Overview

Cost-benefit analysis provides a framework for conducting economic analysis of public policy, as well as examining tradeoffs in decision making within organizations—firms, NGO, government agencies. The application of cost-benefit analysis to environmental and other public policy is both common and controversial.

Decisions within organizations and government regarding environmental issues always involve tradeoffs. To accurately assess these tradeoffs, costs and benefits have to be measured; relevant parties determined; timelines decided; and discount rates selected. To understand these decisions, the course will cover the underlying theory of social decision-making based on a comparison of economic costs and benefits. We will consider numerous applications in the context of environmental and natural resource management, as well as devoting some attention to the current global coronavirus pandemic (more on that below). We also will read the peer reviewed literature on key issues in cost-benefit analysis. Some of the material in this class will overlap with what you have already covered in other MESM courses, but given the challenging nature of these concepts and their importance in environmental decision-making, this should be useful.

Students in ESM 245 will:
- learn the conceptual foundations of cost-benefit analysis,
- acquire the skills necessary to conduct original cost-benefit analyses,
- understand how to interpret the results and validity of cost-benefit analyses conducted by others, and
- gain an appreciation for the potential advantages and disadvantages of cost-benefit analysis.

Content

The course was redesigned in the previous year in an effort to respond to the challenges of remote learning; some features proved valuable and we will use this year as a test case for maintaining a “flipped classroom” style of instruction. The course will rely on a combination of pre-recorded videos and activities for you to complete on your own time and in-class activities and discussions. You can expect each week to proceed as follows:

- Monday: in-class exercise – active engagement, help, progress checks, collaboration
- Wednesday: in-class discussion – breakout room engagement, polls and other interaction
- Weekly deadlines:
  - Friday: in class exercise due on Gauchospace by 5pm (from Monday’s in-class exercise)
  - Monday: Discussion post due on Gauchospace by 5pm (for Wednesday’s in-class exercise)

1) Recordings: Every week’s topic will be discussed in a series of video recordings. The total viewing time will not exceed 2 hours (in most weeks, it will be less than one hour), and the material will be divided into digestible chunks. To get the most out of the in-class sessions, you should plan to watch the videos before Monday’s session. Recordings will be made available on Gauchospace by Tuesday evening of the previous week at the latest.

2) Readings: There is no textbook for the course. Instead, each week’s topic is supported by a combination of mandatory and optional readings, available on Gauchospace and drawn from a combination of sources, including the peer reviewed literature, textbooks, the media and the internet. If you wish to supplement the assigned readings with a more traditional text, a few of the texts that the course draws upon include:

3) Discussion forums: Each week, you will be expected to post questions and respond to a discussion prompt using the online forum on Gauchospace. The discussions will draw heavily on content from both the recordings and the readings. You will be asked to submit questions based on the lectures and readings that will inform the Wednesday in-class discussion. To that end, they will be due Monday 5pm Pacific each week. They will be made available on Gauchospace by Thursday evening of the previous week.

4) In-class meetings: Each week, we will meet during the regularly scheduled class time for group work and discussion. The class sessions will be organized as follows each week:

Mondays: An in-class exercise that you will do in small groups. The exercises will be done collaboratively, will be largely quantitative, and will be based around the recordings and readings. They will be designed so that a group that works diligently during the class session should be able to complete most of the exercise in class. Assignments should be submitted individually (by 5pm on Friday), but can be completed as a group. The first week will not have an assignment.

Wednesdays: Small-group discussions, questions about lecture content and application to GP. Wednesdays will give students an opportunity to explore their understanding of the week’s topic, including small group discussions following specific prompts (drawn in part from the online discussion forum), an opportunity to discuss how the application applies to your GP, and interactions as a larger group including lecture extensions and Q&A.

Professional conduct and communication

You are all adults and have opportunities and demands on your time other than ESM 245. That said, you will get more out of this class if you are a regular and active participant. Please keep a few things in mind to make the experience as smooth as possible for everyone:

• We will be following university COVID-19 health and safety guidelines (which may change over the course of the fall). Any student who does not comply with these rules will be asked to leave the class session immediately. Repeated violations will lead to disciplinary action.
• Your classmates may differ in their comfort with close in-person interaction. Please make sure to respect your peers, particularly during in-class group work. If some members of your group prefer to sit at a distance, please do your best to accommodate their preferences.
• If you have to miss class due to illness, please follow university guidelines about communicating with the instructor and TA. Your absence will be treated as a normal excused illness if you follow the guidelines and accommodations will be made to adjust homework, deadlines and grading on a case by case basis.
• I will do my best to communicate changing rules and guidelines as they affect our class interactions, but please also feel free to draw my attention to (official) communication that I may have missed.

Office hours: Professor Jack will have drop in office hours on Mondays from 3:15-5:15 Pacific (starting right after class). The location is 4412 or outdoors, depending on evolving COVID restrictions, weather and student demand. No need to schedule in advance. The TA will also have weekly office hours (TBD). Should you wish to discuss something in private or you absolutely cannot attend during the scheduled office hours, send an email to schedule at another time.

Questions and feedback: As much as possible, please direct both your non-office hours course questions and your feedback through Gauchospace. On the front page, we have created places for each: Q&A forums for course logistics and course content and an anonymous feedback form. The latter is intended as a way for you to share information designed to improve the course as we go. Please keep the feedback constructive so that we can be responsive.
Expectations

Your course grade will be based on your weekly discussion posts, your weekly in-class exercises and your participation. The course does not have very much homework assigned this year so that you will have time to engage with the recordings and class materials outside of our class meetings, as well as attend and actively participate in our class meetings. Specific details on grading and expectations are provided below.

- **Discussion posts (35%)**: Each week, by Monday at 5pm Pacific, you are expected to submit (a) questions and (b) a short posting in response to a discussion prompt, in preparation for Wednesday’s class meeting. These will be based on the recordings and readings. You will be given a fair amount of guidance on length and content. Practice preparing clear and succinct responses is an important life skill. Most posts will receive a two. Occasionally, a really outstanding post will receive a three. And occasionally, a really unsatisfactory post will receive a one. You will not get feedback on these posts if you have been given a two. The TA will send you a message if you receive a three or a one. If you do not post by the deadline each week, you will receive a zero. We will drop your lowest post score when calculating your grade. (In other words, you can miss one week without it affecting your grade.)

- **In-class exercises (40%)**: Each week, by Friday at 5pm Pacific, you are expected to submit the exercise that you started (and maybe finished) in-class on Monday. You will work on these in class with a group of 4-5 other students. You should plan to submit your own assignment, even if you work on it with a group. The assignments will be available via Gauchospace, and most of the exercises will be set up to run in google sheets. Exercises submitted late will receive zero points.

- **Participation (25%)**: You will receive points for regular attendance, active contributions to discussions, and demonstrated engagement with course activities. The in-class sessions will occasionally involve small polls or quizzes. These will not be graded but will count toward participation.

Schedule

- Week 1: The foundations of cost-benefit analysis and introduction to the 9 steps
- Week 2: Standing, decision rules and scenarios
- Week 3: Impacts and counterfactuals
- Week 4: Measurement – Stated preferences
- Week 5: Measurement – Revealed preferences
- Week 6: Discounting
- Week 7: Risk and uncertainty
- Week 8: Aggregation, incidence and welfare
- Week 9: Threats to CBA
- Week 10: Wrap up