NAME OF THE COURSE		BUSINESS MATHEMATICS				
Code	**ECA003**	Year of study	1.			
Course teacher	Assoc. Prof. Branka Marasović, PhD, Prof. Zdravka Aljinović, PhD, Assoc. Prof. Blanka Škrabić Perić, PhD	Credits (ECTS)	6			
Associate teachers	Tea Kalinić, mag. math., Ivana Jerković, mag. math., Ante Toni Vrdoljak, mag. math.	Type of instruction (number of hours)	L	S	E	F
			26		26	
Status of the course	Obligatory	Percentage of application of e-learning	20			

COURSE DESCRIPTION

Course objectives	Students will be able to understand and identify the importance of basic mathematical models, with emphasis on the area of financial mathematics.
Course enrolment requirements and entry competences required for the course	**Course signature requirements**: as determined by the Statute of the Faculty of Economics and Rules and Regulations for Studies and Study Programmes.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Learning outcome of the subject: To calculate and analyze individual problems in the area of sets, functions, sequences, series, and financial mathematics, combine the skills of using elementary mathematical tools, use mathematical tools in solving financial math tasks. Specific learning outcomes: 1. To solve tasks from set theory 2. To analyze function properties 3. To draw graphs of basic elementary functions 4. To analyze array and row properties 5. To solve problems in the area of a compound interest calculus (final and present value, lifelong rent, continuous computing) 6. To solve various loan amortization models with the use of a decursive and anticipatory calculation method

Course content broken down in detail by weekly class schedule (syllabus)

Lectures		Exercises	
Topic	Hours	Topic	Hours
Set theory. Universal and null sets. Set operations. Laws of the algebra of sets. Partition. Cartesian product.	2	Set theory. Universal and null sets. Set operations. Laws of the algebra of sets. Partition. Cartesian product.	2
Mathematical induction	1	Mathematical induction	1
Functions	1	Functions	1
Composition of functions. Inverse and identity functions.	2	Composition of functions. Inverse and identity functions.	2

	Types of functions. Polynomial Functions. Rational and Irrational functions.	2	Types of functions. Polynomial Functions. Rational and Irrational functions.	2	
	Exponential and Logarithm Functions.	2	Exponential and Logarithm Functions.	2	
	Sequences. Arithmetic and geometric sequences. Series. Geometric series.	2	Sequences. Arithmetic and geometric sequences. Series. Geometric series.	2	
	Mathematics of finance. Compound interest. Future (terminal) value. Present (discounted) value.	2	Mathematics of finance. Compound interest. Future (terminal) value. Present (discounted) value.	2	
	Types of interest rates. Accumulated value of a stream of payments.	2	Types of interest rates. Accumulated value of a stream of payments.	2	
	Discounted value of a stream of payments. Continuous compounding.	2	Discounted value of a stream of payments. Continuous compounding.	2	
	Loan. Various models of loan amortization.	2	Loan. Various models of loan amortization.	2	
	Various models of loan amortization.	2	Various models of loan amortization.	2	
	Refinancing a loan.	2	Refinancing a loan.	2	
	Consumer credit.	2	Consumer credit.	2	

Format of instruction	☒lectures ☐ seminars and workshops ☒ exercises ☐ *on line* in entirety ☒ partial e-learning ☐ field work	☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)

Student responsibilities	Students are required to attend classes and actively participate in classes. Students' activity will be monitored through self-evaluation quizzes that will be available to students on the course websites within the Moodle platform. In case the student takes less than two self-evaluation quizzes during the semester and attends less than 50% of lectures and exercises, the student will be denied a signature. The condition for taking the exam is a signature.

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance	2 ECTS	Research		Practical training	
	Experimental work		Report		Self-evaluation quizzes	0.5
	Essay		Seminar essay		(Other)	
	Tests	2*	Oral exam		(Other)	
	Written exam	3.5*	Project		(Other)	

Grading and evaluating student work in class and at the final exam	1. Exam consists of two written parts, the first one with exercises and the second one with theory. Positively evaluated first part is precondition for approaching the second part of the exam. 2. * During the semester two tests with exercises will be organized. The condition for taking the test is that the student has solved all the self-evaluation quizzes from the part of the material that is evaluated by the

	test. Written exam with exercises can be passed through two tests during classes or in regular exam terms. Once the first part of the exam with exercises is passed (through tests or in regular exam terms) it is valid through the whole academic year. Each test brings 50 points Students who achieve at least 50 points from max 100 points (with the condition that in each of two tests have at least 20 points) are free of passing the first part of the exam in the current academic year, and they can directly approach the second part in the regular exam terms. Key points and appropriate grades for written exam: 0-49 inadequate (1) 50-64 sufficient (2) 65-75 good (3) 76-85 very good (4) 86-100 excellent (5)	

Required literature (available in the library and via other media)	Title	Number of copies in the library	Availability via other media
	Z. Babić, N. Tomić-Plazibat: Poslovna matematika, Ekonomski fakultet Split, 2017.	10	

Optional literature (at the time of submission of study programme proposal)	Books: Babić, Z., N. Tomić-Plazibat, Z. Aljinović, Matematika u ekonomiji, Ekonomski fakultet, Split, 2009. B. Šego: Matematika za ekonomiste, Narodne novine, Zagreb, 2005. B. Šego, Z., Lukač: Financijska matematika, Ekonomski fakultet-Zagreb, Zagreb, 2014. Articles: Marasović, B., T. Kalinić, A. Mamić (2015): Krediti u švicarskim francima:analiza stanja dužnika i njihova konverzija u kredite u eurima. Računovodstvo i financije 11, str. 125-132, ISSN: 0350-4506.

Quality assurance methods that ensure the acquisition of exit competences	Registering students' success in carrying out of their duties (lecturer). Monitoring lectures and practice sessions (Vice Dean for Education). Students' Performance analysis in each course (Vice Dean for Education). Student questionnaire on the quality of lecturers and lessons for each course (University of Split, Quality Assurance Centre) Examination is used as an instrument to evaluate individual course outcomes by the course lecturer. The content of exam is reassessed periodically in order to assure compliance with the course outcomes.
Other (as the proposer wishes to add)	The course is taught in Croatian.