

The Hebrew University of Jerusalem

Syllabus

CALCULUS (A) - 71054

Last update 12-09-2023

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Environmental Economics & Management

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: Rehovot

Course/Module Coordinator: Yaniv Dvir

Coordinator Email: yanivdvi@gmail.com

Coordinator Office Hours: monday 11:00

Teaching Staff:

Dr. Yaniv Dvir,
Dr. Michal Shafirtidh

Course/Module description:

The aim of the course is to be able to draw an approximate graph of a given function, based on the study of many of its properties, such as increasing-decreasing The real numbers; Functions; Limits; Derivatives; continuity of a function, function investigation.

Course/Module aims:

Introduce the functions of a single variable; Define limits; Define the derivative; To know the fundamental theorems of the differential calculus; Investigate functions.

Learning outcomes - On successful completion of this module, students should be able to:

Calculate limits of single variable functions; Calculate derivatives; Investigate a function; Prove simple mathematical proofs using the fundamental theorems of the Calculus.

Attendance requirements(%):

80

Teaching arrangement and method of instruction: Lecture and exercises

Course/Module Content:

-Introduction-The real numbers :groups of numbers- Sup , Inf , Max ,Min.
The function-Domain ,Image ,One to one functions ,Bounded functions ,
Monotonic functions ,Odd and Even functions , Inverse functions ,Periodic functions,
Elementary functions.-Limits.
-Continuity-
-Derivatives :Differentiation rules ,The chain rule
Higher order derivatives. The theorems of Fermat ,
Critical points and extreme values .Convexity ,Concavity .The tangent line

Required Reading:

Lectures and exercises of the course

Additional Reading Material:

סטופ יונתן -מתמטיקה לכלכלנים א'(1988). הוצאת אקדמון , ירושלים .
אנטון הווארד חדו"א א'-האוניברסיטה הפתוחה.

Grading Scheme:

Written / Oral / Practical Exam 100 %

Additional information:

None