AEC 434: Benefit-Cost Analysis (4 credits)- Spring term 2020

Instructor: Dr. Jennifer Alix-Garcia (Ballard 207) jennifer.alix-garcia@oregonstate.edu

Office Hours:

Class Meeting Place:

Course Description:

Develops the fundamental tools for Benefit-Cost Analysis, a technique for evaluating a project or investment by comparing the economic benefits with the economic costs of the activity. Explores the broad issues of how to think about uncertainty and risk, how to discount future costs and benefits, to value lives saved, and other challenging topics. Examines the tricky topic of how to measure the benefits of non-market such as good health and higher environmental quality. The methods apply to a wide variety of situations. (Writing Intensive Course)"

Prerequisites: AEC 311 or ECON 411. Familiarity with regression analysis (STAT 352 or equivalent) recommended.

Expectations:
Students are expected to attend class and be prepared to discuss the chapters, reading and topics as assigned. In general, class time will be spent explaining the most important concepts from each chapter, providing examples, answering questions, and, in particular, reviewing mathematical and graphical derivations of concepts. Students should respect classroom as a place for exchange of ideas and critical thinking. Because this is a capstone and WIC class, we will also spend time in the second half of the term working on projects, writing and rewriting parts of your final projects, and honing our skills as applied economists!

Student Learning Outcomes:
Students successfully completing this course will:
1. Analyze natural resource and environmental management problems using economic concepts and theory.
2. Discuss critical methods of evaluating policies and programs, and review fundamentals associated with environmental and natural resource impact assessment.
3. Develop and apply research skills, including development of a research paper/project and proposal.
4. Demonstrate writing skills (see WIC requirements).
5. Develop and demonstrate presentation skills.

WIC:
This course fulfills the Baccalaureate Core WIC requirement for majors in the Department of Applied Economics. As such, students successfully completing this course will:

Learning Outcome	How outcome is integrated into course	How outcome is demonstrated and assessed
1. Develop and articulate content knowledge and critical thinking in the discipline through	Students will engage in a variety of informal writing exercises during class,	Informal writing will be assessed both by peer review during class and instructor

frequent practice of informal and formal writing.	including pair and shares and group problem-solving. They will also engage in short writing exercises on homework that will require them to reflect on content and display critical analysis.	revision of final products. Formal writing on assignments will be assessed by the instructor for accuracy, clarity, and conciseness.
2. Demonstrate knowledge/understanding of audience expectations, genres, and conventions appropriate to communicating in the discipline.	Students will read and analyze written work from a variety of genres, including case studies, academic journal articles, and articles from outlets such as the *New York Times* and the *Economist*.	Students will demonstrate their knowledge and understanding of conventions and audience expectations through active class discussion, specific exercises relating to explaining data and graphs, and the communication of these concepts in informal writing, short writing assignments, and their final project and presentations. Quality of class participation, including content and expression, will be assessed by the instructor, as will assignments demonstrating understanding of written conventions.
3. Demonstrate the ability to compose a document of at least 2000 words through multiple aspects of writing, including brainstorming, drafting, using sources appropriately, and revising comprehensively after receiving feedback on a draft. For more on WIC see: http://oregonstate.edu/ctl/writing-intensive-curriculum	Students will complete a class project that culminates in an 8-10 page double-spaced memo (approximately 2,500 words). This memo has 6 deliverables, including a revision of a draft that is initially turned in during week 8, and a final presentation during week 10. More information on each assignment will be given as the course progresses.	As part of the process of brainstorming, drafting, and composing a benefit-cost analysis, students will turn in a project definition and rhetorical precis, a preliminary source list, a brief outline, a detailed outline, a first draft, and a revised final draft. Peer feedback is incorporated in the development of the precis, the brief and detailed outlines. Instructor feedback occurs on all components, with particularly abundant feedback on the outlines and draft proposal. The rubric for grading the final proposal is appended to this syllabus.

Required Text book and Materials:

- **Cost-Benefit Analysis concepts and practice, 5th Edition.** Anthony E. Boardman, David H Greenberg, Aidan R. Vining, and David L. Weimer. Cambridge University Press, ISBN: 978-1-10-823559-4, https://doi.org/10.1017/9781108235594 OR the **4th Edition from Prentice Hall Publishing 2011**. ISBN-13: 978-0-13-700269-6
- Other readings taken from Academic Journals, The Economist, WSJ, etc -- posted on CANVAS or handed out in class

Grading:

	Percent of final grade
Problem sets	20
Participation	5
Reading quizzes	5
Midterm exam	15
Project: Topic	5
Brief outline and references	5
Detailed Outline	5
Final paper	20
Final presentation	5
Final exam	15
Total points	100

Homework:
There will be 3 homework sets assigned during the term. Each homework assignment will consist of questions from the end of each chapter and/or supplemental problems as relevant. You can collaborate, but you must submit your own homework with your own analysis/conclusions. Your two highest homework grades will contribute to your grade. **Late homework will decrease by 20 percentage points off the total earned for each day that it is late**.

In-class/informal writing assignments:
There will be a variety of informal writing assignments during class. Further information will be given as these occur. Only N-1 out of the N informal writing assignments will contribute to your grade.

Reading quizzes:
There will be short quizzes on Canvas on the readings prior to each class. These quizzes will cover the readings assigned for class on that particular day. The intention is that you do the readings before class, take the quiz, and come to class prepared to engage in class activities. Only M-1 of the M quizzes will contribute to your grade.

Midterm:
The midterm will cover the first half of the class, and will be taken from the chapters from the Boardman text, readings and homework sets. It is scheduled for week 5.

Project/Paper Overview:
The final project in this class is to convert a completed program evaluation, impact analysis, or cost-effectiveness analysis into a benefit-cost analysis. The goal of the project is to produce an 8-10 double-spaced page memo (2000-2500 words) for a policymaker who is not an economist or benefit-cost expert, but needs to make a decision about whether or not the policy/program that you are analyzing should be pursued.

The project has six deliverables: identifying a topic; finding and annotating sources; providing a detailed outline for the paper; writing the paper; presenting the final project/paper; revising the paper before final submission. You will receive information on these as their due dates approach.

Final Exam:
You will have a final exam during the assigned exam time for this course. It will cover the material that we cover between the midterm and the end of the course.

Final Grade Assignment:

Grade	**Percent Range**
A	94-100
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-63
F	< 60

Class Schedule (****subject to change*******):**

Week	Day	Boardman Readings (required)	Other required readings	Assignments
Introduction to Benefit-Cost Analysis				
Week 1	*Monday 30 March*	Ch 1	Economist: "The federal government backtracks on mercury-emissions rules" NYTimes "Trump put a low cost on carbon emissions. Here's why it matters."	
	Wednesday 1 April	Ch 2/3		HW 1 distributed
Week 2	*Monday 6 April*	Ch 3		Pick your topic! Final project deliverable 1 (due at midnight)
	Wednesday 8 April	Ch 4, including case 4		
Valuing impacts in markets				
Week 3	*Monday 13 April*	Ch 5/6 (Ch 4, 4th ed.)		HW 1 due (Sunday, April 12 at midnight) HW 2 distributed
	Wednesday 15 April	Ch 7 (Ch 5, 4th ed.)	Whittington, Dale, Marc Jeuland, Kate Barker, and Yvonne Yuen. 2012. "Setting Priorities, Targeting Subsidies among Water, Sanitation, and Preventive Health Interventions in Developing Countries." *World Development* 40 (8): 1546–68.	
Discounting				
Week 4	*Monday 20 April*	Ch 9 (Ch 6, 4th ed.)	Arrow, Kenneth, Maureen Cropper, Christian Gollier, B. Groom, G. Heal, R. Newell, W. Nordhaus, et al. 2013. "Determining Benefits and Costs for Future Generations." *Science* 341 (6144): 349–50 Carbon Brief. 2017. "Q&A: The Social Cost of Carbon." Carbon Brief Explainers website. Online: https://www.carbonbrief.org/qa-social-cost-carbon.	Final project deliverable 2: outline and 5 references (due at midnight)
	Wednesday 22 April	Ch 12 (Ch. 8, 4th ed.) only	"Uncertainty, Irreversibility, and the Timing of Climate Policy", Anthony C. Fisher, Prepared for the conference on "Timing of Climate Change Policies"	

		through 12.1 (NOT 12.2)		
Week 5	*Monday 27 April*		Finish unfinished business, and midterm review	HW 2 due (Sunday, April 26 at midnight)
	Wednesday 29 April	MIDTERM		
Existence value and an introduction to experiments				
Week 6	*Monday 4 May*	Ch 13 (Ch. 9, 4th ed.)	Kopp, Raymond J. 1992. "Why Existence Value Should Be Used in Cost–benefit Analysis." J*ournal of Policy Analysis and Management* 11 (1): 123–30. Rosenthal, Donald H., and Robert H. Nelson. 1992. "Why Existence Value Should Not Be Used in Cost-Benefit Analysis." *Journal of Policy Analysis and Management* 11 (1): 116–22.	Final project deliverable 3: detailed outlines due (due at midnight) HW 3 distributed
	Wednesday 6 May	Ch 14 (Ch. 12, 4th ed.): 14.1-14.3	We will also discuss the Whittington article again here.	
Measuring the value of non-market goods				
Week 7	*Monday 11 May*		Groves et al. 2009, "Chapter 2: Inference and error in surveys" in *Survey Methodology, 2nd Edition*, Wiley Publishing.	
	Wednesday 13 May	Ch 15 (Ch 14, 4th ed.)	Fleming, Christopher and Averil Cook "The recreational value of Lake McKenzie, Fraser Island: An application of the travel cost method" *Tourism Management* 29: 1197-1205.	
Week 8	*Monday 18 May*	Ch 16 (Ch. 15, 4th ed.)	Kling, Catherine L., Daniel J. Phaneuf, and Jinhua Zhao. 2012. "From Exxon to BP: Has Some Number Become Better than No Number?" *The Journal of Economic Perspectives*, 3–26.	First paper draft due (due at midnight)
	Wednesday 20 May	Ch 17 (Ch. 16, 4th ed.), section 1	Leon, Gianmarco, and Edward Miguel. 2017. "Risky Transportation Choices and the Value of Statistical Life." *American Economic Journal: Applied Economics*, 9(1): 202-228.	
Week 9	HOLIDAY, May 25	n/a		
	Wednesday, May 27	Ch 17 (rest of chapter) /18 (Ch. 18, 4th ed.)	Richardson, Leslie, John Loomis, Timm Kroeger, and Frank Casey. 2015. "The Role of Benefit Transfer in Ecosystem Service Valuation." *Ecological Economics* 115: 51-58.	HW 3 due (note this is due on a Wednesday and not a Sunday!)

Week 10	*Monday 1 June* *Wednesday 3 June*	Final Project Presentations in Class begin on Monday June 1	
FINALS WEEK: Exam on Monday June 8 FINAL PAPER DUE: Wednesday June 10			

Classroom Behavior:
Cell phones are **not** a classroom necessity. Therefore I ask that all cell phones be **turned off** during the class time. If your phone rings by accident in class DO NOT answer it. If your phone vibrates loud enough to be heard by someone next to you– turn it off. If a cell phone disrupts class the student may be asked to leave the classroom, take an absence, and/or an incident form will be filed, as per the OSU Student Conduct Code (https://beav.es/codeofconduct).

Reach Out for Student Success

University students often encounter setbacks that can impact academic performance. If you encounter difficulties and need assistance it is important to reach out. Discuss your situation with your instructor or an academic advisor. Learn about how you can plan for success at: http://success.oregonstate.edu/

For help addressing mental or physical health concerns, including seeing an OSU counselor of physician, visit: http://counseling.oregonstate.edu/ OR http://studenthealth.oregonstate.edu/about-shs.

Lauren's promise – I will listen and believe you if someone is threatening you.

Lauren McCluskey, a 21-year-old honors student athlete, was murdered on October 22, 2018, by a man she briefly dated on the University of Utah Campus. *We must all take actions to ensure this never happens again.*

Any form of sexual harassment of violence will not be excused or tolerated at Oregon State University. All individuals who are participating in university programs and activities have the right to do so fully, free from sexual discrimination, misconduct, and retaliation. The university prohibits sexual misconduct of any kind, including sexual harassment, intimate partner violence, sexual exploitation, and stalking. When such misconduct occurs, the university will take steps to stop, prevent recurrence, and remedy the impacts of such behavior.

If you feel you are in danger, call 911.

All Oregon State University employees are considered "Responsible Employees" and must consult with the Office of Equal Opportunity and Access when they are* made aware or have reason to believe *that a violation of the Sexual Misconduct and Discrimination policy has occurred. However, the university makes several confidential offices available to those who have been affected by sexual misconduct or discrimination. The following offices do not report sexual assaults or other sexual misconduct or discrimination claims to other university offices, but can refer students and employees to resources and services both on campus and within the community: Survivor Advocacy and Resource Center (SARC), Counseling and Psychological Services (CAPS), Student Health Services (SHS), and the University Ombuds.

Special Needs and Accommodations:
I will provide reasonable accommodation for students who submit appropriate documentation of special learning needs. Please let me know early in the term if special arrangements are needed.

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

Academic Honesty:
If you violate academic honesty in my course, you will receive an F on the work in question and/or in the class. *"Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another."* Violations include: Cheating, Fabrication, Assisting, Tampering, and Plagiarism. The full OSU Statement of Expectations for Student Conduct is available at: https://beav.es/codeofconduct.

TurnItIn
Your instructor may ask you to submit one or more of your writings to Turnitin, a plagiarism prevention service. Your assignment content will be checked for potential plagiarism against Internet sources, academic journal articles, and the papers of other OSU students, for common or borrowed content. Turnitin generates a report that highlights any potentially unoriginal text in your paper. The report may be submitted directly to your instructor or your instructor may elect to have you submit initial drafts through Turnitin, and you will receive the report allowing you the opportunity to make adjustments and ensure that all source material has been properly cited. Papers you submit through Turnitin for this or any class will be added to the OSU Turnitin database and may be checked against other OSU paper submissions. You will retain all rights to your written work. For further information, visit Academic Integrity for Students: Turnitin – What is it?

Student Evaluation of Courses
During Fall, Winter, and Spring term The online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students receive notification, instructions and the link through their ONID. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses for future students. Responses are anonymous (unless a student chooses to "sign" their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.