

Identification	Subject	Math 101, Calculus 1, 6 ECTS	
	Department	Mathematics	
	Program	Undergraduate	
	Term	Fall, 2024	
	Instructor	Javanshir Azizov	
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	Phone:	(+994)50 753 99 09	
	Classroom/hours	Wednesday 17:00, Friday 17:00	
Prerequisites			
Language	English		
Compulsory/Elective	Required		
Required textbooks and course materials	<p>Core Textbooks:</p> <ol style="list-style-type: none"> George Thomas, et al, Thomas' Calculus: Early Transcendental, 12th edition, Addison-Wesley (2010), (http://libgen.org/) <p>Supplementary book</p> <ol style="list-style-type: none"> James Stewart, Essential calculus. Early transcendentals, Second Edition, Brooks/Cole (2013) (http://libgen.org/) 		
Course website			
Course outline	<p>Calculus is a foundational course at School of Science and Engineering of Khazar University; it plays an important role in the understanding of science, engineering, economics, and computer science, among other disciplines. This introductory calculus course covers differentiation and initial techniques of integration of functions of one variable, with applications. Topics include:</p> <ul style="list-style-type: none"> • Concept of functions; trigonometric functions • Limits and continuity • Derivative; Differentiation rules • Applications of derivative to investigation of extremes and graphing • Antiderivative 		
Course objectives	The concepts of limit; tangent to curve; differentiation; chain rule; extreme values of a function and concavity of a curve		
Learning outcomes	<p>By the end of the course the students should be able:</p> <ul style="list-style-type: none"> • To find limit of functions at points • To find derivatives of functions • To apply theorems to solve real world problems 		
Teaching methods	Lecture		X
	Group discussion		X
	Experiential exercise		X
	Course paper		X
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Class Participation		10
	Quizzes		20 (4 quizzes)
	Final Exam		40
	Total		100
Policy	<ul style="list-style-type: none"> ▪ Preparation for class The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and 		

having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions.

Throughout the semester we will also have a large number of review sessions. These review sessions will take place during the regularly scheduled class periods.

▪ **Quizzes and examinations**

Quizzes may be given unannounced throughout the term. There will be no make-up quizzes.

▪ **Withdrawal (pass/fail)**

This course strictly follows grading policy of the School of Science and Engineering. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year.

▪ **Cheating/plagiarism**

Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations 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.

▪ **Ethic**

Use of any electronic devices is prohibited in the classroom. All devices should be turned off before entering class. This is a university policy and violators will be reprimanded accordingly!

Students should not arrive in late to class!

Tentative Schedule

Week	Date/Day (tentative)	Topics	Textbook/ Assignments
1	18.09.24 20.09.24	<ul style="list-style-type: none"> • Rates of Change and Tangents to Curves • Limit of a Function and Limit Laws 	Ch.2.1, 2.2
2	25.09.24 27.09.24	<ul style="list-style-type: none"> • The Precise Definition of a Limit • One-Sided Limits 	Ch. 2.3, 2.4
3	02.10.24 04.10.24	<ul style="list-style-type: none"> • Continuity • Limits Involving Infinity; Asymptotes of Graphs 	Ch. 2.5, 2.6
4	09.10.24 11.10.24	<ul style="list-style-type: none"> • Tangents and the Derivative at a Point • The Derivative as a Function 	Ch.3.1, 3.2 Quiz
5	16.10.24 18.10.24	<ul style="list-style-type: none"> • Differentiation Rules • The Derivative as a Rate of Change 	Ch. 3.3, 3.4
6	24.10.24 25.10.24	<ul style="list-style-type: none"> • Derivatives of Trigonometric Functions • The Chain Rule 	Ch. 3.5, 3.6
7	30.10.24 01.11.24	<ul style="list-style-type: none"> • Implicit Differentiation • Derivatives of Inverse Functions and Logarithms 	Ch. 3.7, 3.8 Quiz

8	06.11.24 08.11.24	<ul style="list-style-type: none"> • Midterm Exam • Victory day 	
9	13.11.24 15.11.24	<ul style="list-style-type: none"> • Inverse Trigonometric Functions • Related Rates 	Ch. 3.9, 3.10
10	20.11.24 22.11.24	<ul style="list-style-type: none"> • Linearization and Differentials • Extreme Values of Functions 	Ch. 3.11,4.1, Quiz
11	27.11.24 29.11.24	<ul style="list-style-type: none"> • The Mean Value Theorem • Monotonic Functions and the First Derivative Test 	Ch.4.2, 4.3
12	04.12.24 06.12.24	<ul style="list-style-type: none"> • Concavity and Curve Sketching • Indeterminate Forms and L'Hôpital's Rule 	Ch. 4.4, 4.5
13	11.12.24 13.12.24	<ul style="list-style-type: none"> • Antiderivatives • Area and Estimating with Finite Sums, Sigma Notation and Limits of Finite Sums 	Ch. 4.8, 5.1, 5.2
14	18.12.24 20.12.24	<ul style="list-style-type: none"> • The Definite Integral • The Fundamental Theorem of Calculus 	Ch. 5.3, 5.4, Quiz
15	25.12.24 27.12.24	<ul style="list-style-type: none"> • Indefinite Integrals and the Substitution Method • Substitution and Area Between Curves 	Ch. 5.5, 5.6
	TBA	Final Exam	

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