UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Basic Calculus - 1

2122-1-E1803M047-T1

Learning area

Learning objectives

This course aims at providing students with basic mathematics to understand economic models. In particular the course will provide mathematical tools which, starting from the analytic expression of a function, enable to draw its graph.

Contents

One variable functions and basics of two variables functions.

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. Landau's symbols. 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)

Prerequisites

Basic algebra and geometry, equations and inequalities.

Teaching methods

Lectures and tutorials. During the emergency due to Covid-19 lectures and tutorials will be partly held in remote mode.

Assessment methods

The examination is split in a written part and an oral part, both on exercises and theory. During the emergency due to Covid-19 the exams will be held on Webex.

Textbooks and Reading Materials

L.E.D. A. Guerreggio, Matematica, Pearson Prentice Hall M. G.Monti, R.Pini, Lezioni di matematica generale: funzioni reali di variabile reale