EIA provides you an opportunity to begin to apply the new knowledge and techniques of the core to real issues and decisions — the main piece of work for this course is a project on a topic of your choice, done individually or with one or two colleagues. EIA is of special interest to would-be consultants.

EIA is designed to help today's private- or public-sector manager reach "bottom-line" decision — in which all aspects of a project can be expressed in dollar terms — in an increasingly complex world in which he or she must cope with the effects of such things as

- exchange-rate movements,
- taxation, and
- environmental constraints, in addition to
- the pervasive uncertainty attached to any long-term project.

Unfortunately, even being able to cope with these complexities is not enough. Increasingly, decision makers must pay heed to non-market costs and benefits of projects, and to conflicting claims and effects which have ramifications beyond the direct environs of the project itself. Because of the interaction among the multitude of factors affecting small and large projects, it is essential for the manager to identify the important ones and to determine the degree to which they affect each other before making a clear decision. This course will also examine ways of evaluating such projects, to identify the decision criteria and other factors—whether intangible or concrete—to measure the interactions among them in a simple way, and to synthesize all information in order to achieve a simpler decision.

The course is divided into three sections:

a. cost-benefit analysis from the perspective of both private- and public-sector organizations;

b. multi-attribute decision analysis, which extends cost-benefit analysis to situations in which complex projects with uncertainty cannot be reduced to a single criterion or unit of account such as dollars; and

c. class discussion of a variety of actual projects and case-studies, in which learning takes place by a consideration of the often severe problems which confront those who evaluate projects and make decisions. Ways in which studies and decisions might have been improved upon will be a feature of these discussions.

The course will culminate with sessions in which students present and if need be defend their own draft evaluations of private- or public-sector projects or
decisions. One example of an excellent study done for the course in 1985 critically evaluates the site for the second Sydney airport (section Section 8.5 below). That and others are available for borrowing from me.

Teaching will mostly be lectures, with student presentations. There will be no final exam. Assessment will be based on a term project, on a midterm and two assignments, and on a classroom rôle-playing exercise on a topic to be announced. A Package of readings is on sale at Reception.

Outline:

Week
1. Introduction
   • Decision-maker’s objectives: efficiency v. equity.
   • Financial appraisal v. cost-benefit analysis.
2. Basics of Project Evaluation
   • Criterion: NPV (VOC, annuities), IRR, payback period, B/C ratio.
   • Inflation, taxes, discount rates.
   • Capital rationing.
3. Shadow Pricing; Effects of Price Changes & Welfare Economics
   • Producer’s and consumer’s surplus.
4. Indirect Price-Change Effects
   • Pecuniary external effects.
5. Valuing the Environment & Other Unmarketed Goods
   • Value of time saved.
   • The travel-cost method.
   • Hedonic pricing.
   • Contingent valuation.
   • Value of human life.
6. Risk-Benefit Analysis
   • Encoding uncertainty.
   • Certain equivalence.
   • The value of perfect information.
7. Multi-Attribute Decision Analysis
   • Pairwise comparisons, satisficing.
   • Lexicographic ordering.
   • Additive value models.
8. Case Studies & the Rôle-Playing Exercise
9. Student Presentations
Readings:

The recommended text is:


As well, the following books may be found useful:


Additional readings will be found below. Recommended readings are marked with an asterisk (*); alternatives are marked with a dagger (‡); the others are included for your interest.

1. Introduction

*Campbell & Brown*: Chapter 1: Benefit-cost analysis: introduction and overview.

*Economist*, The MBA cost-benefit analysis, 1 April 1995 (Package, 2).

*Economist*, Private profit, public service, 9 Dec 1995 (Package, 3)

*Economist*, A modest undertaking, 4 March, 2004 (Package, 1)

http://www.copenhagenconsensus.com/

‡Dept. of Finance, Chapter 1, Cost-benefit analysis as a process; Chapter 2, The conceptual basis of cost-benefit analysis.

‡Perkins, Chapter 1, An introduction to the cost benefit analysis of projects; Chapter 6, The rationale for economic cost benefit analysis.

Further reading:

Sugden & Williams: Chapter 1, The framework; Chapter 3, Costs and returns in financial appraisal; Chapter 7, The objective in cost-benefit analysis.


2. Basics of Project Evaluation

*Campbell & Brown*: Chapter 2 Investment appraisal: principles; Chapter 3 Investment appraisal: decision rules; Chapter 4 Private benefit-cost analysis:
financial analysis; Chapter 10 The social discount rate, cost of public funds, and the value of information.

*Economist*, Deep discount, 26 June 1999. (Package, 5)

‡Dept. of Finance, Chapter 4, Computing present values; Chapter 5, Setting discount rates.
‡Perkins, Chapter 2, The valuation of financial costs and benefits; Chapter 3, The cash flow in financial analysis; Chapter 4, Time preference, discounting, and the financial discount rate; Chapter 5, Discounted project assessment criteria.

**Further reading:**
Sugden & Williams: Chapter 4, The discount rate in financial appraisal, Chapter 2, Time; Chapter 15, The discount rate in cost-benefit analysis.

### 3. & 4. Shadow Pricing, and the Direct & Indirect Effects of Price Changes & Welfare Economics

*Campbell & Brown*: Chapter 5 Efficiency benefit-cost analysis; Chapter 7 Consumer and producer surplus in benefit-cost analysis.
‡Dept. of Finance, Chapter 3, Valuing costs and benefits.

**Further reading:**
Perkins, Chapter 7, Economic evaluation in a closed economy; Chapter 8, The economic evaluation of tradeables; Chapter 9, The economic valuation of foreign exchange; Chapter 10, The economic cost of primary factors — labour, land, and natural resources.
Sugden & Williams: Chapter 8, Shadow pricing; Chapters 9,10, The direct and indirect effects of price changes.

### 5. Valuing the Environment and Other Unmarketed Goods

*Campbell & Brown*: Chapter 12: Valuation of non-marketed goods.
*Sinden & Thampapillai*, Valuation without market prices. (Package, 7)
*Diamond & Hausman*, On contingent valuation measurement of nonuse values. (Package, 9)
‡Perkins, Chapter 11, Valuing externalities including environmental impacts.

**Further reading:**
6. Decision Analysis and Risk-Benefit Analysis

*Cambell & Brown*: Chapter 9 Incorporating risk in benefit-cost analysis.


Further reading:


Perkins, Chapter 15, Handling risk and uncertainty in cost benefit analysis.


7. Multi-Attribute Decision Analysis


*Perry C.* and *J. L. Dillon*, Multiple objectives and uncertainty in ex-ante project evaluation, in McMaster J. C. and G. R. Webb (eds), *Australian Project*
Further reading:
Samson D., Multiattributed Utility Functions, Chapter 5 in his Managerial Decision Analysis, Homewood: Irwin, 1988 AGSM SW215

8. Case Studies

8.1 Greenhouse
*Marks and Swan, Abatement. (Package, 22)
*Nordhaus, Greenhouse. (Package, 23)
*Economist, Reading the patterns, 1 April 1995 (Package, 24).
*Economist, Oh no, Kyoto, and Burning Bush, (Package, 25).

8.2 Drugs Policy
*Marks, R. E.: The costs of Australian drug policy. (Package, 26)

Further reading:
The Economist, A survey of drugs, July 28, 2001 (handout)
Marks, R. E.: Prohibition or regulation, Australian and New Zealand Journal of Criminology, 65–87, 1990. (Reserve)

8.3 General cost-benefit studies
*Economist, Dam good business this, chaps, 26 Aug. 1995, and Dambuilders and dambusters, 19 April 1997 (Package, 19).
*Economist, The price of imagining Arden — valuing the environment, 3 Dec 1994 (Package, 20)
*Pearce D., A case study: the Gordon-below-Franklin dam. (Package, 21)
‡Dept. of Finance, The new international gateway at Townsville, and the Gordon-below-Franklin hydro proposal, pp. 75–81.

Further reading:
Ernst & Young, Bed Tax: Economic Impact Study, Sydney, 1997. AGSM 336.207/4
Allen Consulting, The Economic Impact of Melbourne City Link, Melbourne, 1996.
AGSM Workin Papers (Serials).

8.4 Case studies in decision analysis and risk

  (Package, 13)
*Daily Telegraph, We have to put a price on life. (Package, 14)
*Economist, Apocalypse maybe, 30 March 1996 (Package, 15).

Further reading:
Keeney R.L.: Chapters 11,12,13
Howard R. A. *et al.*, The decision to seed hurricanes, in Kaufman & Thomas: Chapter 15.

8.5 The Second Sydney Airport/The Third Runway
Taylor, David, Why Sydney Airport needs its third runway now, *Australian Director*, Feb/March 1989. (Reserve)

8.6 Alternative transport modes: road versus buses.
Pearce & Nash: Chapter 11, The social appraisal of transport projects.
(Package, 29)
8.7 The Games of the XXVII Olympiad

Plus additional items.
Performance Audit Report, Sydney Showgrounds, Moore Park: Lease to Fox Studios
Australia Audit Office of NSW, AGSM 333.3375/1
(Package, 30)
Assessment

There will be no final exam. Instead there will be:

- two assignments (each 5%);
- an exam (30%) in Week 6, on Tuesday, May 25, in class;
- a rôle-playing exercise (5%); and
- a term project (55%).

The rôle-playing exercise, on a topic to be announced, will be performed and marked in designated groups; each group will assess the performance of all other groups, which will provide the basis for students’ assessments in the exercise.

The term project should be an attempt to apply some of the theory covered in the course to a particular project/decision or evaluation/decision-making procedure. If you wish, you may form teams of two (or with my permission of three) for the term project. I’d like an outline of the topic, the approach to be adopted, and the data sources (no more than two pages, please) by Friday, May 14th; the complete paper is due by 4pm on Wednesday, June 30th. (See the Notes on Writing in the Web — <http://www.agsm.edu.au/~bobm/teaching/EIA.html> — for the length.) Each student or team will give a short briefing to the class before the end of term on the contents and conclusions of the paper.

Some possible (but by no means exclusive) areas for projects are:

1. The net return to Australia of the Sydney Olympics.
2. A fast train from Sydney to Canberra and beyond.
3. The Darwin–Alice Springs railway.
4. Using the geothermal water in southern Victoria for heating, cooling, etc. www.industry.gov.au/aen
5. The Pharmaceutical Benefits Scheme of subsidised prescriptions.
6. The “Iron Mississippi” railway from Melbourne to Darwin.
7. The second Sydney airport — where?
8. Burying (“undergrounding”) phone, cable-TV, and electricity lines. (See www.ipart.nsw.gov.au)
9. Privatising the AGSM.
10. Using the Internet and its multi-media possibilities to deliver the AGSM’s MBA, EMBA, etc.
11. Faster access to Sydney’s northern beaches.
12. The Melbourne Grand Prix.
15. Extending daylight-saving time (“summertime”).
16. Large-scale water desalination projects.
17. The Third Runway at Mascot (Sydney) Airport
18. The North Queensland Spaceport
19. Sydney's Inner West Redevelopment Project
20. The Sydney Water Board’s treatment projects
21. Turning the rivers inland.
22. The domestic fibre-optic network
23. The Eastern Creek raceway fiasco
24. The Sydney–Melbourne “Tilt” Train
25. The Fast Freight Train/National Rail Freight System
26. The Bass Strait Electricity Link/National Electricity Grid
27. Private power stations (building or selling).
28. A proposal to make the wearing of seat belts/cycle helmet voluntary.
29. Examination of the risk/benefits of (hypothetical?) proposals for improving road safety, or air safety, or the safety of new drugs.
30. Examination of “lumpy” business projects, which might be large in relation to the company, to the local area, or to both. (Evaluation of such projects may benefit from some of the techniques presented.)
32. Analysis of the revealed implicit risk tolerance of the Australian public
33. Examination of a (hypothetical) policy to require adventures (mountaineers, wilderness venturers, sea-faring wind-surfers, white-water canoeists, etc.) to take insurance out against necessity for government search-and-rescue teams to save them.
34. Use of CBA techniques to aid an actual decision, and an evaluation of the procedure. (From your previous work experience, perhaps.)
35. The similarities and differences between public- and private-sector project evaluation.
36. The risks and returns from increasing the allowable blood alcohol content from 0.05% to 0.08%.
37. The Rasmussen report on nuclear safety, risks, and uncertainty.
38. Bond University, or other private universities.
39. The development at Darling Harbour.
40. Sydney freeways.
41. Standardisation of the Melbourne–Adelaide railway.
42. Education vouchers.
43. Privatisation of QANTAS, of the NSW Electricity System.
44. An assessment of the social costs of the AIDS epidemic.
45. The large bank you are working for is considering financing a consortium to undertake some large-scale project which might be the second-stage of the North West Shelf natural-gas development, tourist development, a large new shopping mall, hyper-market or whatever. Use your imagination or your contacts to choose and evaluate the viability of such a project. Evaluate the project from both a “financial” and an “economic” viewpoint and contrast the differences.
46. Approach a company with which either you or Faculty have contacts that is undertaking a new project. Provide an independent evaluation of the project.
but drawing on information provided by the company where appropriate.

47. The Sydney Harbour Bridge Tollroad.
48. AGSM's Australian Open Learning Program.
49. The government’s proposed reforms to Medicare.
50. Performance evaluation of public enterprises.
51. Some aspect of the micro-economic reform program.
52. Some aspect of environmental policy or the greenhouse effect.
53. Private toll roads or electronic road pricing.
54. Or anything else you may think of — which may be in your home country, not here.

I have some papers from previous years. Please see me to borrow them, and to discuss perhaps using them to write a new analysis of your own.

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<tr>
<th>Author</th>
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<tr>
<td>Abbott</td>
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