

Economics 154-326A
ECOLOGICAL ECONOMICS
Fall 2010 Syllabus

Class Times: Tues. Thurs. 4:00-5:30
Arts 260

Instructor: R. T. Naylor

Academic Integrity: All students are required to understand the meaning and consequences of cheating, plagiarism and other academic offenses under the Code of Student Conduct and Disciplinary Procedures.

PREREQUISITES:

Six credits of university level introductory economics. It is strongly recommended that students have taken at least three credits of university level **macro**economics. Recommended additional courses: Environment 200, 202. Students lacking a background in environment, are STRONGLY urged to study any basic introductory book on ecology.

COURSE RATIONALE:

All human economic activity involves interference with and disruption of the ecosystem. For millennia humans have exploited nature to satisfy material needs. But for most of human history, culture and technology combined to ensure that human wants remained fairly low, while disease, limited food supply, and social strife helped to keep total population from expanding very rapidly. Certain areas saw their natural endowments exhausted – croplands eroded, forests slashed, ground water drained, and the most accessible minerals depleted. However, there was always more “empty” land to replace it. As a result, human impact on the global ecosystem was limited and, except in areas of intense deforestation, capable of being reversed.

But over the last two centuries, advances in medicine, agriculture, and public health infrastructure permitted a remarkable surge in the rate of population growth. Humans have come to regard “economic growth” and a steadily rising level of per-capita consumption as their birthright. And there has been a dramatic change in the nature of the technologies applied to satisfying human demands, from those based on a renewable solar flow to those based on a finite fossil-fuel stock. There is now clear and compelling evidence that the human economic enterprise as a whole has exceeded its natural bounds (defined by the requirement of maintaining the health of the biosphere). The symptoms include, among others: climate disruption, ozone depletion, biodiversity loss, the spread of persistent organic pollutants, and the evolution of superpests. The response has been to rely all the more heavily on the same kind of technologies that caused the problem.

This course attempts to chart an alternative set of solutions that might permit human society to live in better harmony with the biosphere, assuming that is still possible.

COURSE OBJECTIVES:

In pursuing that objective, the course poses a series of questions:

- It asks how human beings in pursuit of material well-being, have managed to break the traditionally close relationship between ecological and economic cycles.

- It asks at what point the human economic enterprise as a whole becomes simply too large for the biosphere to tolerate.
- It asks who has really benefited from economic growth, and what hidden ecological and social costs growth has entailed.
- It asks not just how many jobs can be created, but which jobs should be created.
- It asks not how fast technology can develop, but which technologies should be encouraged and how that should be done.
- It asks not how to increase blindly the total supply of new goods and services, but which goods and services should be produced and sold, which are genuinely “goods” as distinct from “bads” or “regrettables”.
- It asks what alternative policies might allow the economy to find itself again at peace with the biosphere upon which life itself ultimately depends.

MARKING AND COURSE REQUIREMENTS

In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.

1) Research Paper (50%):

All students will write a major research paper. The exact topic, following general guidelines announced in class, **must** be cleared with Professor Naylor by the **end of September**. Topics can be similar **but not identical** to the research done by a particular student for the group presentation explained below. The focus is on grasping thoroughly a concrete and technical subject – no papers will be permitted on fuzzy concepts or feel-good slogans. This year papers are particularly welcomed on issues dealing with resources shortages and the environmental-ecological impact of their extraction – for example, the collapse of world fisheries, deforestation through logging (illegal as well as legal), the mess created by mining companies whether extracting “essentials” like coal or frivolities like gold.

Students will present **to the class TA** a detailed outline of their proposed paper (on the **pre-approved** topic) by **Friday, October 9**. Students can receive THREE potential grades – S: satisfactory, U: unsatisfactory (minus up to 25% on final mark) or R: revise-and-resubmit. *If you receive an R you **must** resubmit a satisfactory outline within one week of the class when the outlines are returned or you can lose up to 25% of final paper grade.*

These papers are individual work. The mark on the paper will count for 50% of the final grade. **Papers are due Thursday Nov. 26 at 5:30 PM**. There will be a penalty of 5% per day assessed against late papers. All papers must have a cover page that clearly shows your name, student number, date, and a title. A maximum of ten pages of main text – references and appendices (within a reasonable limit) are extra. Please avoid fancy or superfluous packaging – it will be taken as evidence you have not understood the message of the course.

2) Presentation (50%):

The second part of the grade (50%) will be based on student group presentations and a subsequent written report. Students will form groups of 4-5 to make presentations on various aspects of the current combined economic-ecological crisis. A useful way of thinking about the presentation is the theme “One Day in the Life of Petrochemical Man/Woman.” Presentations should be approximately 45 minutes in length and **must** be followed by a 15-30minute question and answer period. They will start in mid to late October and go for 4-5 weeks, depending on

class numbers. Marking for all group presentations will be done by other members of the class, the TA and the instructor. Grades will reflect the input of all three.

Presentations are to be followed by a 5-10 page **group research report** in which the main results are *outlined* along with research methods, division of labour, main sources and a critical appraisal of the group's own work. This report will be signed by members of the group. In the event of a dispute, (signed) minority reports are permitted. The contents of the group report will be taken together with the class and TA evaluation of the actual presentation in arriving at the group grade.

MAJOR TOPICS COVERED

Part I: Principles of Ecological Economics

1. Economy versus Ecology - An Inevitable Conflict?
2. Green Critique of Economic Orthodoxy
3. Reconstructing Economics: the Role of Ecology and Thermodynamics

Part II: Historical Perspectives

4. From Solar Flow to Fossil-Fuel Stock: Rise of the Carbon Economy
5. Industry, Technology and the Military Economy
6. Rise of the Economy of Mass Consumption

Part III: Modern Dilemmas

7. Petrochemicals, Energy and the Agro-Industrial Complex
8. Biotechnology, Biobusiness and the Future of the Biosphere
9. Converting Nature into Garbage: the Human Economy in Action

Part IV: Alternatives

10. Principles of Industrial Ecology and Biomimicry
11. "Green" Economic Policy
12. Towards an Economics of Negative Growth?

TEXTBOOKS:

There are no "textbooks." This course covers too wide a range of rapidly-changing material to be captured in a single book or even several. Instead students are referred to the list of books below under various topics, with those marked (*) as particularly recommended.

Students should also familiarize themselves with the work of the **Worldwatch Institute** by studying its annual volumes (including back issues) called State Of The World, and keep up to date on current debates by examining regularly issues of the Ecologist magazine.

General References

Ronald Wright A Short History of Progress (*)

Herman Daly Beyond Growth (*)

William Ruddiman Plows, Plagues and Petroleum (*)

Supplementary References: (*) particularly recommended

- a. *The Impact of Humans on the Biosphere - Selected Issues & Background*
 - James Speth Red Sky at Morning (*)
 - Michael Novacek Terra
 - Mathis Wackernagel and William Rees, Our Ecological Footprint
 - Gretchen Daily, (ed.) Nature's Services
 - Rachel Carson, Silent Spring
 - Barry Commoner, The Closing Circle
 - Gale Christianson, Greenhouse: the 200 Year Story of Global Warming
 - Peter Ward Under a Green Sky

- b. *Rethinking Economics*
 - Peter Brown The Commonwealth of Life: a Treatise on Stewardship Economics (*)
 - E. F. Schumacher, Small Is Beautiful (*)
 - Jeremy Rifkin, Entropy (*)
 - Richard Douthwaite The Growth Illusion
 - Richard Heinberg The Party's Over
 - Lester Brown, Eco-Economy
 - R. Krishnam, J. Harris and N. Goodwin (eds.) A Survey of Ecological Economics
 - David Roodman, The Natural Wealth of Nations
 - Fred Hirsch, The Social Limits to Growth
 - Michael Jacobs, The Green Economy
 - Victor Anderson, Alternative Economic Indicators
 - John Peet, Energy and the Ecological Economics of Sustainability
 - Michael Common & Sigrid Stagl, Ecological Economics: An Introduction

- c. *Rethinking History*
 - Clive Ponting, A Green History of the World (*)
 - Joseph Tainter The Collapse of Complex Societies (*)
 - Vernon Gill Carter and Tom Dale, Topsoil and Civilization
 - Alfred Crosby, Ecological Imperialism
 - Jared Diamond, Guns, Germs and Steel
 - Richard D. Wilkinson, Poverty and Progress
 - Donald Worster, The Wealth of Nature

- d. *Rethinking Human Society in Relation to Nature*
 - James Lovelock The Revenge of Gaia (*)
 - Peter Ward The Medea Hypothesis (*)
 - David Montgomery Dirt: The Erosion of Civilizations (*)
 - Edmund Russel War and Nature
 - Gretchen Daily (ed) Nature's Services: Societal Dependence on Natural Ecosystems
 - E. P. Odum, Ecology: the Link Between Nature and Social Sciences

- Howard Odum, The Energy Basis for Man and Nature
 - William Catton, Overshoot: the Ecological Base of Revolutionary Change
 - Tom Wessels The Myth of Progress
 - Callum Roberts The Unnatural History of the Sea
 - Charles Clover The End of the Line
- e. *Rethinking Industrial Society*
- Karl Polanyi, The Great Transformation (*)
 - Paul Hawken, The Ecology of Commerce
 - Kenneth Deffeyes, Hubbert's Peak: the Impending World Oil Shortage
 - Lee Davis, The Corporate Alchemists
 - Stanley Manahan, Industrial Ecology: Environmental Chemistry and Hazardous Waste
- f. *Rethinking Politics and War*
- Norman Myers, Ultimate Security: the Environmental Basis of Political Stability (*)
 - Vaclav Smil Global Catastrophe's and Trends: the Next Fifty Years
 - Gwynne Dyer Climate Wars
 - Peter Brown, Ethics, Economics and International Relations
 - Michael Renner, Fighting For Survival: Environmental Decline, Social Conflict and the New Age of Insecurity
 - Anne Ehrlich and John Birks (eds) Hidden Dangers: the Environmental Consequences of Preparing for War
- g. *Preparing for a Solar-Flow Future?*
- George Monbiot, Heat: How to Stop the Planet from Burning(*)
 - Molly Cato Green Economics: an Introduction to Theory, Policy and Practice
 - Lester Brown, Plan B 3.0
 - Paul Hawken, Amory Lovins, L. Hunter Lovins, Natural Capitalism
 - Janine Benyus Biomimicry: Innovation Inspired by Nature
 - Kenny Ausubel (ed.) Nature's Operating Instructions: the True Biotechnologies
 - Alan Weisman The World Without Us