Mathematics II

Course Outline
Academic Semester: 2025/26

1. General

School	**School of Finance and Statistics**		
Academic Unit	**Department of Banking and Financial Management**		
Level of Studies	**Undergraduate**		
Course Code	**ΧΡΜΑΘ07**		
Semester	**2nd**		
Course Title	**Mathematics II**		
Idependent Teaching Activities		Weekly Teaching Hours	Credits
	Lectures	**4**	**7,5**
Course Type	**Core Course**		
Prerequite Courses			
Language of Instruction and Examinations	**Greek**		
Is the course offered to Erasmus Students?	**Yes (in Greek)**		
Url (Eclass)	**https://eclass.unipi.gr/modules/auth/courses.php?fc=64**		

2. Learning Outcomes

Learning Outcomes

The goal of this course is to teach students the mathematical skills they need in order to deal with basic and more advance problems of economics. The course provides an introduction to the mathematical concepts and methods used in economics and covers material from calculus, matrix algebra and optimization theory. Besides the theory, several applications are developed for many different branches of economics and finance.

Upon successful completion of the course students will be able to:

use the knowledge of mathematical analysis to create and use models on financial and investment issues.

They will also be able to research and further deepen to applied mathematics in the economic sciences, as well as be able to apply mathematical results, and with the use of computers, to find solutions to economic and financial issues.

General Competences

- Autonomous work
- Team work
- Work in inter-scientific environment
- Adjustment in new conditions

3. Syllabus

First section

Linear Algebra

- Calculations with matrices
- Systems of linear equations and inverting matrices
- Inner product
- Transposition and quadratic forms

Second section

Functions with several variables

- Partial derivatives
- Implicit differentiation
- Optimization with several variables
- Optimization with constrains

Third section

Differential equations

- Linear equations with constant coefficients
- Second order ordinary and partial differential equations

4. Teaching and Learning Methods - Evaluation

Delivery	**Face-to-face teaching**	
Use of Information and Communications Technology	**E-class platform support**	
Teaching Methods	**Activity**	**Semester Workload**
	Lectures	52
	Independent Study	135,5
	Course Total	**187,5**
Student Performance Evaluation	Writing exams (100%) that refers to the theoretical questions and exercises on the material developed in the class.	

5. Attached Bibliography

Suggested Bibliography

- *“Mathematics for Economists: An Introductory Textbook”, M. Pemberton and N. Rau.*
- *“Maths for Economics”, G. Renshaw.*

Related Academic Journals