). Academic dishonesty and plagiarism will not be tolerated in this class. Don't cheat. When in doubt, cite your references and acknowledge class-mates or external sources.

Accommodation

The University of North Carolina Wilmington is committed to complying with all federal, state, and local requirements of nondiscrimination. UNCW supports the right of enrolled students to a full and equal educational opportunity and is committed to reasonable accommodations for individuals with documented disabilities or who are impacted by Title IX concerns. Students with disabilities for whom accommodations may be necessary must be registered with, and provide official notification through, UNCW's Disability Resource Center (www.uncw.edu/disability). Once established, responsibility for disability-related accommodations and access is shared by DRC, faculty, and the student. Disability Resource Center: DePaolo Hall, Suite 1033; **910-962-7555**.

Non-discrimination

Individuals who wish to report any form of gender-based discrimination or sexual misconduct/harassment—and those requesting related accommodations—should contact UNCW's Title IX Office (www.uncw.edu/titleix). Students may also report incidents of misconduct to the faculty; however, be aware that faculty are mandatory reporters and are required by law to notify the Title IX office.

If students wish to seek confidential resources without reporting an incident, three departments at UNCW are exempt from mandatory reporting requirements: CARE: Interpersonal Violence Prevention & Response, University Counseling Center, and Abrons Student Health Center.

Violence and Harrasment policy

Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and will not be tolerated. There is a zero-tolerance policy for any kind of violent or harassing behavior at UNCW. If you are experiencing an emergency of this type contact the police at **911** or UNCW CARE at **910-962-2273**. Resources for individuals concerned with a violent or harassing situation www.uncw.edu/noharm/resources/index.html.

Seahawk Respect

The UNCW Seahawk Respect Compact affirms our commitment to a civil community characterized by mutual respect. That Compact will soon be affixed to the wall of each classroom and can be accessed at www.uncw.edu/diversity/src.html.

5 Weekly course schedule

The following schedule of topics is tentative and subject to change.

Week	Date	Topic	
1	01/14	The SAB physical environment	<ul style="list-style-type: none"> - Course introduction and preliminary material - In-class reading and discussion
2	01/21		<ul style="list-style-type: none"> - Large-scale processes with biological response - Reading 1 discussion - Preliminary data assignment
3	01/28		<ul style="list-style-type: none"> - Continental shelf processes - Reading 2 discussion - Final project expectations
4	02/04	Overview of regional observational programs	<ul style="list-style-type: none"> - Measurements and data availability (Lynn Leonard) - Computer data lab 1 - Final Project CHECK IN
5	02/11	TEAL-SHIPS Research Cruise	<ul style="list-style-type: none"> - No Class
6	02/18	SAB coastal and oceanic biological processes	<ul style="list-style-type: none"> - Microbial processes (Bradley Tolar) - Reading 3 discussion - Final project hypothesis and outline DUE
7	02/25		<ul style="list-style-type: none"> - Plankton and fisheries (Matt McLean) - Reading 4 discussion - Computer data lab 2
8	03/04	Spring Break	<ul style="list-style-type: none"> - No class
9	03/11	Chemical processes & land/sea connections	<ul style="list-style-type: none"> - Particulates and dissolved materials (Winn Johnson) - Reading 5 discussion
10	03/18		<ul style="list-style-type: none"> - Pollutants Ralph Mead - Reading 6 discussion
11	03/25		<ul style="list-style-type: none"> - Computer data lab 3
12	04/01	Interdisciplinary interactions	<ul style="list-style-type: none"> - Paleo-oceanographic circulation in the SAB - Reading 7 discussion
13	04/08	Comparative studies of WBC regions	<ul style="list-style-type: none"> - Example of the East Australian Current - Reading 8 discussion
14	04/15		<ul style="list-style-type: none"> - Project work - Project work
15	04/22	Climate change impacts on WBCs	<ul style="list-style-type: none"> - Variability in AMOC and SAB Dylan McNamara - Reading 9 discussion
16	04/29	Research presentations	Final student projects due

Red: Indicates group computer work; Blue: Student assignments due; Green: In-class guests