

COURSE DESCRIPTION

Academic year: 2026/2027	
University: Comenius University Bratislava	
Faculty: Faculty of Management	
Course ID: FM.KEF/222AB/24	Course title: Financial Mathematics
Educational activities: Type of activities: lecture / seminar Number of hours: per week: 2 / 2 per level/semester: 28 / 28 Form of the course:	
Number of credits: 5	
Recommended semester:	
Educational level:	
Prerequisites:	
Recommended prerequisites: Mathematics (1), Mathematics (2)	
Course requirements: Lectures will be accessible online through MS Teams. All study materials will be published in system Moodle (https://moodle.uniba.sk/). When logging into MS Teams, it is necessary to use the university login and password and join the team FMUK_Financial_Mathematics_English using the code: q82gkml. In system MOODLE it is needed to select Faculty Management, Department of Quantitative Methods, Course Financial Mathematics. The student can have 2 absences from exercises, one at theoretical exercises and one at computer exercises. Course evaluation during the semester: 1.) 2 x 5-10 min. test on computer exercises for 2 points (4 points), without the possibility of writing a substitute test. 2.) 3 x 10-min. test on theoretical exercises, each for 2 points (6 points), without the possibility of writing a substitute test. 3.) 2 written works one on each type of exercise of 15 points (max. 30 points). The test can be taken in an alternate date during the semester, if the student proves his / her absence by a medical certificate. Assessment of the subject during the Exam period: The final written exam consists of 4 examples. (max. 60 points) 2.) Exam: a student can complete 1 regular and one corrective term if he / she does not reach the required number of points to complete the course on the regular term. The student completes the course if he / she obtains at least 60% of points (ie 24 points) from the continuous assessment, so that he / she can go to the exam and min. 60% of the exam points (ie 36 points) to pass the exam. The points that the student obtains during the semester and in the exam are included in the final grade of the course. Before solving the exam test, student must be logged in to the MS Teams application, have a microphone and camera switch on. Student is performing the exam test in the Moodle system. Student writes the solution by hand on paper, continuously is inserting own solution into the Moodle system while checking the compliance of its solution on paper with what it enters into the system.	

When the exam test is closed, the signed handwritten solution will be photographed or scanned together with student card (ISIC) and putted into the Moodle system. The student is obliged to have ensured a functioning internet connection during the exam tests. Scale of assessment (preliminary/final): 40/60
Learning outcomes: The subject is a natural extension of Mathematics 1 and Mathematics 2. Students will receive an information about a dynamical analysis of economy, together with an analysis of financial mechanisms and pricing. Students, who pass the subject, will be able to solve various problems from an economy and a financial management.
Class syllabus: I. Dynamical analysis of an equilibrium. Applications of definite integrals in the economy. Marginal and total functions, current value of income streams. Domar's model of the growth of an economy. Modelling of economic evolution processes using differential equations with one and two-dimensional phase spaces. Dynamics of market prices. Linearization of nonlinear differential equations. IS - LM model. II. Mathematical methods of valuation of financial derivatives. Modeling of stock price development, discrete and continuous model. Valuation of options. Sensitivity analysis of option value. Option strategies.
Recommended literature: 1. Chiang, A.C.: Fundamentals Methods of Mathematical Economics. McGraw-Hill International Editions., Singapore , 1984 2. Bradfield, J.: Introduction to the Economics of Financial Markets. Oxford University Press. 2007 3. Werner, F. – Sotskov, Y. N.: Mathematics of Economics and Business 4. Shone, R: An Introduction to Economic Dynamics. Cambrige University Press, 2003 5. Shone, R: Economic Dynamics. Phase Diagrams and Their Economic Application. Cambrige University Press, 2003
Languages necessary to complete the course: English
Ethics: The syllabus lists knowledge, skills, competences and transferable skills that the students will acquire by successfully completing the course. These will impact on their personal development and can be used both in their future careers and in their lives as active citizens in democratic societies. Following the provisions of Internal Regulation of the Comenius University Bratislava - Internal system of ensuring the quality of higher education of the Comenius University Bratislava, <i>each student consistently achieves his/her study results honestly during his/her studies; does not cheat or use dishonest procedures during any form of verification of his study knowledge and knowledge.</i> Cases of violation of this provision can be assessed as a violation of obligations arising from legal regulations (...). Such an assessment may be associated with applying relevant legal consequences on an academic, (...) or disciplinary level. Following the provisions of Internal Regulation of the Comenius University Bratislava - Disciplinary regulations of the Comenius University Bratislava for students, <i>a student's disciplinary offence is any form of writing off or illegal cooperation or hinting during the written or oral evaluation of study results (knowledge verification) or during preparation for it within the course, or the use of technical devices or any information carriers in a way other than permitted during the written or oral evaluation of study results (knowledge verification) or</i>

during preparation for it within the subject. Some of the disciplinary measures may be imposed on the student for a committed disciplinary offence: reprimand, conditional expulsion from studies or expulsion from studies.

Notes:

Past grade distribution

Total number of evaluated students: 123

Hodnotenie predmetu sa zobrazí až v prípade zaradenia predmetu do nejakého študijného plánu.

Lecturers: doc. Ing. Mgr. Urban Kováč, PhD., Mgr. Branislav Novotný, PhD.

Last change: 01.06.2024

Approved by: