

University of Florida
Cost Benefit Analysis: ECO 6936
Spring 2021

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Course Materials:

1. *Cost-Benefit Analysis: Concepts and Practice*, Fifth Edition Edition, Person/Prentice Hall, by Boardman, Anthony, David H., Greenberg, Aidan R. Vining and David L. Weimer
2. Access to a computer with e-mail, internet capability, Microsoft office (including Excel) and a printer.
3. Colored pens, pencils or markers and a straight edge for drawing accurate graphs. You might find that it is helpful to take notes on graph paper in this course. A calculator is also helpful.

Course Objectives and Learning Outcomes

This course is intended to introduce the process and typical methods in economic benefit-cost analysis (BCA). Benefit-Cost Analysis allows us to determine when project decisions should be made by including consideration of relevant economic aspects. Benefit-Cost Analysis is used to inform government and private decision-making and facilitate the more efficient allocation of scarce resources. This course introduces the basic theory and principles of benefit-cost analysis and examines applications of the methodology. Attention is given to such issues as valuing goods and services that are not normally traded in the marketplace (e.g., the value of an individual's life, value of time, etc.) and the social rate of discount. Emphasis will be on understanding "opportunity costs" of resources used for projects as opposed to "accounting costs." Applications are considered in detail. By the end of the course, students should be prepared to actively participate in planning processes for a variety of civil systems or to conduct benefit-cost analyses at either the corporate or government level.

Examples of when CBA is relevant include: 1) Environmental Laws, 2) Product Safety Laws, 3) OSHA Laws 4) Road construction 5) World cup 2022 6) Stadiums 7) Bridges – one life per million dollars spent.

Course Requirements and Expectations

1) Prerequisites: Students are expected to have completed an intermediate microeconomics course, an introductory statistics course, and a course in differential calculus. Courses in Finance and Macroeconomics would be very helpful. We make extensive use of graphs, algebra, and calculus. It is assumed that you are comfortable with these tools. Any students having difficulties with the mathematics used in this course should let me know immediately; I'll be happy to help you develop the skills you need.

We will also be using the Microsoft worksheet program Excel. It is also assumed that you have a basic knowledge of Excel.

2) Format of the course: There will be two lectures per week. I will record these lectures on zoom and post them on Tuesday and Thursday, the days the lectures are scheduled. However, you can watch them when you want. I will send you the links for these recorded lectures through Canvas email and also post the links on Canvas.

Besides uploading the zoom recordings of the lectures, I will post my PowerPoint lecture slides and other lecture material and information on Canvas prior to posting a recorded lecture. I will not be using a notepad or a white board for recorded lectures. All material for the lectures that are handwritten and not on the PowerPoint slides, such as graphs and numerical calculation, I will draw and write before I record the lecture. I will scan these handwritten graphs and notes and go over these scanned documents with a highlight pointer in the zoom recording, just as I will do with the PowerPoint slides. That is, I will not draw graphs and write notes in real time during the recording. The recorded zoom lectures will consist entirely of screen share of the PowerPoint slides and these scanned handwritten documents.

It may be a good idea for you to print a copy of the PowerPoint slides and the scanned handwritten documents so you can take notes directly on them as I discuss them during the lecture.

In lectures, I will cover new material and solve exercise problems. I will even go over some problems from each homework (see below) in lectures before the homework is due. After a homework is submitted to Canvas, in a zoom recording I will go over the answers to problems from the homework that I did not previously cover.

If you have questions about lectures or homework assignments, you can email me through my UF email listed above. Or we could set up a zoom meeting if necessary.

3) Required Technology Resources: As mentioned above, you need access to a computer with a camera and the ability to scan documents and upload them to canvas. You need a computer with a camera because the exams will be taken through Honorlock. You need to be able to scan documents in order to upload your assignment and exam answers to a Canvas dropbox that I will create for each assignment and exam.

I will post the **assignment** questions on Canvas. You can answer the **assignments** with pens and paper. You then must scan and upload the **assignment** answers to canvas.

I will post a pdf copy of each **exam** through Honorlock. You can also answer the **exam** with pens and paper. You then must scan and upload your **exam** answers to canvas.

Please do not submit cell phone photographs of your assignments' and exams' answers. Below are links to free apps that will convert photographs to pdf documents. **Please merge your pages into one document!** These programs allow you to do that. You do not have to use these particular scanning programs. You can use any scanning program you want, but you must submit only one merged pdf document.

<https://apps.apple.com/us/app/microsoft-office-lens-pdf-scan/id975925059>

<https://www.microsoft.com/en-us/p/office-lens/9wzdncrfj3t8?activetab=pivot:regionofsystemrequirementstab>

https://play.google.com/store/apps/details?id=com.microsoft.office.officelens&hl=en_US

Homework Assignments

There will be SIX homework assignments. **Students are permitted and encouraged to work on homework problems in groups of 2 students.** You can work alone if you want. Any verbatim copying on homeworks between groups will be considered cheating by all students involved. **Academic integrity is taken very seriously, any student caught cheating will be immediately referred to the Dean's office.** First offense of any cheating or plagiarism on a homework will result in reduction by one letter grade of your overall course grade. A second offense will result in failure of the course.

Your lowest homework grade will be dropped. Each homework will be worth 5% of your overall grade for a total of 25% of your overall grade. Each will consist of both mathematical exercises and essay questions. The homework questions will be provided to you a week before they are due. As mentioned above, you will submit your answers to the assignments on a canvas dropbox. Each assignment must be submitted by 11:45 am the day it is due. Due dates and times are listed below. You will receive no credit if your assignments are not turned in on time. Treat them as if they were assignments with a firm deadline at your job. The assignments are designed to help you learn the course material. These assignments will include material we have previously covered in class as well as questions that are designed to preview material we will discuss in subsequent classes.

BCA Study Critique

Each student will be required submit a critique of a particular Benefit-Cost Analysis Study. The critique will be 5 pages in length (double-spaced/typed). The BCA Study Critique will summarize the methodology and results of a BCA study, provide commentary on the strengths and weaknesses of the study, and provide recommendation and/or suggest extensions that would potentially improve the study. You should base your critique on skills you have learned in the class.

Benefit-cost and planning studies are widely available in the library on the Internet. The textbook contains an extensive bibliography of studies. Newspapers such as [The Wall Street Journal](#) and [The New York Times](#) regularly report on such studies. News journals such as [The Economist](#) or [ENR \(Engineering News Record\)](#) are also good sources to read. We will hand out and review several case studies in the course.

Procedure for Exams

There will be one midterm examinations and a final examination. The exams are open book and notes. These exams will consist of essays and exercises based on the lectures, readings from the text, other provided readings, and on homework questions. **Exams are non-cumulative.**

Exam dates will not be rescheduled. Students may be excused from exams only under very unusual circumstances and only if arrangements are made in advance.

Make-up exams will only be given for a valid written medical excuse from a doctor. Make-up exams will be more difficult and rigorous than the original exam. This is only fair since you have extra time to study for make-up exams.

Students are strictly prohibited from working together on exams. **Any collusion on in-class exams will result in failure of the course.**

Each exam will be 2 hours long starting at 11:45 am for the midterm exam and 7:30 am the final exam. I will add 30 minutes of availability for scanning and uploading the exam at the end. You must upload the exam within 150 minutes (2 ½) hours after you start the exam. Please do not answer the exam until the 145th minute and thus not give yourself enough time to scan and upload the exam. Please stop writing and begin scanning and uploading your exam two hours after you get through Honorlock and start writing the exam. You will not be able to upload your answers after 2 ½ hours. Make sure after you upload your exam you also click the submit button.

All that I require is that you upload your exam by the 150th minute. If you do not do this it creates issues.

You must access the exam through Honorlock, not through the quizzes module on canvas. If you try to access through the quizzes module, you will need an access code, which you do not have.

You need to use google chrome browser to activate Honorlock and access the exam. I will put up a practice Honorlock exam if you want to (re-) familiarize yourself with the Honorlock system. Also, if you do not already have the Honorlock extension for chrome, this practice exam will provide a link to upload the extension.

The exam will be in pdf format. Make sure you have acrobat reader.

Since the exams are open book and notes, the main reason I activate Honorlock is to make sure there is no collusion. Do not communicate with other students during the exam. Honorlock will flag any collusion as cheating. Do not use your phone or email while you are answering the exam. After you finish answering the exam, you may use your phone to scan and upload your answers. Honorlock will monitor internet usage.

You may use electronic versions of the textbook, PowerPoint slides, and any other course material during the exam.

Use separate pages for each question you answer. In other words, begin your answer to each question on the front of a new page. Write your name at the top of every page of your answer. Label all your graphs carefully.

If you have questions during the exam, do not email me through canvas. Email me through outlook.

As mentioned above, please do not submit cell phone photographs of your exam answers. Convert your exam answers into one pdf document.

A link to a video on what happens when you enter Honorlock is below:

https://urldefense.proofpoint.com/v2/url?u=https-3A_vimeo.com_397270693_74c6ac149c&d=DwIF-g&c=sJ6xIWYx-zLMB3EPkvcnVg&r=7q-e4jMGkGjPWuos3ikDRA8kOcR3vgZJ1CJOZL9iGgU&m=EuJ5Fb8lgOLYVOJgOAbiciWq6c5G6u3Eui-_19BCMYU&s=fX3UkG0OWqIRKhnIb4ZvaV96NGKaKvR4qWzKFbGkLbI&e=

Evaluation Criteria

Five Homework Assignments: combined total,	25% of grade
First Exam	25%
Final Exam	25%
<u>BCA Study Critique and Presentation</u>	<u>25%</u>
Total	100%

Dates of Assignments and Exams (Thursday, March 4 – Recharge day)

<u>Assignment/Exam</u>	<u>Due</u>
Assignment #1	Jan 26 (Tues.) 11:45 am
Assignment #2	Feb. 9 (Tues.) 11:45 am
Assignment #3	Feb. 23 (Tues.) 11:45 am
Midterm	Feb. 25 (Thurs.) 11:45 am-2:15 pm
Assignment #4	March 18 (Thurs.) 11:45 am
Assignment #5	April 1 (Thurs.) 11:45 am
BCA Study Critique	April 15 (Thurs.) 11:45 am
Assignment #6	April 20 (Tues.) 11:45 am
Final Exam	April 27 at 7:30 – 10:00 am (Tuesday)

COURSE OUTLINE AND READING ASSIGNMENTS: Each topic will take 1 or 2 weeks.

- Topic 1:** Course Introduction and Planning Process and Actors
Reading: Boardman, Chapter 1
- Topic 2:** Conceptual Foundations of Cost-Benefit Analysis and Pareto Efficiency
Reading: Boardman, Chapter 2
- Topic 3:** Estimation
Reading: Mosteller Handout
- Topic 4:** Microeconomic Foundations of Cost-Benefit Analysis
Readings: Boardman, Chapter 3
- Topic 5:** Estimation of Demand Schedules
Readings: Boardman, Chapter 4
- Topic 6:** Valuing Impacts in Output Markets
Reading: Boardman, Chapter 5
- Topic 7:** Valuing Impacts in Input Markets
Reading: Boardman, Chapter 6
- Topic 8:** Valuing Impacts in Secondary Markets
Reading: Boardman, Chapter 7
- Topic 9:** Valuing Impacts from Observed Behavior: Indirect market Methods
Reading: Boardman, Chapter 15
EPA Evaluations of Seniors Handout.
Accelerate to 65 Handout
North Road Case Study (Making Sense out of Dollars- Cost Benefit Analysis)

Topic 10: Contingent Valuation: Using Surveys to Elicit Information About Costs and Benefits

Reading: Boardman, Chapter 16

Topic 11: Discounting Future Impacts and Handling Inflation

Reading: Boardman, Chapter 9