

MACQUARIE
UNIVERSITY



FACULTY OF
BUSINESS AND ECONOMICS

ECON359
Environmental Economics

Semester 2, 2010

Department of Economics

**MACQUARIE UNIVERSITY
FACULTY OF BUSINESS AND ECONOMICS
UNIT OUTLINE**

Year and Semester:	Semester 2, 2010
Unit convenor:	Dr Wylie Bradford
Prerequisites:	ECON200 or ECON203
Credit points:	3

You should read this unit outline carefully at the start of semester. It contains important information about the unit. If anything in it is unclear, please consult the Unit Convenor.

ABOUT THIS UNIT

Welcome to Environmental Economics (ECON359). ECON359 is based around the mainstream economic approach towards the environment and natural resources, but also incorporates perspectives from ecological economics. Case studies will be drawn from Australian and international experience. The guiding economic themes will be competing uses of the environment / externalities, market failure, the importance of property rights, optimal allocation of pollution abatement, technical issues in non-market valuation methods (measuring benefits without commodities), and the processes for making choices relating to non-market goods. The importance of thresholds and constraints arising out of systemic ecological structures and the nature of physical reality will be emphasised where relevant.

This unit addresses questions of global significance that are integral to any comprehensive understanding of rational resource use and which underpin pressing topical debates regarding sustainability and intergenerational relationships. It draws on the techniques developed in ECON203 Microeconomic Analysis and ECON210 Public Economics. There are important synergies between the content of ECON359 and that of ECON309 Industrial Organisation and ECON336 Economic Development.

TEACHING STAFF

- Convenor : Dr Wylie Bradford, E4A425, ph: 98508467, wylie.bradford@mq.edu.au
- Dr Marjan Nazifi, E4A447A, fatemeh.nazifi@mq.edu.au

CONSULTATION TIMES

Wylie Bradford:	Tuesday, Thursday 2-4 pm
Marjan Nazifi:	Wednesday 3-4 pm

You are encouraged to seek help at a time that is convenient to you from a staff member teaching on this unit during their regular consultation hours. In special circumstances, an appointment may be made outside regular consultation hours. Students experiencing significant difficulties with any topic in the unit must seek assistance immediately.

CLASSES

- 1 x 2 hour lecture (Wed 10-12, E7B T3) and 1 x 1 hour tutorial (Wed 1&2 pm, E8A188) per week.
- The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au/>

TEXT

- Grafton, R. Quentin, Adamowicz, W., DuPont, D., Nelson, H., Hill, R.J. & Renzetti, S. *Economics of the Environment and Natural Resources* (Blackwell, 2004).

The text combines a direct and intuitive approach to theoretical issues with an appropriate degree of rigour that is missing in many other texts in the field. You should note that while the discussion of the techniques (principally dynamic optimisation in both present and current value forms) will play a role in the lecture material, you will not be asked (nor assessed on your ability) to apply the techniques in a problem-solving context. You will be expected to understand how the solutions to the dynamic optimisation problems translate into policy responses and judgments about welfare.

- The text can be purchased from the Macquarie University Co-op Bookshop. A copy will be made available in the Reserve section of the Library.
- Environmental economics has grown into a large and varied literature so there is no shortage of additional resources to draw upon should you so choose (N.B. intellectual monocultures lack resilience in the same way that ecological ones do... ☺!) See the appendix for a for a non-exhaustive sampling of additional sources of information.

TECHNOLOGY USED AND REQUIRED

- Powerpoint presentations, visualiser.
- Technology requirements: nil.

UNIT WEB PAGE

- Course material is available on the learning management system (BlackBoard)
- The web page for this unit can be found at:
<https://learn.mq.edu.au/webct/logon/24606970001>

LEARNING OUTCOMES

The learning outcomes of this unit are for students to:

- 1 become familiar with the meaning and use of terminology and concepts associated with the economic analysis of environmental issues.
- 2 be able to identify the relevant economic aspects of environmental problems including key stakeholders and important incentive effects and their determinants.
- 3 be cognisant of the major theoretical approaches to the analysis of environmental issues, the assumptions on which they are based and their implications regarding the effects of changes in key parameters.
- 4 demonstrate knowledge of the data needs for a meaningful economic analysis of environmental problems, and be able to identify potential data sources and methods for collecting data.
- 5 have the capacity to assess and compare policy alternatives in relation to environmental issues in light of the factors dealt with in outcomes 3 and 4 above.

GRADUATE CAPABILITIES

In addition to the discipline-based learning objectives, all academic programs at Macquarie seek to develop the capabilities the University's graduates will need to develop to address the challenges, and to be effective, engaged participants in their world.

This unit contributes to this by developing the following graduate capabilities:

1. Discipline Specific Knowledge and Skills (*see below*)
 2. Critical, Analytical and Integrative Thinking
 3. Creative and Innovative
 4. Effective Communication
 5. Engaged and Ethical Local and Global citizens
 6. Socially and Environmentally Active and Responsible
1. Discipline Specific Knowledge and Skills: Ability to
 - a. Understand existing economic theories
 - b. Apply economic theories to practical situations or problems

- c. Critically evaluate and test competing economic theories, comparing predictions to actual outcomes
- d. Examine real world issues from an economic perspective

TEACHING AND LEARNING STRATEGY

- The course material will be delivered via lectures and tutorial classes.
- Students should read at least the assigned materials before each lecture and prepare responses to all tutorial questions prior to each class.
- Throughout the semester students should focus their attention on developing responses to the final examination questions that will be distributed at the beginning of the course.

UNIT CALENDAR

Week	Date	Lecture (text chapter)	Tutorial
1	4 Aug	Introduction and overview (1)	Orientation session
2	11 Aug	Non-renewable resources (7)	Diagnostic exam
3	18 Aug	Fishery economics (4)	Intro/Non-renewables
4	25 Aug	Forestry economics (5)	Fisheries
5	1 Sep	Water economics (6)	Forests
6	8 Sep	Pollution control (3)	Water
7	15 Sep	Property rights (2)	Class test 1 (MC)
		Mid-semester break	
8	6 Oct	Environmental valuation (8-10)	Pollution
9	13 Oct	Environmental valuation (8-10)	Property rights
10	20 Oct	Growth and the environment (11)	Valuation
11	27 Oct	Environmental accounting and measurement issues (12)	Class test 2 (SA)
12	3 Nov	Climate change (11,14)	Growth
13	10Nov	Ethics and environmental policy	Climate change

RESEARCH AND PRACTICE (DELETE THOSE NOT APPLICABLE)

- This unit uses research by Macquarie University researchers (references provided as employed).
- This unit uses research from external sources (references provided as employed).
- This unit gives you practice in applying research findings in your assessments.

RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES

	Assessment Task 1	Assessment Task 2	Assessment Task 3
Title/Name	Class Test 1	Class Test 2	Final Exam
Description	Multiple Choice	Short Answer	Long answer
Due date	15 September	27 October	TBA
% Weighting	20	20	55
Grading method - marking criteria/ standards	Machine marked		
Submission method	Exam	Exam	Exam
Feedback	Discussion of 'problem' questions via Blackboard	Discussion of issues arising via Blackboard	Release of final results
Estimated student workload (hours)	6 weeks @ 9 hours per week =54 hours	4 weeks @ 9 hours per week =36 hours	13 weeks @ 9 hours per week =117 hours
Learning outcomes assessed			
1	X		X
2	X		X
3	X	X	X
4		X	X
5		X	X
Graduate capabilities assessed			
1	X (a,b)	X	X
2	X	X	X
3			X
4		X	X
5			X
6			X

In accordance with University policy there will be a low-risk early diagnostic test held in week 2. This test will carry a weight of 5% and is designed to identify those students who are likely to find successful completion of the unit a struggle. The exam will cover basic economic analysis relevant to environmental economics. Three outcomes are possible: satisfactory (5 marks), borderline (2.5 marks) and unsatisfactory (0) marks. **Those students who record an unsatisfactory result should strongly consider withdrawing from the course prior to the Census date (31 August) as they are at risk of failure if they continue.** Students who record a borderline result should take that as a signal that serious application will be required in order to achieve a favourable outcome in the unit.

The weights listed for each assessment task in the table above will be used to calculate your raw mark. The raw mark will be a weighted harmonic mean of the individual assessment marks, each expressed as a percentage:

$$RM = \frac{1}{\left(\frac{0.2}{MC\%} + \frac{0.2}{SA\%} + \frac{0.6}{FE^*\%} \right)}$$

where MC% = class test 1 mark (percentage)
SA% = class test 2 mark (percentage)
FE*% = final exam mark (percentage) PLUS diagnostic exam mark (percentage)

It is important to note that the raw mark is an input into the determination of your final grade, but not the sole determinant. The stated University performance standards associated with particular grades will be taken into account in determining your final result.

<http://www.mq.edu.au/senate/MQUonly/Issues.html>

Your final result will be expressed as a Standardised Numerical Grade (SNG). The value of the SNG denotes the level of performance attained (e.g. an SNG of 66 indicates that a student performed at a level sufficient to earn a CR grade but below that of a student with an SNG of 73, while an SNG below 45 indicates that the student has failed to demonstrate sufficient competence to earn a passing grade and son on) and the SNG need not coincide with the calculated raw mark. As the SNG is not a mark *per se* but an index of performance, it follows that statements of the form "I am only x marks away from [insert grade here]" are strictly invalid and no dialogue will be entered into on that basis following the release of final results.

You should also note that the fact that the raw mark is calculated as a weighted harmonic mean has some important implications:

- As the combination of assessment marks is not linear it is not correct to say, for example, that the class tests are worth 20 marks or contribute up to 20 marks to the total of 100. In fact the class tests each have a weight of 0.2; their actual contribution to the final raw mark varies with their value and that of the other assessments.
- A zero result in any assessment (apart from the diagnostic test) will render the calculation of a raw mark impossible and will result therefore in failure in the unit. A necessary condition for passing the course is non-zero results in all assessments other than the diagnostic test.
- The harmonic mean punishes inconsistency. If you perform at a HD level in all assessments your raw mark will be consistent with the HD range. A low mark in one assessment will pull your raw mark down by more than if it was calculated as a weighted arithmetic mean (the traditional 'adding up' scenario). Hence it is important to approach each assessment task with the appropriate degree of seriousness in terms of preparation.

- Examinations

A final examination is included as an assessment task for this unit to provide assurance that:

- i) the product belongs to the student and
- ii) the student has attained the knowledge and skills tested in the exam.

A 2-hour final examination for this unit will be held during the University Examination period.

The University Examination period in Second Half Year 2010 is from 17 November to 3 December.

<http://www.handbook.mq.edu.au/2010/OtherInformation/ImportantDates>

You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in Draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations.

<http://www.timetables.mq.edu.au/exam>

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. The University's policy on special consideration process is available at

http://www.mq.edu.au/policy/docs/special_consideration/policy.html

No consideration will be given to so-called 'misread timetable' cases. Failure to sit a scheduled examination that is not explicable in terms of unavoidable disruption as defined in University policy will result in a Failed Absent (FA) grade for the unit.

As special consideration is a form of insurance, economic theory dictates that it not be full, and that it should be priced. Hence, the 'premium' required to be paid is satisfactory performance in within-semester assessment. No student will be granted special consideration in this unit if their combined mark in class tests 1&2 is less than 18.

If a Supplementary Examination is granted as a result of the Special Consideration process the examination will be scheduled after the conclusion of the official examination period.

All students who submit special consideration requests that are subsequently found to be valid will be required to sit a supplementary examination. University policy precludes the addition of marks to students' results as a form of consideration.

Students in this unit will sit one final examination only for assessment purposes. If a supplementary examination is granted the result in the scheduled final examination (if any) is automatically rendered null and void, and replaced by the result in the supplementary.

The Macquarie university examination policy details the principles and conduct of examinations at the University. The policy is available at:

<http://www.mq.edu.au/policy/docs/examination/policy.htm>

ACADEMIC HONESTY

The nature of scholarly endeavour, dependent as it is on the work of others, binds all members of the University community to abide by the principles of academic honesty. Its fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.

Further information on the academic honesty can be found in the Macquarie University Academic Honesty Policy at

http://www.mq.edu.au/policy/docs/academic_honesty/policy.html

GRADES

Please refer to relevant Bachelor Degree rule in the Handbook of Undergraduate Studies.

GRADING APPEALS AND FINAL EXAMINATION SCRIPT VIEWING

If, at the conclusion of the unit, you have performed below expectations, and are considering lodging an appeal of grade and/or viewing your final exam script please refer to the following website which provides information about these processes and the cut off dates in the first instance. Please read the instructions provided concerning what constitutes valid grounds for appeal before appealing your grade.

http://www.businessandconomics.mq.edu.au/for/new_and_current_students/undergraduate/admin_central/grade_appeals.

STUDENT SUPPORT SERVICES

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at <http://www.student.mq.edu.au>.

[Individual Unit Convenors may wish to add Unit/ Faculty specific support eg BESS, Room, PAL, E4B Consultation Room.]

IT CONDITIONS OF USE

Access to all student computing facilities within the Faculty of Business and Economics is restricted to authorised coursework for approved units. Student ID cards must be displayed in the locations provided at all times.

Students are expected to act responsibly when utilising University IT facilities. The following regulations apply to the use of computing facilities and online services:

- Accessing inappropriate web sites or downloading inappropriate material is not permitted. Material that is not related to coursework for approved unit is deemed inappropriate.
- Downloading copyright material without permission from the copyright owner is illegal, and strictly prohibited. Students detected undertaking such activities will face disciplinary action, which may result in criminal proceedings.

Non-compliance with these conditions may result in disciplinary action without further notice.

Students must use their Macquarie University email addresses to communicate with staff as it is University policy that the University issued email account is used for official University communication.

Appendix: Alternative texts etc

Texts

- Tietenberg, T., *Environmental and Natural Resource Economics* (various eds.).
- Perman, R., Ma, Y., McGilvray, J., and M.Common, (2003), *Natural Resource and Environmental Economics*, 3rd edition, Addison Wesley, New York.
- John M. Hartwick and Nancy D. Olewiler. (1998), *The Economics of Natural Resource Use*, 2nd Ed. Addison-Wesley.
- Charles D. Kolstad. (2000) *Environmental Economics*, Oxford University Press,
- Hanley, N., Shogren, J.F., and B.White, (2001) *Introduction to Environmental Economics*, Oxford University Press, Oxford.
- Ward, F., A. (2006) *Environmental and Natural Resource Economics*, Pearson Education.

Other books

- ABARE. (2001), *Alternative Policy Approaches to Natural Resource Management*, Available for free download from ABARE web-site.
- Aplin, G. (1998), *Australians and Their Environment*, Oxford University Press, Melbourne.
- Anderson, L.G. (1986), *The Economics of Fisheries Management*, Rev edn, Johns Hopkins Press, Baltimore.
- Barbier, E.B. (1989), *Economics, Natural-Resource Scarcity and Development: Conventional and Alternative Views*, Earthscan Publications, London.
- Baumol, W.J. and Oates, W.E. (1988), *The Theory of Environmental Policy*, Cambridge, Cambridge University press.
- Boadway, R. and Bruce, N. (1984), *Welfare Economics*, Basil Blackwell, Oxford.
- Bohm, P. (1987), *Social Efficiency: A Concise Introduction to Welfare Economics*, 2nd edn, Macmillan, London.
- Common, M. (1996), *Environmental and Resource Economics. An Introduction*, 2nd edn, Longman, Harrow.
- Conrad, J.M. (1999), *Resource Economics*, Cambridge University Press, Cambridge.
- Conrad, J.M. and Clark, C.W. (1987), *Natural Resource Economics: Notes and Problems*, Cambridge University Press, Cambridge.
- Cornes, R. and Sandler, T. (1996), *The Theory of Externalities, Public Goods and Club Goods*, 2nd edn, Cambridge University press, Cambridge.
- Dasgupta, P (1982), *The Control of Resources*, Basil Blackwell, Oxford.
- Fisher, A.C. (1981), *Resource and Environmental Economics*, Cambridge University Press, Cambridge.
- Freeman A.M.III, (1993), *The Measurement of Environmental and Resource Values, Theory and Methods*, Resources for the Future, Washington D.C.
- Goodstein, E. (1995), *Economics and the Environment*, Prentice-Hall, Englewood Cliffs.
- Herendeen, R.A. (1998), *Ecological Numeracy: Quantitative Analysis of Environmental Issues*, John Wiley & Sons, New York,
- Hussen, A.M. (2000), *Principles of Environmental Economics*, London, Routledge.
- Ludicello, S., Weber, M. and Wieland, R. (1999), *Fish, Markets, and Fishermen: The Economics of Overfishing*, Island Press, Washington, D.C.
- Kneese, A.V. and Sweeney, J.L. (eds), *Handbook of Natural Resource and Energy Economics*, Vols. I and II, Elsevier Science, Amsterdam.
- Lomberg, B., 2001, *The Skeptical Environmentalist: Measuring the Real State of the World*, Cambridge University Press.
- Moran, A., Chisholm, A. and Porter, M. (eds.) (1991), *Markets, Resources and the Environment*, Allen and Unwin, North Sydney.

Pearce, D.W. and Turner, R.K. (1990), *Economics of Natural Resources and the Environment*, Harvester Wheatsheaf, New York.
Pearce, D.W. and J.Warford, 1993, *World Without End, Economics, Environment and Sustainable Development*, Oxford University Press, Oxford.
Randall, A. (1987), *Resource Economics: an Economic Approach to Natural Resource and Environmental Policy*, 2nd edn, John Wiley & Sons, New York.
Thampapillai, D. (2002), *Environmental Economics*, Oxford University Press, Oxford.
Turner, R.K., Pearce, D. and Bateman, I. (1994), *Environmental Economics: An Elementary Introduction*, Johns Hopkins

Journals

Australian Economic Papers
Australian Forestry
Australian Journal of Agricultural and Resource Economics
Australian Journal of Environmental Management
Economic Record
International
American Journal of Agricultural Economics
Ecological Economics
Environment and Development Economics
Environment and Planning
Environmental and Resource Economics
Environmental Conservation
Energy Journal
Energy Policy
Journal of Agricultural and Resource Economics
Journal of Environmental Economics and Management
Journal of Environmental Management
Land Economics
Natural Resources Journal
Natural Resources Modeling
Resource and Energy Economics
Review of Agricultural Economics

Web Sites

<http://www.aere.org> (Association of Environmental and Resource Economists (AERE))
<http://www.ea.gov.au> - Environment Australia
<http://www.abare.gov.au> - Australian Bureau of Agricultural and Resource Economics
<http://www.epa.gov/ebtpages/economics.html> -US EPA , Economics Unit
<http://www.vwl.uni-mannheim.de/conrad/eaere/> (European Association of Environmental and Resource Economists (EAERE))
<http://www.oecd.org> - OECD, several of the Directorates deal with Environmental Econ.
And many, many more.....