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Course Description and Objectives

Benefit-cost analysis is widely used to evaluate public sector investment and regulatory programs. Originally, the emphasis was on evaluation of public water resource investment projects such as dams, bridges and canals. Today, benefit/cost analysis is used to evaluate a diverse array of public programs including environmental and other types of regulations, resource management alternatives, and a range of public spending programs including transportation, urban renewal and health, education and income maintenance. As the range of applications has broadened, complexity has increased, and sound analysis based on state-of-the-art methodology is needed.

Some of you will go on to become natural resource or environmental economists who will produce benefit-cost analyses as part of your job. Others will not actually conduct benefit-cost analyses, but will use benefit-cost evaluations as resource managers, public administrators, decision makers or informed citizens. The principal objective of this course is to examine the theoretical foundation and practical procedures for producing and using benefit-cost analyses.

Integrative Experience

This course will satisfy the General Education Integrative Experience requirement for Resource Economics majors when taken with Res-Econ 394LI and Res-Econ 472.

“"The Integrative Experience (IE) requirement at UMass Amherst addresses the challenges associated with educational fragmentation. Positioned in the upper-division, the IE provides students with a structured opportunity to look back on their early college learning experiences, reflect upon and make connections between those earlier experiences and the more advanced work in their major, and use their integrated learning to prepare for the demands of the world beyond the University.‘”

In this course, you will have the opportunity to reflect on prior GenEd and Resource Economics courses by engaging with current issues related to the benefits and costs of environmental and natural resource approaches and policies in the context of homework assignments and a team project. You will rely on your past courses and experiences as well as the analytical framework in this course for this work.

In this class, you will practice the following two criteria of IE:
• The team project will offer you a shared learning experience with your project teammates for applying your prior learning here at UMass Amherst to a real-world issue related to benefit-cost analysis and presenting your analysis to class to stimulate discussion.

• You will have the opportunity to practice GenEd learning objectives of critical thinking, collaboration, critical thinking and interdisciplinary perspective-taking by completing homework assignments and through your team research project.

Readings


Website

The course website will be Moodle. Details will be announced in class.

Requirements

There will be two exams; the date for the first exam will be announced in class. The second exam will be during the final examination week. Each exam will be worth 40% of your course grade. There will also be several (4 to 5) short ungraded homework assignments. Finally, a class project will count for 20% of your grade. For this project, the class will be divided into about 10 teams. Teams will then select a “real world” benefit-cost analyses (see, for example, http://envirovaluation.org/ or Journal of Benefit-Cost Analysis) and will give a class presentation summarizing and critiquing this analyses. Presentations should be about 15 minutes long. A member or members of each team should see me about their project selection shortly after spring break. All presentations will be scheduled for the last two weeks of classes. Additional details about these projects will be discussed in class.
Course Outline and Readings

Assignments will be made in class. Readings may be added as needed.

I. An Overview of Benefit-Cost Analyses:
   - Text, Chapter 1 and de Rus Chapter 1.

II. Economic Efficiency, Market Failure, and the Role of Benefit-Cost Analysis:
   - Text, Chapters 2 and 3.

III. Basic Principles of Benefit-Cost Analysis:
   - Text, Chapters 4 and 5.

IV. Measuring Benefits and Costs, Economic Impacts and Financial Analysis
   A. Market Benefits and Costs:
      - Text, Chapter 6.
   B. Economic Impacts and Financial Analyses:
      - TBA
   C. Non-Market Benefits:
      - Text, Chapter 7.


V. Discounting

Text, Chapter 9.


D. Storey. “Are Benefit-Cost Discounting Procedures Appropriate?”

VI. More Conceptual Issues

Text, Chapters 8 and 11.

Sassone and Schaffer. "The Structure of Decision Problems and the Choice of Criteria.”

Risk and Uncertainty:


VII. Distributional, Regional and Impact Analysis

Text, Chapter 10.

VIII. Case Studies

Text, Chapters 12-14.

The Arsenic Controversy.

Asbestos Case Study (Chapter 2 in Environmental Policy Analysis in Practice).

IX. Class Projects