



## Department of Economics Course Outline

		<b>Term:</b>	Winter 2012
<b>Course:</b>	Economics 675 [Natural Resource Economics]	<b>Section:</b>	01
<b>Time:</b>	TR 15:30 - 16:45	<b>Place:</b>	SS 423 (subject to change)
<b>Instructor:</b>	Dr. John R. Boyce		
<b>Office:</b>	SS 412	<b>Telephone.:</b>	220-5860
<b>Office Hours:</b>	TBA	<b>E-mail:</b>	<a href="mailto:boyce@ucalgary.ca">boyce@ucalgary.ca</a>

### Journal Articles

Journal article readings (the bulk of the course) will be made available by Blackboard. A list will be distributed on the first day of class.

### Text Books

Selected readings will also be drawn from the following textbook sources:

*Exhaustible Resources and Economic Theory*, P. S. Dasgupta & G. W. Heal, Cambridge University Press, 1979.

*Environmental Economics: In Theory and Practice*, N. Hanley, J. F. Shogren, & B. White, Oxford University Press, 1997.

*Dynamic Optimization: Calculus of Variations and Optimal Control Theory in Economics and Management* (2<sup>nd</sup> Ed.), M. Kamien & N. Schwartz, North Holland, 1991.

*Natural Resource and Environmental Economics*, Roger Perman, Yue Ma, and James McGilvray, Longman, London, 1996.

*Natural Resource Economics: Conservation and Exploitation*, Philip A. Neher, Cambridge University Press, 1990.

*Economic Growth*, Robert J. Barro and Xavier Sala-i-Martin, McGraw-Hill, New York.

**Course Outline:**

1. Introduction to Natural Resource Economics
  - a. Property rights and lack thereof
  - a. Hotelling Model of Exhaustible Resources
  - b. Static Renewable Resource Models
  - c. Forestry Economics
  
2. Mathematical Methods in Natural Resource Economics (introduced as required)
  - a. Optimal control theory
  - b. Dynamic programming
  - c. Fish war (Markov) games
  - d. Differential games
  
3. Non-Renewable Resources
  - a. Perfect competition, fixed stock
  - b. Imperfect competition, fixed stock
  - c. Exploration and mixed stocks
  - d. Pollution and Global Warming
  - e. Regulation
  - f. Growth and Exhaustible Resources
  
4. Renewable Resources
  - a. Perfect competition, full property rights
  - b. Imperfect competition, full property rights
  - c. Common Property and Open Access
  - d. Regulation

**Grade Determination and Final Examination Details:**

Four Assignments	12.5% Each (50% total)
First Midterm Examination	(25% total)
Second Midterm Examination	(25% total)

The examinations and assignments are marked on a numerical (percentage) basis. The letter grade is calculated using the following letter grade equivalences:

A+	98 – 100	B	80 – 84	C-	60 – 64
A	95 – 97	B-	75 – 79	D+	55 – 59
A-	90 – 94	C+	70 – 74	D	50 – 54
B+	85 – 89	C	65 – 69	F	<50

Non-programmable calculators will NOT be allowed during the writing of tests or final examinations.

There will be a department scheduled final examination two hours in duration. It will be held in the classroom.

Tests and exams will not involve multiple choice questions.

**Notes:**

- Students seeking reappraisal of a piece of graded term work (term paper, essay, etc.) should discuss their work with the Instructor *within fifteen days* of the work being returned to the class.
- It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.

Safewalk / Campus Security: 220-5333  
Emergency Assembly Location – Professional Faculties Food Court

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