

**George Washington University
Benefit-Cost Analysis
PPPA 6015, Section 10**

Spring 2021 Syllabus

Time: Mondays, 6:10pm-8pm

Location: Online

Professor: Daniel Kuehn

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Office Hours: Tuesdays, 9:00-11:00am, & by appointment

Course Description & Objectives

This course seeks to link economic theory with policy analysis, using the tool commonly referred to as “benefit-cost analysis” (BCA) or “cost-benefit analysis” (CBA). As a formal assessment of a policy’s costs and benefits, BCA attempts to measure and compare the economic efficiency of policy options. This type of analysis has become standard practice in policy analysis—particularly in microeconomic policy areas such as the provision of public goods and government regulation. The goal of the course is to provide you with the conceptual foundations and practical skills you will need to be thoughtful consumers and producers of BCA and related analyses.

The class will draw on qualitative, quantitative, and analytic skills. As a practical matter, a familiarity with microeconomic theory, statistics, and algebra is assumed. The prerequisite for this class is PPPA 6014 (Microeconomics for Policy Analysis II). If you have not taken one of these courses, you must get my approval before enrolling. The course is designed primarily around the interests and requirements of MPP and PhD Public Policy & Administration students, but I welcome students from any and all other disciplines.

Learning Objectives

Through lectures, discussions, readings, assignments, and exams, students will develop knowledge and skills that will enable them to:

- Conduct a thorough cost-benefit analysis.
- Understand and articulate the limitations of a cost-benefit analysis.
- Critically analyze cost-benefit analyses conducted by others.
- Apply economic theory to real-world policy problems.
- Evaluate and compare alternative policies using the tools of cost-benefit analysis and economics generally.

Course Requirements

- In-Class Exam (30%)

- Covers all course material up to that point. More details to come.
- CBA Project (total=65%)—See the CBA guidelines handout for details.
 - CBA Project Proposal (5%)
 - List of Potential Costs & Benefits (5%)
 - Literature & Data Review (10%)
 - Presentation (5%)
 - Final Paper (40%)
- Class Participation (5%)
 - I value your positive participation in class discussions, in-class exercises, and other class activities.
- Practice Problem Sets (0%)
 - You are not required to turn in the problem sets. They are designed to help reinforce the concepts from class and prepare you for the exam. They are listed on the syllabus under the class in which the concepts are covered. The idea is that you should be able to do them AFTER the class under which they are listed.

Required Text

Boardman, Anthony A., David H. Greenberg, Aidan R. Vining, and David L. Weimer. *Cost-Benefit Analysis: Concepts and Practice*, 5th edition (Cambridge University Press, 2018). Older editions of the textbook are fine but be advised that page numbers and chapter numbers may differ.

Recommended Text

The required text explains microeconomic concepts that are used clearly, but I recommend having an intermediate micro book on hand for reference purposes.

Other Materials

Calculator: You will want to use a scientific calculator for the exam. You may use your phone on airplane mode, but you might want a scientific or graphing calculator app.

Excel: You will need to use Microsoft Excel for your own CBA, the exam, and some of the practice problems. Basic familiarity is assumed.

PowerPoint: You will need to use Microsoft PowerPoint (or other presentation software) for your presentation. I will review some basics in class before the first presentations, if needed.

Class Schedule & Outline

Week 1 (Jan. 11)

- Overview of Cost-Benefit Analysis
 - What is CBA?
 - How, when & why is it useful? What other policy analysis methods are similar to cost-benefit analysis and draw on the same tools?

- What are its limitations?
 - Ch. 1 & 2 BGWV

No class Jan. 18 – Martin Luther King Day

Week 2 (Jan. 25)

- Foundations of Welfare Economics
 - Pareto & Potential Pareto Efficiency
 - Opportunity Cost & Willingness-to-Pay
 - Consumer Surplus, Producer Surplus, Social Surplus
 - Ch. 3 BGWV*
 - James Buchanan and Roger Faith, “Trying Again to Value a Life,” *JPE*, 1979.*
 - Flacker, R. et al. “Closing the Gap: The Need for Inclusive Benefit-Cost Analysis in Policing,” *JBCA*, 2017.*
 - Ponomarenko, M. & Friedman, B. “Benefit-Cost Analysis of Public Safety: Facing the Methodological Challenges,” *JBCA*, 2017.

Week 3 (Feb. 1)

- **CBA Project Proposal Due**
- CBA Theory: Valuing Impacts in Primary Markets
 - Efficient Markets
 - Inefficient Markets
 - Ch. 5-6 BGWV (Some material will be covered next week)
 - Schmitz, A. & T. G. Schmitz. “Benefit-Cost Analysis: Distributional Considerations under Producer Quota Buyouts.” *JBCA* 1(1), 2010.*

Week 4 (Feb. 8)

- **Draft list of potential costs and benefits due**
- CBA Theory: Valuing Impacts in Inefficient & Secondary Markets
 - Inefficient Markets
 - Special Case: Unemployed Workers
 - Secondary Markets
 - BGWV Ch. 7 (Some material will be covered from last week)
 - Haveman, R. H. “Evaluating Expenditures under Conditions of Unemployment.” 1974.*
 - Morrison, et al. “Fundamental Flaws of Social Regulation: The Case of Airplane Noise.” *JLE* 42, 1999.
 - Haveman, R. & D.L. Weiner. “Public Policy Induced Changes in Employment: Valuation Issues for Benefit-Cost Analysis.” *JBCA*, 2015.

No class Feb. 15 – President’s Day

Week 5 (Feb. 22)

- CBA Practice: Predicting and Monetizing Impacts in Markets
 - Statistical & Econometric Methods

- Experimental & Quasi-Experimental Methods
 - Ch. 4 and 8, 14 BGVW
 - Forston et al., “Providing Public Workforce Services to Job Seekers: 30-Month Impact Findings on the WIA Adult and Dislocated Worker Programs,” 2017. This is a long report. Skim what’s interesting, but focus on the cost-benefit analysis section. <https://www.mathematica.org/our-publications-and-findings/publications/providing-public-workforce-services-to-job-seekers-30-month-impact-findings-on-the-wia-adult>.
 - Kuehn et al., “A Cost-Benefit Analysis of Accelerating Opportunity”, 2019. <https://www.urban.org/sites/default/files/publication/94876/ao-cba-report.pdf>.
 - Schochet et al., “National Job Corps Study and Longer-Term Follow-Up Study: Impact and Benefit-Cost Findings Using Survey and Summary Earnings Records Data”, 2006. https://wdr.doleta.gov/research/FullText_Documents/National%20Job%20Corps%20Study%20and%20Longer%20Term%20Follow-Up%20Study%20-%20Final%20Report.pdf.

Week 6 (Mar. 1)

- Valuing Non-Market Goods & Services
 - Indirect Market Methods: Market Analogy, Trade-Off, Intermediate Good, Asset Valuation
 - Survey Methods: Contingent Valuation
 - Ch. 15 BGVW
 - Cummings R. G. and L. Taylor. “Unbiased Value Estimates for Environmental Goods: A Cheap Talk Design for the Contingent Valuation Method.” *AER* 89(3), 1999.*
 - Cohen, M. “The Social Cost of a Racially-Targeted Police Encounter,” *JBCA*, 2017.
 - Vining, A. & D. Weimer. “An Assessment of Important Issues Concerning the Application of Benefit-Cost Analysis to Social Policy.” *JBCA*, 1(1), 2010.

Week 7 (Mar. 8)

- Special Cases of Non-Market Goods in CBA
 - Valuing Life: Value of Statistical Life
 - Valuing Time: Value of Travel Time Savings
 - Valuing Nature: Option Value, Existence Value
 - Ch. 13 & 15 BGVW
 - David Cutler and Lawrence Summers, “The COVID-19 Pandemic and the \$16 Trillion Virus,” *JAMA*, 2020.*
 - James Broughel and Michael Kotrous, “The Benefits of Coronavirus Suppression A Cost-Benefit Analysis of the Response to the First Wave of COVID-19” 2020.
 - Ashenfelter, O. “Measuring the Value of Statistical Life: Problems and Prospects,” *The Economic J* (116), 2006.
 - Viscusi, W. K. & J. E. Aldy. “The Value of Statistical Life: A Critical Review of Market Estimates Throughout the World.” *J of Risk and Uncertainty* 27(1), 2003.

No Class Mar. 15—Spring Break

Week 8 (Mar. 22)

- Discounting Future Benefits & Costs
 - Social Discount Rate
 - Net Present Value
 - Inflation
 - Ch. 9 and 10 BGVW
 - Stern, N., “Executive Summary (short),” *The Stern Review Report on the Economics of Climate Change*. HM Treasury: United Kingdom. Oct. 30, 2006.*
 - Office of Management & Budget (OMB), *Circular A-4*, 2003.
 - Podcast: Planet Money, “Putting a Price Tag on Your Descendants,” 2012.
 - Sunstein, Cass. “On Not Revisiting Official Discount Rates: Institutional Inertia and the Social Cost of Carbon.” *AER Papers and Proceedings*, 2014.

Week 9 (Mar. 29)

- Uncertainty & Equity
 - Sensitivity Analysis: Partial, Extreme Case, Monte Carlo
 - Distributional & Internal Weighting
 - **Literature & Data Review Due**
 - Ch. 11 BGVW
 - Tim Hyde, “Does cost-benefit analysis apply to catastrophic events? The strange economics of global disasters,” 2015*
<https://www.aeaweb.org/research/does-cost-benefit-apply-catastrophic-events>. (Read the article and use the numerical tool; open the link to the accompanying AER article and skim for what’s interesting).
 - Ian Martin and Robert Pindyck “Averting Catastrophes: The Strange Economics of Scylla and Charybdis,” AER 2015.
 - Hallegatte, S. “A Cost-Benefit Analysis of the New Orleans Flood Protection System.” AEI-Brookings Regulatory Analysis 06-02, 2006.
 - Manski, C. F. “Policy Analysis with Incredible Certitude” 2011.

Week 10 (Apr. 5)

- Cost-effectiveness analysis, cost-utility analysis, return on investment/benefit-cost ratios, and internal rate of return
 - Ch. 18 BGVW
- Review for exam

Week 11 (Apr. 12)

- **In-class exam**

Week 12 (Apr. 19)

- **Presentations (Day 1)**

Week 13 (Apr. 26)

- **Presentations (Day 2)**

Week 14 (Apr. 29) – “Designated Monday”

- Individual meetings about CBA project

Final Paper Due by email: Monday, May 3, 11:10am

Additional Policies & Information

- **Attendance:** Please try not to miss class! Lectures are your most important source of information for the exam and project and class participation is part of your grade. If you are late or have to miss class, you do not need to let me know, but please make sure you get notes from a classmate and download all relevant materials from Blackboard. Please do not attend class with the other section.
- **Turning Things In:** Short project assignments (proposal, list of costs/benefits, and lit review), must be turned in electronically using Blackboard’s “Assignment” feature on the main menu. Whenever possible, please turn in a single pdf file of your work.
- **Deadlines:** This syllabus provides all relevant due dates for assignments. All assignments must be turned in before the start of class on the due date. It is your responsibility to ensure that I receive your assignments on time. Late assignments will be marked down 1/3 of a grade for every 2 days they are late (only extreme circumstances warrant exception).
- **Collaboration:** You are welcome to work together on the practice problems and share comments and advice on CBA projects. However, the exam and assignments to be turned in must be done on your own.
- **Academic Integrity:** Academic dishonesty will not be tolerated and I regularly check exams and assignments for plagiarism and cheating. You are responsible for knowing and following all of the definitions and policies established in the George Washington University Code of Academic Integrity at <http://www.gwu.edu/~ntegrity/code.html>.
- **Grade Changes:** No changes can be made in grades after the conclusion of the semester, other than in cases of clerical error.
- **Credit Hours:** Over 15 weeks, students will spend 1 hour and 50 minutes (110 minutes) per week in class. Required readings, practice problem, and the CBA project are expected to take up, on average, 8 hours (480 minutes) per week. Over the course of the semester, students will spend 27.5 hours in instructional time and 120 hours preparing for class, for a total of 147.5 hours.
- **Respect for Diversity:** It is my intent that students from all backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. I strive to create an inclusive classroom and present materials and activities that are

respectful of diversity including gender, sexuality, disability, age, socioeconomic status, ethnicity, race, culture, and political affiliation. Your suggestions are encouraged and appreciated.

- **Conduct:** Higher education works best when it becomes a vigorous and lively marketplace of ideas in which all points of view are heard. Free expression in the classroom is an integral part of this process. At the same time, higher education works best when all of us approach the enterprise with empathy and respect for others, irrespective of their ideology, political views, or identity. We value civility because that is the kind of community we want, and we care for it because civility permits intellectual exploration and growth.
- **Religious Holidays:** Religiously observant students should notify me the first week of classes regarding any session that will be missed; the courtesy of an absence without penalty will be extended.
- **Electronics:** While you are welcome to use a laptop to take notes, I do not recommend it, since the class involves a large amount of graphing. If you choose to use a laptop, please use it only for notes (no surfing). Please consider putting cell phones away during class and (at the very minimum) refrain from texting/emailing/surfing or otherwise using your phone, during class. Exceptions are allowed if you are directly responsible for another person's life.
- **Accommodation for Students with Disabilities:** If you need extra time on exams or assignments due to a disability, please let me know in the first week of class. In order to receive accommodations on the basis of disability, you will need to provide proper documentation to the Office of Disability Support Services, Rome Hall, Suite 102
<http://disabilitysupport.gwu.edu/>.
- **Extra Help:** Please be sure to contact me or come to office hours early in the semester if you are struggling with course materials or if you have specific questions pertaining to your CBA project.
- **Feedback:** I welcome your feedback on my teaching, the CBA project, and the course in general. In particular, if you find any interesting articles, CBAs, or other references that you would recommend for future classes please send them my way!