UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Resources Economics and Management

2526-1-F7603Q003-F7603Q00302

Aims

This module is part of the course Renewable and non-renewable sources and their economics, an interdisciplinary program that integrates geology and economic principles to analyse the optimal use of resources.
The module provides students with a comprehensive and contemporary analysis of the major areas of natural resource and environmental economics, balancing theory, applications, and examples to provide a rigorous grounding in the subject.

Students are invited to consult the syllabus of the entire course for details regarding learning- and skill-related objectives.

This course introduces the principles of Resource Economics with a strong emphasis on policy applications. We begin with a brief recap of fundamental economic concepts used in the course, in particular the treatment of time and dynamics and the microeconomic foundations of environmental and resource economics, exploring the complex relationship between the economy. On the macroeconomic side, we will explore the concepts of the limits of economic growth and sustainable development. We examine the strengths and limitations of markets in promoting social welfare and study how policy instruments can address market failures through microeconomic tools, within the context of natural resources. The course also covers the specific methods devised to model various types of resources, and to assess their relevance and criticalities from society's point of view. Finally, students will engage with applications and case studies on selected topics, including energy economics and geopolitics, the relevance of resources for climate change economics and policy, and the intersection of development economics with the use of resources.

At the end of the course, students will be able to:
• Demonstrate familiarity with the fundamental concepts of microeconomic theory needed to understand the functioning of the economic system, the behaviour of agents, the market mechanism, and situations where markets fail, and apply these concepts to solve microeconomic problems.
• Know basic tools for resource policy evaluation and recognize its use in academic papers.
• Identify resource-related issues in specific contexts, propose potential policy solutions, assess their effectiveness using scientific evidence, and communicate findings clearly using appropriate technical terminology

• Get a grasp of the big picture, in particular, how resources, climate economics and policies are intertwined

Contents

• Fundamental economics concepts for resource economics.
• Static models of natural resource use.
• Dynamic models of natural resource use.
• Macro aspects of resource use (sustainable development and the role or resources in climate change mitigation)

Detailed program

The module covers the following topics:
• Introduction:
o Practicalities
o Approaching resource economics
• Economic concepts for examining natural resource use and pricing;
o The importance of time
o Microeconomic foundations: markets and their failures:
o Ethics and Resource economics (with an ethics roleplay game)
• Natural resources and the economy
o Taxonomy,
o Scarcity and Sustainability;
• Water: A Confluence of Renewable and Depletable Resources
• A Locationally Fixed, Multipurpose Resource: Land
• Non-renewable resource use: the Theory of Depletion;
• A primer in Energy Economics
• The economics and regulation of the fishery
• Forest use
o Economic management of the forest
o Biodiversity and ecosystem services
• Sustainable development and resource use
• A primer in climate change economics
• *Students' essays discussions
• Serious climate change game with En-Roads

Prerequisites

Formally none, but highly recommended:
• Basic principles of Mathematics.
• Basic principles of Microeconomics.

Teaching form

6 CFUs of theoretical lessons in the classroom (48 hours):
• 16 two-hour lectures, in person, Delivered Didactics;
• 8 two-hour lectures, online, reading and discussing scientific articles, case studies, and possible integration of guest lectures by experts in the field, Mixed Didactics, Seminar.

Attendance to lectures and interactive exercises is highly recommended.

Textbook and teaching resource

• Tietenberg, T., & Lewis, L. (2023). Environmental and Natural Resource Economics (12th ed.). Routledge. https://doi.org/10.4324/9781003213734 Chapters 1, 5, 6, 11, 12, 16,17,19,20
• Perman, R. J., Ma, Y., Common, M., Maddison, D., & McGilvray, J. W. (2011). Natural resource and environmental economics. (4th ed.) Chapters 1, 2, 3, 4, 14-18
• CORE-econ “The Economy 2.0: Microeconomics”, www.core-econ.org. CORE-econ “Experiencing Economics”, www.core-econ.org. Chapters 1, 2, 3, 4, 5,7,8, 10

• Additional scientific articles provided on the e-learning platform.

Semester

II semester (March - June)

Assessment method

The final examination consists of an oral exam at the end of the course. The exam will evaluate the student’s ability to discuss various topics covered in the module, seen in the complexity of the entire course, with an emphasis on theoretical understanding, interdisciplinary connections, and critical evaluation of economics principles for the analysis and protection of the environment.

The final score will be between 18/30 and 30/30 *cum laude*, based on the overall assessment considering the following criteria:
(1) knowledge and understanding;
(2) ability to connect different concepts;
(3) autonomy of analysis and judgment;
(4) ability to correctly use scientific language.

Office hours

Always, after scheduling an appointment *via* phone or e-mail.

Sustainable Development Goals

QUALITY EDUCATION | CLEAN WATER AND SANITATION | AFFORDABLE AND CLEAN ENERGY | DECENT WORK AND ECONOMIC GROWTH | RESPONSIBLE CONSUMPTION AND PRODUCTION | LIFE BELOW WATER | LIFE ON LAND