

Study programme(s): Mathematics (M), Integrated Mathematics Studies (M5), Applied Mathematics (MAP)		
Course title: FINANCIAL MATHEMATICS 1 (M149)		
Lecturer(s): Goran Radojev		
Course status: elective (M, M5), compulsory on module: Mathematics of Finance (MAP)		
ECTS points: 8		
Requirements:		
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 a mathematical apparatus in definitions and interpretations of given concepts.		
Learning Outcomes Acquiring the basic knowledge necessary for a proper understanding of the application of mathematical apparatus in finance. Students will gain competence in adopting the basic knowledge in each field, in the standalone use of mathematical literature and in developing a critical way of thinking for problem analysis.		
Syllabus <i>Theoretical instructions</i> Scales and proportions. Percentage calculus. Simple interest. Promissory notes. Compound interest. Cash flows. Loan amortization. Internal rate of return. Bonds. Functions in the economy. Options. <i>Practical instructions</i> Applications of simple interest. Promissory notes. Equations of value. Applications of compound interest. Cash flows. Decursive and anticipative periodic payments. Loan amortization. Internal rate of return and investment evaluation. Bonds: purchase value, yield to maturity and duration. Portfolio immunization. Economic functions. Elasticity. Call options and put options trading strategies.		
Literature 1. N. Krejić, Finansijska matematika , skripta, PMF Novi Sad, 2007. 2. I. Radeka, Finansijska matematika I , zbirka rešenih zadataka, PMF Novi Sad, drugo izdanje, 2007. 3. D. Luenberger, Investment Science , Oxford University Press, New York, 1998. 4. K. Cuthbertson, D. Nitzsche, Financial Engineering. Derivatives and Risk Management , J.Wiley&Sons, Chichester, UK, 2001.		
Number of active classes	Lectures: 3	Exercises: 4
Teaching methods Lectures are conducted via classical teaching methods and supported by beamer presentations. Exercises are used to practice and analyze typical problems and their solutions through students' independent work on a computer and using 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 an 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