

Course title: Techniques of environmental valuation				
Course code: MPE 175		No. of credits: 4	L-T-P: 39-17-0	Learning hours: 56
Pre-requisite course code and title (if any): None				
Department: Department of Policy Studies				
Course coordinator: Dr.Sukanya Das			Course instructor: Dr.Sukanya Das	
Contact details: sukanya.das@terisas.ac.in				
Course type: Core			Course offered in: Semester 3	
Course description: The course familiarizes the students with the methods of valuation of environmental services and their empirical application in both developed and developing countries. Participatory and case study based methods of teaching are used. Discussions are organised to highlight the inputs the environmental valuation studies provide for (a) designing environmental policy and (b) environmental accounting and measuring Green GDP.				
Course objectives The course will make the students well-equipped with the tools and techniques for valuing environment and use it for damage assessment, project evaluation and cost-benefit analysis				
Course contents				
Module	Topic	L	T	P
1	Welfare Measures and Environmental Values 1.1 Welfare Measures for Changes in Supply of Environmental Good 1.2 Environmental Values and Their Classification 1.3 Use Values, Non-use Values and Option Value	4	2	
2	General Method of Environmental Valuation 2.1 Environmental Valuation: An Interdisciplinary Method 2.2 Valuation when there is Irreversibility in the Choices of Use of Environmental Resources 2.3 Cost Benefit Analysis of Environmental Management Projects 2.4 Classification of Methods of Environmental Valuation.	4	2	
3	Revealed Preference Methods of Valuation 3.1 Household Production Function Models (a) Household health Production Function Method (b) Travel Cost Method 3.2 Hedonic Prices models (a) Hedonic Property Prices Method (b) Hedonic Wages Model	12	5	
4	Stated Preferences Methods 4.1 Contingent Valuation Methods 4.2 Choice Experiments and Environmental Valuation 4.3 Mixed Methods of Valuation	11	4	
5	Valuing Environment as Input in Production 5.1 Production Function 5.2 Cost Function 5.3 Distance Function	4	2	
6	Environmental Accounting and Measuring Green GDP 6.1 Conventional National Income Accounts and Environment 6.2 Environmental and Economic Accounting: UN methodology 6.3 Extending Input Output Tables for Accounting Environmental Externalities	4	2	
	Total	39	17	
Evaluation criteria:				
1. Assignments [after completion of module 1 and 2] : 25% Assignments can be group or individual assignment to judge the clarity of the basic concepts				
2. Class Tests and Presentations[after completion of module 3 and 4] : 25%				

Presentation will be based through a group level activity involving a case study and applying any of the particular methodology and steps to be designed for implementing it.

3. Final Major Examination[after completion of all the modules] : 50 %

Learning outcomes

The students will be able to understand the basic concepts of valuing environment and use the techniques for case-specific problems [all evaluation criteria]

Pedagogical approach

Class interaction and teaching, discussion, group assignment , case studies presentation

Materials:

Suggested readings

Books:

1. Mas-Colell, A., M.D. Whinston and J.R. Green (1995): Microeconomic Theory, Oxford University Press, Chapter
 2. *Freeman, III, A.M. (1993): The Measurement of Environmental and Resource Values: Theory and Methods, Washington D. C: Resources for the Future.
 3. *Mitchell, R. C., and R. T. Carson, (1989): "Using Surveys to Value Public Goods: The Contingent Valuation Method", Resources for the Future, Washington D.C.
 4. *Haab, Timothy C, and Kenneth E. McConnell (2002): Valuing Environmental and Natural Resources: The Econometrics of Non-Market Valuation, Edward Elgar, Cheltenham, UK. Northampton MA, USA.
 5. Champ, P.A, K.J Boyle and T.C Brown (2003): A Primer on Non-market Valuation, Dordrecht; Boston: Kluwer Academic Publishers.
 6. *Karl-Göran Mäler, Jeffrey R. Vincent (Edited) (2005): Hand Book of Environmental Economics: Valuing Environmental Changes, Volume 2, Elsevier/North-Holland, Amsterdam.
 7. Smith, V. Kerry (1997) Estimating Economic Values for Nature: Methods for Non-Market Valuation, Brookfield: Edward Elgar
 8. Johansson, Per Olov (1987) The Economics Theory and Measurement of Environmental Benefits, Cambridge: Cambridge University Press.
 9. Kopp, Raymond J. and V. Kerry Smith (1993) Valuing Natural Assets: The Economics of Natural Resource Damage Assessment, Washington, D.C.: Resources for the Future.
 10. I.J. Bateman and K.G. Willis (1999) (eds.). Valuing Environmental Preferences: theory and practice of the contingent valuation method in the US, EU, and developing countries. Oxford University Press, Oxford.
 11. John B. Braden, Charles D. Kolstad (1991) (eds.): Measuring the demand for environmental quality, edited by, Amsterdam ; New York : North-Holland
 12. Louviere, J. J., D.A. Hensher, J. D. Swait and W. Adamowicz (2000): Stated Choice Methods: Analysis and Applications. Cambridge: Cambridge University Press.
 13. Bateman, et al (2002) Economic Valuation with Stated Preference Techniques: A Manual, Edward Elgar Publishing, Cheltenham.
 14. Hensher D.A., Rose J.M. & Greene W.H. (2005) „Applied Choice Analysis: A primer“, Cambridge University Press.
 15. Bennett, J and R. Blamey (2001) The Choice Modelling Approach to Environmental Evaluation, Edward Elgar.
 16. TL Cherry, S. Kroll and J. F. Shogren Eds (2008) Environmental Economics, Experimental Methods, Routledge, UK.
 17. Ward, F.A and D.J Beal (2000), Valuing Nature with Travel Costs Models: A Manual, Edward Elgar, Cheltenham.
 18. UN (1993): "Integrated Environmental and Economic Accounting", Interim version (Sales No. E93 XVII. 12), United Nations, New York.
- (*) Compulsory Readings

Selected Papers:

1. *Daniel T. Slesnick, "Empirical Approaches to the Measurement of Welfare," Journal of Economic

Literature, December 1998, especially pp 2108-2123 , and 2125-2128.

2. Marco Becht, "The Theory and Estimation of Individual and Social Welfare Measures,"
 3. Journal of Economic Surveys, Vol 9 No. 1, 1995, pp 53-87.
 4. Hanneman, W.M. "Willingness to Pay and Willingness to Accept: How much can they
 5. differ?," American Economic Review, 81:635-47 (1991).
 6. Shogren, J.F. et al, "Resolving Differences in Willingness to Pay and Willingness to Accept," American Economic Review, 84:255-70 (1994).
 7. Kahneman, D. and Tversky, A. (1979) Prospect theory: An analysis of decisions under risk, Econometrica, 47(2): 263-291.
 8. *Hanley N, Mourato S and Wright R (2001) "Choice Modelling Approaches: A Superior
 9. Alternative for Environmental Evaluation?" Journal of Economic Surveys, 15, 3, pp 453-557.161.
 10. Hanley, Nick, Wright, Robert E and Adamowicz, Vic (1998) Using Choice Experiments
 11. to Value the Environment: Design Issues, Current Experience and Future Prospects, Environmental and Resource Economics. 11(3-4): 413-28 161.
 12. Rolfe, John & Bennett, Jeff & Louviere, Jordan, 2000. "Choice modelling and its potential application to tropical rainforest preservation," Ecological Economics, Elsevier, vol. 35(2), pages 289-302, November.
 13. *Viscusi (1993) "The Value of Risk to Life and Health", Journal of Economic Literature, vol 31.
 14. Viscusi, W. Kip and Joe Aldyn (2003) "The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World," J. Risk and Uncertainty, 77:5-76
- (*) Compulsory Readings

Case Studies:

1. Pearce David, Edited (2009): Environmental Valuation in Developed Countries: Case Studies, Edward Elgar Publishing Ltd
2. M N Murty (2009): Environment, Sustainable Development and Well-Being: Taxation, Incentives and Valuation, Oxford University Press, New Delhi, 2009.
3. M.N Murty and Surender Kumar (2003): Environmental and Economic Accounting for Industry, Oxford University Press, New Delhi, 2003
4. Markandya, A, and M.N. Murty (2000): "Cleaning Up Ganges: The Cost Benefit Analysis" Oxford University Press, New Delhi.
5. Haque, Enamuel, M N Murty and Priya Shyamsundar, Edited (2010): Environmental Valuation in South Asia, Forthcoming, Cambridge University Press, U.K.
6. Kumar, Surender and Shunsuke Managi (2009): The Economics of Sustainable Development: The Case of India, Springer Dordrecht Heidelberg London New York.

Journals: SANDEE working papers, Journal of Environmental Economics and management, Ecological Economics, etc.

Advanced Reading Material

Additional information (if any):

Student responsibilities: Attendance, feedback, discipline: as per university rules.

Course reviewers:

The course is reviewed and commented by the following experts.

Professor A.K. Enamul Haque, Professor of Economics, Department of Economics, United International University, House # 80, Road # 8/A, Satmasjid Road, Dhanmondi, Dhaka-1209, Bangladesh
Dr Sangeeta Bansal, Associate Professor, School of International Studies, Jawaharlal Nehru University, New Delhi