Identification	**Subject (code, title, credits)**	**MATH 219 Business Mathematics - 3KU/6ECTS credits**
	Department	Mathematics
	Program	Undergraduate
	Term	Spring, 2024
	Instructor	Rza Mustafayev
	E-mail:	rzamustafayev@gmail.com
	Classroom/hours	Friday 17:00-18:30, 18:40-20:10
	Office hours	
Prerequisites	There is no any prerequisites	
Language	English	
Compulsory/Elective	Compulsory	
Required textbooks and course materials	[SB] C. P. Simon, L. Blume. "Mathematics for Economists". W.W. Norton, 2010 [SB] C. P. Simon, L. Blume. "Mathematics for Economists". W.W. Norton, 1994. Additional materials; lecture notes	
Course objectives	To allow the students to use mathematical methods in solving different problems of economics and business.	
Course outline	A wide variety of problems from economics and business can be solved by using mathematical models. Equations and their graphs are used in studying costs, revenues, profit, and supply and demand. Numerous applications of mathematics are given throughout the course.	
Learning outcomes	Students successfully completing this course should be able to · Understand mathematical language of modern economics and business; · Use mathematical methods and tools; · Apply some mathematical methods and tools to economic theories; · Interpret the results of the mathematical models.	
Teaching methods	**Lecture**	x
	Group discussion	x
	Problem Solving	x
	Homework assignments	x

Evaluation	**Methods**	**Date/deadlines**	**Percentage (%)**
	Midterm Exam		30
	Class attendance		5
	Class activity		5
	Quizzes (2 quizzes with equal weight)		20
	Final Exam		40
	Total		100

Policy	**Attendance and activity** The students are required to attend all classes as part of their studies and those having legitimate reasons for absence (illness, family bereavement etc.) are required to inform the instructor. However, this student is able to enter the second double hours without delaying. The attendance and participation will account for 5% of the total course grade, which depends on students' good class attendance and active participation in class discussions. **Withdrawal (pass/fail)** This course strictly follows grading policy of the School of Economics and

	Management. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be referred or required to repeat the course the following term or year. For referral, the student will be required to take examination scheduled by instructor. **Assignments/quizzes** The overall course will consist of 2 quizzes, which one of them before midterm exam and the two after midterm exam. Total score for all quizzes is 20% with 10% for each. **Cheating/plagiarism** Cheating or other plagiarism during the Quizzes, Mid-term and Final Examination will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations. **Professional behavior guidelines** The students shall behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited.

Tentative Schedule

Week	Date/Day (tentative)	Topics	Textbook/Assignments
1	16.02.2024 16.02.2024	Introduction: Mathematical models in economics. Vocabulary of functions: Function, graph, domain, range, increasing and decreasing functions, minima and maxima. Linear functions, slope and intercepts.	2.1-2.2 [SB]
2	23.02.2024 23.02.2024	Derivative, rules for computing derivatives. Differentiability and continuity, higher order derivatives.	2.3-2.7 [SB]
3	01.03.2024 01.03.2024	Using derivative for graphing, second derivative and convexity.	3.1-3.5 [SB]
4	09.03.2024 09.03.2024	Applications to Economics: Production function, cost function, revenue and profit. Demand and elasticity.	3.6 [SB]
5	15.03.2024 15.03.2024	Exponential and logarithmic functions, number e, derivatives of exp and log. Economical applications. **QUIZ 1.**	5.1-5.6 [SB]
6	22.03.2024 22.03.2024	**NOVRUZ HOLYDAY**	
7	29.03.2024 29.03.2024	Systems of linear equations, elementary methods of solution. Economical examples.	6.1, 6.2, 7.1-7.3 [SB]
8	05.04.2024 05.04.2024	Systems of linear equations, elementary methods of solution. Economical examples.	6.1, 6.2, 7.1-7.3 [SB]
9	12.04.2024 12.04.2024	**Midterm exam.** Matrix Algebra and systems of linear equations. Matrix operations, inverse matrix, Economical examples.	8.1- 8.7 [SB]
10	19.04.2024 19.04.2024	Operations with matrices. Eigenvalues and eigenvectors. Invertible matrices.	Handout
11	26.04.2024 26.04.2024	Functions of several variables. Partial derivatives. Total derivative. Economical applications. **QUIZ 2.**	14.1-14.4 [SB]
12	03.05.2024 03.05.2024	Indefinite integral. Definite integral, fundamental theorem of calculus, applications.	A4.1-A4.3 [SB]
13	10.05.2024 10.05.2024	Area under a curve. Application of definite integrals in economics. Consumer's surplus, producer's surplus.	A4.1-A4.3 [SB]
14	17.05.2024 17.05.2024	Unconstrained Optimization. Local and global extrema. First order conditions.	17.1-17.5 [SB]
15	24.05.2024	Constrained optimization. First order conditions. Equality	18.1-18.7 [SB]

	24.05.2024	constraints.	
	TBA	**Final exam**	

This syllabus is a guide for the course and any modifications to it will be announced in advance.