UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Portfolio Theory

2122-1-F1601M051-F1601M055M

Learning area

Learning objectives

The students should learn the mathematical tools to face several optimization problems in economics and finance.

Contents

Functions of several variables; constrained and unconstrained optimization; utility theory and portfolio selection.

Detailed program

Functions of several variables: domain, level set, partial and directional derivatives, convexity. Eigenvalues and eigenvectors. Quadratic forms. Linear programming. Non linear optimization: unconstrained and constrained via equalities or inequalities. Utility theory. Portfolio selection: efficient frontier with and without a riskless asset.

Prerequisites

Foundations of differential calculus and of matrix algebra

Teaching methods

During the emergency due to Covid-19 lectures will be held in remote (registrations and videoconferences)

Assessment methods

The examination is written with exercises and theoretical questions. The oral exam is optional. During the emergency due to Covid-19 the exams will be on the Webex platform.

Textbooks and Reading Materials

Simon and Blume “Mathematics for Economists”. Slides and additional references will be available during the lectures