UNIVERSITY OF HAWAII AT MANOA
DEPARTMENT OF ECONOMICS

Economics 637
Resource Economics
Spring 2006

Instructor: Lee H. Endress
Office: Saunders 505
Lecture: TR 6:00pm – 7:30pm
Room: Webster 103
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Course Description: This course is an introduction to dynamic economic analysis with application to natural resource and environmental issues. We will review several techniques of dynamic optimization, including the calculus of variations, optimal control, and dynamic programming. Taking a capital theory approach, our study will consider both non-renewable and renewable resources, and their equilibrium and optimal allocations. Several sessions will be devoted to the economics of sustainable growth and national income accounting. The course will be conducted as a seminar with active student participation and presentation throughout.

Required Texts:
Clark, Mathematical Bioeconomics, 2nd Ed. Wiley, 1990

Other References:
Hartwick and Olewiler, The Economics of Natural Resource Use, 2nd Ed. Addison-Wesley, 1998
Tietenberg, Environmental and Natural Resource Economics, 7th Ed, Addison-Wesley, 2006

Grading: Midterm: 20%
Final: 30%
Paper: 30%
Presentations/Participation: 20%

Key Dates: Jan 31: Paper proposals due
Mar 2: Midterm
April 18: Papers due
May 3: Final
Papers


TENTATIVE SYLLABUS

1. Non-renewable resources (5 sessions)
   - Text: Perman chap 15

2. Natural resources, optimal control and capital theory (4 sessions)
   - Texts: Perman chap 14, Clark chaps 3, 4
   - Papers: Vousden (1973)

3. Renewable resources (5 sessions)
   - Texts: Perman chap 17, Clark chap 2
   - Papers: Clark and Munro (1975), Gordon (1954), Plourde (1970), Hardin (1968)

4. Growth and aging: forests (2 sessions)
   - Text: Perman chap 18, Clark chap 9

5. Non-linear models and dynamical systems (4 sessions)
   - Text: Clark chaps 5, 6, 10 (if time permits)

6. Stochastic resource models; dynamic programming (2 sessions)
   - Text: Clark chap 11

7. Sustainable growth and national accounting (4 sessions)
   - Text: Perman chaps 4, 19

8. Term-paper presentations (3 sessions)