

Section 1

Instructor, Course Information & Objectives

**Advanced Academic Programs
Zanvyl Krieger School of Arts and Sciences
Johns Hopkins University**

**Cost-Benefit Analysis
AS.440.622.81/82.SU17**

Instructor Information

Instructor:	Chris Dockins / Charles Griffiths
Telephone Number:	202-566-2286 / 202-566-2288
Email Address:	pdockin1@jhu.edu / cgriff16@jhu.edu
Office Hours:	By appointment as needed

Course Description

This course will provide students with an understanding of the principles and practice of benefit-cost analysis. Students will learn how to develop and apply benefit-cost techniques to evaluate public policies and specific projects. Topics include standard benefit-cost analysis techniques, long-term discounting, analysis in the presence of uncertainty, sensitivity analysis, and distributional concerns. Instruction will consist of a mix of lectures and class discussion.

Prerequisites: 440.601 Microeconomic Theory and Policy; 440.606 Econometrics.

Course Goals & Learning Objectives

This course focuses on applied economic analysis of efficiency. While a core understanding of theoretical principles is essential, the emphasis of the course is on empirical estimation of benefits, costs, and net benefits. As a result of this course:

- Students will know how to identify separate economic consequences and welfare changes into gains and losses, identify the respective groups, and aggregate these changes to reach conclusions about economic efficiency.
- Students will understand alternative approaches to estimating the benefits and costs of policies and projects and be able to evaluate the relative merits of those approaches.
- Students will know how benefits, costs, and economic impacts are defined, measured, and quantitatively characterized in an economic analysis.
- Students will be able to conduct applied benefit-cost analysis and reach empirical conclusions about efficiency.

Section 2

Course Materials

Textbook/s

The required textbook is Boardman, Anthony E., David H. Greenberg, Aidan R. Vining, and David L. Weimer. 2010. *Cost-Benefit Analysis: Concepts and Practice*, 4th ed. Pearson/Prentice-Hall. (Boardman et al. -)

Additional readings will supplement the text.

Other Readings

Readings can be found as direct links here in the syllabus or weekly discussions, or in the Ereserves section of the course.

Week 1

Boardman, Chapters 1, 2, 20

Heinzerling, Lisa. 2012. Cost-Benefit Jumps the Shark.

(http://gulcfac.typepad.com/georgetown_university_law/2012/06/cost-benefit-jumps-the-shark.html)

Discussion Reading: Choice Cuts – available on the discussion board

Optional:

Reinhardt – When Value Judgments Masquerade as Science, found

at <http://economix.blogs.nytimes.com/2010/08/27/when-value-judgments-masquerade-as-science/>

Landsberg – Efficiency Experts (response to Reinhardt), found

at <http://www.thebigquestions.com/2010/08/30/efficiency-experts/>

Arrow, Kenneth J., Maureen B. Cropper, George C. Eads, Robert W. Hahn, Lester B. Lave, Roger G. Noll, Paul R. Portney, Milton Russell, Richard Schmalensee, V. Kerry Smith, Robert N. Stavins. 1996. Is there a role for Benefit Cost Analysis in Environmental Health and Safety Regulation? *Science* Vol 272 (Also at: http://www.env-econ.net/recommended_reading/Arrow_BCA.pdf)

Week 2

Boardman, Chapter 3

Discussion Reading: Manski - Removing deadweight loss from economic discourse on income taxation and public spending (to be posted in Discussion Forum)

Optional:

Hanley, Nick and Clive L. Spash – The Welfare Foundations of CBA, Chapter 2 of *Cost-Benefit Analysis and the Environment*. Edward Elgar Publishers, 1995.

Currie, John Martin, John A. Murphy and Andrew Schmitz (1971), The Concept of Economic Surplus and Its Use in Economic Analysis, *Economic Journal*, LXXXI (324):741-99

Week 3

Boardman, Chapters 4, 5

Discussion Readings: 3 Short Readings on Smoking (to be posted)

Optional:

Mohring, Herbert. (1993) Maximizing, measuring, and not double counting transportation-improvement benefits: A primer on closed- and open-economy cost-benefit analysis
Transportation Research Part B: Methodological 27(6) December: 413–424

[Executive Order 12866](#) – Regulatory Planning and Review

[Executive Order 13422](#) – Further Amendment to Executive Order 12866 on Regulatory Planning and Review

[Executive Order 13563](#) -- Improving Regulation and Regulatory Review

Week 4

Boardman, Chapter 12

Discussion Reading: Ferraro, P. J. and L. O. Taylor . 2005. Do economists recognize an opportunity cost when they see one? A dismal performance from the dismal science. *Contributions to Economic Analysis & Policy* 4 (1):7

Optional

Bastiat - Broken Window Excerpt, [section I from Essays on Political Economy](#)

US EPA – Analyzing Costs ([Chapter 8](#) of *Guidelines for Preparing Economic Analyses*)

Week 5

Boardman, Chapter 12

Haveman, Robert H. and Scott Farrow. 2010. Labor Expenditures and Benefit-Cost Accounting in Times of Unemployment. *Journal of Benefit-Cost Analysis* 2(2).

Discussion Reading: TBD

Week 6

Boardman, Chapter 13

Discussion Reading: TBD

Optional

Parsons, George. 2003. The Travel Cost Model, chapter 9 of *A Primer on Non-Market Valuation*, edited by P.A. Champ, K.J. Boyle, and T.C. Brown. Kluwer Academic Publishers

Week 7

Boardman, Chapter 14

Discussion Reading: TBD

Optional

Viscusi, W. Kip. The Value of Life. *New Palgrave Dictionary of Economics and the Law*, 2nd Edition; Vanderbilt Law and Economics Research Paper No. 08-04.

Dickie, Mark. 2003. Defensive Behavior and Damage Cost Methods, Chapter 11 of *A Primer on Non-Market Valuation*, edited by P.A. Champ, K.J. Boyle, and T.C. Brown. Kluwer Academic Publishers

Taylor, Laura O. 2003. The Hedonic Method, Chapter 10 of *A Primer on Non-Market Valuation*, edited by P.A. Champ, K.J. Boyle, and T.C. Brown. Kluwer Academic Publishers

Week 8

Boardman, Chapter 15

Kling, Catherine L., Daniel J. Phaneuf, and Jinhua Zhao. 2012. From Exxon to BP: Has Some Number Become Better Than No Number? *Journal of Economic Perspectives*, 26(4): 3-26.

Discussion Readings: Survey Instruments for Klamath River and Fish (will be posted)

Optional

Boyle, Kevin J. 2003. Contingent Valuation in Practice Chapter 5 of *A Primer on Non-Market Valuation*, edited by P.A. Champ, K.J. Boyle, and T.C. Brown. Kluwer Academic Publishers

Carson, Richard T. 2012. Contingent Valuation: A Practical Alternative When Prices Aren't Available. *Journal of Economic Perspectives*, 26(4): 27-42.

Hausman, Jerry. 2012. Contingent Valuation: From Dubious to Hopeless. *Journal of Economic Perspectives*, 26(4): 43-56.

Week 9

Boardman, Chapter 16

Rosenberger and Loomis - [Benefits Transfer of Outdoor Recreation Use Values](http://www.fs.fed.us/rm/pubs/rmrs_gtr072.pdf), US Department of Agriculture (http://www.fs.fed.us/rm/pubs/rmrs_gtr072.pdf)

Discussion Reading: TBD

Optional:

Bergstrom, John. C and Laura O. Taylor. 2006. Using meta-analysis for benefits transfer, Theory and Practice, *Ecological Economics*, 60(1):351-360.

Nelson, Jon P. and Peter E. Kennedy. 2009. Use and Abuse of Meta-Analysis in Environmental and Natural Resource Economics: An Assessment, *Environmental and Resource Economics* 42(3):345-377

Week 10

Boardman, Chapters 6, 10

Discussion Reading: Goulder and Stavins – Eye on the Future (to be posted)

Optional

Zhuang et al (2007). [Theory and Practice in the Choice of Social Discount Rate for Cost-Benefit Analysis](#) (Asian Development Bank working paper)

Newell, Richard G. and William A. Pizer. 2003. Discounting the Distant Future: How Much Do Uncertain Rates Increase Valuations? *Journal of Environmental Economics and Management* 46:52–71

Week 11

Boardman, Chapters 7, 8, 9

Discussion Reading: Cole – Reconciling Cost-Benefit Analysis with the Precautionary Principle (to be posted)

Optional

Jaffe, J. and Stavins, R. N. (2007), On the value of formal assessment of uncertainty in regulatory analysis. *Regulation & Governance* 1: 154–171

Krutilla, John V. 1967. Conservation Reconsidered. *The American Economic Review* 57(4):777-786.

Flores, Nicholas (2002) [Conservation Reconsidered, The Economics of Natural Environments, and Our Understanding of Environmental Preferences](#) paper prepared in honor of Resources for the Future (RFF) at 50 Years

Week 12

Boardman, Chapter 18

Discussion Reading: Kee – At What Price, Benefit-Cost Analysis and Cost-Effectiveness Analysis in Program Evaluation (to be posted)

Optional

Institute of Medicine. 2006. [Measures and Strategies for Obtaining Health Benefit Values for Regulatory Analysis](#), Chapter 3 of *Valuing Health for Regulatory Cost-Effectiveness Analysis*.

Week 13

Boardman, Chapters 17, 19

Discussion Reading: TBD

Optional

Harberger, Arnold C (1978) On the Use of Distributional Weights in Social Cost-Benefit Analysis, *Journal of Political Economy* 86(2).

Levy, Jonathan I., Susan M Chemerynski, and Jessica L. Tuchma.2006. [Incorporating concepts of inequality into health benefits analysis](#), *International Journal for Equity in Health* (open access.)

Week 14: Final Exam

There are no readings for this week. The assignment will be to take the online final exam.

Other equipment / software/ websites / online resources

The following blogs often contain material specifically on benefit-cost analysis and we may draw upon the posts and discussion for our class.

- [Society for Benefit-Cost Analysis](http://benefitcostanalysis.org/) (<http://benefitcostanalysis.org/>) – The site of the professional organization dedicated to benefit-cost analysis has a resources section that contains useful information including the [Journal of Benefit-Cost Analysis](#).
- [Environmental Economics](http://www.env-econ.net) blog (www.env-econ.net) – This is run by Tim Haab and John Whitehead and raises points about valuing environmental resources and performing benefit-cost analysis.

Specific Technology Requirements & Skills for this Course

Learning online requires some basic knowledge of computer technology. At a minimum, you need to be able to:

- Navigate in and use Blackboard; the AAP Blackboard Student Orientation course on your “My Institution” under “My Courses Plus”
- Create and save MS Word documents; see MS Word tutorials for PC users (all versions); Word Help for Mac users
- Find basic resources on Internet; see [Internet Tutorials](#)
- Create and organize files & folders on your computer
- Send, receive, and manage email

Section 3

About Your Course

Course Topics

- Week 1: Introduction and Conceptual Foundations of CBA
- Week 2: Benefits and Costs in Undistorted Markets
- Week 3: Benefits and Costs in Distorted Markets
- Week 4: Costs
- Week 5: Employment
- Week 6: Benefits: Market Methods and Travel Cost
- Week 7: Benefits: Revealed Preference
- Week 8: Benefits: Stated Preference
- Week 9: Benefits Transfer
- Week 10: Discounting
- Week 11: Uncertainty, Sensitivity Analysis, and Existence Value
- Week 12: Alternatives to Benefit-Cost Analysis
- Week 13: Equity Issues
- Week 14: Final Exam

Directions for Students

Next Steps: Carefully review the remaining sections of the syllabus section of this course before beginning Week 1 activities, which are located in the **Lessons** folder in your Blackboard Course.

- Once you feel that you are ready to dive into the first week's activities, click on the **Lessons** button on the left-side navigation. Then, click on **Week 1** and begin with the Summary and Objectives.

What To Expect in this Course

This course is **14** weeks in length and includes individual, group, and whole group activities in a weekly cycle of instruction. Each week begins on a **Wednesday** and ends on the following **Wednesday**. Please review the course syllabus thoroughly to learn about specific course outcomes and requirements.

Each week, you will complete readings that may include videos, multimedia presentations, web-based resources, and articles from professional journals. A reading may be integrated within an activity during the week or provide some key information to assist your learning.

In this course, you will also experience online learning activities, which include discussion boards.

Be sure to refer to the Student **Checklist** each week, which provides a week-at-a-glance and shows targeted dates for the completion of activities.

Course Structure

We start our course with an overview of benefit-cost analysis, how it is presented in the textbook, and some core welfare economic concepts. These concepts should already be familiar to you although we may go into more detail than you have in the past. These concepts – Marshallian and Hicksian Demand, exact measures of consumer surplus – are key to measuring benefits and costs of projects and policies. We will also spend time taking familiar issues, such as regulating a monopoly, and breaking them down into considerations of benefits vs. costs.

The textbook is light on the issue of estimating costs in benefit-cost analysis so we go into some detail on alternative models and approaches. We then take up the special issue of employment and the extent to which job impacts are benefits or costs, and how we measure the welfare changes associated with job promotion programs.

Next we have a set of sections on benefits where we detail revealed and stated preference methods for estimating benefits when no direct market exists for the commodity in question. Many of the examples are environmental, where it is often particularly difficult to quantify benefits, but the techniques are not limited to environmental commodities. You will use some of these methods yourself in the second problem set. This part of the course also includes the controversial question of the value of statistical life, as well as adapting existing values in the literature for use in your particular benefit-cost analysis.

The last third of the course looks at several specific empirical issues that apply to most benefit-cost analyses. These include the treatment and characterization of uncertainty, discounting in the short and long run, alternatives to benefit-cost analysis such as cost-effectiveness analysis, and

In the final week of the course we conclude with some additional notes on benefit-cost analysis in practice, where there are often compromises to be made from the theoretic ideal.

We will rely upon the readings from the textbook, of course, but also draw upon additional readings for each week. Often these additional readings will serve as starting points for the weekly discussions you are expected to participate in.

Section 4

Assessments and Grading Policy**Assignments**

The course consists of three two-week problem sets, a final problem set, and a grade for course engagement. Each of these is weighted equally in your final grade.

Assignments	Due Dates	Percent
Assignment #1: <i>Problem Set 1</i> <i>This is a set of empirical exercises where you will find data and use it to perform a benefit-cost analysis or a component thereof. The assignment will include guidance on where to find data and use it. You will be graded on your analysis as well as the economic reasoning supporting your conclusions. It will be assigned on or around Week 4.</i>	Week 6	20%
Assignment #2: <i>Problem Set 2</i> <i>This problem set will likely focus on using one or more methods to estimate benefits. The assignment will include guidance on where to find data and use it. You will be graded on your analysis as well as the economic reasoning supporting your conclusions. It will be assigned on or around Week 8.</i>	Week 10	20%
Assignment #3: <i>Problem Set 3</i> <i>This problem set will either includes several numerical exercises to address uncertainty and other aspects of benefit-cost analysis. This would be done mostly in Excel. Alternatively it may be a policy memorandum requiring you to assess a benefit-cost problem and evaluate the key issues involved. You will be graded on your analysis and the economic reasoning supporting your conclusions. It will be assigned on or around Week 11.</i>	Week 13	20%
Assignment #4: <i>Final Exam</i> <i>This is like an in-class exam. You can choose when you want to take it during this week, but once you begin you will need to complete it within 3 to 3.5 hours. It is open book and open notes.</i>	Week 14	20%
Assignment #4: <i>Course Engagement</i> <i>You are expected to have an active presence in course discussions, and complete course activities as noted in the assignment guidelines to maximize your learning. Participation in activities should be consistent, of high quality, and reflect both a high level of academic thinking and your own personal perspectives, opinion, and ideas.</i>	Throughout	20%
TOTAL		100%

Grading

Grades for problem sets are determined by your ability to structure the question correctly and for an accurate response. A key component is how well you justify your economic reasoning.

Your Course Engagement grade is based on meaningful, relevant, and substantive contributions to weekly discussions. Upon request, instructors will provide feedback throughout the course on the quality of your participation.

We do not anticipate offering extra credit or additional assignments beyond the ones described above. Each of the assignments is weighted equally in your final grade.

Policies for late assignments are below.

Assignment Guidelines

How should assignments be submitted?

The weekly directions will indicate where assignments will be posted (e.g. in assignment tool within the Lessons folder). When creating files, include your name and the name of the assignment in the file title. Also, please be sure to only include one period in file names. The period should be between the file name and the extension. For example: cdockins_assignment1.doc

Handwritten work should be scanned and sent as a .pdf document. Some assignments require excel spreadsheets to be returned.

When will assignments be due?

Assignment and activity due dates are listed in this syllabus and the weekly checklists. Assignment due dates can also be found within the Assignment Guidelines area of your online classroom. The instructor via an announcement in Blackboard will announce changes.

When will completed assignments be returned?

The instructors will aim to return assignments to you **within 7-10 days** following the due date, depending on the length of the assignment. You will receive feedback under the My Grades link on the left hand menu of your course.

What is the policy for late assignments?

You are expected to contact your instructor in advance if you think you cannot meet an assignment deadline. However, if an assignment is late and prior arrangements have not been made with the instructor, the assignment score will be **reduced by 20% for each late day**.

Time Management Expectations

What is the time demand and schedule of the course?

Because this is a graduate-level course that is offered in a condensed format, the rigor and time commitment is higher than a traditional 15-week semester course. It is expected that you look ahead to schedule your time. Plan to complete coursework across several days of the week rather than all in one day.

The problem sets assignments require that you work on them for multiple weeks. Be sure to review the assignment directions at the beginning of the course so that you can plan your time accordingly. Please seek help before becoming frustrated and spending a significant amount of time to resolve an issue.

Section 5

Course Participation & Communication Policy

Participation

What are the participation requirements?

You are expected to log into the Blackboard at least (three) times a week, though a daily check-in is recommended. It is your responsibility to read all announcements and discussion postings within your assigned forums. You should revisit the discussion multiple times over the week to contribute to the dialogue.

Network Etiquette (i.e. “Netiquette”)

In this course, online discussion will be primarily take place in our online discussion board. In all textual online communication it's important to follow proper rules of netiquette.

What is netiquette? Simply stated, it's network etiquette -- that is, the etiquette of cyberspace. And "etiquette" means the social and culture norms of communicating with others in a proper and respectful way. In other words, netiquette is a set of rules for behaving and interacting properly online.

The Netiquette “Core Rules” linked below are a set of general guidelines for cyberspace behavior. They probably won't cover all situations, but they should give you some basic principles to use in communicating online.

For Netiquette Core Rules visit this web page: www.albion.com/netiquette/corerules.html

Contacting the Instructor

The instructors for this course are Charles Griffiths (cgriff16@jhu.edu) and Chris Dockins (pdockin1@jhu.edu).

Feel free to contact your instructors with comments, questions, and concerns. Please be sure to include both of your instructors on all correspondence. You will receive a response within 24-48 hours, aside from weekends.

Email is the most reliable way to contact your instructors. Phone calls may be made for emergencies.

All email messages will be sent to you via your JHU email account, so you should be in the habit of checking that account every day or you should ensure that your JHU email account forwards messages to another account of your choice.)

Section 6

Course Protocols & Getting Help

Course Protocols

How will I know about changes to the course?

Frequently, you will find new announcements posted in the Announcements, which contain information about current course activities that you are working on and any changes to the course. Please check announcements every time that you log into the Bb.

How should I communicate with others in this course?

You should communicate often with your classmates and with your instructor. The majority of communication will take place within the Discussion forums. When you have a question about an assignment or a question about the course, please contact your instructor, or post your question in the course's "Syllabus & Assignment Question" forum.

Are there any requirements for sending e-mail messages?

When you send an e-mail message to the instructor or to another participant in the course, please observe the following guidelines:

- Include the title of the course in the subject field (e.g., JHU Cost-Benefit Analysis).
- Keep messages concise, and check spelling and grammar.
- Send longer messages as attachments.
- Sign your full name (the sender's email is not always obvious).

Section 7

University Policies

General

This course adheres to all University policies described in the academic catalog. A few to pay close attention to are noted below.

Students with Disabilities

Johns Hopkins University is committed to providing reasonable and appropriate accommodations to students with disabilities. Students with documented disabilities should contact the coordinator listed on the [Disability Accommodations](#) page. Further information and a link to the Student Request for Accommodation form can also be found on the [Disability Accommodations](#) page.

Ethics & Plagiarism

JHU Ethics Statement: The strength of the university depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. Report any violations you witness to the instructor.

Read and adhere to JHU's [Notice on Plagiarism](#).

Dropping the Course

You are responsible for understanding the university's policies and procedures regarding withdrawing from courses found in the current catalog. You should be aware of the current deadlines according to the [Academic Calendar](#).

Getting Help

You have a variety of methods to get help on Blackboard. Please consult the help listed in the "Blackboard Help" link for important information. **If you encounter technical difficulty in completing or submitting any online assessment, please immediately contact the designated help desk listed on the [AAP online support page](#).** Also, contact your instructor at the email address listed atop this syllabus.

Section 8

Course Topics, Activities & Schedule**Tentative Course Schedule**

Important Note: Activity and assignment details will be explained in detail within each week's corresponding learning module. If you have any questions, please contact your instructor.

The schedule is subject to change with fair notice. Any changes will be made as an announcement on the class Blackboard site with an accompanying revision of the syllabus.

Week	Dates (Month/Day)	Topics	Activities	Assessments & Due Dates
1	5/10	Introduction and Overview	Introductions Discussion	
2	5/17	Benefits and Costs in Undistorted Markets	Discussion	
3	5/24	Benefits and Costs in Distorted Markets	Discussion	
4	5/31	Estimating Costs	Discussion	Problem Set 1 Assigned
5	6/7	Employment	Discussion	
6	6/14	Benefits: Market Methods/Travel Cost	Discussion	Problem Set 1 Due
7	6/21	Benefits: Other Revealed Preference	Discussion	
8	6/28	Benefits: Stated Preference	Discussion	Problem Set 2 Assigned
9	7/5	Benefits Transfer	Discussion	
10	7/12	Discounting	Discussion	Problem Set 2 Due
11	7/19	Uncertainty, Sensitivity, Existence Value	Discussion	Problem Set 3 Assigned
12	7/26	Alternatives to Benefit-Cost Analysis	Discussion	
13	8/2	Equity and Distribution	No Discussion	Problem Set 3 Due
14	8/9	Final Exam assigned	Final	<u>Final Exam Due by 8/15</u> at end of day