# ISSUES IN ENVIRONMENTAL SCIENCE
# SYLLABUS: SPRING 2010 BIOL-143-01

**Instructor:** Ann-Marie Burke, MS
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**Office Hours:** Monday/Wednesday/Friday 9:30-10:45am; Tuesday 4-5pm or by appointment
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**Text:** Withgott, J., Brennan, S. 2008. Environment, The Science Behind the Stories. Third edition. San Francisco, CA: Pearson/BenjaminCummings Publishing Co., Inc.

**Course Description** Issues in Environmental Science 4 credits

This course will introduce students to important environmental issues including fisheries conservation and management, coastal pollution, ecology and conservation of wetlands (including salt water marshes, rivers, streams, and vernal pools), ground water issues (including depletion and pollution of aquifers), introduced species, and endangered species, energy use, land conservation, and examples of historic use of land in a region.

**Prerequisites:**
· Preparing for College Reading II (ENGL092), Introductory Writing (ENGL099), and Fundamental of Mathematics (MATH010)

**Grading Policy**

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|---|---|
| Lecture Exams | 30% |
| Quizzes | 20% |
| Laboratory exercises | 20% |
| Homework/presentations | 10% |
| Final Exam (cumulative) | 20% |
| | 100% |

*Lecture Exams and Quizzes:* Three scheduled lecture exams will occur during the semester. A review sheet will be provided to students before the exam. Students who wait until the last minute to study, usually do poorly on exams. A large amount of information is covered in this course. To succeed, students should plan on spending at least two hours studying the material covered during *each* class. Exams consist of a mixture of short answer, multiple choice, fill-in the blank and labeling questions. Exams may not be made up. If an exam if missed, the final exam grade will replace the missed exam grade. Quizzes will be given frequently throughout the semester. Quizzes are not listed in the syllabus but will be

announced at least one class in advance. Missed quizzes may not be made up. The lowest quiz grade will be dropped. Students arriving significantly late to class will not be allowed to take the quiz.

*Laboratory:* The laboratory experiments are a chance for students to apply what they have learned in class. During the lab students will work individually or in small groups to complete the assigned tasks. Students are expected to read and carry out directions independently. An assignment pertaining to the lab will be due at the end of the lab period. Homework and laboratory assignments which are one week late will have 20% subtracted from the grade. After this point all assignments will receive a zero. Missed labs may not be made up. The lowest homework lab grade will be dropped.

**General Course Objectives**

This course presents a comprehensive survey of environmental science. More specifically, the student will study how the natural world works, how our environment affects us, and how we affect our environment. The interdisciplinary nature of environmental science requires an introduction to concepts of chemistry, biology, and ecology. These topics will be introduced in the beginning of the course. In addition, skills in basic math, graphing and critical thinking will be strengthened with problem sets and case studies of current environmental topics. The specific objectives for each chapter are presented in the book on the first page of each chapter.

The laboratory component of the course is designed to enhance the student's understanding of specific scientific concepts and environmental issues. The labs are also designed to allow the students to develop critical thinking skills, analytical skills, graphing skills and a better understanding of the scientific method through hands-on applications.

This course is also designed to reinforce cross curriculum competencies which include critical thinking, technology skills, oral communications, quantitative skills, and reading and writing.

**Specific Course Objectives**

By the end of this course students shall be able to do the following;

- Demonstrate the importance of using critical thinking and the scientific method to understand how human activities affect the limited resources of our planet.
- Understand and apply basic concepts of chemistry, biology and ecology to the study of environmental science.

- Measure environmental variables and interpret results
- Describe the natural resources and explain their importance to human life
- Understand the preservation and conservation movements.
- Explain the process of natural selection
- Describe the ways in which evolution influences diversity
- Discuss the reasons for species extinction and mass extinction events
- List the levels of ecological organization
- Compare and contrast the major types of species interactions
- Characterize feeding relationships and energy flow and use them to construct trophic levels and food webs
- Describe the process of succession
- Understand and predict the potential impact of invasive species in communities
- Understand all aspects of water on Earth; hydrologic cycle, distribution, water use, problems with water supply and quality
- Demonstrate knowledge of the major types of air and water pollution that affect global health.
- Explain how wastewater is treated
- Characterize human influences on the atmosphere and global climate
- Define acid deposition and its consequences
- Describe the benefits of biodiversity, the primary causes of biodiversity loss, and potential solutions.
- Understand the types of waste we generate and the major approaches to managing waste
- Evaluate approaches for reducing waste: reduction, reuse, and recycling
- Identify the major types of environmental health hazards
- Outline the major sources of renewable energy and assess their potential for growth
- Evaluate and understand the concepts of sustainability

**Teaching Format:**

The classroom portion of the class is taught with a lecture format using the boards, overheads and Powerpoint presentations. In addition, movies or other audiovisual aids may be used. Students are encouraged to participate in classroom discussions.

**Attendance Policy:**

Students are expected to attend all classes and labs on time. Attendance in the laboratory is required. Students not present for the lab or those who leave early, will receive a zero for that lab. Missed labs may not be made up. It is the student's responsibility to get copies of lecture notes, handouts, and assignments for days

missed.

**Special Notes:**
Students with disabilities who believe that they may need accommodations in the classroom are encouraged to contact a disability counselor as soon as possible. Students at the Brockton Campus with learning disabilities should contact Andrea Henry, at extension 1805. Students with physical disabilities at the Brockton Campus should contact Mary Berg, at extension 1425. All students at the Canton Campus should contact Mary Berg at extension 2132.

**Grading Policy**

Below is the grading policy which includes the letter grade and the numerical equivalent. Grades are reported on transcripts using a 4 point system. This is then used to calculate the student's Quality Point Average (QPA). Please see the student handbook for the grade point equivalent.

| Letter grade | Numerical Range |
|---|---|
| A | 94 and above |
| A- | 90-93 |
| B+ | 87-89 |
| B | 84-86 |
| B- | 80-83 |
| C+ | 77-79 |
| C | 74-76 |
| C- | 70-73 |
| D+ | 67-69 |
| D | 64-66 |
| D- | 60-63 |
| F | Below 60 |
| I | Incomplete |

**Important Dates**

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|---|---|
| Last day to drop/add without a grade | January 30 |
| Convocation (no day classes *after* 12pm) | February 5 |
| President's Day (no classes) | February 15 |
| Spring Recess (no classes) | March 14-20 |
| Last day to withdraw from class | April 10 |
| Patriot's Day (no class) | April 19 |
| Scheduling for Fall 2010 - (no **day** classes-Brockton) | April 20 |
| Last day of classes | May 12 |
| Reading Day | May 13 |
| Final Exams | May 14-19 |