Resource and Environmental Economics
(כלכלת סביבה)
Course syllabus (2019/20)
20 4050 B01

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Course period: Period 3 (Mar-May 20)

Course description
The course explores the application of economic theory to environmental and natural resource management. The first part of the course addresses the theoretical foundations of the connections between the economy and the environment, the role of competitive markets, the theory of externalities in microeconomics, and the natural capital and ecosystem service framework. The role of economic valuation of environmental resources, cost-benefit analysis and cost-effectiveness analysis will be explored. The principal economic policy mechanisms for addressing environmental externalities will be presented. Finally, the course will conclude with practical examples of the application of environmental economics principles to the spatially explicit analysis and mapping of ecosystem service values.

Course requirements
Familiarity with basic economic concepts and analytical tools such as those taught in an introductory course of economics is required to fully benefit from the course.

Grading system
Class attendance 10%
Participation in exercise sessions 20%
Final exam 70%
Course material
The lectures are held in English. All lecture notes (in Hebrew and English), additional reading material will be made available on the University’s eLearning portal (Moodle) as printable pdf documents. Suggestions for key readings (not compulsory but highly recommended) and further readings are provided on a lecture-by-lecture basis. Attendance to classes and exercise sessions is mandatory.

Course Outline
The course is divided into eight lectures, which may be covered in one three-hour session or require more or less time. Each lecture will be accompanied by a discussion and exercise session. Unless otherwise indicated in class, the readings listed below are provided as recommended (not mandatory) readings.

For your convenience in following and understanding the lectures, a Glossary of key terms in environmental economics (including their translation to Hebrew) is provided on the Moodle alongside the slides of the lectures and key readings. The glossary is largely based on Mirovitskaya and Ascher (2001) Guide to sustainable development and environmental policy, Duke University Press, Durham, NC and Investopedia (https://www.investopedia.com; accessed May 2018). Additional resources for the translation of key economic terms from English to Hebrew and definitions in Hebrew are available at the Maot website (http://www.maot.co.il/lex6/glosMarkersEng/glosItems1.asp; accessed May 2018).

A breakdown of the individual parts of the course and the corresponding lecture’s objectives, key readings and recommended readings is given below.
Part 1. Theoretical foundations

Lecture 1. Understanding the connections between the economy and the environment

Objectives:

• Develop a basic understanding of the scope of environmental and ecological economics
• Learn how economic activity depends upon and affects the natural environment
• Consider the argument that the environment sets limits to economic growth and the limits of the conventional view of the economic system
• Learn about utilitarianism as the ethical basis for welfare economics
• Start to think about environmental problems in terms of utilities and welfare

Key readings:


Further readings:

Lecture 2. Markets: how they work and why they fail

Objectives:

• Understand economic efficiency and the importance of thinking on the margin
• Find out about the circumstances in which markets allocate efficiently
• Derive the conditions necessary for the realization of an efficient allocation in a partial equilibrium analysis
• Learn about market failures and the basis for government intervention to correct them
• Find out what public goods and open-access resources are in the context of environmental resources
• Learn about pollution as an external effect (or externality)

Key readings:


Further readings:

Lecture 3: The economics of biodiversity and ecosystem services

Objectives:

- Find out the categories of economic value assigned to the natural environment
- Understand the concept of Total Economic Value and the distinction between use and non-use values
- Learn about the concepts of ecosystem services and natural capital and the state-of-the-art taxonomies of ecosystem services
- Understand how biodiversity richness underpins the provision of ecosystem services and their values

Key readings:


Further readings:

Part 2: Economic tools for environmental analysis

Lecture 4: Economic valuation of ecosystem services

Objectives:

- Learn about the main approaches to ecosystem service valuation including non-market valuation methods based on revealed and stated preferences
- Find out how the Travel Cost Method uses data on actual behavior to infer use value
- Learn how the Contingent Valuation Method generates and uses data from individuals’ responses to hypothetical questions to infer (non-use) values
- Learn about the principles underlying secondary valuation techniques based on benefit transfer
- Be introduced to some of the controversies and limitations about monetary ecosystem service valuation and its uses

Key readings:


Further readings:

Lecture 5: Cost-benefit analysis and cost-effectiveness analysis

Objectives:

- Explain the conceptual basis of cost-benefit analysis and its application to the environment
- Learn about the importance of temporal aspects in cost-benefits analysis and the tyranny of discounting
- Identify and calculate discounted cash flows for various types of costs and benefits
- Learn about objections to environmental cost-benefit analysis
- Be introduced to some alternatives to cost-benefit analysis such as cost-effectiveness analysis

Key readings:


Further readings:

Part 3: Mechanisms for addressing environmental externalities

Lecture 6: Environmental policy and the role of government

Objectives:

• Consider theoretical and practical issues involved in the implementation of solutions to the problem of market failure
• Learn about the Coase theorem
• Understand the differences between market-based instruments (e.g., pollution taxes, subsidies, and marketable permits) and Command-And-Control policies
• Learn about Payment for Ecosystem Services schemes

Key readings:


Further readings:

Part 4: Applied environmental economics

Lecture 7: Geographic Information Systems (GIS) and environmental valuation

Objectives:

- Understand the spatial nature of environmental goods and services and its implications for valuation
- Learn about the role of Geographic Information Systems in environmental economics, and in ecosystem service value mapping in particular
- Be exposed to the methodological issues associated with the spatially explicit transfer of ecosystem service benefits
- Explore the role of distance decay and spatial heterogeneity in the transfer of environmental benefits

Key readings:


Further readings: