Identification	Subject (code, title, credits)	**MATH 225 Mathematics for Economics and Business - 3KU/6ECTS credits**
	Department	Economics and Management
	Program	Undergraduate
	Term	Fall, 2022
	Instructor	Afruz Niftaliyeva
	E-mail:	afruzniftaliyeva@yahoo.com afruzniftaliyeva@asoiu.edu.az
	Classroom/hours	Saturday 10:10-11:40; 11:50-13:20
	Office hours	by appointment
Prerequisites	MATH 101 Calculus	
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
Others		

Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Class attendance		5
	Class activity		5
	Quizzes (2 quizzes with equal weight)	08.10.2022 26.11.2022	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. Generally, four (4) unauthorized absence marks will lead to the students' expulsion from the course. However, this student is able to enter the second double hours without delaying. The attendance and participation will account for 10% 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	17.09.2022 17.09.2022	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	24.09.2022 24.09.2022	Derivative, rules for computing derivatives. Differentiability and continuity, higher order derivatives.	2.3-2.7 [SB]
3	01.10.2022 01.10.2022	Using derivative for graphing, second derivative and convexity.	3.1-3.5 [SB]
4	08.10.2022 08.10.2022	Applications to Economics: Production function, cost function, revenue and profit. Demand and elasticity. **QUIZ 1.**	3.6 [SB]
5	15.10.2022 15.10.2022	Exponential and logarithmic functions, number e, derivatives of exp and log. Economical applications.	5.1-5.6 [SB]
6	22.10.2022 22.10.2022	Systems of linear equations, elementary methods of solution. Economical examples.	6.1, 6.2, 7.1-7.3 [SB]
7	29.10.2022 29.10.2022	Systems of linear equations, elementary methods of solution. Economical examples.	6.1, 6.2, 7.1-7.3 [SB]
8	05.11.2022 05.11.2022	Matrix Algebra and systems of linear equations. Matrix operations, inverse matrix, Economical examples.	8.1- 8.7 [SB]
9	12.11.2022 12.11.2022	**Midterm exam.**	
10	19.11.2022 19.11.2022	Operations with matrices. Eigenvalues and eigenvectors. Invertible matrices.	Handout
11	26.11.2022 26.11.2022	Functions of several variables. Partial derivatives. Total derivative. Economical applications. **QUIZ 2.**	14.1-14.4 [SB]
12	03.12.2022 03.12.2022	Indefinite integral. Definite integral, fundamental theorem of calculus, applications.	A4.1-A4.3 [SB]
13	10.12.2022 10.12.2022	Area under a curve. Application of definite integrals in economics. Consumer's surplus, producer's surplus.	A4.1-A4.3 [SB]
14	17.12.2022 17.12.2022	Unconstrained Optimization. Local and global extrema. First order conditions.	17.1-17.5 [SB]
15	24.12.2022 24.12.2022	Constrained optimization. First order conditions. Equality constraints.	18.1-18.7 [SB]
	TBA	**Final exam**	

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