

The Chesapeake Bay: A Local Resource with National Impact

NR 5884, CRN 96219, Fall 2009 (3 credits)

*Virginia Polytechnic Institute and State University – College of Natural Resources
National Capital Region*

INSTRUCTOR

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CLASS LOCATION

Virginia Tech, Northern Virginia Center, 7054 Haycock Road, Falls Church, Room 322

MEETING TIME

Thursdays, 7:00 – 10:00 PM

OFFICE HOURS

By appointment

COURSE DESCRIPTION

Most of the students studying in the Natural Resources Program live in the Chesapeake Bay watershed, but do we really know how we impact the Chesapeake Bay? The U.S. EPA states that 16.6 million people live in the Bay watershed and that number grows by 100,000 each year. The Chesapeake Bay's huge watershed (the Chesapeake Bay Foundation puts the number at approximately 2,700 square kilometers of land per cubic meter of water) coupled with its shallowness, makes the Bay vulnerable to pollutants and land use changes. Management of the Chesapeake Bay has encountered successes and failures since the 1960s, and has been used as a model for management of estuaries nationwide. In this course, we will review the history of the Chesapeake Bay, learn about impacts on the Bay and its many resources, and discuss management and policy issues associated with the Bay.

GOAL AND EDUCATIONAL OBJECTIVES

Goal. To provide students with an understanding of the issues facing the Chesapeake Bay, from management at an individual level to management at the state and Federal level.

Course Objectives. Upon completion of this course, students will understand:

- The history of Chesapeake Bay. Students will understand the geological development, human intervention prior to European settlement, and human intervention after European settlement including the roles of various industries in the Chesapeake Bay.

- The ecosystems found in the Chesapeake Bay and its watershed.
 - Students will be able to discuss the unique aspects of the Bay ecosystem including watershed size, depth, salinity, flushing.
 - Students will be able to identify native and invasive species in their “Bay habitat,” and develop a Bayscape plan for a local property.
 - Students will understand indicators of Bay health, such as sedimentation, water quality, and SAV growth.
- The economic importance of the Chesapeake Bay and its watershed. Students will understand the major industries found in and around the Bay, as well as threatened industries such as recreation, rockfish fisheries, shad fisheries, blue crab fisheries, and the oyster industry.
- The threats to various portions of the Bay ecosystem and economy such as overharvesting, invasive species, and point and non-point source pollution.
- The players involved in management of the Chesapeake Bay, including local, state, and federal agencies, non-governmental organizations, and industry representatives.
- The complexities and political barriers to management of the Chesapeake Bay, from 1960 to present.
- Legislation and programs developed to protect the Bay.
- The current state of the Chesapeake Bay’s ecosystem and economy.

COURSE CALENDAR

Week 1 History of the Chesapeake Bay – Geologic History, native Americans, European settlers.
Reading: Chesapeake Waters (Davison et. al.), Ch. 1-5; Chesapeake Bay, Introduction to an Ecosystem, pp. 5-7

Week 2 Chesapeake Bay watershed – tributary and ecosystem overview
Reading: Chesapeake Bay, Introduction to an Ecosystem; Life in the Chesapeake Bay (Lippson & Lippson), Ch. 1; Turning the Tide (Horton & Eichbaum), Ch. 1

Week 3 Tributary and ecosystem overview, cont’d; **“Drop of water” assignment and presentations due.**

Week 4 Chesapeake Bay watershed – economic overview. Case study on the blue crab industry.
Reading: Beautiful Swimmers (Warner); Turning the Tide (Horton & Eichbaum) Ch. 5, 6

Week 5 No regular class; Saturday trip to Chesapeake Bay Maritime Museum in St. Michaels MD

Week 6 Threats to the Chesapeake Bay – nutrient and pollutant runoff, overharvesting, land use, invasive species
Reading: Turning the Tide (Horton & Eichbaum), Ch. 2-5.

Week 7 Bayscaping; **Potomac Gorge Questions Due**
Reading: U.S. Fish and Wildlife Service Bayscaping Manual

Week 8 Management of the Chesapeake Bay – History since 1960; review of the application of the Clean Water Act.
Reading: Chesapeake Bay Blues (Ernst), Ch. 2

Week 9 Management of the Chesapeake Bay -- current. Local, state, federal, and non-governmental players, programs, and legislation. MPT – documentary on Maryland’s critical areas law.
Reading: Turning the Tide (Horton & Eichbaum), Ch. 6

Week 10 Management of the Chesapeake Bay – Agricultural Regulation

Reading: Chesapeake Bay Blues (Ernst), Ch. 3, 4

Week 11 Management of the Chesapeake Bay – wetlands management. A discussion of state and federal tidal and non-tidal wetlands issues in the Chesapeake Bay.

Reading: Life in the Chesapeake Bay (Lippson & Lippson), Ch. 7; Turning the Tide (Horton & Eichbaum), Ch. 4

Week 12 Management of the Chesapeake Bay – fisheries management. Discussion of shad, rockfish, and oyster fisheries

Reading: Life in the Chesapeake Bay (Lippson & Lippson), Ch. 8; Turning the Tide (Horton & Eichbaum), Ch. 3

Week 13 **Presentation of Bayscaping management plans**

Week 14 The Future of the Chesapeake Bay

Reading: Turning the Tide (Horton & Eichbaum), Ch. 7; Chesapeake Bay Blues (Ernst), Ch. 7

Week 15 **Final Exam**

COURSE REQUIREMENTS AND GRADING

The two primary goals of this course are to ensure that students understand the issues surrounding management of the Chesapeake Bay, aka “the big picture,” and also understand how their individual actions affect the health of the Chesapeake Bay. To that end, this course will contain a combination of assignments tackling local and larger issues. Students will be expected to participate in class, complete all reading assignments, and attend one field trip. Three written projects are assigned: 1) “Drop of water” project in which the student must trace the origin of the water he or she uses at home from its source, through any treatment, and into the Chesapeake Bay (describing ecosystems encountered); 2) a short report answering questions on the Potomac Gorge, following a hike through Riverbend and Great Falls parks; 3) a management plan for a Bayscape for a home or place of work, including environmental and economic basis for the recommendations. A final exam will complete the course assignments. Assignments will count as follows toward the final grade:

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| Class participation (including field trip) | 15% |
| “Drop of Water” assignment and presentation | 15% |
| Potomac Gorge Questions | 15% |
| Bayscapes management plan and presentation | 30% |
| Final exam | 25% |

REQUIRED TEXTS

Ernst, Howard R. 2003. Chesapeake Bay Blues. Rowman & Littlefield Publishers, Inc. 205 pp.

Horton, Tom and William M. Eichbaum. 1991. Turning the Tide. Island Press. 324 pp.

Lippson, Alice Jane and Robert L. Lipson. 2006. Life in the Chesapeake Bay. The Johns Hopkins University Press. 324 pp.

Warner, William W. 1994. Beautiful Swimmers. Little, Brown, and Company. 304 pp.

BLACKBOARD

Course announcements, information, assignments, and documents will be posted on Blackboard, accessible with your PID and Password at www.learn.vt.edu or the Virginia Tech Home Page.

GRADUATE HONOR CODE

The tenets of the Virginia Tech Graduate Honor Code will be strictly enforced in this course, and all assignments shall be subject to the stipulations of the Graduate honor Code as outlined in the Graduate Catalog at <http://www.ncr.vt.edu>. For more information on the Graduate Honor Code, please refer to the GHS constitution, located online at <http://fbox.vt.edu/studentinfo/gradhonor/>. Please contact the instructor immediately if you have any questions.

SPECIAL ACCOMODATIONS

If you need adaptations or accommodations because of a disability (learning disability, attention deficit disorder, psychological, physical, etc.), if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

COURSE EVALUATIONS

In the spirit of continuous improvement, the instructor seeks ways to improve this course and values your input. To that end, you will be asked to complete an informal evaluation mid-term and at the end of the semester as well as a formal evaluation on May 10. At any point during the course, your suggestions and comments are most welcome.

NOTE: The course syllabus is a work in progress. Changes and updates will be made to accommodate the needs and interests of the students. Modifications may also be made if natural resource communications issues surface during the semester that may provide a unique learning experience for students.

WEATHER LINE: For weather cancellations, please check www.ncr.vt.edu and the Weather Alert Line 703-538-8325.