האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Insurance and risk management in environmental economics - 71704

Last update 14-01-2025

HU Credits: *3*

Degree/Cycle: *1st degree (Bachelor)*

Responsible Department: *Environmental Economics & Management*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *Rehovot*

Course/Module Coordinator: *Muamar Haj-Yehia*

Coordinator Email: *muamar.hajyehia@mail.huji.ac.il*

Coordinator Office Hours: *16:00-17:00*

Teaching Staff:
Dr. Muamar Haj-yehia

Course/Module description:
Risk is present in all aspects of the modern economy, and managing it is crucial for decision-making. Insurance and risk management have wide-ranging applications in the environmental economy. They can be used to adapt to climate change, manage natural catastrophes, and achieve a balance between economic activity and the ecosystem.

Course/Module aims:
This course aims at giving in-depth knowledge of insurance and risk management in terms of theory and practice implementation in environmental economics.

Learning outcomes - On successful completion of this module, students should be able to:
Upon successful completion of the course, students can:
Explain the basic principles of insurance and risk management and their various applications in agriculture and the environment.
To understand the theory of insurance markets, equilibrium under competition, equilibrium under information asymmetry, insurance market failures, and the need for government intervention.
Apply various models in pricing the premium and assessing the cost of natural risks, crop insurance, and protection against catastrophic risks.

Attendance requirements(%):

Teaching arrangement and method of instruction: The class sessions will be taught face to face; homework assignments will be submitted individually.

Course/Module Content:
Introduction to insurance: principles and basic concepts in insurance and the development of insurance in the modern economy.
Utility theory and insurance: the expected utility model, classes of utility functions, optimality of stop-loss reinsurance, optimal risk sharing.
Optimal insurance design: the demand for insurance, reinsurance, underwriting cycles,

Optimal insurance with and without information problems (Moral hazard and adverse selection), insurance as a tool for natural risk management, the interaction between climate change and insurance. Models for premium pricing and risk assessment: modeling the frequency and severity of the risk, risk measurement, premium pricing principles: the individual and collective model for premium pricing.

Required Reading:

Selected chapters from handbook texts:
(Dionne 2000)
(Kass , et al. 2001)
(Gollier 2001)
(Tse 2009)
(A. Klugman, H.Panjer and E. Willmot 2008)
(W.Frees 2010)

Additional Reading Material:

Reading some Articles from classical theory for insurance and following some recent developments

Grading Scheme:

Written / Oral / Practical Exam 90 %
Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 10 %

Additional information: