

**Public Policy 413: Cost Benefit Analysis**  
**Winter 2020**

Harris School of Public Policy  
University of Chicago

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**Course Description:** The goals of this course include learning (1) how to conduct the basic steps of cost-benefit analysis (CBA); (2) how to incorporate elements of cost-benefit analysis into policy work; and (3) when CBA is a good tool to use and when it isn't. The principal objective is to prepare students to be savvy consumers of CBA, though the course does provide some limited hands-on practice with selected tools as well. The course also presents an opportunity to reflect on "big picture" issues of how to treat uncertainty and risk; how to discount costs and benefits received in the future; how to value lives saved; if and when to apply distributional weights in CBA; and other difficult matters.

**Prerequisites:** Two quarter core microeconomics sequence at Harris or its equivalent, and restricted to second-year students.

**Relation to other courses at Harris:** Some of you may be taking/have taken related classes in program evaluation, cost effectiveness analysis, or environmental issues. While there is some overlap of material and approach, this survey class offers a "soup to nuts" treatment of the cost benefit analysis methodology, with attention devoted to the microeconomic underpinnings of the technique as well as applications drawn from many areas, including health, the environment, and public goods. I will spend only a short time on training, education, workforce development, or related topics, as these are typically covered in depth in other classes at Harris. Students may take this course as part of the Certificate in Policy Analysis at Harris.

**Class meetings:** Class meets on Tuesdays and Thursdays in Keller 1002, 11:00 am to 12:20 pm.

**Teaching assistants:** We are fortunate to have four (!) experienced TAs this term. They will hold regular office hours, teach a weekly section, and grade problem sets and exams:

- Yuqi Song [yuqisong@uchicago.edu](mailto:yuqisong@uchicago.edu)
- Ellen Hsieh [hsiehe@uchicago.edu](mailto:hsiehe@uchicago.edu)
- Elliot Karl [elliottkarl@uchicago.edu](mailto:elliottkarl@uchicago.edu)
- Tianjiao (Jennifer) Zhou [jenniferzhou@uchicago.edu](mailto:jenniferzhou@uchicago.edu)

Regular office hours for the TAs and Professor Worthington will be posted to Canvas.

**Weekly section meetings:** Weekly section meetings will be held on Thursdays, 12:30 to 1:30 pm, in Room 0007 of the Keller Center.

**Use of web and email:** I will post course materials to the university's CANVAS web-based course management system: the URL is <http://courses.uchicago.edu/>. Students are responsible for any and all material posted there. I encourage the use of email and try to respond in a timely fashion. My email address is [pworthington@uchicago.edu](mailto:pworthington@uchicago.edu). I do not text, tweet, or Facebook message regarding course matters, so *please check your UNIVERSITY OF CHICAGO email and CANVAS regularly*.

**Use of electronic devices in class:** You may **NOT** use your laptop or smartphone during class. You may not consult smart watches, wear Google glasses, or use any other "smart" items. My responsibility is to make class time useful, engaging, and rewarding, and yours is to participate fully. If class becomes boring, please tell me so I can make adjustments.

**Grading:** Grades will be based on problem sets and related assignments (total 20%); an in-class midterm exam (40%); and a final exam (40%).

- Problem sets will generally be **due on Tuesdays**, in class.
  - Some problem sets will require you to read additional papers and materials, beyond those listed in the syllabus.
  - Problem sets must be completed and submitted individually.
  - Late submissions will be penalized: 10% if within 24 hours; 20% if within 48 hours; 100% if after 48 hours.
- The midterm exam will take place on **Thursday, February 6**, in class.
- The final exam is scheduled for **Thursday, March 19**, from noon to 3:00 pm.
- To earn a passing grade, students taking the course pass/fail must:
  - Complete and submit all assignments.
  - Take both midterm and final exams.
  - Earn passing grades on each assignment and exam.

## Academic integrity

**Principles:** The University has explicit and clear expectations regarding academic integrity. The University's "Student Manual of University Policies and Regulations: Student Conduct" guide (<https://studentmanual.uchicago.edu/academic-policies/academic-honesty-plagiarism/>) states:

It is contrary to justice, to academic integrity, and to the spirit of intellectual inquiry to submit the statements or ideas of work of others as one's own. To do so is plagiarism or cheating, offenses punishable under the University's disciplinary system. Because these offenses undercut the distinctive moral and intellectual character of the University, we take them very seriously and punishments for them may include expulsion from the University.

Proper acknowledgment of another's ideas, whether by direct quotation or paraphrase, is expected. In particular, if any written or electronic source is consulted and material is used from that source, directly or indirectly, the source should be identified by author, title, and page number. Any doubts about what constitutes "use" should be addressed to the instructor.

As part of the University, the Harris School also expects its students to meet the highest standards of academic integrity. Specifically, Harris policies state that:

- All work submitted by a student must be the student's own original work.
- Students may not submit previously submitted work from one course (i.e., final paper) to fulfill the academic obligations in another course, unless the student has received permission to do so by the course instructor.
- Any works that are cited by the student as part of a greater work must utilize proper text and summary citations to properly identify the proper source(s).
- In the case of group work, students must be prepared to identify their individual contribution (including proper citations of original work cited) when requested by the course instructor.
- Students are also subject to the University Academic Honesty Policy.

***Application of these policies to this class:*** In this course, you will complete several assignments and take two exams.

- For problem sets, which may include short analytical exercises, Excel exercises, and/or other data or written analyses, you may *discuss* your ideas and approaches with fellow students while working on the assignment outside of class. Further, I will provide occasional times during class when you may talk with your classmates about your assignments. However, you may not *copy* or *directly duplicate* the text, calculations, and/or approach of others. ***All submitted work (written work, tables, charts, calculations, etc.) must be prepared individually, any outside sources relied on must be cited, and all charts, graphs, and/or tables should include source details.*** If we find that two submitted pieces of work appear to be too “similar” to one another, we will investigate more fully and hold both students accountable to these standards. In general, I encourage you to consider using a citation manager program to help manage references and bibliographies in your professional lives (<http://guides.lib.uchicago.edu/c.php?g=297307&p=1984557>). Questions? Please contact me directly.
- For exams, students are expected to rely on no outside resources (Canvas, hard copy material, phone, friends, classmates, etc.) when taking any exam. Students will sign a statement to this effect prior to taking exams.

***Consequences:*** Violation of these standards generates significant consequences. Students found to have violated the standards will receive a grade of 0 on the exam or assignment in question and cannot earn higher than a B- in the course, regardless of their performance on other assignments and exams. Further, violators will receive a formal letter stating that the student has been found in violation of the code of academic honesty and listing the imposed sanctions. The letter, along with any evidence presented, is archived in Harris Student Affairs records until the student graduates if the student has no other violations. Students found in violation of the academic honesty policy are not permitted to withdraw from the course to avoid grade penalties from the instructor. Repeat offenses face stiffer potential penalties than do first-time offenses.

**Process:** If I or one of the course TA's has reason to suspect a student has violated these academic integrity standards, I will report that suspicion to the Dean of Students, who will meet with me and the student as part of his/her investigation. In most cases, first offenses are adjudicated in this setting. In cases where plagiarism or academic dishonesty is egregious, the case may be referred to the Harris Area Disciplinary Committee even on a first offense. The Dean makes all decisions about which cases will go before the Area Disciplinary Committee. Second violations are referred to the Harris Area Disciplinary Committee, described further here: <https://studentmanual.uchicago.edu/student-life-conduct/university-disciplinary-systems/area-disciplinary-systems/>. If the student is found in violation of academic honesty a second time, the Area Disciplinary Committee can assign sanctions including transcript notes, disciplinary probation, suspension or expulsion from the University.

**Professionalism:** Students are expected to act with professionalism and respect throughout this course. This includes, but is not limited to, being on time to class and for any outside-the-classroom study group meetings; **not using laptops, electronics or other “smart” devices during class time**; and generally acting in a fashion consistent with the young professionals you are now becoming. For discussions of these and related issues, I encourage each of you to read these articles from the *Wall Street Journal* and the *New York Times*: <http://online.wsj.com/article/SB1000142412788732457730457905492229616730.html> and <http://www.nytimes.com/2013/09/29/fashion/technology-and-the-college-generation.html?ref=style>.

**Students with disabilities:** Any students who believe they may need assistance should inform the Harris Dean of Students office by the end of the first week of class. The Dean of Students office will coordinate any student accommodations with Harris instructors—that's me!

**Readings:** One textbook is *required* for the class: *Cost-Benefit Analysis: Concepts and Practice*, 5<sup>th</sup> edition, by Boardman, Greenburg, Vining, and Weimer. (Prentice Hall, 2018). Other readings for the class are listed below with appropriate URL or source information; in a few special cases, no on-line versions are available, and I will post such files directly to Canvas.

Note that for certain papers, the specific URLs are not stable, so I include only the link to the University library's "holdings" page for that journal, from which you can navigate to get the specific issue and article you seek. [In general, please be resourceful if a link seems to be broken: try opening the file in a new window or tab, or try going to the home page of the institution or author, for example. Also, please note you may need to use the university's proxy servers or enable VPN in order to access holdings at the University library.]

**Course topics: ROUGH SCHEDULE!**

**Week 1**

**Topic: What is Cost-Benefit Analysis?**

**Topic: CBA decision rules**

**Week 2**

**Topic: Measures of welfare**

**Topic: Costs and benefits when markets exist: primary markets**

**Week 3**

**Topic: Costs and benefits when markets exist: secondary markets**

**Topic: Economic impact analysis**

**Week 4**

**Topic: Cost-benefit analysis of social and education programs**

**Week 5**

**Topic: Distributionally-weighted cost-benefit analysis**

**Midterm exam**

**Week 6**

**Topic: Risk and Uncertainty**

**Topic: Indirect methods**

**Week 7**

**Topic: Contingent valuation**

**Week 8**

**Topic: Valuation of a statistical life (VSL) and statistical life-years (VSLY)**

**Week 9**

**Topic: Quality-adjusted life years (QALYs) and cost-effectiveness analysis**

**Week 10**

**Topic: Environmental regulation**

**Topic: Global warming**

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Reading List

1. Introduction, Concepts, and Decision Rules
  - a. (Boardman et al. 2018), Chapters 1-2 and 19
  - b. (Organisation for Economic and Cooperative Development 2006), Chapter 4, “Decision Rules”
2. Primary Markets and Secondary Markets
  - a. (Boardman et al. 2018), chapters 3, 5, and 6; Case 4 (pp. 110-118)
3. Discounting Mechanics and Economic Impact Analysis
  - a. (Boardman et al. 2018), chapters 7 and 9
  - b. (Council of Economic Advisers 2017)
  - c. (Hughes 2018)
  - d. (Thompson, Rosenbaum, and Hall 2008)
  - e. (Baade and Matheson 2016)
4. Cost-benefit Analysis of Social and Education Programs
  - a. (Boardman et al. 2018), Chapter 14
  - b. (Reynolds et al. 2011)
  - c. (Heckman et al. 2010)
  - d. (Washington State Institute for Public Policy 2019)
  - e. (Psacharopoulos 2018)
5. Distributionally-Weighted CBA
  - a. (Boardman et al. 2018), Chapter 19
  - b. (Adler 2016)
  - c. (Weisbach 2015)

**MIDTERM EXAM, THURSDAY FEBRUARY 6**

6. Risk and Uncertainty
  - a. (Boardman et al. 2018), Chapters 11 and 12
  - b. If interested:
    - i. (Oster 2018),
    - ii. (Nyhan et al. 2014),
    - iii. (Schaller, Schulkind, and Shapiro 2019)
    - iv. (Sunstein 2003)

7. Indirect Methods and Contingent Valuation
  - c. (Boardman et al. 2018), Chapters 15 and 16
  - d. (Melstrom 2014)
  - e. (Lopez-Feldman 2012)
  - f. (Carson et al. 2003)
  - g. (McFadden and Train 2017, x–xviii)
  - h. (Whitehead 2018)
  - i. (Bishop et al. 2017)
  - j. (U.S. Department of the Interior 2016)
  
8. Value of Statistical Life & Cost-Effectiveness Analysis
  - a. VSL
    - i. Basics: Boardman, Chapter 15 (pp. 394-397)
    - ii. Two revealed preference studies: (Viscusi 2013) and (Lee and Taylor 2019)
    - iii. One stated preference study: (Pike et al. 2019)
    - iv. VSL in low & moderate income countries: (Robinson, Hammitt, and O’Keeffe 2019)
    - v. The “Trolley Problem”: (“Trolley Problem” 2020); (Daugherty Biddison et al. 2014); and (MIT Media Lab n.d.)
    - vi. What Milton Friedman had to say: (*Milton Friedman - The Value of a Human Life Debate* n.d.)
    - vii. Other: (Simon et al. 2019), (Smith 2019a), (Singer 2009), (World Bank 2020)
    - viii.
  - a. CEA
    - i. Basics: Boardman, Chapter 18
    - ii. QALYs: (Nord 2014), (Neumann and Cohen 2018), (Smith 2019b)
    - iii. CEA in low to moderate income countries: (Bilinski et al. 2017)
    - iv. HIV screening protocols (Cipriano et al. 2012)
  
9. Social Discount Rate & Environmental Regulation
  - a. Discounting
    - i. (Boardman et al. 2018), Chapter 10.
    - ii. (Arrow et al. 2013)
    - iii. (Council of Economic Advisers 2017)
  - b. Environmental Regulation
    - i. (Institute for Policy Integrity 2018)
    - ii. (Leggett 2017)
    - iii. (Metcalf 2019)
    - iv. (Kaufman and Gordon 2018)
    - v. (Pomerleau and Asen 2019)
    - vi. (Ramseur and Leggett 2019)

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