

Natural Resource Economics I

FARE 6950

Winter 2010

Course Meeting Times: Tuesday & Thursdays 7 p.m. – 8:20.

Instructor: Brady J. Deaton

Contact: bdeaton@uoguelph.ca
Telephone: x 52765
Rm. 321 J.D. MacLachlan Building

Office Hours: By appointment.

Purpose of the Course:

The purpose of this course is to support your use of economic theory to critically analyze natural resource issues and resource management policy. The course topics include land, fisheries, forestry, and water. (Water issues will be discussed if time permits.) The course introduces you to seminal and contemporary literature. In addition, the course is designed to prepare you to articulate (in both oral and written form) key concepts that underlie the economics of natural resources. Regression analysis and dynamic problems are used to motivate theoretical and methodological insight.

Format:

The course consists of lectures, discussions, class presentations, assignments, a type of literature review (I term a “gap” analysis), and an exam. Assignments will be given throughout the semester and I expect them to be turned in on due dates in class. Assignments other than those identified in the syllabus may be given throughout the semester.

Course Grades:

Class Participation **10 %**

Reading Reports
Class Discussion

Assignments **10 %**

Anticommons Problem Set & Probit Regression
Hedonic Problem & OLS Regression
Fishery and Forestry Modeling Problems to be assigned

Class Presentations **13 %**

Presentation 2 (Data Presentation) 3%
Presentation 3 (Presentation of Gap) 10%

Gap Analysis **30%**

Final Exam **37%**

Class Participation:

Students are expected to participate in class discussions and demonstrate an understanding of readings and assignments. (All class participants are expected to engage each other in discussion and debate in a collegial manner.) *Students are encouraged to discuss readings in the context of contemporary issues and their own research.* As part of class participation students may be asked to provide a 5-10 minute summary of class readings. The summary should be oral and not require power points. Reading reports (RR) are required for specified readings. (Please hand in a **copy** of your reading report at the end of class.) A reading report is a short 1 page summary of an article/reading. I have provided a copy of a report framework that might be useful but you are welcome to summarize the reading in a way that is most useful to you. I hope that the reading report will provide you with a written record of the literature we cover and be useful in class discussions. The reading report should be typed

Class Presentations:

As identified above, students will make a number of presentations in the class. We will discuss these presentations in class before the presentation. If students are uncertain about what they should be presenting they should discuss with instructor in class or in office hours.

Assignments:

Applied quantitative and qualitative assignments will be given throughout the semester. **Students are expected to complete the assignment and bring it to class on the assigned date.** The goal of the assignments is to develop skills and reinforce key analytical concepts. Students are welcome to work with each other on these assignments. However, you should write their answers separately and independently. Students should write in a clear and concise manner.

Gap Analysis:

Students will write a “**gap analysis**”. The gap analysis will use *at least* three key articles (from the economics literature) to develop a ‘tension’ in the literature and raise a key economic research question. Additionally, the gap analysis must provide a discussion of the methods you intend to use to address the gap in the literature you have identified. At least one article (from the literature you discuss in your gap analysis) must use empirical methods. The gap analysis should read very much like an expanded version of the introduction of many journal articles. (We will discuss this more in class and I will give you examples of the paper structure that I am looking for.) Ideally, the gap analysis will help you advance your research interests and give you a basis for developing your thesis. Not including references the gap analysis should be up to eight double spaced pages.

Final Exam:

The final exam will assess your understanding of key aspects of economic theory, applied analysis, and other issues discussed in class or in the readings. The final exam is comprehensive.

Policies Concerning Absences, Failure to Submit Assignments

If you wish to claim illness or compassionate reasons for missing any major class responsibilities you must contact the instructor and submit appropriate verification as indicated in the Graduate Calendar.

Late assignments will not be accepted. Failure to submit the gap analysis *on the due date* will result in a reduction in ½ the letter grade for each day the paper is late.

Texts and Readings

I recommend that you purchase Conrad, Jon M. *Resource Economics*, Cambridge University Press, Cambridge: 1999. However, I have put this on reserve in the library. A course pack has been put together for your convenience and many of the readings (see below) are provided in the course pack. The course pack is on reserve in the library. In addition, where possible, I have made the readings available on blackboard.

The following texts have been put on reserve in the library:

Conrad, J. M. and C. Clark. 1987. *Natural Resource Economics: Notes and Problems*. Cambridge University Press, New York: 1987.

Conrad, J. M. 1999. *Resource Economics*, Cambridge University Press, Cambridge.

Clark, C. W. *Mathematical Bioeconomics: The Optimal Management of Renewable Resources* 2nd edition. John Wiley & Sons, Inc. New York: 1990.

Winter 2008: Class Schedule¹

Date	Topic	Readings by Author Name
<i>Section I: Introduction to Course</i>		
January 12	Introduction to the Class	Review Syllabus Overview of Course
January 14	American Bison	Demsetz ^a <u>Lueck^{a,b}</u> (RR) Be aware of Pfaff & Stavins ^a
January 19	Data Presentation by Students: Presentation 1 5-10 minute review of data relating to a resource issue of interest. Hopefully, you can relate to your thesis research area. Have your presentation answer a simple question: How has fish catch changed; How much land is rented, etc.? Also we will have our first discussion regarding a “gap” in the literature.	
<i>Section II: Property Regimes</i>		
January 21	Property Rights	Coase ^a (RR)
January 26	Symmetric Tragedies Commons & Anticommons	<u>Hardin^{a,b}</u> (RR) <u>Buchanan & Yoon^{a,b}</u> (RR)
January 28	Anticommons in Sri Lanka Chatura Presentation <i>Problem # 1 Assigned: Probit Regression, Interpretation & Commons/Anticommons Calculus</i>	<u>Berntachini, Mot, Deporter^a</u>

¹ All dates are tentative; ^a available on blackboard, ^b available in course packet on reserve in library (request “AGEC 6950” Course Pack), ^c will be handed out in class, ^d on reserve in the library. Rec. = Recommended.

Feb 2	Governing the Commons	Ostrom (RR) (pp. 1-65 only) ^c
Section III: Hedonic Methods		
Feb 4	Hedonic Methods	Freeman Chapter 11 ^b 367-379 read closely; skim remainder.
Feb 9	Hedonic Methods Continued <i>Problem #2 Assigned: OLS Regression and Interpretation</i>	<u>Kohlhase</u> ^{a,b} (RR) <u>Cutler</u> ^a (Skim) Torrell ^a
Section IV: Basic Model for Renewable Resources		
Feb 11	Discount Rate Hotellings Rule Global Warming	Page (Chpt. 7) ^b (RR) Livernois ^a (read pp: 22-30) Mendelsohn
<i>Feb 16-18 No Class Winter Break</i>		
Feb 23	Basic Dynamic Model <i>Problem 3: Dynamic Modeling Problems: Math & Solutions</i>	Conrad Chapter 1 & 2 ^d Conrad & Clark Chapter 1 & 2 ^d
Feb 25	No Class	
Section V: Basic Dynamic Model Applied to Fisheries		
March 2	Fisheries I	Conrad Chapter 3 ^d
March 4	Fisheries II	<u>Gordon</u> ^{a,b} (RR) <u>Schaefer</u> ^b (RR)
March 9	Fisheries III	Conrad Chapter 3 ^d <u>Costello</u> ^a (RR)
March 11	Taking Stock Dinner	<u>Schrank</u> ^a (RR)
March 16	Ass4: Three articles identified by student. Each student will discuss their idea of a suitable “gap” in the literature may be.	
Section VI: Basic Dynamic Model Applied to Forestry in Canada		
March 18		
March 23	Forestry I MAI v. Optimal	Conrad Chapter 4 ^d
March 25	<i>Overview of Forestry Issues in Canada</i>	<i>Andy Gordon</i>
March 30	Forestry II Faustman Rotation Hartman Model	Conrad Chapter 4 ^d Hartman ^b
April 1		
April 6		

April 8	Presentation of Gap Analysis	
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Readings

Alchian, A. and H. Demsetz. 1973. "The Property Right Paradigm." *The Journal of Economic History*: 16-27.

Buchanan, J.M. and Y.J. Yoon. 2000. "Symmetric Tragedies: *Commons and Anticommons*." *Journal of Law and Economics* (VIII): 1-13.

Clark, C. W. and Munro, G.R. 1975, "The Economics of Fishing and Modern Capital Theory: A Simplified Approach." *Journal of Environmental Economics and Management*, 2 :92- 106.

Cutler, D.M., E.L. Glaeser, and J.L.Vigdor, 1999. "The Rise and Decline of the American Ghetto." *Journal of Political Economy* 107 (3): 455-506.

Coase, Ronald H. 1960. "The Problem of Social Cost". *Journal of Law and Economics* 3 (1): 1-44.

Costello, C., S.D. Gaines, John Lynham. 2008. "Can Catch Shares Prevent Fisheries Collapse?" *Science* 321: 1678-1681.

Bertachini, E., J. De Mot, and B. Depoorter. 2009. *Review of Law and Economics* 5 (1): 163-176.

Deaton, B.J. 2007. "Intestate Succession and Heir Property: Implications for Future Research on the Persistence of Poverty in Central Appalachia" *Journal of Economic Issues* 41: 927-942.

Demsetz, H. 1967. "Toward a Theory of Property Rights." *The American Economic Review*, 57 (2): 347-359.

Dietz, S. and N. Stern. 2008. "Why Economic Analysis Supports Strong Action on Climate Change." *Review of Environmental Economics and Policy* 2 (1): 94-113.

Dorfman, R. 1969. "An Economic Interpretation of Optimal Control Theory." *The American Economic Review* 59: 817- 831.

Freeman III, A. M. 1993. *The Measurement of Environmental and Resource Values: Theory and Methods*. Washington D.C.: Resources for the Future.

Gordon, H. S. 1954. "The Economic Theory of a Common-Property Resource: The Fishery." *Journal of Political Economy*, 62: 124-42.

Hardin, G. 1968. "The Tragedy of the Commons." *Science* 162: 1243-1248.

- Hartman, R. 1976. "The Harvesting Decision When a Standing Forest Has Value." *Economic Inquiry* 14: 52-57.
- Hilborn, R. 2007. "Managing fisheries is managing people: what has been learned?" *Fish and Fisheries* 8: 285-296
- Lueck, D. 2002. "The Extermination and Conservation of the American Bison." *Journal of Legal Studies* 31: S609-S650.
- Mendelsohn, R. 2008. "Is the Stern Review an Economic Analysis?" *Review of Environmental Economics and Policy* 2 (1): 45-59.
- Netusil, N. 2005. "The Effect of Environmental Zoning and Amenities on Property Values." *Land Economics*, 81: 227- 246.
- Ostrom, E. 1990. *Governing the Commons: the Evolution of Institutions for Collective Action*. Cambridge University Press
- Page, T. 1977. *Conservation and Economic Efficiency: An Approach to Materials Policy*. Washington, D.C.: Johns Hopkins University Press.
- Repetto, R. 2001. "A Natural Experiment in Fisheries Management." *Marine Policy*, 25: 251-264.
- Schlager, Edella and Elinor Ostrom. "Property-Rights Regimes and Natural Resources: A Conceptual Analysis." *Land Economics* 68 (1992): 249-62.
- Schaefer, M. B. 1957. "Some Considerations of Population Dynamics and Economics in Relation to the Management of Commercial Fisheries." *J. Fish. Res. BD. Canada* 14: 669-681.
- Torrell, A. J. Libbin, and M. Miller. 1990. "The Market Value of Water in the Ogallala Aquifer." *Land Economics* 66 (2): 163-175.

Example of a Potential Reading Report Format
AGEC 6610
Economics of Renewable Natural Resources

Identification: (Citation)

General Problem Area: (Topic)

Research Question/Missing Information:

Theoretical Approach:

Methods:

Key Results:

Research Ideas: