

DESCRIPTION OF THE COLLEGE

GENERAL INFORMATION		
Course Holder	Dr.sc. Višnja Jurić	
Name of the College	Mathematics for Economists	
Study program	Professional Short Study in Entrepreneurship	
Code	GM-P-24	
Status College	Mandatory	
Year	1. Year	
Point value and method of teaching	ECTS Student Workload Coefficient	7
	Number of hours (P+V)	30+45

DESCRIPTION OF THE COLLEGE
1.1. Objectives of the College
Developing the ability to adopt mathematical methods and calculations in the field of economic mathematics and the application of acquired knowledge in the field of economy with an emphasis on business in entrepreneurship. Students are expected to apply the knowledge of mathematical modeling of phenomena in economic practice, explain the motivation for the choice of a certain mathematical model and interpret the results obtained in order to develop the ability to use mathematical terminology used in entrepreneurial practice.
1.2. Requirements for enrolment in the course
<i>There are no prerequisites for enrolling in the course</i>
1.3. Expected learning outcomes for the course
1. Apply the rules of the percentage and simple interest account in economic practice. 2. Compare the rules for calculating simple and complex interest calculations. 3. Use a compound interest rate account in a variety of economic applications. 4. Calculate the repayment plan of different types of loans. 5. Apply the calculation of the zero point of a polynomial in economic examples. 6. Apply differential calculus in economic and economic practice.
1.4 The content of the course
Basics of economic accounting. Partition account. Bill of the mixture. The threefold rule. Percentage account. Percentage Calculation Basics. Percentage bill higher hundred, lower hundred. Simple Interest Account The Basics of Interest Account. The basic formula of a simple interest rate account. Methods of interest (decursive and anticipatory interest calculation). Compound Interest Account Compound interest, decursive and anticipatory interest factor. Nominal and relative interest rates. Conformal interest

rate.

Equivalent interest rates

Discrete capitalization

The final and initial value of prepaid and post-numerando periodic deposits/withdrawals.

Loan

Definition and basic concepts.

A loan with nominally equal annuities.

Determination of the loan amount and nominally equal annuities.

Creation of a repayment table.

Loan with equal repayment quotas.

Control of the accuracy of the calculated elements of the repayment table. Loan Conversion

Consumer credit

Basic terms and definition

Ways to repay a consumer loan.

Determination of the zero points of a polynomial.

A linear function. A quadratic function.

Application of elementary functions in the economy (total cost function, revenue function, profit function).

Determination of zero-points of polynomials, application in economics. Interpretation.

Derivatives. Application of basic differential calculus in the economy.

The concept of limits and derivatives.

Tabular derivation.

Average cost. Marginal cost. Growth rate. Coefficient of elasticity.

1.5. Types of teaching

X lectures

☐ Seminars and workshops

X Exercises

☐ Distance education

☐ Field Teaching

X Stand-alone tasks

☐ Multimedia & Network

☐ Laboratory

☐ mentoring work

☐ other

1.6. Obligations of students

Student obligations are prescribed in detail by the Statute, the Study Regulations and the Instructions on Student Obligations. The key obligations of students are:

ATTENDANCE AT CLASSES: students are obliged to attend classes, actively follow lectures and exercises and participate constructively in classes, and in order to acquire the right to take the exam, it is necessary to attend classes in the percentages prescribed by the Study Regulations. For each student, their presence in class is recorded through the Infoeduka digital office system. The minimum commitments are;

- Full-time students must attend at least 70% of the total number of classes to be eligible to sign.*
- Part-time students need to attend at least 50% of the total number of teaching hours to be eligible to sign.*

EXAM: in order to achieve a positive grade in the subject, it is necessary to achieve at least 54 points in the subject, but also at least 50% of points for each learning outcome. The method of taking the exam is described in more detail in the item Assessment and evaluation of students' work during classes and at the final exam.

CLASS ACTIVITY: Solving whiteboard tasks, writing optional homework, answering more complex tasks

1.7. Student Performance Monitoring

Attendance	x	Teaching activity	x	Term paper		Experimental work	
Written exam	x	Oral exam		Essay		Research	
Design		Continuous assessment of knowledge	x	Paper		Practical work	
Portfolio							

1.8. Assessment and evaluation of students' work during classes and at the final exam

Assessment and evaluation of students' work during classes and at the final exam is carried out on the basis of the Study Regulations of the EFFECTUS University of Applied Sciences.

For the purpose of acquiring the material through smaller teaching units during the semester, continuous monitoring of the acquisition of students' knowledge is carried out through tests (quizzes) and two intermediate exams in which the acquisition of the content of outcomes 1, 2 and 3 (intermediate exam 1), and outcomes 4, 5 and 6 (intermediate exam 2) is tested.

Activity	ECTS credits	Learning outcomes	Student activity	Valuation methods	Maximum number of rating points
Attendance	2,5	1 - 6	Participation in lectures and exercises	Records of classes	0
Continuous assessment of knowledge	4	Quiz 1 – Outcome 1 Intermediate exam 1 – outcomes 1,2,3 Quiz 2 – Outcome 4 Intermediate exam 2 – outcomes 4,5,6	Participation in the written examination of knowledge through shorter tests (quizzes) with simpler, basic tasks and intermediate exams that include more complex problem tasks	Quiz 1 is valued with 4 points (two tasks with two points each), intermediate 1, is valued with 12, 16 and 16 points according to outcomes 1, 2 and 3. Quiz 2 is valued with 4 points (one task with 4	0 - 96

				points), and intermediate exam 2 with 12, 16 and 16 points according to outcomes 4, 5 and 6.		Passing
Class Activity	0,5	Beyond learning outcomes	Solving tasks on the board, solving (optional) homework, answering more complex queries.	Max 4 points	4	
Final exam*		1 - 6	Attendance at the written examination of knowledge with questions of the problem type of a certain financial model in concrete examples from economic practice	Checking the correct answers (grading)	0 - 96*	
Total	7				100	

outcomes is shown in more detail in the table below:

NAME OF LEARNING OUTCOMES	INTERMEDIATE EXAM/EXAM	CLASS ACTIVITY	QUIZ 1	QUIZ 2	TOTAL
OUTCOME 1	12	0	4	0	16
OUTCOME 2	16	0	0	0	17
OUTCOME 3	16	0	0	0	17
OUTCOME 4	12	0	0	4	16
OUTCOME 5	16	0	0	0	17
OUTCOME 6	16	0	0	0	17
OUT OF THE BOX		4			4
TOTAL	88	4	4	4	100

The acquired knowledge, skills and competencies, i.e. the degree of acquisition of learning outcomes determined by the syllabus in each individual subject, is determined (assessed):

- a. during classes in the semester - through written examinations (quizzes and intermediate exams);*
- b. at the end of classes - by taking an exam.*

The first written intermediate exam determines the acquisition of the material covered by the first three learning outcomes (IU 1, IU 2 and IU 3); the second written intermediate exam determines the acquisition of the material that includes the following three learning outcomes (IU 4, IU 5 and IU 6).

**FINAL EXAM – a student who has not met the conditions for passing the exam during the continuous examination (has achieved a total of at least 54 points in the course and met the lower point threshold for the acquisition of each learning outcome, i.e. at least 50% of the points of each learning outcome), may take the learning outcomes of the course at the final exam. At the final exam, it is possible to achieve a maximum of 96 points (100 – activity in class 4 points = 96 points). A student can receive additional points on the Challenge learning outcome.*

JUDGING:

In order to achieve a positive grade in the course, the student must cumulatively meet two conditions:

- 1) Achieve a total of at least 54 (fifty-four) points*
- 2) Achieve the minimum number of points from each individual learning outcome (50% of the total points of the learning outcomes).*

Grades are calculated based on the following distribution of points:

NUMBER OF POINTS	RATING
0,00 – 53,90	Insufficient (1)
54,00 – 64,90	Sufficient (2)
65,00 – 79,90	Good (3)
80,00 – 89,90	Very Good (4)
90.00 and more	Excellent (5)

The evaluation is carried out in a transparent manner by collecting points. The course is valued at 100.00 points (with the possibility of achieving an additional maximum of 8 points on the Challenge learning outcome).

CHALLENGE LEARNING OUTCOME - the student independently, with the consent of the course leader, chooses the topic to be covered, whereby he is obliged, by a certain date in the semester, and before the end of the course, to report the creation and presentation of the topic of the Challenge learning outcomes. Points for the Challenge learning outcome are not distributed by learning outcomes, but the number of points earned is added to the total sum of points earned from other learning outcomes.

Before taking the final written exam, each student must meet the prescribed conditions, which primarily means that they have attended the % of classes determined by the Study Regulations and that they have received an electronically encrypted permission to take the exam

1.9. Compulsory literature and number of copies in relation to the number of students currently attending classes in the course

<i>Title</i>	<i>Number of copies</i>	<i>Number of students</i>
<i>Šego, B.; Lukač, Z.; Gardijan Kedžo, M.: Financial Mathematics, Zagreb, 2019</i>	50	50
1.10. Supplementary literature		
<i>Babić, Z.; Tomić Plazibat, N: Business Mathematics, University of Split, 2017.</i>		
1.11 Means of quality monitoring that ensure the acquisition of output knowledge, skills and competences		
• <i>statistical processing and analysis of exam results (verification of the Gaussian curve – normal distribution of performance, comparison and monitoring of exam results of different generations, analysis of understanding of individual modules/questions on the exam, etc.),</i> • <i>conducting a survey among students,</i> • <i>evaluation and self-evaluation of teachers,</i> • <i>achieved results, level of understanding and knowledge during the preparation of the seminar paper,</i> • <i>the achieved results and the level of knowledge presented during the preparation and defense of the final thesis (of students who choose the graduate thesis in this subject),</i> • <i>analysis of the reports of the head of the quality center, and</i> • <i>Feedback from students who have already graduated about the usefulness of the content of this course in the performance of the tasks they are engaged in.</i>		