



Syllabus

BASIC CONCEPTS IN MATHEMATICS - 59826

Last update 12-09-2013

HU Credits: 2

Responsible Department: School of Public Policy & Government

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus:

Course/Module Coordinator: Biana Shteinbuch

Coordinator Email: bianas@huji.ac.il

Coordinator Office Hours: Tuesday 12:00-13:00

Teaching Staff:

Course/Module description:

Introduction to Mathematics, including reviewing the following topics: abridged

multiplication formulas, handling algebraic fractions, solving equations, solving inequalities, one-dimensional functions, functions in several variables.

Course/Module aims:

Imparting mathematical tools for graduate studies in public policy

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

Solve first and second order equations with one or two unknowns

Solve inequalities of the first and second order.

Calculate the derivative of elementary functions, derivatives of product of functions, complex functions.

Finding local and global extreme points of functions and making a full investigation of functions, including inflection points, convexity, asymptotes.

Apply this research to draw a sketch of the graph.

Solve Minimum-Maximum problems in a single variable.

Define a function in several variables. Find local and global extreme points of such functions.

Find extreme points of a function in several variables under the constraint by using direct method and by using the Lagrange multiplier method.

Apply learned material to solve the economic problems

Attendance requirements(%):

100%

Teaching arrangement and method of instruction: Lecture

Course/Module Content:

Part I - Algebra

☐ *abbreviated multiplication formulas, algebraic fractions.*

☐ *Solving equations - equations with one unknown (the first degree, quadratic equations, equations with two unknowns.*

☐ *inequalities -solution - first and second order inequalities.*

Section II - Analysis

☐ *one-dimensional function - function concept. Domain and range of the function.*

Graphs of elementary functions.

☐ *derivations - derivatives of elementary functions, applications to functions exploration and maximum and minimum problems.*

☐ *functions in several variables - a field setting, partial derivatives, extreme extreme points, points of stress under the constraints (Lagrange multipliers).*

Required Reading:

☐ *Beni Goren, Mathematics (4 and 5 points), Questionnaire E.*

☐ *Howard Anton, Calculus with Analytic Geometry, John Wiley & Sons, 5th ed 1995*

Additional Reading Material:

No additional material

Course/Module evaluation:

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:

None