

Public Investment Theory
Envr 785/Plan 785
TA: Jane Zhao (janezhao@unc.edu)
Office hours: xxxx

Whittington; Spring 2015
TTh 9:30-10:45 am, McGG 2303
Office hours by appointment

Comment [DW1]: Jane – please insert

SYLLABUS

COURSE OBJECTIVES:

There are two main objectives of this course. The first is to teach students how to conduct three types of analyses: (1) a financial appraisal, (2) a social cost-benefit analysis, and (3) a multi-criteria project appraisal. Students will learn the strengths and weaknesses of these three approaches, and their underlying assumptions. In the process students will develop an in-depth understanding of four dimensions of project/policy analyses: criteria for evaluation, alternatives (interventions), groups of affected parties, and the time profile of project/policy consequences.

The second objective is to put students in the role of a consumer of policy analyses, especially cost-benefit analyses, and for them to think carefully about how they would like others to assemble evidence for a planning or policy choice (e.g., an infrastructure investment). Students will consider the type of analyses and displays of information that they would want if they were a decision maker (manager). Students will learn how to assess the quality of financial, cost-benefit, and multi-criteria analyses prepared by others.

ASSIGNMENTS

There are four required written assignments. Typically assignments will be discussed during class on the dates they are due, so late assignments cannot be accepted. The assignments are due on the following dates:

- Assignment No. 1 – Tuesday, Jan. 27
- Assignment No. 2 – Thursday, March 5
- Assignment No. 3 – Thursday, April 2
- Assignment No. 4 – Thursday, April 23

In addition there are group exercises and two class debates.

Note: Assignment No. 4 is a group assignment. Assignment Nos. 1-3 are individual assignments.

Note regarding Assignment No. 4 – Literature Review

I want students in the course to learn to conduct a systematic literature review and explore in depth the literature on a cost-benefit topic in which they are especially interested. A good

literature review should critically appraise what is already known about a subject and identify gaps in knowledge (what is not yet known) from existing studies. Systematic literature reviews structure the search process and data extraction from existing studies systematically and transparently with explicit and reproducible methods.

Kristen Downs, a PhD student in the Department of Environmental Sciences and Engineering (ENVR), and Ryan Cronk (ENVR PhD student) will present a session on how to conduct a systematic literature review on Thursday, January 29.

Students will work in pairs on this assignment because it is important to have a way to control for individual biases in the assessment of a specific literature. You are encouraged to discuss different possible topics for your literature review with other students in class and find a “partner” with similar interests to you. If you are unable to find a suitable partner, you can do your literature review by yourself. However, I prefer that students work in pairs.

Review Topics

Students (in pairs) will select one of the following as the focus of their literature review:

- 1) a theoretical issue about cost-benefit analysis;
- 2) a methodological issue about cost-benefit analysis; or
- 3) cost-benefit analyses about a specific project or policy.

Students should submit the topic of their literature review on Thursday, Feb. 5. It is recommended that students do some preliminary searching of the existing literature and any prior literature reviews to ensure that there are sufficient primary studies on the topic, it is narrow enough, and there have not been recent systematic reviews on the same topic.

Assignment No. 4 – Important Dates

<i>Jan. 29</i>	Lecture on conducting a systematic literature review
<i>Feb. 5</i>	Students should submit the topic of their literature review,
<i>April (TBD)</i>	Group presentations on the results of the literature review are scheduled for April.
<i>April 23</i>	The written assignment is due the last day of class on Thursday, April 23.

More details about Assignment No. 4 will be provided on Thursday, January 29.

GRADING POLICY:

Grades for the course will be based on the following weights:

Assignments:

No. 1 – 10% - Decision Matrices – Dams & Environment

No. 2 - 20% - Fisheries Project Evaluation
No. 3 - 10% - Kolkata WTP for Vaccines
No. 4 - 25% - Literature Review

Subtotal for assignments - 65%

Participation in Class Debates and Class Discussion - 10%.

There are 2 debates, so everyone will participate in one or the other, on either the pro or con side. I encourage you to ask questions in class and to submit questions to me by email after a lecture. I expect questions about the readings; if a student has no questions, I interpret this to mean that it is likely that s/he has not done the readings.

Final Exam - 25%

TOTAL = 100%

A Grade of H indicates superior performance, over and above the mastery of basic concepts. A Grade of P indicates satisfactory performance. A grade of L indicates a low pass and that the student has a poor understanding of numerous concepts covered in the course. A grade of F indicates a failure to understand the basic concepts covered in the course.

All students are bound by the UNC honor code: "It shall be the responsibility of every student at the University of North Carolina at Chapel Hill to obey and to support the enforcement of the honor code, which prohibits lying, cheating, or stealing when these actions involve academic processes or University, student or academic personnel acting in an official capacity." Please do not look at past years' assignments or exams.

REQUIRED TEXTS:

Boardman, Greenberg, Vining, & Weimer. *Cost-Benefit Analysis: Concepts and Practice*. Fourth Edition. Prentice Hall, 2011.

Layard and Glaister, *Cost-Benefit Analysis* (2nd ed., 1994). ["L-G"]

FINAL EXAM – Friday, May 1, 8:00-11:00 AM

[Note: Students must arrange their schedule to ensure that they are in Chapel Hill to take the final exam on the regularly scheduled exam date and time.]

Part I - Introduction - Decision Matrices and Types of Policy Problems (Lecture 1-2)

MacRae, Duncan Jr. and Dale Whittington. "Comparing and Combining Dimensions of Decision Matrices," Ch. 8 in *Expert Advice for Policy Choice: Analysis and Discourse*. Georgetown University Press, 1997. pp. 297-319.

Background Reading

Blackmore, Don, and Dale Whittington. *Opportunities for Cooperative Water Resources Development on the Eastern Nile: Risks and Rewards*. Final Report of the Scoping Study Team to the Eastern Nile Council of Ministers. 2009. 85 pages. Washington D.C.: World Bank.

Part II - Criteria for Project Evaluation & Introduction to Cost-Benefit Analysis (Lectures 3-6)

A. Selecting Criteria

MacRae, Duncan Jr. and Dale Whittington. "Selecting Criteria," Ch. 2 in *Expert Advice for Policy Choice: Analysis and Discourse*. Georgetown University Press, 1997.

B. The Concept of Economic Value

Knetsch, Jack L, Yohanes E Riyanto, and Jichuan Zong. 2012. "Gain and Loss Domains and the Choice of Welfare Measure of Positive and Negative Changes." *Journal of Benefit-Cost Analysis* 3 (4): 1-18. doi:10.1515/2152-2812.1084.

C. Cost-Benefit Analysis – An example

L-G, Introduction, pp. 1-24

D. Ethical issues and debates regarding the use of cost-benefit

BGVM, Ch. 1-3.

Background Readings:

Sen, Amartya K., "Rational Fools: A Critique of the Behavioral Foundations of Economic Theory," *Philosophy and Public Affairs*, 6 (Summer 1977): 317-344.

MacRae, Duncan (Jr.), and Dale Whittington, "Assessing Preferences in Cost-Benefit Analysis: Reflections on Rural Water Supply Evaluation in Haiti," *Journal of Policy Analysis and Management*, 9 #4 (Summer 1986):665-682.

Whittington, Dale, and Duncan MacRae, "The Issue of Standing in Cost-Benefit Analysis," *Journal of Policy Analysis and Management*, 5 #4 (Summer 1986): 1-18.

Bromley, Daniel W., "The Ideology of Efficiency: Searching for a Theory of Policy Analysis," *Journal of Environmental Economics and Management*, (1990): 86-107.

Krutilla, Kerry, and Alexander Alexeev. 2012. "The Normative Implications of Political Decision-Making for Benefit-Cost Analysis." *Journal of Benefit-Cost Analysis* 3 (2): 1-34. doi:10.1515/2152-2812.1112.

Weimer, David L, and Aidan R Vining. 2010. "An Assessment of Important Issues Concerning the Application of Benefit-Cost Analysis to Social Policy." *Journal of Benefit-Cost Analysis* 1 (1): 1-38. doi:10.4337/9781782549062.00007.

E. Teaching case: Tahiti Electrification

Levy, Robert I. "Sociocultural factors in the reception and impact of solar energy systems in isolated Tuamotuan communities."

Lecture 7: Conducting a Systematic Literature Review (Kristen Downs – Thursday, Jan. 29, 2015)

Readings

Greenhalgh, Trisha. How to Read a Paper: Papers That Summarise Other Papers (Systematic Reviews and Meta-Analyses). *BMJ: British Medical Journal*, 315 (7109), 672-675.

Moher D, Liberati A, Tetzlaff J, Altman DG, and the PRISMA Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *Ann Intern Med*. 2009;151:264-269. doi:10.7326/0003-4819-151-4-200908180-00135. Available at: <http://annals.org/article.aspx?articleid=744664>

The PRISMA Checklist and Flow Diagram. PRISMA Statement website: <http://www.prisma-statement.org>

Examples of Literature Reviews

Lewis JJ, Pattanayak SK. 2012. Who Adopts Improved Fuels and Cookstoves? A Systematic Review. *Environ Health Perspect* 120:637-645; <http://dx.doi.org/10.1289/ehp.1104194>

Andrew Creese, Katherine Floyd, Anita Alban, Lorna Guinness, Cost-effectiveness of HIV/AIDS interventions in Africa: a systematic review of the evidence, *The Lancet*, Volume 359, Issue 9318, 11 May 2002, Pages 1635-1642, ISSN 0140-6736, [http://dx.doi.org/10.1016/S0140-6736\(02\)08595-1](http://dx.doi.org/10.1016/S0140-6736(02)08595-1).

Nauges, C. and D. Whittington. "Estimation of Water Demand in Developing Countries: An Overview." *The World Bank Research Observer*. November 11, 2009. pp. 1-32.

Whittington, D. and S. Pagiola. "Using Contingent Valuation in the Design of Payments for Environmental Services Mechanisms: A Review and Assessment." *The World Bank Research Observer*. July 4, 2012.

Part III - Using a Financial Criterion – Introduction to Financial Appraisal (Lectures 8-10)

- A. Introduction to concepts of financial analysis; discounting and treatment of inflation; Depreciation, Annual Costs, Discounted Cash Flow Analysis

Kokoski, Mary. 2010. "Getting Real: Price Deflation of Nominal Values." *Journal of Benefit-Cost Analysis* 1 (1): 1–9. doi:10.2202/2152-2812.1032.

- B. Investment Decision Rules

Mishan, E.J. Chapters 29-34, pp. 203-236, in *Cost-benefit Analysis*, George Allen & Unwin. 1984.

- C. Capital Budgeting

Sugden, Robert, and Alan Williams. "Input Constraints," Ch. 6 in *The Principles of Practical Cost-benefit Analysis*. Oxford University Press, 1978. pp. 74-86.

Part IV – Project Appraisal and Shadow Pricing (Lectures 11-19)

- A. Valuing Benefits and Costs in Primary Markets

BGVM, Ch. 4.

Welfare Effects of Nonprice Allocation Schemes

Background Readings:

L-G: Ch. 1 (Drèze and Stern)

L-G: Ch. 2 (Sen)

- B. Valuing Benefits and Costs in Secondary Markets

BGVM, Ch. 5.

- C. The social rate of discount

BGVW, Ch. 10.

Newell, Richard G., and William A. Pizer. "Discounting the distant future: how much do uncertain rates increase valuations?" *Journal of Environmental Economics and Management*. Vol. 46, 2003. pp. 52-71.

Background Reading

Dasgupta, Partha. "Commentary: The Stern Review's Economics of Climate Change." National Institute Economic Review. No. 199, January 2007.

Heal, Geoffrey. Climate Change Economics: A Meta-Review and Some Suggestions. November 2007. Manuscript.

Poulos, Christine, and Dale Whittington. "Individuals' Rates of Time Preference in Developing Countries: Results of a Multi-country Study." *Environmental Science and Technology*. April 15, 2000. 43:8 1445-1455.
[pubs.acs.org/isubscribe/journals/esthag/34/i08/pdf/es990730a.pdf]

Burgess, David F, and Richard O Zerbe. 2011. "Calculating the Social Opportunity Cost Discount Rate." *Journal of Benefit-Cost Analysis* 2 (3): 1-8. doi:10.2202/2152-2812.1106.

Jamison, Julian, and Dean T Jamison. 2011. "Characterizing the Amount and Speed of Discounting Procedures." *Journal of Benefit-Cost Analysis* 2 (2): 1-53.

Moore, M., Boardman, A., Vining, A. 2013. More appropriate discounting: The rate of social time preference and the value of the social discount rate. " *Journal of Benefit-Cost Analysis* 4 (1): 1-16.

Szekeres, Szabolcs. 2011. "Comment on Burgess and Zerbe's "Appropriate Discounting for Benefit-Cost Analysis." *Journal of Benefit-Cost Analysis* 2 (2): 1-9. doi:10.2202/2152-2812.1093.

Zerbe, Richard O, and David F Burgess. 2011. "Appropriate Discounting for Benefit-Cost Analysis." *Journal of Benefit-Cost Analysis* 2 (2): 1-18. doi:10.4337/9781782549062.00013.

Zerbe, Richard O, and David F Burgess. 2013. "The Most Appropriate Discount Rate." *Journal of Benefit-Cost Analysis* 4 (3): 391-400. doi:10.1515/jbca-2013-0016.

F. The shadow value of investment

L-G: Introduction, pp. 25-44
L-G: Ch. 3 (Stiglitz)

Moore, Mark A, Anthony E Boardman, and Aidan R Vining. 2013. "The Choice of the Social Discount Rate and the Opportunity Cost of Public Funds." *Journal of Benefit-Cost Analysis* 4 (3): 401-409. doi:10.1515/jbca-2013-0023.

G. Shadow pricing labor, employment, time savings

BGVW, Ch. 16
BGVW, Ch. 17

L-G: Ch.7

Dasgupta, Partha, Amartya Sen, and Stephen Marglin. Chapters 8 (pp. 85-98) and Chapter 15 (pp. 201-212), in *Guidelines for Project Evaluation*. United Nations, 1972.

Farrow, Scott, and Robert H Haveman. 2011. "Labor Expenditures and Benefit-Cost Accounting in Times of Unemployment." *Journal of Benefit-Cost Analysis* 2 (2): 1-7. doi:10.2202/2152-2812.1081.

Whittington, Dale, Xinming Mu, and Robert Roche. "Calculating the Value of Time Spent Collecting Water: Some Estimates for Ukunda, Kenya." *World Development* 18 #2 (1990).

H. Valuing risks to life

BGVW, Ch. 16

L-G: Ch. 8 (Rosen) and Ch. 9 (Jones-Lee)

Background readings:

Viscusi, Kip. "The Value of Risks to Life and Health." *Journal of Economic Literature* 31 (Dec. 1993): 1912-1946.

Cropper, Maureen L., Sema K. Aydede, and Paul Portney. "Preferences for Life Saving Programs: How the Public Values Time and Age." *Journal of Risk and Uncertainty*. Vol. 8, 1994. pp. 243-265.

Thaler, Richard, and William Gould, "Public Policy toward Life Saving: Should Consumer Preferences Rule?" *Journal of Policy Analysis and Management* 1 #2 (Winter 1982): 223-242.

Dana, David A. 2010. "Valuing Foreign Lives and Settlements." *Journal of Benefit-Cost Analysis* 1 (1): 1-24. doi:10.2202/2152-2812.1003.

Hammit, James K, and Lisa A Robinson. 2011. "The Income Elasticity of the Value Per Statistical Life: Transferring Estimates Between High and Low Income Populations." *Journal of Benefit-Cost Analysis* 2 (1): 1-27. doi:10.2202/2152-2812.1009.

Kochi, Ikuho, and Laura O Taylor. 2011. "Risk Heterogeneity and the Value of Reducing Fatal Risks: Further Market-Based Evidence." *Journal of Benefit-Cost Analysis* 2 (3): 1-26. doi:10.2202/2152-2812.1079.

Robinson, Lisa A, and James K Hammit. 2013. "Skills of the Trade: Valuing Health Risk Reductions in Benefit-Cost Analysis." *Journal of Benefit-Cost Analysis* 4 (1): 107-130. doi:10.1515/jbca-2012-0006.

Rohlf, Chris. 2012. "The Economic Cost of Conscriptio and an Upper Bound on the Value of a Statistical Life: Hedonic Estimates From Two Margins of

Response to the Vietnam Draft." *Journal of Benefit-Cost Analysis* 3 (3): 1–35. doi:10.1515/2152-2812.1107.

Scotton, Carol R. 2013. "New Risk Rates, Inter-Industry Differentials and the Magnitude of VSL Estimates." *Journal of Benefit-Cost Analysis* 4 (1): 39–80. doi:10.1515/jbca-2012-0015.

Sunstein, Cass R. 2013. "The Value of a Statistical Life: Some Clarifications and Puzzles." *Journal of Benefit-Cost Analysis* 4 (2): 237–261. doi:10.1515/jbca-2013-0019.

I. Integrating concerns about poverty & income distribution; equity weights

BGVW, Ch. 19

L-G: Ch. 5 (Layard and Walters)

Background Reading:

Loomis, John B. 2011. "Incorporating Distributional Issues Into Benefit Cost Analysis: Why, How, and Two Empirical Examples Using Non-Market Valuation." *Journal of Benefit-Cost Analysis* 2 (1): 1–22. doi:10.2202/2152-2812.1044.

J. Discussion of Hirschman's *Development Projects Observed*

Hirschman, A. 2002. *Development Projects Observed*. 2nd Edition. Brookings Institution Press.

K. Dealing with risk and uncertainty in project appraisal

BGVM, Ch. 7-8.

L-G: Ch. 4.

Background Readings:

Kahneman, Daniel and Tversky, Amos. "Prospect Theory: An Analysis of Decisions Under Risk." *Econometrica*. May, 1979, 49(2), pp. 263-91.

Tversky, A. and D. Kahneman. "The Framing of Decisions and the Psychology of Choice," *Science* 211 (30 Jan. 1981): 453-458.

Hansen, Jason, and Jonathan Lipow. 2013. "Accounting for Systematic Risk in Benefit-Cost Analysis: a Practical Approach." *Journal of Benefit-Cost Analysis* 4 (3): 361-373. doi:10.1515/jbca-2013-0008.

Hallegatte, S. Shah, A., Lempert, R. Brown, C., and S. Gill. 2012. Investment decision making under deep uncertainty: Application to climate change. World Bank Policy Research Working Paper 6193. (<http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-6193>)

Part V - Nonmarket Valuation Techniques (Lectures 20-26)

A. Introduction

Hanemann, W. Michael. "Preface: Notes on the History of Environmental Valuation in the USA." *Pricing the Environment: The European Experience*, edited by Stale Navrud, Oxford: Oxford University Press, 1992.

Adamowicz, Wiktor. "What's it worth? An examination of historical trends and future directions in environmental valuation." *The Australian Journal of Agricultural and Resource Economics*. 48, 3, 2004. pp. 419-443.

B. Stated Preference Methods: Contingent Valuation Method, Choice Experiments

BGVW, Ch. 15.

Smith, V. Kerry. "Fifty Years of Contingent Valuation." Chapter 2 in *Handbook on Contingent Valuation*. Edited by Anna Alberini and James R. Kahn. Edward Elgar, 2006. pp. 7-65.

Hanemann, W. Michael. "Valuing the Environment Through Contingent Valuation." *Journal of Economic Perspectives*, Vol. 8, No. 4 (Fall, 1994), pp. 19-43.

Background readings

Portney, Paul R. "The Contingent Valuation Debate: Why Economists Should Care." *Journal of Economic Perspectives*. Vol. 8, No. 4, Fall, 1994. pp. 3-17.

Carson, Richard T., Nicolas E. Flores, and Norman F. Meade. "Contingent Valuation: Controversies and Evidence." *Environmental and Resource Economics*. Vol. 19, pp. 173-210, 2001.

Harrison, Glenn. "Experimental Evidence on Alternative Environmental Valuation Methods." *Environmental and Resource Economics*. 34: 125-162.

Kahneman, Daniel and Jack Knetsch, "Valuing Public Goods: The Purchase of Moral Satisfaction." *Journal of Environmental Economics and Management* 22.1992: 57-70.

Whittington, Dale. "What Have We Learned from Twenty Years of Stated Preference Studies in Less Developed Countries?" *Annual Review of Resource Economics*. Vol. 2, 2010. pp. 209-236.

C. Class Debate on the Use of Existence Values in Cost-Benefit Analysis

BGVM, Ch. 9.

Krutilla, John. "Conservation Reconsidered." *American Economic Review*. Vol. 57, Issue 4, Sept. 1967. Pp. 777-786.

Rosenthal, Donald H. and Robert Nelson. "Why Existence Value Should Not be Used in Cost-Benefit Analysis." *Journal of Policy Analysis and Management* 11 # 1(1992): 116-122.

Kopp, Raymond. "Why Existence Value Should be Used in Cost-Benefit Analysis." *Journal of Policy Analysis and Management* 11 #1:123-130.

D. Hedonic Property Value Models

BGVW, Ch. 14.

Smith, V. Kerry, and Ju-Chin Huang. "Can Markets Value Air Quality? A Meta-Analysis of Hedonic Property Value Models." *Journal of Political Economy*. Vol. 103, No. 1, Feb. 1995. Pp. 209-227.

Background Reading

Palmquist, Raymond B. and V. Kerry Smith. "The Use of Hedonic Property Value Techniques for Policy and Litigation." *International Yearbook of Environmental and Resource Economics*, Volume VI. August 10, 2001.

E. The Travel Cost Method

BGVW, Ch. 14.

Choe, KyeongAe, Dale Whittington, and Donald Lauria. "The Economic Benefits of Surface Water Quality Improvements in Developing Countries: A Case Study of Davao, Philippines." *Land Economics*. Vol. 72, No. 4. November, 1996. pp. 519-537. (with KyeongAe Choe and Donald Lauria).

Jeuland, Marc, Marcelino Lucas, John Clemens, and Dale Whittington. "Estimating the private benefits of vaccination against cholera in Beira, Mozambique: A travel cost application." *Journal of Development Economics*. Vol. 91, Issue 2, March 2010. pp. 310-322.

F. Economic Benefits of Improvements in Health: The Cost-of-Illness Approach; Damage Functions

BGVW, Ch. 14.

Bahl, Rajiv, Anju Sinha, Christine Poulos, Dale Whittington, Sunil Sazawal, Ramesh Kumar, Dilip Mahalanabis, Camilo J Acosta, John Clemens, Maharaj K Bhan. "Costs-of-illness of typhoid fever in Indian urban slum community: implications for vaccination policy." *Journal of Health, Population, and Nutrition*. Vol. 22, No. 3, pp. 304-310, 2004.

G. Benefit Transfer

BGVW, Ch. 16 & 17.

Background Readings

Kaul, S., Boyle, K., Kuminoff, N., Parmeter, C., Pope, J. 2013. What can we learn from benefit transfer errors? Evidence from 20 years of research on convergent validity. *Journal of Environmental Economics and Management*: 66, 90-104.

Pattanayak, Subhrendu, V. Kerry Smith, and George Van Houtven. "Improving the Practice of Benefits Transfer: A Preference Calibration Approach," Smith, V. Kerry. "Signals or Noise: Explaining the Variation in Recreation Benefit Estimates." *American Journal of Agricultural Economics*. Vol. 72, No. 2, May 1990. pp. 419-433.

Special section of *Water Resources Research*, "Problems and Issues in the Validity of Benefit Transfer methodologies." Vol. 28, No. 3. March, 1992. (**Note:** includes Boyle 1992, Brookshire 1992, Desvousges 1992, Scott 1992, and Smith 1992 on Sakai.)

Tuan, Tran Huu and Stale Navrud. "Valuing Cultural Heritage in Developing Countries: comparing and pooling contingent valuation and choice modeling estimates." *Environmental and Resource Economics*. Vol. 38, No. 1. pp. 51-69.

Part VI – Implications of Behavioral Economics Research for Cost-Benefit Analysis (Lectures 27-28)

A. Summary of Selected Empirical Findings from the Behavioral Economics Literature

Smith, V. Kerry and Eric M. Moore. "Behavioral Economics and Benefit Cost Analysis" *Environmental and Resource Economics* 2010 46: 217-234.

Amir, On, Dan Ariely, Alan Cooke, David Dunning, Nicholas Epley, Uri Gneezy, Botond Koszegi, Donald Lichtenstein, Nina Mazar, Sendhil Mullainathan, Drazen Prelec, Eldar Shafir, Jose Silva. "Psychology, Behavioral Economics, and Public Policy" *Marketing Letters*, Vol. 16, No. 3/4, Sixth Invitational Choice Symposium (Dec., 2005), pp. 443-454.

Shogren, Jason F., Gregory M. Parkhurst, Prasenjit Banerjee. "Two Cheers and a Quail for Behavioral Environmental Economics". *Environmental and Resource Economics* 2010 46: 234-247.

Background Readings:

Kahneman, Daniel. (2011). *Thinking, Fast & Slow*. Farrar, Straus, and Giroux

Robinson, Lisa A, and James K Hammitt. 2011. "Behavioral Economics and the

Conduct of Benefit-Cost Analysis: Towards Principles and Standards." *Journal of Benefit-Cost Analysis* 2 (2):1-48 doi:10.4337/9781782549062.00016.

B. New approaches for measuring subjective well-being

Kahneman, D. "Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice." Nobel Prize lecture in Economics, Stockholm, 2002.

Ferreira, Susana, and Mirko Moro. "On the Use of Subjective Well-Being Data for Environmental Valuation." *Environmental and Resource Economics*. 2010. 46: 249-273.

Background Readings

Dolan, Paul, and Daniel Kahneman. "Interpretations of Utility and their Implications for the Valuation of Health." *The Economic Journal*, January 2008. 118, pp. 215-234.

Kahneman, Daniel, Alan B. Krueger, David Schkade, Norbert Schwarz, and Arthur Stone. "Toward National Well-Being Accounts." *American Economic Review*. AER Papers and Proceedings. May, 2004. Pp. 429-435.

C. Debate: Implications of Behavioral Economics for Cost-Benefit Analysis

Part VII – Concluding Remarks (Lecture 29)

Final Exam: Friday, May 1, 8:00-11:00 AM

Schedule Overview – Spring 2015

JANUARY	Public Investment Theory	Lecturer
Thurs, Jan. 8	Lecture 1 – Introduction – Policy Analysis Framework	Whittington
Tues, Jan. 13	Lecture 2 – Decision Matrices & Problem Types	Whittington
Thurs, January 15	Lecture 3 – The Concept of Economic Value	Whittington
Tues, January 20	Lecture 4 – CBA: Bridge Example	Whittington
Thurs, Jan. 22	Lecture 5 – Ethical Debates about the use of Cost-Benefit Analysis Discussion of Group Exercise: Bridge CBA	Whittington
Tues, Jan. 27	Lecture 6 – Teaching Case: Tahiti Electrification; Assignment No. 1 due: Decision Matrices: Dams & Environment;	Whittington
Thurs, Jan. 29	Lecture 7 – Conducting a Literature Review	Downs, Cronk
FEBRUARY		
Tues, Feb. 3	Lecture 8 – Financial Appraisal I – Basic Concepts, Dealing with Inflation	Zhao
Thurs, Feb. 5	Lecture 9 – Financial Appraisal II – Investment Decision Rules	Zhao
Tues, Feb. 10	Lecture 10 – Financial Appraisal III – Investment Decision Rules (cont.) - Estimation of Capital Costs and Capital Budgeting	Whittington
Thurs, Feb. 12	Lecture 11 – Valuing Benefits and Costs in Primary Markets (I)	Whittington
Tues, Feb. 17	Lecture 12 – Valuing Benefits and Costs in Primary Markets (II)	Whittington
Thurs, Feb. 19	Lecture 13 – Valuing Benefits and Costs in Secondary Markets	Whittington
Tues, Feb. 24	Lecture 14 – Social rate of discount	Whittington
Thurs, Feb. 26	Lecture 15 – Shadow value of investment	Whittington
MARCH		
Tues, March 3	Lecture 16 – Shadow pricing time savings, pricing labor, employment	Whittington
Thurs, March 5	Lecture 17 – Valuing Risks to Life Assignment No. 2 due: Fisheries Project Appraisal	Zhao
Tuesday, March 10	SPRING BREAK	N.A.
Thurs, March 12	SPRING BREAK	N.A.
Tues, March 17	Lecture 18 – Integrating concerns about poverty, equity, and distribution; equity weighting schemes; Discussion of Assignment No. 2	Whittington

Thurs, March 19	Lecture 19 – Dealing with risk and uncertainty in project appraisal in CBA and Financial Appraisal; Discussion of <i>Development Projects Observed</i>	Whittington
Friday, March 20	Recitation – Crystal Ball tutorial	Zhao
Tues, March 24	Lecture 20 – Nonmarket valuation – Stated Preference Techniques (I)	Whittington
Thurs, March 26	Lecture 21 – Nonmarket valuation – Stated Preference Techniques (II) Nonparametric Methods for Estimating WTP	Whittington
Tuesday, March 31	Lecture 22 - Class Debate: Existence Values in CBA: Pros and Cons	
April		
Thursday, April 2	Lecture 23 – Nonmarket valuation: RP Techniques – Hedonic Property Value Models; Assignment No. 3 due: Kolkata WTP for Vaccines	Whittington
Tuesday, April 7	Lecture 24 – Nonmarket valuation: Revealed Preference (RP) Techniques - Travel Cost Models	Whittington
Thursday, April 9	Lecture 25 – Nonmarket Valuation: RP Techniques – Cost of Illness, Damage Functions; Group 1 Presentation (15-20 minutes)	Whittington
Tuesday, April 14	Lecture 26 – Nonmarket Valuation Techniques – Benefit Transfer Group 2 Presentation (15-20 minutes)	Whittington
Thursday, April 16	Lecture 27 – Overview of Empirical Findings from Behavioral Economics; Measures of Subjective Well-being as Benefit Estimates Group 3 Presentation (15-20 minutes)	Whittington
Tuesday, April 21	Lecture 28 – Class Debate: Implications of Behavioral Economics for CBA	Whittington
Thursday, April 23	Lecture 29 – Wrapping up – Things Not to Forget Groups 4 & 5 Presentations (15-20 minutes each) Assignment No. 4 due	Whittington
May		
Friday, May 1	Final Exam 8:00 – 11:00 am	