

ENVS 330 Spring 2009: Situating Environmental Problems and Solutions

Information

Class Meetings: Tu/Th 1:50-3:20 PM

Location: Howard 244

Credits: 4 credits graded

Instructor: Prof. Jim Proctor (jproctor@lclark.edu, 503.768.7707)

Office Hours: Wed 10:30 - 1:00, Howard 348 ([reserve timeslot here](#))

Objectives

ENVS 330 offers a n advanced analysis of environmental problems and solutions, situating the m in time, space, and biophysical/human context to provide greater appreciation for their complexity as well as to help devise successful responses. It includes material from former courses ENVS 310 (Environmental Problems) and 320 (Environmental Solutions) to help students develop an integrated perspective on biophysical and human processes related to today's most significant environmental issues.

ENVS 330 plays a special role in the ENVS curriculum, which seeks to provide resources and cultivate an atmosphere whereby students

1. Appreciate the intellectual and practical complexities of environmental problems and solutions,
2. Master key concepts and methods of environmental analysis drawn from, and integrating, a broad range of disciplines, and
3. Use this background knowledge and analytical ability with leadership and communication skills to successfully devise and implement creative, academically grounded solutions to environmental problems.

ENVS 330 applies the toolkit developed in ENVS 220 (which focuses in particular on the second curricular objective above) toward the first and third objectives. We feel that there is no necessary contradiction between appreciating complexities and solving problems: in fact, engaged scholarship demands both. In addition to these broad objectives, ENVS 330 offers you the opportunity to apply key concepts and skills drawn from your particular ENVS concentration, so that you are ready to do a stellar thesis in ENVS 400 (note: if you are minoring in ENVS or have a second major, you will draw upon your extra-ENVS major). Please take a moment to consult our [Core Course Philosophy page](#) for a rationale of the content and pedagogy included in our core ENVS courses.

More specific course objectives are as follows:

- Develop a concentration-specific integrated theory of environmental problems and solutions, including relations between key biophysical and human processes related to both
- Situate environmental problems in the context of earth systems science as an integrative perspective on biophysical processes and human perturbations and impacts, with special emphasis on the following global processes and their subglobal implications:
 - Climate change
 - Biogeochemical cycles
 - Land use-land cover change
 - Biodiversity change
- Situate environmental solutions in the context of diverse perspectives on environmental policy and politics, with special emphasis on:
 - U.S. and international contexts
 - Reformist and radical approaches
- Apply coursework above toward situated case studies involving the following ENVS research sites:
 - Tryon Creek and/or Columbia Slough watershed in Portland
 - The Alde-Jordan watershed in southern Oregon
 - Selected overseas research sites (via the ory synthesis reports)
- Further develop the following skills initially gained in 160 and/or 220:
 - Descriptive and inferential statistics (via SPSS)
 - Concept mapping (via Cmap Tools)
 - Systems analysis (via Stella)
 - Online resource storage/sharing (via Delicious, WorldCat, and RefWorks)
 - Geographic information systems applications to situated research

Course Content

ENVS 330 employs an active learning model, in which students take primary responsibility for their learning via a series of team and individual projects, and the role of the instructor is more one of "guide at the side" than "sage on the stage." A fuller discussion and justification of this approach is found in our [Core Course Philosophy page](#). All classroom activities are for the good of the entire class, so please make sure to be prepared, arrive in time (attendance is mandatory), and listen to and interact intently with your fellow students. There is a specific policy on classroom disruption at Lewis & Clark [available in the Pathfinder](#) that you may wish to consult.

ENVS 330 meets two times per week. We will occasionally meet at the Mac or PC Dubach Lab in Templeton in order to work on a computer activity. The detailed content of ENVS 330 is listed on the course page; the schedule will be frequently updated. It is your responsibility to check this schedule online to keep abreast of assignments, readings, and other course activities.

A summary of our semester schedule is as follows:

- Three weeks devoted to theories of environmental problems and solutions
- Four weeks devoted to relevant areas of earth systems science
- Four weeks devoted to multiple perspectives on environmental politics and policy
- Two weeks devoted to case studies, including field trips
- A closing week of student presentations

A weekly summary of topics and team/individual projects (see below) follows.

Week	Theme	Team Project	Individual Project
01	Defining environmental problems and solutions	How people prioritize problems/solutions (statistical analysis of survey data)	
02	Theorizing environmental change		Theory book report
03	Linking the earth and world systems	Stella Daisyworld model	Draft the ory synthesis and peer feedback
04	ES I: Energy balance and climate change		
05	ES II: Biogeochemical cycles and anthropogenic linkages		
06	ES II I: Land use-land cover change		
07	ES IV: Ecosystem and biodiversity change	Stella earth and world systems model	
08	Solutions I: Domestic policy		
09	Solutions II: Reformist politics		Revised theory synthesis and draft portfolio (before spring break), with peer feedback
10	Solutions III: Radical theories		

11	Solutions IV: Diversifying environmentalism	
12	The Columbia Slough and Tryon Creek watersheds	Land use-cover change (GIS); Research site interviews
13	The Alder-Jordan watershed	Land use-cover change (GIS); Research site interviews
14	Student project presentations and wrap up	Final theory synthesis and portfolio

Readings

You will be assigned a number of electronic readings for ENVS 330, all available on our Moodle course page. In addition, there are four texts for the course:

- *The Earth System* (2nd edition, 2003): This is a comprehensive overview of earth system science and its application to environmental change
- *The World System and the Earth System: Global Environmental Change and Sustainability Since the Neolithic* (2007). This collection of essays addresses cutting-edge interdisciplinary connections between earth system science and world-systems theory (a comprehensive view of human political, economic, and cultural systems), as applied to environmental concerns
- *The Control of Nature* (1990). This lovely little work by John McPhee is a classic on how humans have attempted to, well, control nature, and what consequences have followed
- *Debating the Earth: The Environmental Politics Reader* (2005). *Debating the Earth* is a comprehensive anthology of key readings in environmental policy and politics, spanning domestic/international and radical/reformist dimensions

Though *The Earth System* will primarily be used during our section on earth systems science and *Debating the Earth* will likewise be primarily used during our section on environmental politics and policy, each contains key material toward a more synthetic view of environmental problems and solutions, and *The World System and the Earth System* and *The Control of Nature* offer inherently integrative views joining biophysical and human dimensions.

There will be a lot of required reading in this course! Frequent reading forums will give you the opportunity to process these readings along with your fellow student in preparation for class.

Individual and Team Projects

As suggested above, ENVS 330 involves both team and individual projects. Team assignments often involve application of technical skills gained in previous courses, and allow students to help each other refine these skills while applying them to real-world issues and data. Individual assignments primarily involve development of the student's theoretical framework on environmental problems/solutions as a necessary step toward a stellar ENVS senior thesis (or, in cases of ENVS minors, advanced work in the student's major). To encourage each student to pull together all the pieces of ENVS 330 into a coherent framework, students will work through various stages of a synthesis report, and will develop an electronic portfolio including all the student's individual/team work and representing skills and knowledge gained over the course of the semester.

A summary of individual and team projects over the semester is presented above in tabular form. Major projects are as follows:

- Team Projects
 - Statistical analysis of existing survey data: how do people prioritize environmental problems/solutions?
 - Stella and systems tutorial via simple Daisyworld model
 - More advanced Stella model quantifying interactions between earth and world systems
 - Land use-cover change GIS study on one of our research sites, based on historical/current air photo data
 - Interviews of research site residents to gain their perspectives on environmental problems/solutions, with qualitative analysis of interview data
- Individual Projects
 - Frequent reading forums
 - Theory book report (to add to our collective grasp of the literature)
 - Draft, revised, and final theory synthesis, including text report, Cmap, and RefWorks bibliography
 - Peer feedback on draft and revised synthesis reports
 - Draft and final semester portfolio representing the student's best individual and team work

More details on each assignment will be presented in class and online.

Field Trips

ENVS 330 capitalizes on our local ENVS research sites, so we can get outside and analyze environmental problems and solutions in the field! We'll also be collecting GIS data and doing resident interviews. We will take a one-day trip to the Tryon Creek and Columbia Slough watersheds, and a culminating, two-day trip to the Alder-Jordan watershed in Douglas County, with dates to be finalized by the end of the second week. All field trips are required.

Exams

There will be a midterm and final quiz covering basic knowledge. The quizzes will be administered via Moodle, and generally available for one week. Some of the questions on these quizzes will be selected from those submitted by students. You may retake the quiz once during the availability period if you wish to improve your score. Though you can not use notes or other text or recorded material during the quizzes, you may consult this material prior to the retake. It is a fact of American life that academic advancement to graduate school, law school, and other opportunities demands stellar performance on standardized multiple-choice exams like the GRE, and these exams are increasingly administered via computer, so these are good skills to master.

I generally evaluate advanced knowledge via take-home assignments, which I will do by means of your synthesis reports this semester, with specific sections devoted to summarizing and applying knowledge gained in particular weeks. Further information will be distributed in class.

Note: If you have a disability that may impact your academic performance, you may request accommodations by submitting documentation to the Student Support Services Office in Albany Quadrangle (x7156). Staff in that office will notify me of the accommodations for which you are eligible, and I'm happy to work with you to make sure your learning objectives are met for ENVS 220.

Your Responsibilities and Grading

Everyone wants to get a good grade. Here are some requirements and recommendations:

1. *Check your email regularly.* In addition to announcements made in class, we will communicate important information to you via our Moodle news forum, which you will also receive via email. It is your responsibility to keep up to date on these postings!
2. *Check the ENVS 330 Moodle page regularly.* You will find all links to readings, lectures, assignments, and other course resources and activities on our ENVS 330 Moodle page. This page is frequently updated.
3. *Be on time.* Whether attending class or submitting assignments, please be punctual. If you have not provided prior notification that you will be late to class, please do not disrupt us by arriving late. I will allow up to two absences before deducting from your participation score, then will deduct ten percent from the attendance portion of this score for each additional absence. For all assignments, you will be deducted ten percent of the score for every day or portion of a day late, within a grace period.
4. *Ask your instructor for help.* Sometimes students are afraid to talk to their professors when they need help. Yes, it's important to try to figure things out on your own, but we are here to support you in ENVS 330 and the ENVS major/minor in general, so please feel free to drop by my office, call me, or send me email when you have an important question.

Both team and individual projects count toward the final grade. In most cases, all team members will receive the same score for each project. No late work is accepted, except for highly unusual circumstances. In general, grading of an assignment or each component of a larger project will follow a 5-point scale (or a multiple thereof), as follows:

- 5: Exceptionally good performance (rare; usually given to 1-2 students or one team per assignment)
- 4: All requirements satisfied
- 3: Some requirements satisfied
- 2: Assignment submitted in time but serious deficiencies
- 0: Assignment not submitted in time

Your overall ENVS 330 grade will be calculated as follows:

- 30%: Individual draft, revised, and final theory synthesis, including feedback and public presentation
- 25%: Team projects
- 20%: Midterm and final quizzes
- 15%: Draft and final portfolio
- 10%: Course participation and forum postings

As a check on course difficulty, the curve for grades will be determined by the performance of the top five percent of students in ENVS 330. Raw scores will be privately posted on Moodle, as well as in-progress grades; students scoring below a B- by week 6 will participate in a mandatory consultation with the instructor.

Extra credit opportunities will be announced occasionally or may be proposed to the instructor.

As a final note, it is worth reminding you that academic integrity is our motto here, and plagiarism in any form is a serious offense at Lewis & Clark College. Your work should be your own, and if you borrow from someone else's work, you should properly cite that resource. Failure to do so may result in serious grade implications, or dismissal from the course. For details, please consult the [LC Academic Integrity Policy](#), available in the Pathfinder.

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