

Economics 454
Benefit-Cost Analysis
Syllabus
Spring 2020
Prof. Robert Halvorsen

Benefit-cost analysis is a widely applied method for evaluating government projects, policies, and regulations. In real life, benefit-cost analyses are often done very badly, frequently because the people doing them are just trying to provide support for what they have already decided to do, rather than objectively analyzing what they should do. In ECON 454 we will discuss how benefit-cost analysis *should* be done. By the end of the course, students should have a firm understanding of the issues, techniques, and practical difficulties involved in benefit-cost analysis and the ability to critique real-life benefit-cost analyses.

The prerequisite for this course is ECON 300 and the class discussions will assume that students have a solid understanding of intermediate level microeconomics. Two, non-cumulative, exams count for 80% of the course grade, with the (curved) grade for the exam on which you do better receiving a weight of 0.7 in calculating the overall exam grade and the exam on which you do less well receiving a weight of 0.3. The exams will be open-book. Last Quarter's exams are posted on Canvas as a preview of the types of questions that will be asked as well as sources of practice questions in studying for this Quarter's exams. Given the changed circumstances this Quarter, I anticipate that there will be more numerical questions than last Quarter.

Eight problem sets count for 20% of the course grade and will be graded credit/no credit. Detailed answer sheets will be posted for the problem sets. Previous students have reported that doing the problem sets and reviewing the answer sheets are very good ways to learn the course material.

Exams and problem sets do not need to be typed but do need to be legible. They should be scanned and posted to Canvas. If you do not have access to a scanner, please use a scanning app for your cell phone (e.g., Adobe Scan).

I will use Zoom for the lectures. The scheduled class times are Tuesday and Thursday from 2:30-4:20 PM Seattle time. I have posted the full set of notes on Canvas. If you have any questions when reviewing the lectures or working on the problem sets, please email me at halvor@uw.edu.

Course Schedule

All dates except for the final exam are subject to revision.

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/)

(<https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/>).

Accommodations must be requested within the first two weeks of this course using the [Religious Accommodations Request form](https://registrar.washington.edu/students/religious-accommodations-request/)

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March 31st Lecture 1

Benefit-cost analysis as four-way aggregation

Standing

Evaluation criteria

Social Welfare Criterion

April 2nd Lecture 2

Pareto Criterion

Potential Compensation Criterion

Aggregation over commodities

Valuation principles

April 7th Lecture 3 Problem Set 1 Due

Valuation in undistorted, perfectly competitive, markets

April 9th Lecture 4

Valuation when markets are not used

Valuation when markets are distorted

April 14th Lecture 5 Problem Set 2 Due

Aggregation over Time

Dynamic efficiency

Present value of consumption criterion

April 16th Lecture 6

Net present value decision rules

Continuous discounting

Special cases of discounting formulas

April 21st Lecture 7 Problem Set 3 Due

Benefit-cost ratio decision rules

Internal rate of return decision rules

April 23rd Lecture 8

Dynamic inefficiency
Social value of private investment
Net social benefit formula

**April 28th Lecture 9
 Problem Set 4 Due**

Aggregation over States of the World

Expected monetary value (EMV)
Certainty equivalent (CE)
Risk aversion
Expected utility

April 30th Review for midterm exam

May 5th Midterm exam

May 7th Lecture 10

Gambles vs. insurance
EMV as approximation of CE

**May 12th Lecture 11
 Problem Set 5 Due**

Aggregation over Individuals

Methods using explicit distributional weights

May 14th Lecture 12

Methods not using explicit distributional weights

**May 19th Lecture 13
 Problem Set 6 Due**

Valuation of Commodities with Incomplete Market Data

Limited observations on price and quantity
Hedonic technique
Cost of alternative supply
Use of market data for related commodities

May 21st Lecture 14

Valuation of Commodities for Which Market Data Are Nonexistent

Travel cost technique
Value of a statistical life

May 26th Lecture 15
Problem Set 7 Due

Factors affecting the value of a statistical life
Risk-risk analysis

May 28th Lecture 16

Stated preference method

Use vs. non-use values
Applications

June 2nd Review for final exam
Problem Set 8 Due

June 4th Final exam covers material since midterm exam.