UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Mathematics

2122-1-F5602M001-F5602M001M

Learning objectives

The course is intended for students who wish to learn mathematical techniques suitable for economic analysis. The course aims to show students how to do and apply the mathematics they require for a successful study of economics. Economic applications and models are considered.

Contents

Mathematics for Economics

Detailed program

- Linear Algebra
    - Systems of Linear
    - Equations and Matrices
    - Determinants and the Inverse Matrix
    - Vector spaces
    - Eigenvalues and eigenvectors

o Quadratic forms

o Functions of n-Variables

- Partial differentiation
- concavity and convexity
- Optimization for Functions of n-Variables
- Free Optimization
- Constrained Optimization
- Comparative Statics
- The envelope theorem
- Concave Programming and the Kuhn-Tucker Conditions
- Difference Equations
- Linear First Oder Difference Equations
- Nonlinear First Order Difference Equations
- Systems of Difference Equations.

Prerequisites

Basic math.

Teaching methods

Lessons.
During the Covid-19 emergency, lectures will in presence.

Assessment methods

Written

During the Covid-19 emergency, exams will be oral online.

Textbooks and Reading Materials

a) Hoy M., Livernois J., McKenna C., Rees R., Stengos T. - *Mathematics for Economics* - The MIT Press - 2013

b) Salsa S., Squellati A. – *Dynamical Systems and Optimal Control* – Egea – 2007.

Semester

First Semester.

Teaching language

English.