Study programme(s): Mathematics (M3)

Level: bachelor

Course title: Financial Mathematics 1 (M3-22)

Lecturer: Helena M. Zarin

Status: obligatory

ECTS: 8

Requirements: none

Learning objectives

Introducing students to those parts of mathematics that are practically applied in the economy. Mastering the basic terms and concepts of financial mathematics, as well as applications of mathematical apparatus in definitions of given concepts.

Learning outcomes

Acquiring the basic knowledge necessary for a proper understanding of application of mathematical apparatus in finance. Students will gain competence in adopting the basic knowledge in a given field, in the use of mathematical literature at an appropriate level and in developing a critical way of thinking and problem analysis.

Syllabus

Theoretical instruction

Proportions. Percentage account. Simple interest. Promissory notes. Compound interest. Cash flow streams. Amortization of loan. Internal rate of return. Bonds. Functions in the economy. Options.

Practical instruction

Applications of simple interest. Promissory notes. Equations of value. Applications of compound interest. Cash flow streams. Decursive and anticipative periodic payments. Amortization of loan. Internal rate of return and investment evaluation. Bonds: purchase value, yield to maturity and duration. Portfolio immunization. Economic functions. Elasticity. Call and put options trading strategies.

Literature

1. N. Krejić, *Finansijska matematika*, script, Faculty of Sciences, Novi Sad, 2007.
2. I. Radeka, *Finansijska matematika I*, collection of solved problems, Faculty of Sciences, Novi Sad, second edition, 2007.
3. D. Luenberger, *Investment Science*, Oxford University Press, New York, 1997.

Weekly teaching load				Other: 0
Lectures: 3	Exercises: 4	Other forms of teaching: 0	Student research: 0	

Teaching methodology

Lectures are conducted in classical teaching methods and supported by beamer presentations. Exercises are used to practice and analyse typical problems and their solutions through students' independent work on a computer and using the adequate software packages. The ability of application of theoretical knowledge is verified through independent solving of exercises on two colloquia. At the final oral examination, students should demonstrate in-depth understanding of the presented theoretical material.

Grading (maximum number of points 100)

Pre-exam obligations	**points**	**Final exam**	**points**
Colloquia	50	Oral exam	50