

**George Washington University**  
**PPPA 6015.10: Benefit-Cost Analysis**  
**Fall 2014**

Time: Mondays, 12:45-2:35pm (not 3:15!)

Location: MPA 305

Professor: Stephanie R. Cellini

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Office Hours: Wednesday 3-5pm, and by appointment

### **Course Description & Objectives**

This course seeks to link economic theory with policy analysis, using the tool commonly referred to as “cost-benefit analysis” or CBA. As a formal assessment of a policy’s costs and benefits, CBA 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, government regulation, and taxation. 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 CBA.

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 (Economics in Policy Analysis) or Econ 6283 (International Trade Theory & Policy). 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. I have indicated extra readings and practice problems for the PhD students below. While the PhD students will not be tested on these readings and problems directly, they are considered important in preparation for comprehensive exams and your future career. These readings and problems can also be considered “recommended” extra resources for interested MPP students.

### **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

- Take-Home Exam (35%)
  - Covers all course material up to that point. More details to come.
- CBA Project (total=60%)—See the CBA guidelines handout for details.
  - CBA Project Proposal (5%)
  - List of Potential Costs & Benefits (5%)
  - Literature & Data Review (5%)
  - 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 exams. 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. I will post solutions on Blackboard about a week later.

## Required Text

Boardman, Anthony A., David H. Greenberg, Aidan R. Vining, and David L. Weimer. *Cost-Benefit Analysis: Concepts and Practice*, 4<sup>th</sup> edition (Upper Saddle River, NJ: Prentice Hall, 2010).

- Since the 4<sup>th</sup> edition is pretty different than the 3<sup>rd</sup>, please make sure you get the 4<sup>th</sup>.

## Recommended Text

Friedman, Lee S. *The Microeconomics of Policy Analysis*. (Princeton, NJ: Princeton University Press, 2002).

- I recommend having an intermediate micro book (like this one) on hand for reference purposes.

## Other Materials

Calculator: You can use your phone's calculator function or a regular old-school calculator, but you will want something for tabulations when doing in-class exercises, practice problems, and the exam.

Excel: You will need to use Microsoft Excel for your own CBA, the exam, and some of the practice problems. Basic familiarity is assumed, but I will go over useful functions and other tips in class.

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

## Class Schedule & Outline

### Week 1 (Aug. 25)

- Overview of Cost-Benefit Analysis
  - What is CBA?
  - How, When & Why is it Useful?
  - What are its Limitations?
    - Ch. 1 & 2 BGVW
    - The Economist, 2014. “The Economist Explains: Cost-Benefit Analysis.”
    - Budget of the United States Government, Fiscal Year 2012, Analytical Perspectives, Performance Management, Ch. 8 & 9.
    - Wallsten, S. & K. Kosec. “The Economic Costs of the War in Iraq.” AEI-Brookings Joint Center, 2005.
    - Practice Problem Set #0 (Review)
    - Practice Problem Set #1

Happy Labor Day! No class Sept. 1, but I recommend starting next week’s reading: there is A LOT!

### Week 2 (Sept. 8)

- Foundations of Welfare Economics
  - Pareto & Potential Pareto Efficiency
  - Opportunity Cost & Willingness-to-Pay
  - Consumer Surplus, Producer Surplus, Social Surplus
    - Ch. 3 BGVW
    - Case Study: Tobacco Regulation, 2014
    - Hassett K. & P. Swagel. “Creative Accounting: MoMA’s Economic Impact Study.” *WSJ*, Aug. 30, 2006.
    - Krutilla, K. “Using the Kaldor-Hicks Tableau Format for Cost-Benefit Analysis and Policy Evaluation.” *JPAM* 24(4), 2005.
    - PhDs: Appendix 3A BGVW
    - Practice Problem Set #2

### Week 3 (Sept. 15)

- CBA Theory: Valuing Impacts in Primary Markets
  - Efficient Markets
  - Inefficient Markets
    - **CBA Project Proposal Due**
    - Ch. 4 BGVW
    - Schmitz, A. & T. G. Schmitz. “Benefit-Cost Analysis: Distributional Considerations under Producer Quota Buyouts.” *JBCA* 1(1), 2010.
    - Wilhelm, S. “Public Funding of Sports Stadiums.” Center for Public Policy and Administration, U. of Utah, Policy Brief 04-30-08, 2008.

- PhDs: Siegfried, J., & A. Zimbalist. "The Economics of Sports Facilities and Their Communities." *JEP* 14(3), 2000.
- Practice Problem Set #3

#### Week 4 (Sept. 22)

- CBA Theory: Valuing Impacts in Inefficient & Secondary Markets
  - Inefficient Markets (con't.)
  - Special Case: Unemployed Workers
  - Secondary Markets
    - BGVW Ch. 5 & 11
    - Morrison, et al. "Fundamental Flaws of Social Regulation: The Case of Airplane Noise." *JLE* 42, 1999.
    - Haveman, R. H. "Evaluating Expenditures under Conditions of Unemployment." 1974.
    - Dubner, S. J. & S. D. Levitt. "Unintended Consequences." *New York Times*, Jan. 20, 2008.
    - Practice Problem Set #4

#### Week 5 (Sept. 29)

- CBA Practice: Predicting and Monetizing Impacts in Markets
  - Statistical & Econometric Methods
  - Experimental & Quasi-Experimental Methods
    - Ch. 12, 13, & Appendix 13A BGVW
    - Garces, E., J. Currie, & D. Thomas. "The Longer-Term Effects of Head Start." *AER*, 92(4), 2002.
    - Belfield, C., et al. "The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age 40 Follow-Up." *JHR*, 41(1), 2006.
    - Cellini, S. R. "The Challenge of Proving Causality in Financial Aid Policy Research." *RHE*, 2006.
    - PhDs: Boes, S. & S. Nuesch. "Quasi-experimental Evidence on the Effect of Aircraft Noise on Apartment Rents." *JUE*, 69, 2011.
    - Practice Problem Set #5

#### Week 6 (Oct. 6)

- Valuing Non-Market Goods & Services
  - Indirect Market Methods: Market Analogy, Trade-Off, Intermediate Good, Asset Valuation
  - Survey Methods: Contingent Valuation
    - **List of Potential Costs & Benefits Due**
    - Ch. 14 (up to p. 353 only) & Ch. 15 BGVW
    - Vining, A. & D. Weimer. "An Assessment of Important Issues Concerning the Application of Benefit-Cost Analysis to Social Policy." *JBCA*, 1(1), 2010.
    - Vedantam, S. "In a Sea of Uncertainty, We All Have an Anchor." *Washington Post*, Oct. 23: A02, 2006.

- Robinson, L. A. and J. K. Hammitt, "Behavioral Economics and Benefit-Cost Analysis: Towards Principals and Standards." *JBCA*, 2(2), 2011.
- 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.
- PhDs: Hausman, J. "Contingent Valuation: From Dubious to Hopeless." *JEP* 26(4), 2012.
- Practice Problem Set #6

#### Week 7 (Oct. 13)

- Special Cases of Non-Market Goods in CBA
  - Valuing Time: Value of Travel Time Savings
  - Valuing Life: Value of Statistical Life
  - Valuing Nature: Option Value, Existence Value
    - Ch. 9 & 16 BGVW
    - Applebaum, B. "As U.S. Agencies Put More Value on a Life, Businesses Fret." *NYT*, Feb. 16, 2011.
    - Viscusi, W. K. "The Devaluation of Life." *Regulation and Governance* 3, 2009.
    - Ashenfelter, O. "Measuring the Value of Statistical Life: Problems and Prospects," *The Economic J* (116), 2006.
    - Robinson, L. A. & J. K. Hammitt. "Skills of the Trade: Valuing Health Risk Reductions in Benefit-Cost Analysis." *JBCA*, 4(1), 2013.
    - PhDs: 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.
    - Practice Problem Set #7

#### Week 8 (Oct. 20)

- Discounting Future Benefits & Costs
  - Social Discount Rate
  - Net Present Value
  - Inflation
    - Ch. 6 BGVW
    - Office of Management & Budget (OMB), *Circular A-4*, 2003.
    - Sunstein, Cass. "On Not Revisiting Official Discount Rates: Institutional Inertia and the Social Cost of Carbon." *AER Papers and Proceedings*, 2014.
    - Stern, N., "Executive Summary (short)," *The Stern Review Report on the Economics of Climate Change*. HM Treasury: United Kingdom. Oct. 30, 2006.
    - *The Economist*, "How to Value a Grandchild," Dec. 4, 2006.
    - PhDs: Ch. 10 BGVW
    - Practice Problem Set #8

#### Week 9 (Oct. 27)

- Dealing with Uncertainty
  - Sensitivity Analysis: Partial, Extreme Case, Monte Carlo
  - Crystal Ball Software Demo by Prof. Cordes
    - **Literature & Data Review Due**
    - Ch. 7 & Appendix 7A BGVW
    - Posner, R. “The Probability of Catastrophe,” *Wall Street Journal*, January 4, 2005.
    - Hallegatte, S. “A Cost-Benefit Analysis of the New Orleans Flood Protection System.” AEI-Brookings Regulatory Analysis 06-02, 2006.
    - Fraas, A. G. “The Treatment of Uncertainty in EPA’s Analysis of Air Pollution Rules.” *JBCA*, 2(2), 2011.
    - PhDs: Manski, C. F. “Policy Analysis with Incredible Certitude” NBER Working Paper #16207, 2010.
    - Practice Problem Set #9

Week 10 (Nov. 3)

- Distributional Considerations, Alternative Approaches, & Policy Recommendations
  - Distributional & Internal Weights
  - Cost-Effectiveness Analysis
  - Policy Recommendations
    - **Hand out Take-Home Exam**
    - Ch. 18 BGVW
    - Chen, G. & R. Warburton. “Do Speed Cameras Produce Net Benefits?” *JPAM*, 25(3), 2006.
    - Rohlfs, Chris. “The Economic Cost of Conscription and an Upper Bound on the Economic Value of a Statistical Life.” *JBCA*, 3(3), 2012.
    - Practice Problem Set #10

Week 11 (Nov. 10)

- Recap, Review, Guest Speaker, and/or New Material (if we are behind)
  - CBA project tips
  - Possibly individual meetings about CBA project
    - **Take-Home Exam Due**

Week 12 (Nov. 17)

- **Presentations (Day 1)**

Week 13 (Nov. 24—Monday before Thanksgiving)

- **Presentations (Day 2)**

Week 14 (Dec. 1—Monday after Thanksgiving)

- Possible make-up day or optional individual meetings about CBA project

**Final Paper Due: Monday, Dec. 8, 12:45pm, MPA 601M (my office or mailbox).**

## **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.
- **Turning Things In:** The exam should be turned in hard copy only. Project assignments should be turned in in hard copy (most important) AND electronically using Blackboard's "Assignment" feature on the main menu. Whenever possible, please turn in pdf files of your work. If, for any reason, the hard copy and electronic documents are not identical (though they should be), the hard copy will be used for grading purposes.
- **Deadlines:** This syllabus provides all relevant due dates for assignments. It is your responsibility to ensure that I receive your assignments on time. All assignments and the exam must be handed in by the start of class. Electronic copies of the assignments can be uploaded until midnight on the due date. Late assignments will be marked down for each day 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.
- **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.
- **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, Marvin Center 436, 202-994-8250.
- **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!