



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

Marine & Environmental Science II MAR 201
2012-2013
Mr. Beam

Course Description: A two-year lab and field science course designed to explore the principles of general ecology, environmental science, and oceanography, with special emphasis on the Chesapeake Bay and its watershed as well as the Atlantic Ocean and east coast. The entire two-year course is interdisciplinary in spirit, stressing the importance of chemical, physical, and geological oceanography for understanding marine life and aquatic ecosystems. The curriculum will largely be driven by the data and investigations of real scientists, and students will design and conduct their own scientific research.

Course Credit: 4 credits per semester

Contact info: Warsaw Office: (804) 333-1306
Home: (804) 758-4095
Email: jbeam@cbgs.k12.va.us

Textbooks:

Introductory to Oceanography, Thurman and Burton
Marine Biology, Castro and Huber

Course Expectations:

1. Be Prepared and On Time
2. Be Courteous and Respectful
3. Follow All School Rules
4. Follow safety measures in the class and in the field
5. Be in class and participate every day

Required Materials:

3-ring binder with dividers
Pencil and pens
Field notebook
Journal

Grading: Grades are determined using a point system.

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|------------|------------|
| Tests | 100 points |
| Quizzes | 25 |
| Projects | 100-200 |
| Class work | 20-100 |
| Homework | 20-50 |

Course grades will be assigned on the scale,

A = 90 -100 B = 80 - 89 C = 70 - 79 D = 60 - 69 F < 60

Course Topics / Sequence:

Unit 1: Coastal Environments

- Coastal Environments (Rocky Shore, Sand Beach, Wetlands)
- Barrier beach morphology (Profiles, zones, berm, scarp, layering)
- Barrier Migration, Dunes, Spits, Inlets Storms, Overwash
- Life along sand beaches (Beach and Dune plants/Maritime Forests)
- Rocky Shore Environments(zonation, seaweeds, Tide pools)
- Coral Reef (biology, formation and evolution, bleaching, symbiotic relationships)

Unit 2: Motions of the Oceans

- Wave characteristics, formulas and zones (surf, breakers, swash)
- Deep ocean waves vs. Nearshore waves
- Wave/Sediment Dynamics & Features (Ripples, antidunes, beach cusps)
- Longshore currents / Longshore Transport
- Coriolis, Ekman Transport and Upwelling, Downwelling
- Surface Currents and Deep Ocean Currents
- Tides (types, formulas, moon phases, tide charts)
- Sea Level Rise (Climate change, rates and implications)

Unit 3: Ocean Water Properties

- Ocean Zonation (Benthic, Plankton, Pelagic, Littoral, etc...)
- Surface/Depth profiles for Temperature, Salinity, Density, Pressure, Light, Sound, Gases, Nutrients (Carbonate compensation depth)
- Ocean sediments/oozes (diatoms, radiolarian, coccolithophores, dinoflagellates...)
- Climatic Implications (El Nino and La Nina and Paleo studies))

Unit 4: Pelagic Zone and Deep Ocean Environments

- Pelagic zone characteristics
- Pelagic fishes and food webs
- Deep ocean sediments
- Ocean floor geology
- Hydrothermal Vent Communities

Unit 5: Marine Biology

- Evolution of Marine Life
- Taxonomy and Marine Biodiversity
- Microbes
- Invertebrates
- Vertebrates
- Fisheries Management, Aquaculture and Sustainable Resources

Attendance: Class attendance is required. Be reminded of the CBGS policy you signed at orientation! Absences and tardies will be reported daily to your home school and will result in parent notification and conferences where necessary. Check my link on the CBGS website for weekly work if you miss a day. You may also call or email me.

Make-up/Late Work Policy

- If you miss a class, it is your responsibility to get all notes and missed assignments.

- Make-up work needs to be completed within 2 days of your return to class. A missed test or quiz must be taken the day you return to class.
- A deduction of one letter grade per day will be assessed to all late work.

Honor Code: Students are expected to follow the rules and procedures as outlined in the Student Honor Code. Please refer to the Student Handbook if you need guidelines. Failure to do so may result in dismissal from the course. All quizzes and tests are pledged.

Emergency Evacuation Plan: In each classroom, laboratory or other places where students are assembled for the purpose of instruction, a fire evacuation plan will be posted indicating the direction of travel from the room in the event it becomes necessary to evacuate the building as a result of fire or other emergency. This plan will be posted in a conspicuous place near the exit from the room.

Whenever the fire alarm sounds, the building will be evacuated. The instructor will ensure the fire door is closed upon leaving the area (doors with automatic closures on them). Instructors are also responsible for assisting disabled students.

If a classroom does not have an evacuation plan posted, the student or instructor should notify the academic dean.

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?CCheck=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.