

Public Affairs 881: Cost-Benefit Analysis
Fall 2016

Instructor: Dave Weimer
Phone: 263-2325
E-mail: weimer@lafollette.wisc.edu

Class Meetings: Mondays/Wednesdays
8:00– 9:15 a.m.
Van Hise 587

Office Hours: Mondays & Wednesdays, 10:00–11:30 a.m. and 2:45–4:00 p.m., North Hall 2015
Meetings with project teams immediately after class welcome.
Appointments for other times welcome.

Course Objectives: Cost-benefit analysis (CBA) has both narrow and broad applications. In its narrow application, it serves as a decision rule for selecting policies for maximizing economic efficiency. In its broader application, it provides concepts, techniques, and conventions for assessing economic efficiency, or components of economic efficiency, when efficiency is only one of the social goals relevant to policy choice. This course provides the conceptual foundations and craft skills to prepare you to be sophisticated consumers and producers of CBA.

The course contributes to a number of the Student Learning Goals set out for MPA students. Most fundamentally, it requires demonstration of the following three goals:

“Students will communicate in clear written language: a real-world problem, relevant scholarly studies and practical applications, a policy-analytic method to investigate the problem, and client-oriented advice to mitigate the problem.” (Goal III A)

“Students will demonstrate the ability to maintain fidelity to objective social science-based research methods.” (Goal IV D)

“Students will complete high-quality group projects, including demonstration of effective project management and teamwork.” (Goal V B)

Prerequisites: Some familiarity with the basic concepts of microeconomics and statistical inference is assumed. Those taking the course should have completed Public Affairs 880 and Public Affairs 819, or their equivalents.

Course Requirements and Grades: Four requirements promote the course objectives:

First, I expect active participation in class and diligence in the completion of problem sets and other assignments. Our class time will be split between lectures and discussion. If this format is to be effective both for you as an individual and for your classmates, then you must be prepared to participate in discussion. Sometimes discussion will be around assigned problems, including some that require reading about topics not yet covered in lecture. It is important that you put effort into these problems so that you can fully participate in their discussion. The effort will also

reward itself in terms of the depth of your understanding of course material. *Ten percent* of your course grade will be based on class participation and assignments.

Second, an in-class midterm examination (**October 31**) will give you an opportunity to demonstrate your mastery of the basic concepts of CBA. *Thirty percent* of your course grade will be based on your performance on the midterm examination.

Third, although the theory of CBA can be easily learned in the classroom, the craft for actually doing it in a complex world, with inevitable limitations on the availability time, data, and expertise, probably cannot. To get practice in actually doing CBA, you will participate in a team project on a real issue for an actual client. During the semester, each team will make several oral and written progress reports. A complete report is due on **December 5**. December 12 and 14 will be devoted to presentations of the projects. A revised draft is due **December 19** in PDF format. In addition, you should plan on participating in a briefing on the final report at your client's convenience, most likely after the end of the semester. As most policy analysts work in teams, you should view your participation in the project as an important part of your development as a policy analyst. I expect team members to be professional in interactions with their clients as well as among themselves. I also expect each team member to be fully engaged with the project, and I reserve the right to penalize individuals who are not fully familiar with all aspects of their team's products. *I will ask each team member to evaluate the effort and contributions of other team members*, and I will consider the responses in assigning individual grades. *Forty percent* of your course grade will be based on the team project. I cannot overemphasize the importance of the effort you put into the project for your future ability to do cost-benefit analysis. Please do not take this course if you are unwilling or unable to give the project a high priority. I reserve the right to lower the grade of anyone who does not contribute fully to his or her team. I also reserve the right to give a failing grade in the course for anyone who acts unprofessionally.

Fourth, there will be a take-home final examination **distributed December 19 and due December 21 at noon**. *Twenty percent* of your course grade will be based on the final examination. If class attendance after the midterm examination is regular (almost everyone attending each class), and a majority of the class wishes, then I will waive the final and allocate its grade percentage to the final project.

Textbook: We will make extensive use of the following text (BGVW):

Anthony E. Boardman, David H. Greenberg, Aidan R. Vining, and David L. Weimer, *Cost-Benefit Analysis: Concepts and Practice*, 4th ed. (Upper Saddle River, New Jersey: Prentice Hall, 2011).

Copies are available in the bookstore and a copy is on reserve at the College Library. Other readings and class materials, including some related to specific projects, are available at learn@UW.

Team Projects: The topics for team projects are as follows:

1. Assisted living facilities provide homes for residents with increasingly acute care needs. The liability insurance policies held by these facilities often prohibit on-site staff from assisting residents who have fallen and instead require the facility to call 9-1-1 for assistance from emergency medical services (EMS) paramedics. Responding to falls represents a significant cost to the City. Many patients are not transported to the emergency room or to urgent care; rather, they are assisted, possibly treated with medication, and remain in the facility. Further, primary care providers often have no idea that a fall or repeated falls have taken place. Your task is twofold. First, develop alternative approaches, perhaps through cooperation with the industry or changes in public policy, that would allow in-facility responses to falls where appropriate for the wellbeing of residents. Second, conduct a cost-benefit analysis of the alternatives you propose. Client: Mary Michaud, Director, Division of Policy, Planning and Evaluation, Public Health Madison & Dane County, Mmichaud@publichealthmdc.com.

2. CenteringPregnancy® is an evidence-based model of prenatal care that reduces the rate of preterm and low birthweight babies. The medical costs associated with preterm and low birthweight babies are nearly ten times the costs of those for healthy babies. The UW Department of Ob-Gyn started a CenteringPregnancy® program in 2013. Several states have been able to get enhanced reimbursement for group prenatal care, which greatly increases the feasibility and sustainability of these services. The department and its partners hope to convince Medicaid and other health plans to provide enhanced reimbursement for CenteringPregnancy® clinical services. Your task is to conduct a cost-benefit analysis for Centering and, if net benefits are positive, prepare a briefing document to help convince insurers to increase how much they reimburse providers of group prenatal care. As all participant outcomes are routinely gathered and reported to the national Centering office, relevant data are available. In addition to data from the national Centering office, you can also gather relevant data from the other seven Centering sites in Wisconsin. Your work has the potential for contributing to the improvement of the health of mothers and their babies across the state as well as to reducing health disparities related to birth outcomes. Client: Dr. Kristen Sharp, ksharp2@wisc.edu.

3. Local internet provider 5NINES has made a proposal to the City of Monona for citywide Wi-Fi infrastructure that makes use of the MUFN fiber running along Monona Drive and Nichols Road. The team will conduct a cost-benefit analysis of the 5NINES proposal taking account of feasibility, serviceability, legality, and governance. The analysis will involve an assessment of current internet service coverage in the city to establish the status quo as a basis for predicting incremental costs and benefits. Particular attention will be paid to assessing the distribution of costs and benefits across demographic and income groups. The analysis will draw as appropriate on the experiences of other cities that have taken a similar approach to Wi-Fi services to aid in prediction and valuation. Client: Will Nimmow, Director, Monona Community Media, wnimmow@ci.monona.wi.us.

4. Youths who enter the criminal justice system may be confined in juvenile justice facilities. The conditions of confinement within these facilities can affect the achievement of desirable outcomes, including the development of human capital (education and health) and social capital (connection to family and community) as well as reduction in the risk of future criminalistic behavior. The conditions can also have impacts on the quality of life of residents, safety of residents and staff, and costs of operation. An assessment of the net benefits to society of improvements in the conditions of confinement requires monetization of the various impacts that result. The primary objective of this project is to provide protocols for monetizing these impacts. To do so, the team will work with the client to develop a policy intervention that substantially improved the conditions of confinement in a hypothetical facility. The team will then conduct a cost-benefit analysis of the intervention using the best available evidence. Appendices should clearly set out the monetization methods so that they could be employed by the client in other applications. Client: Kim Godfrey, Executive Director PbS Learning Institute, Inc., kim.godfrey@pbstandards.org.

Tentative Schedule

Introduction (Sept. 7)

BGVW, Chapter 1

Team projects organized

Note: Projects from several previous years and spreadsheets for exercises are available at learn@UW.

Class Discussion of Team Projects from Previous Years (Sept. 12)

BGVW, Chapter 11

Conceptual Foundations (Sept. 14 and 19)

BGVW, Chapter 2 (Prepare exercises 2, 3, and 4 for class)

Valuing in Primary Markets (Sept. 21, 26, and 28)

BGVW, Chapter 3 (Prepare exercises 1 and 2 for class)

BGVW, Chapter 4 (Prepare exercises 1, 2, and 3 for class)

Robert H. Haveman and David L. Weimer, "Public Policy Induced Changes in Employment: Valuation Issues for Benefit-Cost Analysis," *Journal of Benefit-Cost Analysis* 6(1) 2015, 112–153.

Spreadsheet Exercise 3.3

Spreadsheet Exercise 4.4

Project report due (Sept. 21): Each team should prepare a five- to seven-page (double-spaced) report that describes the issue being addressed in the project and sketches a plan for completion.

Valuing in Secondary Markets (Oct. 3)

BGVW, Chapter 5 (Prepare exercises 1, 2, and 3 for class)
Spreadsheet Exercise 5.4

Basics of Discounting for Time/Social Discount Rate (Oct. 5 and 10)

BGVW, Chapter 6 (Prepare exercises 1, 3, and 4 for class)
BGVW, Chapter 10 (Prepare exercise 1 for class)

Scan: OMB Guidelines

www.whitehouse.gov/omb/circulars_a004_a-4

UK Guidelines (The Green Book)

www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government

Canadian Guidelines

www.tbs-sct.gc.ca/rtrap-parfa/analys/analys07-eng.asp#Toc178397874

New Zealand Guidelines

www.treasury.govt.nz/publications/guidance/planning/costbenefitanalysis/guide

CPI Calculator

www.bls.gov/data/inflation_calculator.htm

Spreadsheet Exercise 6.6

Project report due (Oct. 10): Each team should prepare an annotated bibliography of the ten most relevant studies to its topic that it can find. Give highest priority to finding published CBAs on similar topics.

Expected Values, Value of Information, and Sensitivity Analysis (Oct. 12, 17, and 19)

BGVW, Chapter 7 (Prepare exercises 1, 3, 4, and 6 for class)

Consider WSIPP displayed results: <http://www.wsipp.wa.gov/BenefitCost>

David L. Weimer and Mark A. Sager, "Early Identification and Treatment of Alzheimer's Disease: Social and Fiscal Outcomes," *Alzheimer's & Dementia* 5(3) 2009, 215–226.

(Oct. 19) Bring write-up of exercise 5 to class — Spreadsheet Exercise 7.5

Project report due (Oct 17): Each team should prepare a list of the relevant categories of costs and benefits, and indicate how each can be measured. *Read BGVW, Chapter 16, to get an idea of available shadow prices from secondary sources.*

Option Price and Option Value (Oct. 24)

BGVW, Chapter 8

Spreadsheet Exercise 8.3

Life-Cycle Analysis (Oct. 26)

Joule A. Bergerson and Lester B. Lave, “Should We Transmit Coal, Gas, or Electricity: Cost, Efficiency, and Environmental Implication,” *Environmental Science and Technology* 39(16) 2005, 5905–5910.

Visit: www.eiolca.net and do the tutorial for the EIO-LCA model .

Midterm Examination (Oct. 31)

Estimation Based on Revealed Preferences: Demonstrations and Experiments (Nov. 2)

BGVW, Chapter 12 (Prepare exercise 2 for class)

Estimation Based on Revealed Preferences: Natural Experiments (Nov. 7 and 9)

BGVW, Chapter 13 (Prepare exercises 1 for class)

BGVW, Chapter 14 (**Bring write-up of exercise 3 to class on Nov. 6**)

Spreadsheet Exercise 13.2

David L. Weimer and Michael Wolkoff, “School Performance and Housing Values: Using Non-Contiguous District and Incorporation Boundaries to Identify School Effects,” *National Tax Journal* 54(2) 2001, 231–253.

W. Kip Viscusi and Joseph E. Aldy, “The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World,” *Journal of Risk and Uncertainty* 27(1) 2003, 5–76.

Trudy Ann Cameron, “Euthanizing the Value of a Statistical Life,” *Review of Environmental Economics and Policy* 4(2) 2010, 161–178.

Contingent Valuation (Nov. 14, 16, and 21)

BGVW, Chapter 9 (Passive use)

BGVW, Chapter 15 (Prepare exercise 2 for class)

Robert P. Berrens, Alok K. Bohara, Hank C. Jenkins-Smith, Carol L. Silva, and David L. Weimer, "Information and Effort in Contingent Valuation Surveys: Application to Global Climate Change Using National Internet Samples," *Journal of Environmental Economics and Management* 47(2) 2004, 331–363.

Mark Dickie and Victoria L. Messman, "Parental Altruism and the Value of Avoiding Acute Illness: Are Kids Worth More than Parents?" *Journal of Environmental Economics and Management* 48(3) 2004, 1146–1174.

EcoResources Consultants, *Evidence of the Socio-Economic Importance of Polar Bears for Canada*, June 2011.

James K. Hammitt and Kevin Haninger, "Valuing Fatal Risks to Children and Adults: Effects of Disease, Latency, and Risk Aversion," *Journal of Risk and Uncertainty* 40(1) 2010, 57–83.

Bruce Johnson and John C. Whitehead, "Value of Public Goods from Sports Stadiums: The CVM Approach," *Contemporary Economic Problems* 18(1) 2000, 48–58.

Dale Whittington, "Improving the Performance of Contingent Valuation Studies in Developing Countries," *Environmental and Resource Economics* 22(1&2) 2002, 323–367.

Project Consultation (Nov. 23)

Cost-Effectiveness (Nov. 28)

BGVW, Chapter 18 (Prepare exercise 2 for class)

Spreadsheet Exercise 18.3

Shadow Prices in Developing Countries (Nov. 30)

BGVW, Chapter 17

Spreadsheet Exercise 17.4

Implications of Behavioral Economics for CBA (Dec. 5 and 7)

David L. Weimer, “Implications of Behavioral Economics for Cost-Benefit Analysis: Benefit Validity when Sovereign Consumers Make Mistakes” (manuscript).

Team reports due December 5

Presentations (Dec. 12 and 14)

Revised project report (PDF) and explanation of revisions due December 19

Evaluation of teammates due December 19

Final Examination (distributed December 19 by e-mail; due at noon December 21)