UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Mathematics For Business & Economic Studies

2021-3-E3301M217

Learning objectives

The aim of this course is to study the fundamentals of applied mathematics in the framework of economic analysis. The course enables students to use quantitative tools in order to solve real problems in the economic context.

Contents

The course focuses on the elaboration of economic information as well as on the analysis of some mathematical tools useful to formalize decision-making and management problems.

Detailed program

Investment choices: properties and evaluation of financial projects using Internal rate of return (IRR) and Net Present Value (NPV). Sufficient conditions to find the internal rates; applications (excel). Leasing: description, leasing contract, interest rate, leases in comparison, application (excel).

Other implicit internal rates: TAN, TAEG. - Linear and Integer programming: theory and general solution methods, algorithms of solution.

- Network theory: basic definitions, properties. Trees, Minimum spanning tree. Project management.

Prerequisites

Basics of mathematics (calculus and financial mathematics).

Teaching methods

Lectures in the classroom. During the emergency period due to the Covid-19 disease, lessons will be held remotely asynchronously. Some videoconferencing lessons will be planned. All lessons will be recorded and the registration will remain available on the e-learning page during the academic year.

Assessment methods

A written exam, composed in two parts: the first part characterized by multiple-choice questions, to test students' knowledge and understanding of the main concepts of the subject and to measure students' ability in the application of such concepts to solve simple practical problems. Part of the exam consists in solving a decision problems using excel.

Textbooks and Reading Materials

S. Stefani, A. Torriero, G. Zambruno, Elementi di matematica finanziaria e cenni di programmazione lineare, Giappichelli Editore, ed. 2017

L. Bellenzier, R. Grassi, S. Stefani, A. Torriero, Metodi quantitativi per il management, Esculapio Editore, Bologna, 2012

Semester

First Term

Teaching language

Italian