Benefit cost analysis is a widely applied method for evaluating government projects, policies, and regulations. This course reviews the theoretical foundations of benefit cost analysis and derives formulas and procedures for the monetization of benefits and costs, aggregation over time, valuation of uncertain benefits and costs, and aggregation over individuals. At the end of the quarter students should have a firm understanding of the issues, techniques, and practical difficulties involved in benefit cost analysis and the ability to critically assess 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. There will be two exams and eight required problem sets. The exams will count for 85% of the grade and the problem sets will count for 15%. The exam grade will be a weighted average of the numeric grades assigned to the individual exams, with the exam on which you do better receiving a weight of .6 and the exam on which you do worse receiving a weight of .4. Please refer to the next page for further, very important, information concerning the rules for taking the exams and policies with respect to academic integrity.

This course covers in one month the same amount of material that is usually covered in a whole quarter. With classes every day, an average of two problem sets per week, and the mid-term exam coming up in just a couple of weeks, it is obviously necessary for you to be able to devote a substantial amount of time to this course on an essentially continuous basis.

There is no textbook for this course. Lecture notes are posted on the course webpage, which can be accessed through MyUW. Practice exams, problem sets, answers to problem sets, and other material will also be posted there.

If you have any questions at any point during the course, my office hours during the Spring Quarter are 2:00-3:00 on Monday and Tuesday in Savery 351. An appointment to meet at another mutually convenient time can be made in person after class, by phone at 543-5546, or by email at halvor@uw.edu. Email may also be used to ask any short questions that may arise as you review your notes or work on the problem sets.
Exam Rules

I Exam Absence Policy

1. If you are unable to make it to an exam period due to illness or another unexpected happening, do the following:
   i. Notify me no later than the time of the exam that you are not able to take the exam and why.
   ii. If you missed the exam for health reasons, you need to show me a note issued by a medical professional documenting the reason you missed the exam.
   iii. If there was some other reason for missing the exam come and see me to explain the reason. You will need to show appropriate documentation. Not waking up or missing your bus/plane is not an acceptable excuse.

2. If you know that you are going to be away due to a University-related activity, such as participation in an away sport or debate, let me know well in advance so that arrangements can be made.

II Exam Taking Rules

1. Material allowed during an exam.
   i. You must use a large bluebook for your answers.
   ii. All books, papers, notebooks, etc., must be placed inside your backpack or other type of bag, which must be securely and fully closed. If you do not have a bag, you must place all your material out of your reach.
   iii. No electronic devices can be accessible during the exam. Cellular phones must be turned off before entering the class and placed in your closed bag (not in your pocket). You are not allowed to use a cellular phone during an exam. Doing so will result in the termination of your exam time.
   iv. Baseball caps and any other kinds of headgear that conceal your eyes are not permitted.

2. Attendance and special accommodation
   i. You are not allowed to leave the room during the exam. This includes restroom use; be sure to use the restroom before the beginning of the exam.
   ii. If you arrive late to an exam, you cannot expect to get extra time after the official end of the exam to make up for the missing time at the beginning.
   iii. If you have a documented disability, please show me documentation from the Office of Disability Resources for Students on the first day of class, so that I can make any arrangements required for accommodations.

III Academic Integrity

1. Exams are individual work and cheating will not be tolerated. Looking at notes or your neighbors’ answers will result in the immediate termination of your exam time and a grade of zero for the exam.

2. Altering an exam before submitting it for a review of the grading, obtaining an advance copy of an examination, or arranging for a surrogate test-taker are all flagrant violations of University policy.

3. Cheating of any kind may result in expulsion from the University. The Department will follow University policy in case of academic misconduct. I strongly recommend that you review University policy at http://www.washington.edu/uaa/advising/help/academicintegrity.php. Students found to have engaged in academic dishonesty will be subject to sanctions, which range from a disciplinary warning to permanent expulsion from the University, depending on the seriousness of the misconduct.
Lecture and Exam Schedule
Dates shown for lectures and the mid-term exam may be revised as the Quarter proceeds.

I. Introduction

Lecture 1: June 22\textsuperscript{nd}
Syllabus
Background
Four-way aggregation
Standing

II. Conceptual Foundations of Benefit cost Analysis

Lecture 2: June 23\textsuperscript{rd}
Definition of social welfare
Social welfare criterion
Pareto criterion
Potential compensation criterion
Summary

III. Aggregation over commodities

Lecture 3: June 24\textsuperscript{th}
Valuation principles
Demand curve, MWTP, and consumer surplus
Supply curve, MOC, and producer surplus
Aggregate Consumer and Producer Surplus
Valuation of inputs and outputs in perfectly competitive markets
  Market price not affected
  Project’s output affects market supply
  Project’s input affects market demand
Summary

Lecture 4: June 25\textsuperscript{th}
Valuation of inputs and outputs in distorted markets
  Mandatory acquisition of inputs
    Eminent domain
    Conscription
  Price supports
    Agricultural price supports
    Minimum wage
  Per unit tax
    Revenue tax
    Externality tax
IV. Aggregation over Time

Lecture 5: June 26th
Basic principles
Rate of time preference
Opportunity oost rate
Dynamic efficiency
Present value of consumption criterion
Capital markets and dynamic efficiency

Lecture 6: June 29th
Net present value criterion
Accounting for inflation
Net present value decision rules
Numerical example
Continuous discounting
Special cases of discounting formulas
  Perpetuity
  Annuity
  Annualized value

Lecture 7: June 30th
Alternative project decision rules
  Benefit cost ratio
  Internal rate of return
  Summary

Lecture 8: July 1st
Sources of dynamic inefficiency
Discount rate controversy
Social value of private investment
Net social benefit formula
Sensitivity tests
Summary

FIRST EXAM COVERS SECTIONS I THROUGH IV (Tentative date is July 8th)

V. Aggregation over States of the World

Lecture 9: July 2nd
Introduction
Numeric example
Expected monetary value
Certainty equivalent
Risk aversion
Expected utility
Utility Function
Applications
Lecture 10: July 9th
Critiques of expected utility theory
Implications for project analysis
Use of EMV as approximation to CE
   Outcomes not correlated with income
   Degree of risk aversion
   Degree of uncertainty
   Size of outcomes relative to income
   Outcomes correlated with income
Summary of EMV as approximation of CE
Evaluation of benefits vs. costs
Methods used in practice:

VI. Aggregation over Individuals

Lecture 11: July 10th
Introduction
Methods using explicit distributional weights
   Potential compensation formula
   Relation to social welfare formula
   Rationales for using it
   Feldstein’s constant elasticity formula
   Harberger’s alternative cost approach

Lecture 12: July 13th
Methods not using explicit distributional weights
   Disaggregate by income level
   Pareto criterion
   Quasi-Pareto approach
   Social welfare dominance approach
   Summary

VII. Valuation of Commodities with Incomplete Market Data

Lecture 13: July 14th
Limited observations on price and quantity
Use of market data for similar commodities
Hedonic technique
Cost of alternative supply
Use of market data for related commodities
   Effects on supply curves

Lecture 14: July 15th
   Effects on supply curves (continued)
   Effects on demand curves
Travel cost technique
Lecture 15:  July 16th
Cost effectiveness analysis
Human capital method
Valuation of risks to life
    Value of a statistical life (VSL)
    Estimation of VSL using wage equations
    Relation of the value of a statistical life to:
        Risk aversion
        Wealth

Lecture 16:  July 17th
Value of a statistical life (continued)
    Relation of VSL to age
    Hedonic technique
Stated preference method
    Use vs non-use values
    Theoretical foundation of stated preference
    Potential biases
    Applications

SECOND EXAM COVERS SECTIONS V THROUGH VIII (July 22nd)