

Queen's University
ENSC 290*
Introduction to Ecological Economics
Fall Term 2007
Wednesday 1:00 pm – 2:30 pm, Friday 11:30am – 1:00pm
Ellis Hall Room 324

Course Outline and Reading List

Contact Information:

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Office Hours - Monday 2:00 pm - 4:00 pm
- Thursday 3:00 pm - 4:00 pm
- By Appointment

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Outline:

The production of goods and services in any economy generates both benefits and costs. Standard neo-classical economic models do an excellent job describing the “optimal” trade-off between these benefits and costs, conditional on our ability to measure values accurately, completely, and quantitatively. Unfortunately, virtually every production process requires natural resource inputs and produces waste by-products. This is a problem for standard neo-classical economic models because almost without exception, natural resource inputs and waste by-products cannot be accurately, completely, and quantitatively valued with typical market-based signals. Recently, the field of ecological economics has evolved for the purpose of identifying failures within standard neo-classical economic models with respect to the valuation and consideration of natural resource inputs and waste by-products.

Although we will be discussing specific case studies and examples, this is not a policy course. Rather than adopting a qualitative or normative approach, we will be focusing on quantitative, theoretical, and analytical tools used to investigate the interactions among various determinants of social welfare.

There are no pre-requisites for this course, but students who are uncomfortable with the use of basic calculus and statistics should expect to do some supplementary reading and preparation.

This course has been designed specifically for students from the School of Environmental Studies with no economics background.

Structure and Topics:

Week 1 – Introduction: Defining ecological economics.

Week 2 – The standard neo-classical economic model: Marginal benefits, marginal costs, and market interactions.

Week 3-4 – Introducing environmental assets into the standard model: Externalities, public goods, and market failures.

Week 5-6 – The neo-classical response: Command and control, and market based policies.

Week 7-8 – Ecological economists' critique # 1: Measuring non-use and non-market values.

Week 9 – Ecological economists' critique # 2: Trading off growth and environmental quality (welfare versus wealth and the environmental Kuznet's curve).

Week 10-11 – Ecological economists' critique # 3: Sustainable growth or sustainable development (green national income accounts).

Week 12 – Ecological economists' critique # 4: Why is it ever optimal to drive a species to extinction?

Requirements:

Assignment # 1 must be submitted by 4:00 pm on Wednesday, October 17.

Assignment # 2 must be submitted by 4:00 pm on Wednesday, November 28.

Assignments submitted after 4:00 pm on the due date will not be graded (no exceptions without documented medical excuse).

Electronic submissions will not be accepted.

Students are encouraged to discuss the assignments with their classmates, but every student must submit their own individual answers. Assignment submissions that are identical will not be graded.

A midterm exam will be written in class (75 minutes) on Wednesday, October 24 (no exceptions without documented medical excuse).

A final exam (3 hours) will be written during the December exam period (no exceptions other than those approved by the Faculty of Arts and Science).

Grade Distribution

Each student's best assignment will be worth 10% of their final grade.

Each student's worst assignment will be worth 5% of their final grade.

The midterm will be worth 30% of the final grade.

The final exam will be worth 55% of the final grade.

Course Home Page:

Announcements, handouts, overheads and additional course materials will be made available on the course home page. Students should check this page regularly during term.

<http://qed.econ.queensu.ca/faculty/keayi/ensc290.html>

Required Readings:

There is no textbook for this course.

A courseware package containing all required readings is on reserve at the AMS Publishing and Copy Centre (P & C C) and at Stauffer Library.

All required readings are marked with an (*). There will be no presumption that students have read the readings that are recommended but not required. The recommended readings add context, provide greater depth, and often reflect alternative viewpoints.

Readings that may be downloaded by Queen's students from journal archives available through the library home page are marked (DL).

Reading List:

(1) Introduction to ecological economics:

(*) Edwards-Jones, Davies and Hussain, "A Brief History of Ecological Economic Thought", Ecological Economics: An Introduction, 2000, Blackwell Science, Pg. 10-29.

(* - DL) Costanza, "What is Ecological Economics?", Ecological Economics, 1989, Vol. 1, Pg. 1-7.

(*) Costanza and Daly, "Toward An Ecological Economics", Ecological Modeling, 1987, Vol. 38, Pg. 1-7.

Costanza, Daly and Bartholomew, "Goals, Agenda and Policy Recommendations for Ecological Economics", Ecological Economics: The Science and Management of Sustainability, 1991, Columbia University Press, Pg. 1-20.

(2) The standard neo-classical economic model:

(*) Field and Olewiler, "Benefits and Costs: Demand and Supply", Environmental Economics, 2nd Edition, 2002, McGraw-Hill-Ryerson, Pg. 48-64.

(*) Field and Olewiler, "Economic Efficiency and Markets", Environmental Economics, 2nd Edition, 2002, McGraw-Hill-Ryerson, Pg. 66-83.

(3) Introducing market failures into the standard neo-classical model:

(*) Callan and Thomas, "Modeling Market Failure", Environmental Economics and Management: Theory, Policy and Applications, 2000, Dryden Press, Pg. 63-94.

(4) The neo-classical response to environmental degradation:

(*) Callan and Thomas, "Conventional Solutions to Environmental Problems: The Command and Control Approach", Environmental Economics and Management: Theory, Policy and Applications, 2000, Dryden Press, Pg. 99-120.

(*) Callan and Thomas, "Economic Solutions to Environmental Problems: The Market Approach", Environmental Economics and Management: Theory, Policy and Applications, 2000, Dryden Press, Pg. 123-152.

(5) Ecological economists' critique #1:

(*) Field and Olewiler, "Benefit and Cost Analysis: Benefits", Environmental Economics, 2nd Edition, 2002, McGraw-Hill-Ryerson, Pg. 127-154.

(*) Kahn, "Valuing the Environment", The Economic Approach to Environmental and Natural Resources, 2005, Thomson-Southwestern, Pg. 92-128.

(* - DL) Cummings and Harrison, "The Measurement and Decomposition of Nonuse Values: A Critical Review", Environmental and Resource Economics, 1995, Vol. 5, Pg. 25-47.

(6) Ecological economists' critique # 2:

(*) Van den Berg, "Alternative Measures of Economic Growth", in Economic Growth and Development, 2001, Pg. 50-64.

(* - DL) Grossman and Krueger, "Economic Growth and the Environment", Quarterly Journal of Economics, 1995, Vol. 110, Pg. 353-377.

(* - DL) Arrow et al., "Economic Growth, Carrying Capacity and the Environment", Science, 1995, Vol. 268, Pg. 520-521.

(* - DL) Rothman and de Bruyn, "Probing into the Environmental Kuznet's Curve", Ecological Economics, 1998, Vol. 25, Pg. 143-145.

Shafik, "Economic Development and Environmental Quality: An Econometric Analysis", Oxford Economic Papers, 1994, Vol. 46, Pg. 757-773.

de Bruyn, van der Bergh and Opschoor, "Economic Growth and Emissions: Reconsidering the Empirical Basis of Environmental Kuznet's Curves", Ecological Economics, 1998, Vol. 25, Pg. 161-175.

(7) Ecological economists' critique # 3:

(*) Tietenberg, "Sustainable Development: Defining the Concept", Environmental and Natural Resource Economics, 6th Edition, 2003, Addison-Wesley, Pg. 88-101.

(*) Pearce, "Defining Sustainable Development", Blueprint # 3: Measuring Sustainable Development, 1993, Earthscan, Pg. 3-10.

(*) Peskin, "Alternative Environmental and Resource Accounting Approaches", Ecological Economics: The Science and Management of Sustainability, 1991, Columbia University Press, Pg. 176-193.

Lesser, Dodds and Zerbe, "Measuring Sustainable Development", Environmental Economics and Policy, 1997, Addison-Wesley, Pg. 597-606.

Pearce et al., "Resource and Environmental Accounting", Measuring Sustainable Development: Macroeconomics and the Environment, 1997, Elgar Press, Pg. 33-68.

Hartwick, "Intergenerational Equity and the Investing of Rents from Exhaustible Resources", American Economic Review, 1977, Vol. 67, Pg. 972-974.

(8) Ecological economists' critique # 4:

(* - DL) Gordon, "The Economic Theory of a Common Property Resource: The Fishery", Journal of Political Economy, 1954, Vol. 62, Pg. 124-142.

(* - DL) Smith, "On Models of Commercial Fishing", Journal of Political Economy, 1969, Vol. 77, Pg. 181-198.

(* - DL) Clark, "The Economics of Overexploitation", Science, 1973, Vol. 181, Pg. 630-634.