

The Hebrew University of Jerusalem

Syllabus

PRACTICE IN MATH I - 71006

Last update 02-09-2018

HU Credits: 1

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Environmental Economics & Management

<u>Academic year:</u> 0

<u>Semester:</u> 1st Semester

<u>Teaching Languages:</u> Hebrew

<u>Campus:</u> Rehovot

Course/Module Coordinator: Dr. Evsey Kosman

<u>Coordinator Email: kosman@post.tau.ac.il</u>

Coordinator Office Hours: by appointment

Teaching Staff:

Mr.

Course/Module description:

Real numbers. Functions. Limits. Continuity. Derivatives. The technique of differentiation. Investigation of functions. Maxima and minima.

Course/Module aims:

Exercises aimed at: 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.

<u>Attendance requirements(%):</u> 80%

Teaching arrangement and method of instruction: Exercises

Course/Module Content:

1.Introduction - The real numbers: groups of numbers, Sup, Inf, Max, Min. 2.The function - Domain, Image, One to one functions, Bounded functions, Monotonic functions, Odd and Even functions, Inverse functions, Periodic functions, Elementary functions.

3.Limits.

4.Continuity - The theorem of Cauchy. The Theorem of Weirtrass.

5.Derivatives: Differentiation rules, The tangent line, The chain rule, Derivatives of inverse functions. The theorems of Fermat, Rolle, Lagrange and L'Hospital.

Critical points and extreme values. Convexity, Concavity.

<u>Required Reading:</u> no Additional Reading Material:

<u>Course/Module evaluation:</u> End of year written/oral examination 100 % Presentation 0 % Participation in Tutorials 0 % Project work 0 % Assignments 0 % Reports 0 % Research project 0 % Quizzes 0 % Other 0 %

Additional information: