

MATHEMATICAL PRINCIPLES FOR ECONOMIC ANALYSIS

(ECTS 5)

General goals Specific goals

1. Acquiring advanced knowledge in mathematical analysis and their application in economic theory

knowledge to solve homework exams. Also, students will understand economic theories and their applications. This will for sure develop them competitive at the

The course introduces and presents to the students the elements of advanced mathematics required in the economic theory analysis while focusing on the following topics: linear algebra, functions of several variables, differential calculus for functions of several variables. The goal of the course is to apply acquired mathematical knowledge in economic theory examples with the purpose of different approach to it. The economic examples that will be considered are the following:

Students will develop their critical and analytical thinking skills through discussions, problem modeling and interpretation of economic problems. Students will learn how to make decisions based on mathematical models.

- IS-LM analysis
- Budget set in the space of goods and input space, Investment model
- Markov model of employment and tools students will solve
- Investment and arbitrage problems and learn how to create a good
- Leslie population model
- Pure exchange economy
- Hotelling's Lemma. Shepard's Lemma
- Equilibrium, Welfare Economics

Students attending the module will accumulate specific