



CONSERVATION BIOLOGY FOR THE CLASSROOM

COURSE SYLLABUS

COURSE DESCRIPTION:

This Bronx Zoo course will give participants interested in pursuing a career in elementary teaching substantial life science content, while modeling different instructional methods and techniques. Prospective teachers will learn how to incorporate state science standards, and gain the background necessary to teach science concepts effectively. This course will help future teachers to understand concepts in science, instill the values of environmental conservation, and inspire them to share their expertise and enthusiasm in their own classroom. It will also give them the opportunity to experience on-line learning and the integration of technology into science teaching.

During four weeks of on-line distance education students will explore:

- the basics of conservation biology
- the main threats to wildlife
- populations over time
- how scientists study populations
- conservation in action

At the Bronx Zoo we will explore:

- techniques for integrating the science they learned into classroom experiences

The content will be geared to an audience of non-science majors and students will leave the course with a confidence in their knowledge of the subject and with ideas about how to get their future students excited about learning.

LEARNING GOALS:

While working through this course, teachers will:

- understand how geological, hydrological, and climatic factors influence the flora and fauna of regions throughout the globe
 - National Content Standard C: Life Science 5-8
 - Structure and Function of Living Systems
 - Populations and Ecosystems
- experience the diversity of life and describe how scientists classify living organisms
 - National Content Standard C: Life Science 5-8
 - Diversity and Adaptations of Organisms
- describe why certain parts of the world have more biodiversity than others
 - National Content Standard C: Life Science K-4, 5-8
 - The Characteristics of Organisms K-4
 - Organisms and their Environment K-4
 - Structure and Function of Living Systems 5-8

- Populations and Ecosystems 5-8
 - Diversity and Adaptations of Organisms 5-8
- define conservation biology and list reasons why it is important
 - National Content Standard G: Science as a Human Endeavor 5-8
 - Nature of Science
 - History of Science
- describe the principal threats to wildlife throughout the world
 - National Content Standard F: Science in Personal and Social Perspectives K-4, 5-8
 - Characteristics and Changes in Populations K-4
 - Types of Resources K-4
 - Changes in Environments K-4
 - Populations, Resources and Environments 5-8
 - Natural Hazards 5-8
- create sampling methods to determine population size of a species
 - National Content Standard A: Science as Inquiry K-4, 5-8
 - Abilities necessary to do scientific inquiry
 - Understandings about scientific inquiry
- explain ways scientists study populations and wildlife
 - National Content Standard G: History and Nature of Science K-4, 5-8
 - Science as a Human Endeavor
 - National Content Standard F: Science in Personal and Social Perspectives K-4, 5-8
 - Science and Technology in Local Challenges
 - National Content Standard E: Science and Technology K-4, 5-8
 - Understandings about Science and Technology
- make inquiry activities for students
 - National Content Standard A: Science as Inquiry K-4, 5-8
 - Abilities necessary to do scientific inquiry
 - Understandings about scientific inquiry
- describe the basic components and process of scientific research
 - National Content Standard A: Science as Inquiry K-4, 5-8
 - Abilities necessary to do scientific inquiry
 - Understandings about scientific inquiry

COURSE OUTLINE:

Session	Topics	Readings
Online week 1	Introduction to Conservation Biology Why should we protect biodiversity? What biodiversity should we protect? Where should we protect biodiversity?	Wilson, E.O. Prologue from <u>Future of Life</u> . New York: Knopf, 2002. Excerpts from manual not read in class (Leopold, Muir, Carson, Wilson)
Online week 2	Threats to Wildlife Speciation Extinction Challenges of small populations	Wilson, E. Diversity of Life, chapters 3,5,11 Darwin, C. Introduction from <u>On the Origin of Species by Means of Natural Selection</u> . London: 1859. The National Academy of Sciences. <u>Teaching About Evolution and the Nature of Science</u> (Chapter 1). Washington: National Academy Press, 1998. Hall et al. "The Environmental Consequences of Having a Baby in the United States." <i>Population and Environment: A Journal of Interdisciplinary Studies</i> July 1996: 505-525.
Online week 3	Inquiry and the scientific method What kinds of questions do scientists ask? How do scientists answer the questions they ask?	TBD
Online week 4	Habitat Restoration Designing Reserves Island Biogeography Meeting the needs of wildlife and people	Tucker, P. "Curing 'Nature Deficit Disorder'." <i>The Futurist</i> May-June 2006: 13.

GRADING:

Each student will be graded on the following criteria:

Participation in online discussion groups	15 %
Every week of the online course component, students will have to post answers to a discussion question on the course website.	
In class participation	10 %
Assignments	30 %
There will be two assignments during the online component of the course.	
Class Project	40 %
The class project will incorporate use of the entire course contents plus integration of classroom teaching strategies.	