RESOURCE ECONOMICS 471/471HH
COST BENEFIT ANALYSIS
Spring 2020

Instructor: Dr. Christine L. Crago
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Lecture: MW 2:30-3:45 PM (103 Flint Laboratory)
Number of Credits: 3
Course Website: Available on Moodle

Course Objectives: This course will introduce students to the economic foundations of cost-benefit analysis (CBA) and equip students with the tools necessary to conduct cost-benefit analysis.

Cost-benefit 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, cost-benefit 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. The skills required in undertaking CBA such as discounting, predicting and monetizing project impacts, and accounting for risk and uncertainty are broadly applicable to decision making in the private sector and in everyday life.

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 policies in the context of class discussions, homework assignments and a team project.
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 cost-benefit analysis and presenting your analysis to class to stimulate discussion.
• You will have the opportunity to practice GenEd learning objectives of critical thinking, collaboration, and interdisciplinary perspective-taking by participating in class discussions and through your team research project.

Requirements and Grading

The final grade will be calculated as follows:
Exam 1 – 25%, Exam 2 – 25%, Problem Sets and Article Reports – 20%, Group Project –20%, Class Participation and Quizzes – 10%. The Final Exam is optional.

Final grades will not be based on a "curve." Final letter grades will be given according to the following:

Minimum score	93	90	87	83	80	77	73	70	67	60	0
Letter grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F

Accommodation Policy

The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester so that we may make appropriate arrangements.

Academic Honesty Policy

It is expected that the work you present will be your own and that of your group. Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent (http://www.umass.edu/dean_students/codeofconduct/acadhonesty/).

Attendance Policy

Attendance in every class is strongly encouraged. While attendance is not required, you may miss graded quizzes or group activities if you are absent.

Course Text and Readings

Optional textbook: Cost-Benefit Analysis: Concepts and Practice (5th Edition). 2018. Anthony E. Boardman, David H. Greenberg, Aidan R. Vining, and David L. Weimer. Pearson Education, Inc.
Recommended reference:
Economics of the Public Sector (3rd Edition). 1999. Joseph E. Stiglitz. W.W. Norton&Co.

Additional readings will be posted on the course website.

Other Class Policies

Use of Cell Phones. Use of cell phones is not permitted during lecture hours. Laptops may be used for taking notes; surfing the web during class hours is strongly discouraged.

Late Work. Late work will be accepted with a penalty of 5 percentage points for every day past the deadline. Homework submitted one week after the due date will not be accepted.

Missed Exams. Make-up exams will be given only under extenuating circumstances as outlined in the Academic Regulations handbook (https://www.umass.edu/registrar/sites/default/files/academicregs.pdf). Students requesting a make-up exam must provide formal, written documentation.

Important Dates
Feb 3 - Last day to add or drop class with no record
Feb 17 - President's Day, no class
Feb 18 – Tuesday, Monday class schedule will be followed
Mar 16, 18 - Spring break
Mar 24 - Last day to drop with 'W'
April 20 – Patriot's Day, no class
Apr 22 – Wednesday, Monday class schedule will be followed
Apr 29 – Last class meeting
May 6 – Final exam, 3:30-5:30 at 103 Flint Laboratory

Lecture Topics, Readings and Tentative Schedule[1]

Additional readings will be posted on Moodle.

TOPIC	
Introduction to Cost Benefit Analysis (CBA) Boardman et al., Chapter 1	1 meeting
Steps in conducting CBA Boardman et al., Chapter 1 Reading: Scientific American (March 2008) China's Three Gorges Dam: An Environmental Catastrophe?	1 meeting
Conceptual foundations of CBA Boardman et al., Chapter 2	1 meeting
Valuation of market impacts using supply and demand curves 1 Boardman et al., Chapters 3,4,5,6	2 meetings
Valuation of market impacts using supply and demand curves 2 Boardman et al., Chapters 3,4,5,6	2 meetings
PROBLEM SET 1 due Feb 18	
Predicting Impacts Boardman et al., Chapter 8	2 meetings
EXAM 1, Feb 26 (Snow date March 2)	2 meetings (Review session and exam)
Discounting and the social discount rate Boardman et al., Chapters 9,10	1 meeting
Nominal and real values, Inflation Boardman et al., Chapter 9	1 meeting
PROBLEM SET 2 due Mar 11	
Valuation based on observed market behavior: Value of time and statistical life Boardman et al., Chapter 15	1 meeting

[1] Refer to Moodle course website for up-to-date information on class schedule.

Readings: Baranzini, A., & Luzzi, G. F. (2001). The economic value of risks to life: evidence from the Swiss labour market. Revue Suisse d Economie Politique et de Statistique, 137(2), 149-170. Viscusi, W. K., & Masterman, C. J. (2017). Income elasticities and global values of a statistical life. Journal of Benefit-Cost Analysis, 8(2), 226-250.	
Valuation of non-marketed goods: Hedonic pricing Boardman et al., Chapter 15 Readings: Atkinson, S. E., & Halvorsen, R. (1990). The valuation of risks to life: evidence from the market for automobiles. The Review of Economics and Statistics, 133-136. Dastrup, S. R., Zivin, J. G., Costa, D. L., & Kahn, M. E. (2012). Understanding the Solar Home price premium: Electricity generation and "Green" social status. European Economic Review, 56(5), 961-973.	2 meetings
Valuation of non-marketed goods: Travel cost method Boardman et al., Chapter 15	1 meeting
PROBLEM SET 3 due April 1	
Valuation of non-marketed goods: Contingent valuation Boardman et al., Chapter 16 Readings: Loomis, J., Kent, P., Strange, L., Fausch, K., & Covich, A. (2000). Measuring the total economic value of restoring ecosystem services in an impaired river basin: results from a contingent valuation survey. Ecological economics, 33(1), 103-117. Rhodes, R. J., Whitehead, J. C., Smith, T. I., & Denson, M. R. (2018). A benefit-cost analysis of a red drum stock enhancement program in South Carolina. Journal of Benefit-Cost Analysis, 9(2), 323-341.	2 meetings
EXAM 2, April 8 (Snow date April 13)	2 meetings (Review session and exam)
Case studies and group presentations	5 meetings