**Fall 2010 Syllabus**

Tuesday & Thursday 8:00-9:50 in SB2 B1-82 (CRN: 13977)

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**Course theme:** A sustainable human society is one that satisfies its needs without jeopardizing the opportunity of future generations to satisfy theirs. The challenge of how we achieve a sustainable society is a vital theme that unites the various disciplines within environmental studies. This course is designed to help you bridge the scientific approach to analyzing and solving environmental problems with the socioeconomic concerns involved in formulating and administering environmental policy and the historic and philosophical basis of humanity’s relationship to ecosystems. With the common goal of defining and understanding environmental sustainability, the course identifies how each participating discipline can creatively contribute towards this end.

###### Course objectives

1. Understand the need for environmental sustainability and how the practice of sustainability may differ from common business practices;
2. Understand the basic physical laws that dictate the bounds of resource use;
3. Understand the impact of individual and societal choices on the environment and society;
4. Develop critical thinking skills to be able to evaluate the claims of both sides of environmental controversies;
5. Further develop skills in written and oral presentations and group work.

**Expectations**

* Be **prepared** for class
	+ Arrive on time (absence will result in the loss of participation points, you are responsible for course material whether or not you are in class)
	+ Communicate and collaborate with your classmates on group assignments.
	+ Read assigned papers and come to class with assignments completed on time (unexcused late assignments will not be accepted).
* **Participate** in class activities
	+ Be aware that good grammar, clear structure and reasoning will all be incorporated into your grades.
	+ For goodness sakes, take notes. My notes will not be available to you online or otherwise.
* **Ask Questions!**

**Tentative Schedule (changes will be announced in class)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **#** | **Topic, due dates\*** | **Readings… due\*\*** |
| Tu 9/28 | 1 | Intro to Course, Issues in Sustainability (form groups; assign water audit) |   |
| Th 9/30 | 2 | Common pool, Lorax. (Intro to water audit, review excel) | 1 Tragedy of Commons2 Black Ice  |
| Tu 10/5 | 3 | Local to Global Water Issues  | 3 Last Drop4 Water is Life |
| Th 10/7 | 4 | Local to global water issues (central tendencies;excel part II) | 5 Big Melt6 Are you being served? |
| Tu 10/12 | 5 | Valuing ecosystems (review ppt for presentation) | 7 Value of ecosystemsWater audit 1 due  |
| Th 10/14 | 6 | Ecosystem Cycles | 8 Valuing Nature9 Fixing N problem |
| Tu 10/19 | 7 | Ecosystem Services(work on audit powerpoint) | 10 How much is left11 Empty NetsWater audit 2 due  |
| Th 10/21 | 8 | Water audit results(pick topics, dvp strategy for final projects) | 12 Last Drop**Audit presentation due** |
| Tu 10/26 | 9 | Population growth ; review(approach to & check in on projects) |  |
| Th 10/28 | 10 |  **Mid-Term exam;** (Economics game) | Exam 1 |
| Tu 11/2 | 11 | Threats to ecosystems: Climate change(Scientific & Data collection method(s)) | 13 Uphill Battle14 REPORT |
| Th 11/4 | 12 | Climate change cont.(collect data) | 15 Fuel16 Global warming17 Renewable energy |
| Tu 11/9 | 13 | Nonindigenous species (check in; collect data) | 18 biodiversity loss |
| Th 11/11 | 14 | HOLIDAY |  |
| Tu 11/16 | 15 | Food Resources(data analysis) | 19 Eating America |
| Th 11/18 | 16 |  Economics of ecosystems, (ppt; prep presentation) | 20 Corn Plastic21 Nauru |
| Tu 11/23 | 17 |  Economics continues(prep presentation) | Project paper due |
| Th 11/25 | 18 | HOLIDAY |  |
| Tu 11/29 | 19 | Finalize presentations; review for test |   |
| Th 12/2 | 20 | **Group Presentations** |  **Project presentation** |
| Thurs 12/9 |  | **Comprehensive Exam 8-9:50** |  Exam 2 |

\*The topics and schedule of discussions listed in this syllabus may change; changes will be announced in class.

\*\* Readings and assignments are due on the listed day by the start of class.

###### Student evaluation & policies

Exams: Midterm Exam 20 %

 Comprehensive Exam 20 %

Project: Draft grp presentation 3 %

 Group presentation 10 %

 Peer review paper 3 %

 Draft individual paper 3 %

 Individual paper 14 %

Water audits & presentation 10 %

Participation, preparation and homework 18 %

Total 100%

A= 100 to 94%; A-= 93 to 90%; B+= 89 to 87%; B= 86 to 84%; B-=83 to 80%; C+=79 to 77%; C=76 to 74%; C-= 73 to 70%; D= 69 to 60%; F= 59% and below.

Adhere to the code of conduct: http://www.pdx.edu/dos/codeofconduct; e.g., no academic dishonesty or negligence; no harassment, no plagiarism … failure to follow the academic code of conduct will result in loss of points and may result in further academic prosecution.

Limit spread of H1N1 and other diseases: wash hands (20 sec!); use a tissue to cover your sneeze/cough; get a flu shot; stay at home if sick; go to the doctor as necessary.

###### Participation, preparation and homework

Your participation grade includes attending class (email me before class if you’re too sick to come…), paying attention and being respectful in class, contributing to discussions, working in your groups, in-class written assignments, homework completion and quizzes. Up to 6 unannounced short quizzes may be given throughout the quarter. The quizzes may cover any of the assigned readings or class material since the previous quiz. Excellent class-wide participation will reduce the number of quizzes.

###### Water Audit

You must conduct a personal water audit twice at the beginning of the quarter. You will receive audit kits and forms for this. You will collect data to calculate your water used during the audit. After the first audit, select a water usage and change a behavior related to it or install/improve relevant water-saving equipment. The objectives of this exercise include measuring how much water you use, analyzing how your change affects your water usage and the region’s water sustainability, and learning to analyze and present the water usage data. As a group, prepare a mini-report, to be presented as a power point presentation, that analyzes the effects of your water use on environmental sustainability. Include in your presentation figures comparing the first versus the second audit’s usage. You should analyze why and the extent to which your water use and waste changed between these audits. Also include discussion of the effects of that reduction on environmental sustainability. 2% for doing each audit and bringing in data on time, 6% for presentation.

**Project**

You will work in a group with 4 other students for the preparation and oral presentation of the term project. This project will investigate a sustainability topic of your choice. Each group will select one broad topic to research. Group members will each select some aspect (Social, Economic, Environmental implications) of the broad group topic to research. Individual papers must include some level of research which may consist of first-hand data collection or interviewing experts in the field and should be geared towards answering specific questions. Topics and subtopics need to be approved.

Each individual will prepare and submit a typed, double spaced paper on their aspect of / contribution to the group term project. Each group will present its findings in a 15 min. Power-Point presentation.

**Blackboard**

The class will use Blackboard to share readings, handouts, asking questions of fellow students. It will be our primary contact outside of class, so please check it at least every other day. HelpDesk (Smith 018) offers a free Blackboard tutorial. To access Blackboard you must have an ODIN account. If you do not have one, please get one as soon as possible. Access to Blackboard is a privilege. Please do not abuse it as a forum for putting others down or communicating offensive material to the rest of the class. More extensive information on the protocols that we will be following can be found at The Core Rules of Netiquette: <http://www.albion.com/netiquette/corerules.html> Failure to use Blackboard in a respectful way and to treat all class participants with respect will result in a loss of access to Blackboard and potentially a failing grade for this course.

###### Required Readings

1. Tragedy of the Commons. G. Hardin. Science 162 (1968): 1243-1248. <http://www.dieoff.org/page95.htm>
2. Black Ice. C. Kennedy. *New Yorker*. 9.11.2006. <http://www.newyorker.com/archive/2006/09/11/060911fi_fiction>
3. ­­­­­­­­­­­­­­­­ Royte, Elizabeth. "The last drop: we may not get all the water we want. But we can have the water we need." *National Geographic* Apr. 2010 <http://find.galegroup.com/gtx/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T003&prodId=AONE&docId=A230477672&source=gale&srcprod=AONE&userGroupName=s1185784&version=1.0>
4. Kingsolver, Barbara. "Water is life: it's the briny broth of out origins, the pounding circulatory system of the world. We stake our civilizations on the coasts and mighty rivers. Our deepest dread is the threat of having too little--or too much." *National Geographic* Apr. 2010: 38+. <http://find.galegroup.com/gtx/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T003&prodId=AONE&docId=A230477665&source=gale&srcprod=AONE&userGroupName=s1185784&version=1.0>
5. Larmer, Brook. "The big melt: glaciers in the high heart of Asia feed its greatest rivers, lifelines for two billion people. Now the ice and snow are diminishing." *National Geographic* Apr. 2010: 60 <http://find.galegroup.com/gtx/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T003&prodId=AONE&docId=A230477666&source=gale&srcprod=AONE&userGroupName=s1185784&version=1.0>
6. Are You Being Served? *The Economist*. 4.23.2005 (3pp) <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=16854564&site=ehost-live>
7. Costanza et al. 1997 The value of the world’s ecosystem services and natural capital. Nature v. 387 15 May: 253-260 <http://www.nature.com/nature/journal/v387/n6630/pdf/387253a0.pdf>
8. Valuing Nature. B Harder. *Science News*. 12.3.2005. <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=19076519&site=ehost-live>
9. FIXING THE GLOBAL Nitrogen Problem. By: Townsend, Alan R., Howarth, Robert W., Scientific American, 00368733, Feb2010, Vol. 302, Issue 2

<http://web.ebscohost.com/ehost/delivery?vid=3&hid=12&sid=f819cb02-b1aa-4ac0-b6af-a9ac92ddf877%40sessionmgr12>

## Michael Moyer How Much Is Left? Scientific American (September 2010), 303, 74-81

## <http://www.nature.com/scientificamerican/journal/v303/n3/pdf/scientificamerican0910-74.pdf>

1. Empty Nets. J. Raloff. *Science News*. 2005 <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=17240212&site=ehost-live>
2. The Last Drop. M. Specter. *New Yorker*. 10/23/2006. <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=22752541&site=ehost-live>
3. Uphill Battle. M. Tennesen. *Smithsonian*. 8.2006 <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=21668203&site=ehost-live>
4. Environment, Pop’n, & Health Strategies for a More Secure World. Diamond. ECSP Report 10/04 <http://www.wilsoncenter.org/index.cfm?topic_id=1413&fuseaction=topics.publications&group_id=104290>
5. Fueling Our Transportation Future. J.B. Heywood. *Scientific American*. 9.2006 <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=21848003&site=ehost-live>
6. Defusing the Global Warming Time Bomb. J. Hanson. *Scientific American*. 3.2004. <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=12211163&site=ehost-live>
7. The Rise of Renewable Energy. D.M. Kammen. *Scientific American*. 9.2006. <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=21848025&site=ehost-live>
8. Pongsiri, Montira J., et al. "Biodiversity loss affects global disease ecology." *BioScience* 59.11 (2009): 945 <http://find.galegroup.com/gtx/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T002&prodId=AONE&docId=A215787167&source=gale&srcprod=AONE&userGroupName=s1185784&version=1.0>
9. What’s Eating America? M. Pollan. *Smithsonian*. 8.2006. <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=21207415&site=ehost-live>
10. Corn Plastic to the Rescue? E. Royte. *Smithsonian*. 8.2006. <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=a9h&AN=21668207&site=ehost-live>
11. The Physical Destruction of Nauru: An Example of Weak Sustainability. J Gowdy & C McDaniel. *Land Economics*. 5.1999. <http://stats.lib.pdx.edu.proxy.lib.pdx.edu/proxy.php?url=http://search.ebscohost.com.proxy.lib.pdx.edu/login.aspx?direct=true&db=buh&AN=2177533&site=ehost-live>

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