Winter 2011
Economics of Sustainability, (EC 522; CRN 41047)
M,W 4:00 PM – 5:50 PM
Ondine 220

Instructor: Professor David Ervin
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Office Hours: Tuesday 10:00 – 11:30 AM or by appointment
Students are actively encouraged to use office hours and make appointments to meet with Professor Ervin or the Graduate Teaching Assistant. Please drop by any time during their office hours or email them for an appointment.
Disabilities: If you have a disability, please inform Professor Ervin so any necessary accommodations can be arranged.

Graduate Teaching Assistant: Matthew Taylor, mptaylor1@live.com
Office Hours: 8-9:30 AM, Cramer Hall 296

Course Description
This course explores economic concepts and theories for analyzing sustainable development. Study how the actions of individuals, business, government and nonprofit organizations foster or detract from a more sustainable society. Learn how economics is irrevocably linked to the natural environment and to our social institutions. Study market and non-market values for environmental and social services, approaches to measure progress toward sustainable development, causes and potential solutions to environmental and social degradation, and the roles of the business, government and nonprofit sectors in fostering sustainability.

Prerequisite: Students are responsible for knowing the central concepts and analytical approaches used in principles of microeconomics (Econ 201) and macroeconomics (Econ 202). If you have not completed an elementary course in those subjects, the relevant material can be obtained from any standard economic principles textbook or from on-line sources such as http://www.econweb.com/sub/.

Blackboard: http://www.psuonline.pdx.edu/info.php?page=51 (click on Login to Blackboard)

Learning objectives: Students will develop an understanding of:
- The relationships between the natural environment, social institutions and the operation of our economic system;
- The roles of microeconomics (study of individual consumers and firms) and macroeconomics (study of the nation's economy as a whole) in sustainability;
- The relationships between economic efficiency, equity, and sustainability;
- The concept of 'sustainable economic development' including the 'weak' and 'strong' sustainability models, and roles of uncertainty and adaptive management;
- The concept of economic value and techniques for estimating value of non-market ecosystem and social services;

- The calculation of Gross Domestic Product (GDP), 'net national welfare' (NNW) which corrects omissions from GDP, e.g., unpaid child care, and of 'genuine savings' (GS);
- The conditions under which markets allocate resources 'efficiently' and 'inefficiently,' including externalities, public goods and other types of 'market failures' or 'missing markets;'
- Government policy failures that distort private and public decisions for sustainability;
- The role of international trade and assistance in sustainable development and the 'Environmental Kuznets Curve;'
- The cost-effectiveness, incentive-compatibility, resilience, and distributive effects of alternative mechanisms to solve environmental and social problems due to missing markets and policy failures.

Text and Other Reading Materials

- Pearce, D. and E. Barbier, *Blueprint for a Sustainable Economy*, Earthscan Press, 2000. (hereafter P&B)
- Simpson, R. D., M. Toman and R. Ayers, eds. *Scarcity and Revisited: Natural Resources and the Environment in the New Millennium*, Resources for the Future, 2005 (hereafter Simpson *et al*).
- Lecture outlines for P&B chapters and the electronic readings are available on Blackboard.

Course Expectations – All assignments submitted should be typed.

- **Readings** - There will be readings to support all aspects of the in-class work. *Students are asked to complete all readings before the class in which they will be discussed.*

- **Reading Summary/Analysis** - To create incentives to complete and think carefully about the course readings, which will be the basis for most class discussions, students are asked to summarize, analyze and potentially critique the chapters from P&B and Simpson *et al*, and each electronic reading. For a subset of the readings (designated with a '*' in the outline), you will be required to prepare a written summary/analysis. Each reading summary/analysis should be submitted at the beginning of class on the day the reading is scheduled for discussion. The paper should only list your **student number (not your name)**, be two pages in double-spaced format with one inch margins all around, 12 point font, and preferably printed front and back. **Emailed submissions will not be accepted.**

  The reading summary/analysis will be graded (0, 1, 1.5, 2, 2.5 and 3) based on the level of effort put forth, the quality of writing, and the degree of insight shown. These analyses should briefly summarize the theory or conceptual model, evaluate any data and empirical methods used, providing critiques of each, and the main policy implications. Students might try to address the following questions:

  1. What are the main problems/issues/objectives addressed by the analysis?
  2. Are the theory/conceptual model and empirical methods used at a 'high' level given the other literature with which students are familiar?
  3. Are any innovative concepts used that seem particularly appropriate?
  4. Are the results convincing, but not overstated?
  5. If any policy implications are drawn, are they justified?
  6. Are the limitations of the analysis identified?

- **Research Paper and Presentation** – Students will choose a sustainability topic that is of interest to them, review the relevant literature (peer-reviewed preferred), conduct research by applying appropriate models and empirical methods (if feasible) to the topic, and write the findings in a research paper. A draft proposal for your paper should be given to Prof. Ervin for review and comment by Wednesday, January 26, 2011. Final papers must be submitted on Wednesday March 9, 2011. Students will present their work using PowerPoint during the final week. Additional guidance on the paper will be provided during the first week of class.

- **Examinations** – There will be midterm and final examinations. Exams will be composed of short answer, analytical and essay questions. Both exams are comprehensive in the sense that they could include material from the beginning of the course up to the date of the test, though the final exam will focus on post-midterm topics. Dates for these exams are given below.

Midterm Examination: Wednesday, February 2, 2011
Final Examination: Monday, March 14, 2011, 3:30 – 5:20 pm (in normal classroom)
Grading Structure - Total of 1000 Points

- Midterm examination: 200 points
- Final examination: 200 points
- Reading summary/analyses: 200 points
- Sustainability Research and Policy Paper: 300 points
- Participation (including preparation for class): 100 points

After the midterm examination, a rough grading scale will be provided so students know their approximate status as the course progresses. The following grading scale is the strictest that will be used for determining final grades. This means that if one earns an amount of points that is within a given category, at minimum that grade would be given. Please note that grades below B- are considered to be failing for graduate students.

Number of Points Received (out of 1000 possible)	Minimum Grade
950	4.0 (A)
920	3.7 (A-)
880	3.3 (B+)
840	3.0 (B)
800	2.7 (B-)
750	2.3 (C+)
700	2.0 (C)
650	1.7 (C-)
600	1.0 (D)

Makeup Exams and Late Submissions of Work
The midterm and final exams are to be taken on the dates indicated unless a serious illness or other situation precludes your attendance. Only under those approved absences will a makeup exam be given. PLEASE PLAN ACCORDINGLY.

All written assignments are to be turned in at or before the deadline. In fairness to students who submit their work on time, for each day an assignment is turned in late a grade penalty of 25%

will be assessed. Work that is submitted after class (e.g. even ½ hour), but not a full day, will also be penalized 25%. Work that is 1½-2 days late is penalized 50%.

Attendance and Class Participation

Except for the days when there are holidays, class meetings will be held every Monday and Wednesday. Class attendance is mandatory, and class participation is included in the grading structure of the course. I understand that you may occasionally have to miss a class meeting, but it is also important to recognize responsibilities to your colleagues. *Please inform me ahead of a class if you cannot attend due to sickness or another justifiable reason.* PLEASE COME TO CLASS AND BE PREPARED TO CONTRIBUTE! *Repeated absences or attendance without having prepared will result in loss of most or all of the class participation points.*

General Criteria for Grading Exam Questions

Percentage of Points Received	Criteria
100%	Complete correct answer, nothing missed; demonstrates in-depth, full understanding of the subject matter.
90 - 99%	Virtually complete, correct answer; something small missed; perhaps a small analytical error; answer suggests less than full understanding of the topic; some evidence of effort to move beyond the course lectures and readings.
80 - 89%	Mostly complete and correct answer; significant, but still incomplete understanding of the subject addressed by the question; perhaps some evidence of original thinking present.
70 - 79%	Partially correct and incomplete answer; Evidence of partial understanding of the topic; little or no attempt to go beyond the material presented in class and the readings.

Academic Honesty Policy

Academic misconduct includes cheating on an exam or plagiarism on any assignment. If such misconduct is confirmed, *the very strict Portland State policy regarding academic honesty and integrity, which could lead to failing the course or expulsion from the University, will be followed.* Please see the relevant section of the 2008-2009 Bulletin for reference.

Plagiarism can become an issue in preparing your article summaries and research paper. Plagiarism is the portrayal of another's research or creative work as one's own. Examples include presenting an idea as yours when it is really another person's insight or copying a research finding or text verbatim without citing its source. Plagiarism may be unintentional or intentional, and while intentional plagiarism (e.g. downloading text from the internet) is certainly worse, both are considered cheating and therefore grounds for disciplinary action under Portland State University policies.

It is expected that all students in the course understand the nature and implications of plagiarism. Research and creative work are difficult and we need to be sure that when we present work as our own, that indeed is true. To avoid the potential for plagiarism, students need to recognize that we all rely on the work of others. Students should resist any temptations to take shortcuts, always cite sources for work you have used (even personal conversations), and include full references in bibliographies. It really is straightforward. If you have any questions, please ask.

Course Outline

- Readings listed below are required, except as modified by Professor Ervin. "P&B" refers to the primary textbook for the course and "Simpson *et al*" denotes chapters in *Scarcity and Growth Revisited.* Numbered readings are either from Simpson *et al* or electronic readings available on Blackboard. Full references for the readings are given on page 6 of this syllabus. Recall that a two-page reading summary/analysis is required for all starred (*) readings below.
- Topics covered are listed by day, but all assignments will be announced in class.

Week Number	Dates	Topics Covered	Reading Assignments (to be confirmed each class)
1	1/3	• Introduction to the course; discuss sustainability research and policy paper; overviews of sustainability and the economics of sustainability	Review syllabus on Blackboard, and Ervin's "Overview of Economics for Sustainability" (PPT) and "Markets, Economics and Sustainability: Oxymoronic or Synergistic Forces" posted under 'Lecture Notes' on Blackboard
	1/5	• Scarcity	*1. Harris, Chapter 1 P&B, Ch. 1 Simpson *et al*, Ch. 1
2	1/10	• Limits to Growth (Guest lecture: Prof. Randy Bluffstone)	*Simpson *et al*, Ch. 3 Simpson *et al*, Ch. 4 2. Meadows, Randers and Meadows (2002) 3. Nordhaus, with comments at end by Stavins and Weitzman (1992) – First 30 pages of paper plus comments are most relevant.
	1/12	• Meaning of Sustainability	P &B, Ch. 2 *4. Castle, Berrens and Polasky (1996) 5. Solow (1992) 6. Rockstrom, et al (2009)
3	1/17	Martin Luther King Holiday	
	1/19	Meaning of Sustainability Continued, Growth and Development	*7. Toman (1994) 8. Barbier (1997)
4	1/24	• Valuing the Environment	P&B, Ch. 3 *9. Krutilla (1967)
	1/26	• Valuing the Environment Continued	10. Heal and Barbier *11. Adamowicz (2004)
5	1/31	• Sustainability Research and Policy Paper Topic and Preliminary Findings	
	2/2	• Midterm examination	
6	2/7	• Measuring Sustainable Development	P&B, Ch. 4 *Simpson *et al*, Ch. 6 12. Stiglitz, Sen and Fitoussi
	2/9	• Measuring Sustainable Development	*Simpson *et al*, Ch. 14 Simpson *et al*, Ch. 7 Simpson *et al*, Ch. 8 (supplementary)
	2/14	• Endogenous Growth and	P&B, Ch. 5

7		Technical Change	Simpson *et al,* Ch. 9
	2/16	• Causes of Environmental Degradation	P&B, Ch. 6 13. Dasgupta (2000)
8	2/21	• Solving Environmental Problems	P&B, Ch. 7 Simpson *et al,* Ch. 5
	2/23	• Sustainable Business Models (Guest lectures by Ms. Amy Dvorak and Dr. Cody Jones)	P&B, Ch. 9 "Business and the Environment" *14. Ervin, "An Introduction to the Economics of Business Environmental Management"
9	2/28	• Solving Environmental Problems	Simpson *et al,* Ch. 10 P&B, Ch. 8 http://www.epa.gov/airmarkets/ (Focus on mechanics of cap-and-trade and allowance trading in the SO_2 emissions reduction program
	3/2	• Solving International Environmental Problems	15. Ervin, D. (1999) Trade and environment lecture notes
10	3/7	• Sustainability Research and Policy Paper Presentations	
	3/9	• Sustainability Research and Policy Paper Presentations	

Electronic Readings

All readings are available on Blackboard. Numbers indicate reading number in syllabus

1. Harris, Jonathan M. 2006. *Environmental and Natural Resource Economics.* South Western. Cengage Learning. 2nd edition (chapter 1, Blackboard electronic reading).
2. Meadows, D. J. Randers and D. Meadows. 2002. "A Synopsis Limits to Growth the 30 Year Update," White River Junction: Chelsea Green Publishing Company
3. Nordhaus, W. 1992. Lethal Model 2: the Limits to Growth Revisited, *Brookings Papers on Economic Activity*, Vol. 2: 1-59. (with comments by R. Stavins and M. Weitzman)
4. Castle, E., R. Berrens and S. Polasky. 1996. "Economics of Sustainability" *Natural Resources Journal* 36 (Fall): 715-730
5. Solow, R. 1993. "An Almost Practical Step Toward Sustainability, *Resources Policy,* September.
6. Rockstrom, et al. 2009. "Nature's Safe Global Boundaries," *Nature* 461/24, (September): 472-475
7. Toman, M. 1994. "Economics and "Sustainability:" Balancing Tradeoffs and Imperatives," *Land Economics*, Vol. 70: 399 – 413.
8. Barbier, E. 1997. "Introduction to the Environmental Kuznets Curve Special Issue," in *Environment and Development Economics*, Vol. 2: 369-381.
9. Krutilla, J. 1967. "Conservation Reconsidered," *The American Economic Review*, 57: 777 – 786.
10. Barbier, E. and G. Heal. 2006. "Valuing Ecosystem Services," *The Economists' Voice,"* January 2006.

11. Adamowicz, W. 2004. "What's it worth? An examination of historical trends and future directions in environmental valuation," *Australian Journal of Agricultural and Resource Economics,"* Vol. 48: 419 – 443.
12. Report by the Commission on the Measurement of Economic Performance and Social Progress. 2009. Joseph Stiglitz, Amarta Sen, and Joseph Fitoussi, editors. Commission on the Measurement of Economic Performance and Social Progress. Available at http://www.stiglitz-sen-fitoussi.fr/en/index.htm. Accessed on March 10, 2010
13. Dasgupta, P. 2000. "Population and Resources: An Exploration of Reproductive and Environmental Externalities," *Population and Development Review,* Vol. 26: 643 – 689.
14. Ervin, D. 2008 "An Introduction to the Economics of Business Environmental Management" Working paper. Environmental Sciences and Management Program. Portland State University.
15. Ervin, D. 1999 "Toward GATT-Proofing Environmental Programmes for Agriculture *Journal of World Trade*, 33(2), April: 63-82.