Economic Theory of Natural Resources Use
ECON*6810

Department of Economics & Finance
University of Guelph

Outline

Instructor: Henry Thille   Winter Semester 2014
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It is your responsibility as a student to be aware of and to abide by the University's policies regarding academic misconduct, e-mail communication, maintaining copies of out-of class assignments, what to do when you cannot meet a course requirement and the drop date for this semester. To better understand these policies, visit:
http://www.uoguelph.ca/economics/node/1115

You will be asked to complete an evaluation of this course at some time during the last two weeks of the semester. The Department of Economics policy regarding the conduct and use of these evaluations will be found at http://www.uoguelph.ca/economics/academics/courses/course-evaluation

Course Description: This course will examine the economics of industries that involve the exploitation of natural resources. We will begin with an overview of dynamic optimization which will be applied to the problem of finding the optimal use of renewable resources. We then focus on non-renewable resources and investigate the implications of exhaustibility for resource prices.

Text: There is no textbook for this course. Readings will be assigned from various books and journal articles.

Assessment:

40%   Assignments & quizzes
60%   Term paper   Due April 4

The topic of the term paper should be chosen in consultation with the instructor within the first three weeks of the semester. Any topic relevant to the material in the course is acceptable. You will make a presentation regarding your topic in the last two weeks of the semester.

Reference Texts:

Dasgupta, P. S. and G. M. Heal. (1989) *Economic Theory and Exhaustible Resources.* Cambridge: Cambridge University Press.

Conrad, Jon M. and Colin W. Clark. (1987) *Natural Resource Economics: Notes and Problems.* Cambridge: Cambridge University Press.

Hartwick, John M. and Nancy D. Olewiler. (1986) *The Economics of Natural Resouce Use.* New York: Harper Collins Inc.

Kamien, M. and N. Schwartz. (1991) *Dynamic Optimization.* 2nd ed. Amsterdam: North Holland.

Hoy, M., J. Livernois, C. McKenna, R. Rees, and T. Stengos. (2001) *Mathematics for Economics.* 2nd ed. MIT Press.

Miranda, M.J. and P.L. Fackler. (2002) *Applied Computational Economics and Finance.* MIT Press.

Outline: The following topics will be examined. A detailed reading list will be provided at the beginning of the semester.

1. Dynamic Methods
   (a) Systems of differential equations
   (b) Optimal control theory
   (c) Numerical solutions

2. Renewable resources
   (a) Fisheries
   (b) Forests

3. Nonrenewable resources
   (a) The Hotelling Rule
   (b) Exploration
   (c) Uncertainty
   (d) Empirical tests