

**NORTH CAROLINA ESTUARIES: ENVIRONMENTAL PROCESSES & PROBLEMS**  
**(MASC 220/ENEC 220)**  
**May 2017**

**Course Description:** North Carolina is home to some of the nation's most productive, most scenic, and most threatened estuaries. This class will use the Neuse River estuary as a case study to examine both natural processes and human impacts on estuarine systems. The course includes one week of intensive field work based at the Institute of Marine Sciences. (Satisfies Experiential Education [EE] and Physical Life Science with Lab [PX] requirements.)

Lecture: Monday–Friday, 1:15 to 4:30 pm, G201 Murray Hall  
Instructor: Marc Alperin, 4202B Venable Hall (962-5184), [alperin@email.unc.edu](mailto:alperin@email.unc.edu)  
Office Hours: Monday–Friday, 4:30 pm (or by appointment)  
GRC\*: Bryce Van Dam, Institute of Marine Science, [bvandam@live.unc.edu](mailto:bvandam@live.unc.edu)  
Website: sakai.unc.edu

**Course Outline**

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**WEEK 1: *Estuarine processes***

Wednesday (1) Introduction; (2) Overview of estuaries  
Thursday (3) Estuarine circulation  
Friday (4) Estuary as a filter; (5) Sediment deposition and erosion

**WEEK 2: *Field study***

Saturday Travel from UNC to Institute of Marine Sciences (Morehead City)  
Cliffs of the Neuse  
Sunday Lecture: (6) Sediment biogeochemical processes; (7) Estuarine nitrogen cycle  
Cruise preparation  
Monday Neuse River estuary cruise  
Tuesday Lectures: (8) Estuarine phytoplankton  
Lab work and data analysis  
Wednesday Lecture: (9) Primary productivity  
NERRS tour and field trip to Rachel Carson Estuarine Reserve  
Lab work and data analysis  
Thursday NOAA tour  
Lab work and data analysis  
Friday Research presentation  
NC Aquarium and Fort Macon  
Return to Chapel Hill

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\* In this research-exposure course, you will be working with a Graduate Research Consultants (GRC), Bryce Van Dam, who will assist you with field research and data analysis. The GRC Program is sponsored by the Office for Undergraduate Research ([www.unc.edu/depts/our](http://www.unc.edu/depts/our)). I encourage you to visit this website to see other ways that you might engage in research, scholarship and creative performance while you are at Carolina.

### **WEEK 3: *Environmental problems***

Tuesday (10) Racap; (11) Eutrophication  
Wednesday (12) Hypoxia and anoxia;  
Thursday (13) Managing the human impact on estuaries; (14) Fish kills and *Pfiesteria*  
Friday Final exam

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### **COURSE EVALUATION**

	<i>Relative Weight Toward Grade (%)</i>
Final exam	40
Data report (10 pg)	25
Problem sets (~5)	30
Reading assignments (~4)	5

### **GRADING SCHEDULE**

A = 95 - 100	B+ = 87 - 89	C+ = 77 - 79	D+ = 67 - 69
A- = 90 - 94	B = 83 - 86	C = 73 - 76	D = 60 - 66
	B- = 80 - 82	C- = 70 - 72	F = < 60

### **IMPORTANT DATES**

May 20-26 Field trip (leave UNC Sat, May 20 @ 12:00 noon; return Fri, May 26 @ ~8:30 pm)  
Jun 2 Data report due and final exam

### **ATTENDANCE POLICY**

Regular class attendance is required. Please let me know if you will be missing class due to illness.

### **COURTESY RULES**

All written work must be turned in as hardcopy.

Please staple all multipage assignments before turning them in.

You are welcome to use your laptop computer during class for accessing the class website and/or taking notes. Other uses (e.g., emailing, “surfing” unrelated to class, updating your Facebook page) are not allowed during class time. Students using their laptop in class for activities unrelated to the class will be asked to leave the room.

Please turn off your cell phone and refrain from texting during class.

## HONOR CODE\*

“It shall be the responsibility of every student at The University of North Carolina at Chapel Hill to obey and support the enforcement of the Honor Code, which prohibits lying, cheating, or stealing when these actions involve academic processes or University, student or academic personnel acting in an official capacity.”

**Pledge:** You must make the following pledge on all written work that you submit: “On my honor, I have neither given nor received unauthorized aid on this assignment.” Writing “Pledge” and signing your name on the first page implies that you have conformed to the spirit of the pledge.

**Exam:** The final exam in this class is to be taken without the assistance of books, notes, or other people. You may, however, study with your classmates. In fact, forming study groups is an excellent way to prepare for exams.

**Problem Sets:** You are encouraged to cooperate, discuss, and work together on the assigned problem sets. However, each student should complete the problems on their own and submit individually prepared solutions.

*If you have any questions regarding the Honor Code, please contact Marc Alperin.*

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\* Adapted from a “How to Have Honor Prevail in Your Classroom”, a handout prepared by Margaret Barrett, Judicial Programs Officer, UNC Chapel Hill.