

Chesapeake Bay Governor's School for Marine and Environmental Science
Glenns Campus

Marine and Environmental Science II- Fall 2015/Spring 2016

MAR 101/102 General Oceanography I&II (4 credits/semester, total 8 credits)

Instructor: Sara Chaves Beam

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Course Description: This course is the second part of our exploration of the ocean planet with an emphasis this year on the oceans and life in them. We will use lab and field experiences, and analysis of real data in this interdisciplinary course emphasizing the important interconnections of chemical, physical, geological and biological oceanography. We will continue our research projects, which will culminate in formal presentations at our CBGS spring symposium at VCU.

I. First Semester

Introduction to Oceanography- history of oceanographic research, structure and origin of the ocean basins

Hurricanes and Air-Sea Interactions

Coastal Geomorphology- Waves, Beaches, Tides- OBX trip!

Marine Geology and the Sea Floor -sediments, distribution and sources, mineral resources of the sea floor, hydrothermal Vents, cold seeps

Marine Biogeochemistry- ocean sediments, nutrient dynamics, marine snow, carbonate buffering, ocean acidification and the Carbon cycle

Global Oceanic Circulation- Coriolis, Ekman, DABW formation and climate change, geostrophy and Western Boundary currents, the Global Ocean Conveyor Belt, upwelling, ENSO, ocean/atmosphere thermodynamics

Marine Hydrokinetic Resources- Hydropower, Wind and Wave Farms

II. Second Semester

Marine Ecosystems Rocky Shores and Macroalgae; Coral Reefs and shallow tropical ecosystems; Open Ocean- pelagic fisheries; Deep Ocean, the Abyss

Marine Biology and Evolution: Evolution Basics; Taxonomy and Phylogeny of marine organisms; marine algae and vascular plants; invertebrates- Porifera, Cnidaria, Mollusca, Annelida, Arthropoda, Echinodermata, Chordata, to name a few Dissections!

Bony fishes, sharks and rays comparative anatomy and marine mammals

Management and Preservation of Marine Resources

Common pool resources, marine protection areas, fisheries management, migratory fish, marine mammals and birds, etc...

Textbooks: *Introduction to Oceanography*, Thurman and Burton

Marine Biology, Castro and Huber

other readings as assigned by instructor

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Grading: Your grades will be broken down into the following categories:

Classwork/Homework/ Quizzes: 40%

Tests/ Projects: 60%

100%

Late Work/ Make-up Policy:

** If you miss a class IT IS YOUR RESPONSIBILITY to get all notes and assignments from that class, please let me know if you will be absent in advance and I can try to help you in this.

**LATE WORK , please do not do this, it causes big problems for you, for me and is a very, very bad habit to get into, see me if you have a problem with an assignment.

Required Materials: 3-ring binder with dividers and paper for note taking, blue/black pens, pencils, Composition bound notebook (this will serve as a field notebook and journal and must be taken on all field trips). A computer "Flash" drive is required and must be brought to each class session.

Course Expectations:

1. Be respectful of your colleagues and instructors always, and respectful of the environment and critters when out in the field.
2. Follow school rules, treat equipment with care, and observe proper safety measures in class, labs and in the field.
3. Be in class every day, ready when class starts and PARTICIPATE! You cannot learn simply by osmosis, you need to be engaged, asking questions and taking notes. In the field, a can-do, adventurous attitude is a must- remember, **mud is a GOOD thing.**
4. In field activities, students will conduct themselves in a safe and mindful manner taking care to observe rules of boats, buses and teachers.

Attendance: See handbook for CBGS policy. Attendance is required, if you are absent, it is your responsibility to make up any missed assignments, and get notes. Make-up work is due within 2 days of your return to class and tests or quizzes must be made up THE DAY you return. A deduction of one letter grade/day late will be assessed for late work. Please contact me if you will be missing class so we can avoid any problems and make sure you can keep up.

Policy for Cell Phones/ Laptop Computers/ Misc. Electronic Devices/Inappropriate computer use:

No cell phones, laptop personal computers or handheld video games may be used during designated class time unless approved by instructor. Class begins promptly at the

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Glenns Campus

assigned time and all electronic devices must be off, put away, and not immediately available for use during time devoted to learning. Use of CBGS computers must follow appropriate computer etiquette where equipment is treated carefully and respectfully, and appropriate student content only is observed. If a student is found violating this policy the following actions will be taken:

1. First offense a verbal warning will be issued.
2. Second offence a written school referral will be issued to the student; their parents and the home school will be notified and appropriate action taken based on school policy.

Tips for Success:

A good student is fully present in class, that means they are focused on what is going on in the lecture or activity, they are actively learning, asking questions, taking notes and thinking about what they are doing. Start with good habits like being prepared when class begins, ready to take notes, having done homework and write down any questions you may have thought of prior to class. Write down assignments in a separate "To Do" ledger, this will help you organize your time and prioritize your assignments. I often give larger projects or papers a big block of time for completion, a few weeks even. This means that you need that much time to get organized, do research, gather sources, think, outline, write and edit. It does not mean that you have two weeks to wait to do it, i.e. the night before. A good student engages their instructor in class, and keeps in contact, asking questions, and seeks out answers when they are confused or curious. Put me to work, that's why I am here! SCB

CBGS Statement on Safety What to know and do to be prepared for emergencies at CBGS/RCC: - Sign up to receive RCC text messaging alerts Keep your information up-to-date

(<https://alert.rappahannock.edu/index.php?CChack=1>)

- Know the safe evacuation route from each of your classrooms. Emergency evacuation routes are posted in campus classrooms.
- Listen for and follow instructions from CBGS/RCC or other designated authorities.
- Know where to go for additional emergency information.
- Report suspicious activities and objects

Statement on Americans with Disabilities Act Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 require Schools to provide an 'academic adjustment' and/or a 'reasonable accommodation' to any qualified individual with a physical or mental disability who self-identifies as having such. Students should contact inform CBGS faculty for appropriate academic adjustments or accommodations.