

University of Florida
Cost Benefit Analysis: ECO 6936
Spring 2020

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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 on Tuesday and Thursday. Each lecture is 95 minutes. In lectures, we will cover new material, go over case studies, and solve exercise problems. When a homework (see below) is due to be submitted, we will go over the answers to the homework in the lecture. The antepenultimate and penultimate classes will be dedicated to the students' Benefit-Cost Analysis Critique (see below) presentations.

3) Attendance Expectations: You are expected to attend all classes unless you have a family or health related emergency. It will make learning the material much easier if you regularly attend lectures. Attendance and class participation is 10% of the total grade.

Each student will be assigned a seat that he/she will sit in for every lecture. Attendance will be taken at the beginning of every class. The attendance will be taken by examining the empty seats and the seating chart. If a student is not in his/her assigned seat at the beginning of class, you will receive no credit for attendance. If a student arrives to class after attendance is taken, he/she will be marked absent and not receive credit for attendance. **If a student leaves the class at any time during the class, the student will not receive attendance credit even if he/she returns to class before the class is over, unless the student speaks to me after class and explains why he/she left class and I accept the explanation as a valid excuse for leaving the class.**

In each lecture, we will cover new material. It will be important to attend the lectures, not only for the attendance grade, but because the lectures will help you to better understand and answer the homework problems. I will even go over some of the homework problems in lecture before the homework is due.

The instructor will not repeat instructions or material covered in the lecture during office hours simply because you skipped the lecture. When you must miss a class it is your responsibility to get lecture notes and assignments from another student and make a good-faith attempt to understand the material covered. If you are unclear about the material covered, please meet with the TA or me before the next lecture.

If you miss a class, the only way you will not lose attendance credit is if you provide a valid written medical excuse from a doctor.

If you are habitually absent, you are on your own. You will have to learn the material yourself. I will not meet with you during office hours

4) Class Participation: When attending class please arrive on time, stay for the entire class, and spend the class time taking notes. I will ask you to leave if you are overly late or habitually late.

Come to class prepared. Students are expected to read the suggested section of the texts, case studies, and other readings prior to the regular class meetings. As a guideline, faculty expects that you will spend at least 2 hours preparing for class for each hour you spend in class. That means 190 minutes of preparation for a 95-minute class period. Do not get behind. You need to spend significant time on class preparation before every class rather than letting work pile up.

You are welcome and encouraged to ask questions during the class. I have a tendency to talk fast so it is fine to ask me to slow down, clarify or amplify on the material. Please direct questions and comments to me. This also helps me know when I should slow down or further elaborate on an issue. In addition, if my handwriting becomes hard to read, please let me know and I will improve it.

Talking with fellow students during class is completely unacceptable. It is extremely inconsiderate to other students, and the instructor. You will be asked to leave the class if you talk with other students.

Make sure your cell phone is turned off during class. If it rings during class, you will be asked to leave the class.

Laptops are not permitted in class. Lecture notes will be posted on canvas before class and you should download and print these notes and bring them to class. You can take notes on these slides. You will be asked to leave the class if you have a laptop.

Do not sleep in class. If you cannot stay awake, please skip the lecture. You will not get credit towards attendance if you sleep through a class.

5) Internet Resources: In order to participate fully in this class, you must have access to a computer with e-mail, internet capability and a printer.

I will post my PowerPoint lecture slides on the course Canvas. Other class material and information will also be posted on the Canvas site. Also, much of the class communication will occur on Canvas. I will post homework assignments on Canvas.

Again, please print a copy of the PowerPoint slides before class for each relevant chapter. I will be using these slides, so you can take notes directly on them as I discuss them during class.

Because of time constraints, I will not go every slide. When studying concentrate on the slides I go over in class.

6) Working in Groups: Students are permitted and encouraged to work on homework problems in groups of 2 students. You may work alone if you want. Any verbatim copying on homeworks between groups will be considered cheating by all students involved. **Academic integrity is take 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.

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

7) Office Hours: The instructor and the TA will only definitely meet with students during office hours or by appointment made through email. It is preferable and very much encouraged that students attempt to go to the instructor's or TA's office hours before scheduling an appointment by email.

If students do come to our offices during non-office hours and without an appointment, we will meet with them only if we have the time to meet with them. Do not come to our office during non-office hours to ask to make an appointment or to pick up a graded exam that you can get at lecture or during office hours.

Homework Assignments

There will be SIX homework assignments. Your lowest homework grade will be dropped. Each homework will be worth 4% of your overall grade for a total of 20% of your overall grade. Each will consist of both mathematical exercises and essay question. The homework questions will be provided to you a week before they are due.

Make a copy of all submitted assignments. Submit the original and bring the copy to class. We will go over the answers to the assignments. Keep your copies to make notes on them as we go over the answers. You may submit your homework assignments early if you cannot make the class when the assignments are due. 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 following classes

As stated above students a are permitted and encouraged to work on homework problems in groups of 2 students. Any verbatim copying on homeworks between groups will be considered cheating by all students involved. **Academic integrity is take 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.

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. Each student will also present a 5 to 7 minutes summary of his/her BCA study critique. This summary presentation should be developed using software such as PowerPoint and will be graded on “professionalism” and content.

The two required components of the project - the presentation and written critique - should be written and presented in a professional manner. The critique and any accompanying text or visuals should be clear, easy to read, and neat.

Each student’s written critique and the PowerPoint slides for his/her presentation is due Thursday, April 14.

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.

Evaluation Criteria and Dates for Assignments and Exams

There will be a midterm examination and a final examination. These exams will consist of essays and exercises based on the lectures, exercises solved in class, readings from the text, other provided readings, case studies from class, 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 excused absences. 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.

The exams are also open book and notes, however you will not be permitted to use any electronic devices of your own.

The questions, answer sheets, and answer keys to the exams will not be returned or posted on canvas. In order for a student to appeal an exam grade, a written appeal must be submitted. **Also, the exam must be written in pen.** During the class day after each exam day, I and/or the TA will go over the answers to the exam questions. You must attend this session if you want to

have the right to appeal your exam grade. Only students who stay for the whole class time when I and/or the TA go over the answers to an exam will have the right to appeal their grades. After we go over the answers to the exam, students will have the remainder of class time if they wish to write an appeal and attach it to his/her exam and submit it. The written appeal must be submitted by the end of class time.

Again, in order to appeal your exam grade, not only does your name need to be on this list, but you must submit a written appeal. Your whole exam will then be graded again.

Also, all exams must be returned to the me. You must return your exam immediately back to me after the answers to the exam are reviewed. If you plan to appeal, your appeal must be attached and returned with your exam.

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| Five Homework Assignments: combined total, | 20% of grade |
| First Exam | 25% |
| Final Exam | 25% |
| BCA Study Critique and Presentation | 20% |
| <u>Attendance/Class Participation</u> | <u>10%</u> |
| Total | 100% |

Dates of Assignments and Exams

| <u>Assignment/Exam</u> | <u>Due</u> |
|-------------------------|------------------------------------|
| Assignment #1 | Jan 21 (Tues.) |
| Assignment #2 | Feb. 4 (Tues.) |
| Assignment #3 | Feb. 18 (Tues.) |
| Midterm | Feb. 20 (Thurs.) |
| Assignment #4 | March 17 (Tues.) |
| Assignment #5 | March 31 (Tues.) |
| BCA Study Critique | April 14 (Tues.) |
| BCA Study Critique | |
| Presentations Continued | April 16 (Thurs.) |
| Assignment #6 | April 21 (Tues.) |
| Final Exam | May 1, 12:30 PM - 2:30 PM (Friday) |

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

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| 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 |