BIOL 105-01, Introduction to Environmental Science, Fall 2009

BIOL 105-01 INTRODUCTION TO ENVIRONMENTAL SCIENCE
Fall 2009
MWF 10:00-10:50am

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Office hours: Tuesday and Wednesday 2:00-4:00pm

Course Objectives

This course is designed to provide you with a framework for understanding some of the key principles in the environmental issues we face today. As an introductory course, no *every* environmental topic of concern can be addressed. Instead, a selected a number of key issues and their causes, implications, and potential solutions will be explored. Ideally, students of all disciplines will use the information from this course to help inform their decisions and futures with attention to the environmental implications of their businesses, professional and personal dealings.

Class discussions and written assignments

During the semester I will post questions, and/or articles, on Moodle that will be the focus of our conversations during those sessions dedicated to class discussion. You must write, and turn in a 250/300-word assignment that will facilitate your participation in class. I will provide the guideline for each assignment a few days before it is due.

Quizzes and Exams

Quizzes and exams will be based on the textbook, lectures and class discussions/debates. Quizzes will be administered in fifteen minutes and will consist of multiple-choice and short-essay questions. Exams will be more comprehensive and will be composed of short essay questions. To do well in the quizzes and exams you should, in addition to reading assigned chapters in the book, complete quizzes and interactive activities on the textbook's website www.envscienceplace.com and/or CD_ROM. Information on accessing this site and its resources is available in your textbook.

Laboratories

Urban forests provide ecosystem services, such as purification of water and air regulation of climate, that are underappreciated and taken for granted, even though they are critical to the survival of all living organisms. The major objective of our lab activities will be to gain an appreciation for some of these services provided by a natural system such as Overton Park in Memphis. For our laboratories we will collect sample in Overton Park and will analyze these data to calculate the economic value of this urban forest. Readings and guidelines for lab assignments will be provided separately during the semester.

Attendance

Students are expected to attend all lectures and laboratories. Students will be allowed to have excused absences and up to two unexcused absences. Each additional absence will result in a gradual loss of points. Examples of excused absences are: university-sponsored activities (i.e. field trips and intercollegiate athletics), professional society meetings, and absences from class due to circumstances beyond the student's control.

Expectations

You are expected to do all assigned readings for the lectures and for the labs before class so you are prepared to discuss them. You are expected to check Moodle for the powerpoints presentation and for assignment. Your participation in class and Moodle discussion is essential for the success of the class.

All assignments are due on the day and time stated. Late assignments will be subject to a 30% grade penalty. Please note that no extra credits are available in this class.

If you cannot take the quizzes and the exams in class for the reasons listed under the Attendance paragraph, please contact me in advance to make alternative arrangements.

Late assignments will be penalized 10% for each additional late day.

Textbook

Environment - The science behind the stories, by Withgott & Brennan, Third Edition 2008

Grading

Two exams (80 points each)	160
Final Exam	100
Three Quizzes (30 points each)	90
Four Lab Assignments (30 points each)	120
Discussions: 5 assignments	50
Attendance (lecture + lab)	10
Attendance and summary of two seminars (One must be Homer-Dixon's lecture)	10
Total Points	**540**

Other information

Cell Phones: Your cell phone must be turned off.
Laptops: You may use laptops in class to take notes or to do a computer-based class activity. However, if you are doing other things (e.g. checking email, web surfing, playing games) points will be detracted from your class participation.

Class Schedule –Fall 2009		
Date	**Topics**	**Readings**
Overview of Environmental Issues		
August 26 W	Introduction; Goals & Expectations	
28 F	Basics of Environmental Science	Ch 1
31 M	U.S Environmental History & Ethics	Ch 2 p26-37
September 2 W	Ecological Economics & Valuation of Nature's Services	p37-55
4 F	*Discussion*	
Earth's Life Support Systems		
9 W **1st Quiz**	Energy, Matter	Ch 4
11 F	No class	
14 M	Environmental systems	Ch 7
16 W	Populations and Communities	Ch 6 p148-154
		Ch 5 p122-139
Human Population		
18 F	Human Population – Distribution & Demographics	Ch 8
21 M	Human Population – Environmental Impact	
23 W	*Discussion*	
Natural Resources		
25 F	►**EXAM 1**◄	
28 M	Soil	Ch. 9
30 W	Agricultural Systems	Ch 10 p262-272
October 2 F	Genetically Modified Food	p273-292
5 M	Freshwater Resources	Ch 15 p412-429
7 W	Water Pollution	p429-441
9 F	*Video:* ***Farming the Seas***	
12 M **2nd Quiz**	*Discussion* & **Homer-Dixon @ 7:00pm**	

Biodiversity		
14 W	Biodiversity	Ch 11 p293-314
16 F	Biodiversity	
19 M	♦♦ *Fall Break*♦♦	
21 W	Conservation Biology:	p.315-326
23 F	Land use and Forest ecosystems	Ch. 12
26 M	*Video:* ***Save our Lands, Save our Towns***	
28 W	Urbanization	Ch 13
30 F	►**EXAM 2** ◄	
	Energy Sources and their Impacts	
November 2 M	Non-renewable Energy Sources	Ch 19
4 W	Non-renewable Energy Sources	
6 F	Nuclear and Biomass	Ch 20
9 M	Air Pollution and	Ch 17
11 W	Guest Speaker: *Dr. Schantz*	
13 F	Ozone Depletion	
16 M **3rd Quiz**	*Discussion*	

Sustainable Societies		
18 W	Global Climate Change	Ch 18
20 F	Global Climate Change	
23 M	Alternative Energy Sources	Ch 20
25 - 27	♦♦*Thanksgiving*♦♦	
30 M	Alternative Energy Sources	Ch 21
December 2 W	Waste Management	Ch 23
4 F	Cyclic Production Systems	Ch 24
7 M	*Discussion*	
9 W	Conclusion and Evaluations	
11 **Friday 5:30 am**	►**FINAL EXAM**◄	

ECOSYSTEM SERVICES OF URBAN FORESTS AND THEIR ECONOMIC VALUES

Lab TA: Kayla McCrury

Monday 1:00– 3:30 pm

FJ Room 145

Date		Reports
August 31	Overton Park – Introduction to the labs	
September 14	Overton Park– ***Carbon uptake*** by vegetation	
21	Analysis of vegetation data	
28	How to write a lab report	
October 5	*Field trip: Water treatment plant*	Ass. 1
12	Overton Park – ***Water purification***	
19	*Fall Break*	
26	Analysis of water data	
November 2	Overton Park– ***Diversity*** of fungi in forest soil	Ass. 2: Nov.6
9	Biodiversity calculation	
16	*Field trip: Shelby Farm*	Ass. 3
23	Overton Park - ***Recreational values***	
30	Overview and evaluation of labs	
December 7	No lab	Ass. 4