90-747: Cost-Benefit Analysis

Professor Edson Severnini
Carnegie Mellon University
Fall 2014, Heinz College
Mondays, 6-8:50pm (Section A1), HBH 1003

edsons@andrew.cmu.edu
HBH 2114B
412-268-2329
Teaching assistant: Adam Kurstin
(akurstin@andrew.cmu.edu)

Office Hours
Office hours will be held upon request right before our scheduled class. Please email me in advance of the day to schedule a time to meet (see email policy below). I will meet with at most four students per day, 15 minutes each.

Course Description
This course covers the fundamentals of cost-benefit analysis, an important element of policy analysis, and introduces cost-effectiveness analysis as a method of deciding between alternative projects/policies/courses of action. The goal is for students to be able to understand basic issues related to cost-benefit, common critiques of this approach, how benefits and costs are calculated, the appropriate use of discount rates, and common approaches to uncertainty and risk.

Prerequisites
There are three prerequisites for this course:
- 90-709: Intermediate Economic Analysis
- 90-710: Applied Economic Analysis
- 90-711: Empirical Methods for Public Policy and Management

Course Objectives
Upon successful completion of this course, you should be able to:
1. Understand the key elements of a cost-benefit analysis including computation of costs, computation of benefits, discounting, and uncertainty and risk.
2. Address the common critiques of the approach.
3. Be able to discuss the strengths and weaknesses of a specific cost-benefit analysis.

Course Web Page
I plan to post lectures and readings on Blackboard: http://www.cmu.edu/blackboard.

Text
There will be no textbook for this course. All readings will be available on Blackboard. Weekly readings will consist primarily of published cost-benefit studies, and background materials for discussion in class.
Grading Scheme
Exams: 60 percent (each exam is worth 30 percent)
Homework: 20 percent (each assignment is worth 10 percent)
Reaction papers: 10 percent (5 out of 6 RPs)
Class participation: 10 percent

Following general Heinz guidelines, final letter grades will be based on a curve. The average will be B+.

Exams
There are two non-cumulative exams. The first midterm will be held during Lecture 7 and will cover the material from lectures 1-6. The second midterm exam will be held during Lecture 13 and will cover the material from lectures 8-12.

Each exam will be a mix of short answer questions and case analysis. Two cases will be provided ahead of time, so that students will have sufficient time to analyze them. The exam will ask questions about one of the two cases. Students are welcome to work in groups on the analysis, but are required to write out their own answers on the exam. Cheating will not be tolerated, and will be punished with a grade of zero for that midterm. Other penalties may be applicable (see Cheating & Plagiarism section below).

Make-up exams will be given only for documented reasons of illness, family emergency, or participation in a university sponsored event. However, they will be harder than the scheduled exam to be fair with all other students.

Homework
The homework involves analyzing actual CBAs. Students are permitted to work on the homework in groups of up to three. Please submit just one copy of the homework per group on Blackboard, until three hours before the class it is due. Late homework will not be accepted. Also, plagiarism and/or copying of another group's homework is a university offense and will be punished with a grade of zero for that assignment.

Reaction Papers
Students are required to submit 5 short 1-2 page reaction papers on the assigned readings on Blackboard, until three hours before class. This assignment should be done individually, not in group. Late reaction papers will not be accepted.

In a reaction paper, students should answer two straightforward questions about the readings. The TA will post the questions in advance on Blackboard. Again, plagiarism and/or copying of another student's reaction paper is a university offense and will be punished with a grade of zero for that assignment.

Submission - Follow these instructions to upload your reaction papers:
• Use Microsoft Word or pdf. If in doubt, please use pdf.
• Please include your name in the document.
• Blackboard cannot accept documents with characters (underscore, #, etc) in the title.
• Please name your reaction papers with RP number, your first name, and your last name: RP1_Edson_Severnini
• Once you think you have uploaded, check to make sure it was successful. If you can’t see it, neither can we. If you can’t open it, neither can we.

Class Participation
Students are strongly encouraged to attend class and ask questions. I consider lectures and in-class discussion as an integral part of the learning experience. Because it is difficult to make an informed comment without having done the readings, students must read the material ahead of time. Also, students are required to prepare 3-minute presentations about CBA issues in the news. Each class a pair of students will be presenting. The TA will organize the schedule of presentations. Please let the TA know when you would like to present.

Students will receive one of three types of evaluations for class participation. (Attending regularly is considered to be attending at least 90 percent of classes.)

Excellent: Attends regularly and always contributes to the discussion by raising thoughtful questions, analyzing relevant issues, building on others’ ideas, synthesizing across readings and discussions, expanding the class’ perspective, and appropriately challenging assumptions and perspectives.

Good: Attends regularly and frequently contributes in the aforementioned ways.

Unacceptable: Does not attend regularly or never participates.

Regrade Policy
If you feel that a regrade request is justified, please write down the reasons on a separate page, print it and staple it to the front of your exam/assignment, and bring it to me or the TA in class. If you like to use your old exams/assignments to study for the next exam, make a copy for yourself before handing them in. Deadline for regrades is one week after the return of the exams/assignments, unless a different date is announced in class. Late requests will not be considered.

If there was an arithmetic error in adding up points on your exam/assignment, let us know right away, and we will record the correct grade. This doesn't constitute a regrade request. Just write a brief note on the cover sheet and give the exam/assignment to me or the TA.

Cheating & Plagiarism
Students are expected to honor the letter and the spirit of the Carnegie Mellon University Policy on Cheating and Plagiarism. All activities cited in that policy will be treated as cheating in this course. Students are expected to familiarize themselves with this policy. Students are also encouraged to review the Carnegie Mellon University Academic Disciplinary Actions Overview for Graduate Students, which details penalties and sanctions, as well as students’ rights. I will take a zero-tolerance policy on cheating and plagiarism and will consult with Departmental leadership on appropriate action for all instances of cheating and plagiarism. As the aforementioned policies indicate, penalties can include course failure, suspension, and dismissal from the program.

Carnegie Mellon University Policy on Cheating and Plagiarism
http://www.cmu.edu/policies/documents/Cheating.html
Carnegie Mellon University Academic Disciplinary Actions Overview for Graduate Students
http://www.cmu.edu/policies/documents/GradDisc.html

Personal Accommodations
Students with disabilities: If you wish to request an accommodation due to a documented disability, please inform me and contact Disability Resources as soon as possible. They can be reached at access@andrew.cmu.edu or (412) 268-2013.

Final Remarks
• **Email policy:** I will reply to your emails within 24 hours on weekdays, and 48 hours on weekends. However, I prefer talking to you in person during office hours. Please email me only if my answer is expected to be few words or sentences. If you do so, please put “CBA - Fall 2014” on the subject.
• **Use of electronic devices during class:** As research on learning shows, unexpected noises and movement automatically divert and capture people's attention, which means you are affecting everyone’s learning experience if your cell phone, pager, laptop, tablet, etc. makes noise or is visually distracting during class. For this reason, I ask you to **turn off** your mobile devices, and use your laptop/tablet only to take notes and/or to access assigned reading materials.
• **No food in class:** For reasons similar to the ones mentioned in the previous bullet point, please do not eat during class.
Topics and Readings (dates are tentative, see class website for current dates)
Unless otherwise stated, all readings are available on blackboard

1. Introduction and Overview (Aug 25)
   In class exercise

   Wheelan, Chapter 12, Cost-benefit Analysis
   RIA Checklist

   Sep 1: No classes – Labor Day

3. Human Health I (Sep 4) NOTICE THAT THIS IS A THURSDAY!
   Cropper et al. Mortality Risk
   Davis Health Risks
   RP #1 due

4. Human Health II (Sep 4) NOTICE THAT THIS IS A THURSDAY!
   Hubbell Implementing QALYs
   Cement Industry RIA 1-1 to 2-9, 5-1 to 5-11
   RP #2 due

5. Human Health III (Sep 8)
   Rand Workplace Safety
   Caltrans Balsi-Beams
   RP #3 due

6. Educational Benefits (Sep 8)
   Heckman et al Perry Preschool Program
   Heckman et al Mincer Equation (Sections 2 and 3)
   Homework #1 due

7. Midterm Exam #1 (Sep 15)
   The exam will be proctored by the teaching assistant.

8. Energy Benefits (Sep 15)
   Documentary: Pandora’s Promise
   Severnini TVA Nuclear Shutdown

   Sep 22: No classes – We had extra lectures on THURSDAY, Sep 4, due to my conference.

9. Ecosystem Benefits (Sep 29)
   Catawba Basin
   Kotchen Burger ANWR
   RP #4 due
10. Costs I (Sep 29)
Harrington Accuracy
Kotchen Hydropower
RP #5 due

11. Costs II (Oct 6)
Cement industry RIA 3-1 to 3-15
Greenstone, List and Syverson – Costs of Env Reg
RP #6 due

12. Discount Rates and Uncertainty (Oct 6)
Arrow et al. Declining Discount Rates
Brennan Discounting
Posner Catastrophic Risk
Homework #2 due

13. Midterm Exam #2 (Oct 13)
The exam will be proctored by the teaching assistant.