

SEMESTER AT SEA COURSE SYLLABUS

Summer 2012

Discipline: Environmental Sciences

EVSC 1200: Elements of Ecology

Division: Lower Division

Faculty Name: Thomas M. Smith

Pre-requisites: Appropriate for Science and Non-Science majors

COURSE DESCRIPTION

In this course students will gain an understanding of the major ecological issues facing the human population. We will examine the topics of: 1) population growth, resource use and environmental sustainability, 2) biodiversity, and 3) global climate change. Our discussion will emphasize the interrelated nature of these issues, with a specific focus on the Mediterranean region. We will begin by developing an understanding of the basic ecological processes that govern natural ecosystems, and then explore how human activities are impacting those processes. In exploring each of these issues we will emphasize the application of the basic science of ecology to the understanding and mitigation of current environmental problems.

COURSE OBJECTIVES

The objective of this course is to provide students with the necessary scientific background for understanding the major environmental issues facing our planet: environmental sustainability, declining biodiversity and global climate change. We begin by developing a general understanding of the broad-scale patterns of climate and how these patterns influence the distribution and functioning of natural ecosystems. We then explore how human activities have altered the functioning of natural ecosystems. We begin the discussion of each issue by providing a general overview and framing the science (ecology) necessary to address each issue. We then develop an understanding of the basic science behind the issue, finally applying what we have learned to examine how these issues can be addressed through both science and policy.

REQUIRED TEXTBOOKS

AUTHOR: T.M. Smith and R.L. Smith

TITLE: Elements of Ecology

PUBLISHER: Benjamin Cummings/Pearson Education

ISBN #: 0-321-55957

DATE/EDITION: 7th ed.

COST:

TOPICAL OUTLINE OF COURSE

Class Day	Date	Topic/Activity
C1	6/19	Understanding the Issues: A Brief History of the Human Population
C2	6/20	Climate: Global Patterns
C3	6/21	Climate: The Mediterranean Region

C4	6/22	Basic Ecosystem Processes
C5	6/23	Primary and Secondary Productivity
C6	6/24	Distribution and Productivity of Ecosystems
C7	6/25	Environmental Issues Facing the Mediterranean Region
C8	6/26	Quiz 1
	6/27	Arrive Barcelona (Depart 6/30)
C9	7/1	Introduction to Environmental Sustainability
	7/2	Arrive Civitavecchia (Depart Naples 7/7)
C10	7/9	Sustainability in Natural Ecosystems
	7/10	Arrive Dubrovnik (Depart 7/13)
C11	7/14	Sustainable Agriculture
C12	7/15	Sustainable Fisheries
	7/16	Arrive Piraeus (Depart 7/19)
C13	7/20	Introduction to Biodiversity
	7/21	Arrive Istanbul (Depart 7/25)
C14	7/27	Understanding Diversity: Why Are There So Many Species?
C15	7/28	Community Ecology
C16	7/29	Conservation of Biological Diversity
C17	7/30	Quiz 2
C18	7/31	An Introduction to Global Climate Change
	8/1	Arrive Casablanca (Depart 8/4)
C19	8/05	The Science of Climate Change: The Global Carbon Cycle
	8/6	Arrive Lisbon – Field Trip (Depart 8/9)
C20	8/11	Climate Change: Past, Present and Future
C21	8/12	Potential Impacts and Adaptations I
C22	8/13	Potential Impacts and Adaptations II
C23	8/14	Final Discussion
	8/15	Study Day
C24	8/16	Exam Day - All written assignments due by 12:00pm (noon)

FIELD ASSIGNMENTS (*Twenty percent of the contact hours for each course is provided by fieldwork.*)

Each student will be required to complete two field assignments for this class and to submit two written reports based on your experiences.

The two written reports associated with your field assignments are to be based on your experiences and observations during your field trips as well as any related research that you have conducted prior to or following the field trips. Therefore, you are expected to keep a written record of your field observations (as well as photographic and other relevant materials).

One of the field assignments will be based on the course field trip (Biodiversity and Conservation of the Mediterranean Region, Arrábida Natural Park outside of Lisbon, Portugal). The second field assignment will be based on the development and completion of an Independent Study Project of your design. You will need to discuss your proposed project with me (provide a brief proposal with objectives and tasks) and get my written approval for your project. Some examples of appropriate Independent Study topics are provided below:

The Intergovernmental Panel on Climate Change (IPCC) assessment of the potential impacts of climate change for the Mediterranean Region is available in the course electronic resources. Choose one of the sectors that are presented (agriculture, human health, coastal environment, etc.) within the report and use two of the countries that we visit to contrast how different countries within the region may respond (adapt and/or mitigate) to these potential impacts.

Choose two or more countries in the region to contrast patterns of coastal development and discuss the potential impacts on the Mediterranean Sea.

Contrast agricultural practices in two or more countries within the Region (such as Morocco and Spain). How do these practices differ in their use of technology? What are some of the environmental impacts associated with each of these methods of agricultural production?

METHODS OF EVALUATION

Grading will be based on the following (Total of 100%):

Class Participation: 10%

(Attendance, participation in class discussions, answering in-class questions that relate to reading materials/assignments)

Quizzes: 40%

Final Exam: 30%

Written Reports based on Field Assignments: 20%

QUIZZES AND FINAL EXAM: Quizzes (two) will be given as indicated in the syllabus. These quizzes will evaluate your knowledge on the topics covered in the lectures and associated readings. The quizzes may include a mix of multiple choice, fill-in-the-blanks, labeling of drawings or diagrams, and short essay. The Final Exam will be comprehensive, thus covers all the material presented during the entire semester (although weighted more heavily on the materials covered in the lectures following Quiz 2). Each quiz will be worth 20 points (cumulatively 40% of your grade) and the final exam will be worth 30 points (30% of your grade).

POLICY ON MISSED QUIZZES: If you miss a quiz on the specified date and time, you must contact me within 24 hours of the date of the quiz and provide a valid, documented excuse for your absence. A make-up quiz will then be scheduled. Failure to notify me within 24 hours will result in a grade of zero for that quiz.

RESERVE LIBRARY LIST

Not anticipated.

ELECTRONIC COURSE MATERIALS

In addition to the textbook and reserve materials, I will post all lecture slides, lecture outlines, review materials for quizzes and tests, and additional readings on the electronic course folder housed on the ship's intranet.

ADDITIONAL RESOURCES

Not anticipated.

