

90-747 Cost Benefit Analysis

Professor Robert P. Strauss

www.andrew.cmu.edu/user/rs9f
rpsrauss@gmail.com

This is a condensed 6-unit course that contains most of the major components of the 12-unit Public Expenditure Analysis, 90-774. CBA is designed to deal with the expenditure side of the public sector budget in a series of modules. It has been conceptualized as a blending of private finance and public expenditure principles. The former provides a systematic framework, capital budgeting, for the evaluation of private-sector projects, while the latter builds on the former, and introduces issues of externalities, and the social rate of discount. The two courses, Public Finance and Cost-Benefit Analysis, may be viewed as capstone courses for those Heinz students seeking careers in the public sector, or those parts of the private sector that routinely deal with the public sector.

The course is divided into 3 modules. In Module 1 (weeks 1 - 4), the course develops the essential techniques of private sector evaluation principles. In Module 2 (weeks 5 - 6), special problems which arise in the evaluation of public sector projects are discussed; a variety of evaluation techniques and applications especially suited to public sector projects are then examined. In Module 3 (week 7), actual cost-benefit studies in the policy areas of sports stadiums, elderly driving, and education, are examined.

Prerequisites:

The course presumes that the student has had courses in microeconomics and economic statistics, owns a calculator¹ capable of doing $x^{a/b}$ or $x^{1.361}$, and is familiar with the use of spreadsheet packages on a personal computer. Students are expected to bring their calculator to each class, and perform calculations in conjunction with class activities. Also, it is assumed that each student is interested in why and when government intervention in the market place is warranted, and conversely when the market place should be allowed to determine resource allocation.

Texts:

There is one required textbook for the course; students are expected to bring the textbook to classes that pertain to that portion of the course:

**Harry F. Campbell and Richard P C Brown (2003), *Benefit-Cost Analysis: Financial and Economic Appraisal using Spreadsheets* Paperback 1st Edition:
ISBN 9780521528986; the text is abbreviated as BCA below.**

¹

The Casio fx-300H is a nice little, affordable calculator; it lists for about \$13.00 at discount stores.

Applications of Cost-Benefit Analysis in particular areas are contained in **BCA** along with materials stored on Blackboard. In addition, it is strongly recommended that you subscribe to *The Wall Street Journal* in order to keep abreast of fiscal and financial events in the private and public sectors. Please note that *The Wall Street Journal* is available free online through the Carnegie Mellon library portal.

Pass-fail Approval:

No student who wishes to audit or take the course pass-fail will be permitted to do so unless the student agrees in writing to do **all** the work in class: all problem sets, participate in the project, take the final exam, participate fully in the group project, and of course attend the course.

Class Participation:

Class attendance is mandatory and the grading scheme could heavily penalize both failure to attend class and “disruptive” behavior. Class attendance is defined as being in class, seated, at the beginning of class, staying in class throughout the class without leaving before the end of class, and not disrupting it through side discussions or engaging in other disrespectful behavior such as texting, reading/sending email, etc. Any student determined to be “disruptive” will be asked to leave class, and if need be, the University Police will be asked to physically eject the student from class. Any act of “disruption” will lead to my placing a letter within the records maintained by the Registrar that could automatically become a permanent part of your academic record. A master weight may be applied to all points earned in the course, and could be equal to the number of days actually attended, as defined immediately above, divided by the number of class days (including guest lectures). An excused absence is one that is allowed by the instructor prior to the beginning of the class and does not figure in the numerator or denominator of the master weight.

This course is lecture-discussion and meets Monday and Wednesday and, sometimes on Friday.

Mechanism for Grading:

Students are required to hand in problem sets with only the 4 digit identification number on it, and use that 4 digit identification number on their exam booklet. If you hand in a problem set with your name on it, you will lose 20% of the points you would otherwise earn

Problem Set Topics

Problem Set 1: Discounting & Financial Statement Analysis

Problem Set 2: Decision Rules & Capital Budgeting

Problem Set 3: (Econ) Elasticity & Social Discount Rate & Surplus

The problem sets **must** be handed in paper form; they may take a significant amount of time², so plan accordingly. Problem sets are to be worked on **separately and independently** by each student. These problem sets must be word processed and explained in words, symbols, and numbers; any spreadsheet analysis must display formulas.

- 3 Problem sets: 30% (10% for each problem set)
- Midterm 25%
- Final exam: 40% (15 essay questions)
- Class participation: 5% (answers in class about session readings and material)

GPA Conversion:

Final points in the course are calculated as the sum of the weighted scores above multiplied times the master weight. The grading scale for the course is:

< 49.9%	R
50.0% - 54.9%	D
55.0% - 59.9%	D+
60.0% - 64.9%	C-
65.0% - 69.9%	C
70.0% - 74.9%	C+
75.0% - 79.9%	B-
80.0% - 84.9%	B
85.0% - 89.9%	B+
90.0% - 94.9%	A-
95.0% - 100.0%	A

Plus and minus grades are distributed within the above ranges, and ordinary numeric rounding rules are in effect.

To pass the course on a pass-fail basis requires a 70% of the above course requirements (exams, problem sets and attendance).

Blackboard Utilization:

We will utilize *Blackboard* for as many course management purposes as possible. Within Blackboard, the course syllabus (and its updates) can be found under *Syllabus*; problem sets can be found under *Problem Sets*; lecture notes, power point presentations, and overheads can be found under *Notes and Reading Materials*. Note that the last group of material is organized by *Course Session* which corresponds to the syllabus (below) as Lecture/Session.

²

Students who have not had me should understand that I am prone to *understatement*; this means the problem sets take a lot of time, and you would be well advised to plan to devote on average 15 hours to **each**.

Mini Course Session Topics

Topic
Overview of CBA
Discounting & Net Present Value
Corporate Finance & Financial Statements
Bonds & Stocks
TA Session
Accounting Decision Rules: NPV, IRR
Financial Analysis / Private Capital Budgeting
TA Session
CBA: (Econ) Primary Market
CBA: Public, Secondary Market
CBA: (Econ) Second Market
Midterm (closed book, closed notes; formulas and math tables provided)
Risk & Uncertainty/Social Discount Rate
CBA Topic: Options & Existence Value
CBA Topic: Sports & Stadium
TA Session
CBA Topic: Elderly Driving, Environment
CBA Topic: Education
TA Session
Final Review
Final Exam(closed book, closed notes; formulas and math tables provided)

BIBLIOGRAPHY

Cohn, Elchanan and Terry G. Geske (1990). **The Economics of Education, 3rd Edition.** Oxford: Pergamon Press. (chapters on Blackboard)

Noll, Roger G., and Zimbalist, Andrew (Editors) (1997). **Sports, Jobs and Taxes: The Economic Impact of Sports Teams and Stadiums.** (Washington, DC: Brookings Institution). (on Blackboard)

Williams, Constance and John D. Graham (1995). "Licensing the Elderly Driver," in **Risk Versus Risk: Tradeoffs in Protecting Health and the Environment.** (London: Cambridge University Press). (on Blackboard)