

AAEC 3060
AAEC 3060, Principles of Resource Economics
Fall Semester, 2008

Instructor: Dr. John C. Bergstrom

Class Time: 9:30 a.m.-10:45 a.m., Tuesday and Thursday

Class Room: Room 210 Conner Hall

TA: Wesley Burnett, AAEC PhD Candidate

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Communicating outside of class:

- * Tuesday and Thursday, 10:45-11:30 a.m. time periods are reserved for office visits, but office hours are open and feel free to drop by my office anytime or make an appointment.
- * Correspond by email ("Electronic Office")

Office Room: 208 Conner Hall

Office Phone: 542-0749,

Office FAX: 542-0770

E-MAIL: jberg@uga.edu

Class Notes Package:

Purchase from Bel-Jean Copy/Print Center, 163 E. Broad Street, Downtown Athens,
Phone: 548-3648

Class WEB-CT Site: webct.uga.edu

Username: your "UGA MyID"

Password: your UGA electronic password

- * Check for study guides, sample exams, calendar, etc.

Secretary: Karina Koppius

Office Room: 314 Conner Hall

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Honors Option: Honors course option credit is possible for this course – additional term project is required (see instructor for more information).

Course Description and Objectives

What are the relationships between healthy economies and healthy ecosystems? Can we achieve both? If so, how? These are some of the key questions we will explore in this course. Throughout the semester, we will discuss economic, ecologic, and ethical concepts related to these questions.

The overall objective of this course is to provide students with conceptual insight, problem-solving skills, and general knowledge needed to better analyze and solve natural resource use issues and problems from an economic perspective which recognizes the important linkages between economic, environmental, and ethical systems. Applications we will discuss include exhaustible resource use, renewable resource use, land and water resources, environmental pollution, conservation, and investment and business concerns.

A specific objective of the course is to provide students with an overview and understanding of fundamental resource economics theory. A second specific objective is to provide instruction and experience in the application of resource theory to "real world problems". A third specific objective is to increase students' awareness and appreciation of the importance of resource use, allocation, and policy to public decision-makers, as well as private individuals and firms.

Optional Texts:

Material from these texts is covered in detail in class and class notes. Therefore, it is not necessary to purchase these texts. However, it is recommended that you use these texts as supplemental resources. Copies can be checked out from the Department of Agricultural and Applied Economics Reference Room on the third floor of Conner Hall.

Randall, Alan. Resource Economics: An Economic Approach to Natural Resource and Environmental Policy. Second Edition. New York: John Wiley and Sons. 1987.

Miller, G. Tyler. Living in the Environment - 8th Edition. Belmont, California: Wadsworth Publishing Company. 1994.

Course Format and Expectations

The course will be taught using a lecture/discussion format. Lecture/discussions will emphasize the development and illustration of concepts, issues, and analysis techniques. Randall's and Miller's texts provide a general framework for the class lecture/discussions. Supplemental reading may also be assigned.

Students are encouraged to ask questions during class, participate in discussions and contribute to a positive classroom learning environment including refraining from outside reading (e.g., newspapers), sleeping and overt eating during class time. Students are encouraged to take advantage of out of classroom discussion with the instructor for detailed, individual concerns.

Students are expected to take control of the effort devoted to this course and be responsible for the

consequences. Attainment of course objectives is expected to be highly dependent on both class attendance and completion of readings. Students are encouraged and expected to utilize available resources (e.g., textbook, lectures, supplemental readings, library materials, each other, and the instructor) to achieve course objectives at a desired performance level.

Testing and Grading:

Three in-class exams and a comprehensive final exam will be given. Exam questions will be based on lectures and assigned readings. Thus, it is important to comprehend the material presented in both the lectures and assigned readings. Exam questions, however, will emphasize material presented in class which may or may not overlap with assigned readings. The instructor reserves the right to dock points from any course requirement that is completed after the exam or due date. The final grade will be based on the percentage of possible points earned. Missed exams and any other course requirements cannot be made up without a documented University-accepted excuse. All students should read and be familiar with the UGA policy on academic honesty which can be found at: www.uga.edu/~ovpi/honesty/ah.pdf

The following approximate grading policy will be followed:

	<u>Possible Points</u>	<u>% of TOTAL Points</u>
1. Exam 1	100	25%
2. Exam 2	100	25%
3. Exam 3	100	25%
4. Final Comprehensive Exam	100	25%
5. TOTAL	400	100%

NOTE: Final Comprehensive Exam is mandatory for all students except for those who have a 90% average or above on Exams 1-3.

Final Grade = (Total Points Earned/Total Possible Points) x 100

Final Grade is then converted to letter grade based on following approximate scale:

90-100	= A ("Excellent")
80-89	= B ("Good")
70-79	= C ("Satisfactory")
60-69	= D ("Passing")
less than 60	= F ("Failure")

For example, if you earned a total of 320 points in the class, your final grade would be:

$$\text{Final Grade} = (320/400) \times 100$$

= .80 x 100 = 80, which would convert to the letter grade "B" using the above scale

The final grading scale (including plus and minus) will be determined after all grades are in and will be based on overall class performance for the semester (note: if necessary, the final grading scale will be adjusted downward, not upward).

NOTE: Class attendance and participation will be an important additional consideration in the case of “borderline” grades. **IMPORTANT:** It is each student’s responsibility to keep up with test dates, special assignments and due dates and all other class requirements. If you miss class, you should check to see if you missed important announcements. You should also check the WEB-CT site regularly for important class-related information.

Course Outline

I. Introduction - What are the general linkages between economic and environmental issues and problems? (Randall, Chapter 1)

- A. Definition of Economics, Ecology and Ethics
- B. Economic/Environmental/Ethical Linkages
- C. Fundamental Propositions

II. Resource Supply and Scarcity - How does a healthy environment supply natural resources and how do we monitor scarcity? (Miller, Chapters 3-4; Randall, Chapter 2)

- A. Ecosystem Structure and Processes
- B. Ecosystem Functions
- C. Ecosystem Services
- D. Scarcity and Classification of Environmental Resources
- E. Flow Resource Supply
- F. Fund Resource Supply
- G. Scarcity Viewpoints or Philosophies
- H. Measuring Resource Scarcity

EXAM 1

III. Economic Efficiency - How does a healthy economy allocate natural resources to economic production and consumption? (Randall, Chapters 4, 5, and 8)

- A. Basic Model of an Economy
- B. Production Efficiency
- C. Consumption Efficiency
- D. Pareto-Efficiency
- E. Pareto-Efficiency and the Market

IV. Criteria for Resource and Environmental Policy - How do we evaluate environmental resource policies and programs? (Randall, Chapter 7)

- A. Economic Efficiency
- B. Maximum Social Well-Being
- C. Constant Proportional Shares
- D. Pareto Safety
- E. Maximum Value of Social Product
- F. Compensation Tests

V. Market Failure and Inefficiency - What could cause the free market to use and allocate environmental resources in an economically inefficient manner? (Randall, Chapters 9, 20, 21)

- A. Background
- B. Nonexclusiveness
- C. Nonrivalry
- D. Implications of Nonexclusiveness and Nonrivalry for Pareto-Efficient Market Operation
- E. Congestible Goods
- F. Monopoly
- G. Externalities

EXAM 2

VI. Benefit-Cost Analysis (BCA) - How do we determine whether or not an environmental resource policy or project is economically feasible? (Randall, Chapters 13, 14, and 22)

- A. Primary Objective
- B. Theoretical Basis
- C. Major Assumptions
- D. Reasons for Using BCA
- E. "With" and "Without" Principle
- F. Categories of Benefits and Costs
- G. General Valuation Concepts
- H. Market and Nonmarket Valuation Techniques
- I. BCA Choice Criteria
- J. Application of BCA
- K. Limitations of BCA

VII. Optimal Extraction of Exhaustible Resources - When should we extract exhaustible resources from the ground in order to maximize economic returns? (Randall, Chapters 15 and 16)

- A. Assumptions and Definitions
- B. Determination of Publicly Optimal Present Consumption
- C. Optimal Private Timing of Extraction

VIII. Optimal Biological Resource Management - How can we manage biological resources to maximize economic returns? (Randall, Chapter 17)

- A. Fish and Wildlife
- B. Forests

IX. Conservation, Preservation, and Environmental Ethics - What are the relationships between the economics and ethics of resource conservation and preservation (Randall, Chapter 23)

- A. Systems of Environmental Values and Beliefs
- A. Resource Conservation
- B. Resource Preservation

EXAM 3

FINAL EXAM (COMPREHENSIVE, BASED ON EXAMS 1-3)