UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Basic Calculus

2021-1-E1801M047

Learning objectives

The course aims at providing a set of analytical methods to deal with economic and social phenomena. Students will be provided with the bases to treat simple mathematical models in economics.

Contents

Real functions of real variables.

Detailed program

Generality about functions. Domain, image, graph. Elementary functions. Monotonicity, global maxima and minima. Inverse function. Limits and related theorems. Continuity. Weierstrass, zeroes and Darboux theorems. Discontinuity points. Differential calculus. Rolle and Lagrange and Fermat theorems. De l'Hospital rule. Taylor's formula and its applications. Convexity and concavity. Two variable functions (domain, level curves, partial derivatives, stationary points and optimization)

Prerequisites

Algebra and analytic geometry at an elementary level.

Teaching methods

During the Covid-19 emergency, lectures will be online.

Assessment methods

Written exam, consisting of practical exercises and theoretical questions.

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

Optional oral exam, possible only when the grade of the written exam is al least 18/30.

Textbooks and Reading Materials

- Guerraggio, A. , "Matematica" , Pearson 2014.

- Brega F., G. Messineo, "Esercizi di Matematica generale: Funzioni, Limiti , Continuità", Giappichelli Editore, 2013.

- Brega F., G. Messineo, "Esercizi di Matematica generale: Calcolo Differenziale in R. Studio di Funzione", Giappichelli Editore, 2013.

- Brega F., G. Messineo, "Esercizi di Matematica generale: Ottimizzazione in R^2 ", Giappichelli Editore, 2013.

Semester

First semester

Teaching language

Italian.