Identification	Subject	**MATH 343, Statistics for Petroleum Engineers and geoscientists(6 ECTS)**
	Program	Undergraduate
	Department	Mathematics
	Term	Spring Semester 2024
	Instructor	Leyla Bayramova
	E-mail	leyla.mustafayeva.96@bk.ru, mustafayevaleyla@khazar.org
	Classroom/hours	Monday: 13:40-15:10, 15:20-16:50
	Language	English
Prerequisites	**MATH 217**	
Compulsory/ Elective	Compulsory	

Textbooks and course materials	1) William Navidi``**Statistics for Engineers and Scientists''**, 3rd edition, 2013.   2) Levine, Krehbiel, Berenson, ``**Business Statistics: A First Course``**, 5th edition, 2010. 3) Basic Statistics for Business and Economics, Douglas A. Lind, William G. Marchal, Samuel A. Wathen, Published by McGraw-Hill Education, 2013 **Supplementary book:** **Statistics for Managers Using Microsoft Excel** by D. Levine, D.Stephan, T.Krehbiel, M.Berenson, 6th edition, 2011.

Grading System	Methods	Percentage (%)
	Midterm Exam	30
	Quizzes	20
	Activity	5
	Attendance	5
	Final Exam	40
	Total	100

Course objective and content	The first course in the core statistics sequence cover topics in Probability Theory and Mathematical Statistics. The main purpose of these courses is to provide you with a foundation of statistics and probability. Focus in these courses will be on basic principles, including among other things: probability, random variables, conditional probability, probability densities and distributions, characteristic functions, test statistic formulation and distribution theory, statistical inference, and basic regression. Emphasis will be placed on applied problem solving using the tools learned in the class.
Learning Outcomes	After this course, students will be able to calculate descriptive and numerical measures and probabilities based on both sample and population datasets to make initial inferences about population parameters. Furthermore, they will acquire skills to test population parameters by using Hypothesis testing based on sample observations. During the lectures, students will obtain insights about the involvement of statistical methods in real business and economic

	applications.
Policy	- **Quiz** Each Quiz will worth 10% of final grade. It is planned to hold in the fourth, thirteenth week of Semester. It is planned to be conducted on university if education is face to face and will be consists of Multiple-choice and open questions. Exam time will be 60 minutes. Further details about quiz will be communicated by Instructor. - **Attendance Policy** 5 % of final grade will be given for class attendance. Students should attend all classes. The proof of reason for unavoidable absence must be provided by student. In this case, the absence will not be resulted with grade subtraction. Students should come to the classes on time. Late arrival more than 10 minutes will be resulted as absence on the attendance sheet. In case of late arrival, student must inform Instructor in advance. **Important Note: If the student miss 25% of all classes during the semester, he or she will not be allowed to participate in examination.** - **Class participation in this course:** 5% of the final grade will be given for class participation. It is required from students to contribute to the class discussion and actively participate in team works. The quality of contribution will be the main factor not the quantity of contribution.
Academic Dishonesty	Students are expected to conduct themselves in a professional manner. Academic dishonesty such as plagiarism and cheating will not be tolerated. Therefore, students are expected to be honest and ethical in their academic work. Cases of academic dishonesty will be immediately reported to the Director's office for disciplinary action.
Office Hours	The instructor will be available to consult with students regarding class related questions regularly by appointment. Meetings with students outside office hours should be scheduled in advance by sending an e-mail to the instructor.

Week	Date/Day (Tentative)	Topics	Textbook/Assignments
1	12.02.24 12.02.24	Sampling and Descriptive Statistics	**Chapter 1 (NW)**
2	19.02.24 19.02.24	Basic Ideas Counting Methods Conditional Probability and Independence	**Chapter 2 (NW)**
3	26.02.24 26.02.24	Random Variables Linear Functions of Random Variables Jointly Distributed Random Variables	**Chapter 2 (NW)**
4	04.03.24 04.03.24	Propagation of Error	**Chapter 3 (NW)** **(Quiz1)**
5	11.03.24 11.03.24	Measurement Error Linear Combinations of Measurements	**Chapter 3 (NW)**
6	18.03.24 18.03.24	The Bernoulli Distribution The Binomial Distribution The Poisson Distribution	
7	25.03.24 25.03.24	Some Other Discrete Distributions The Normal Distribution	**Chapter 4 (NW)**
8	01.04.24 01.04.24	The Exponential Distribution **Midterm exam**	**Chapter 4 (NW)**
9	08.04.24 08.04.24	Confidence Intervals Large-Sample Confidence Intervals for a Population Mean	**Chapter 5 (NW)**
10	15.04.24 15.04.24	Confidence Intervals for Proportions Small-Sample Confidence Intervals for a Population Mean	**Chapter 5 (NW)**
11	22.04.24 22.04.24	Hypothesis Testing Large-Sample Tests for a Population Mean Drawing Conclusions from the Results of	**Chapter 6 (NW)**

		Hypothesis Tests	
12	29.04.24 29.04.24	Tests for a Population Proportion Small-Sample Tests for a Population Mean Large-Sample Tests for the Difference Between Two Means Tests for the Difference Between Two Proportions Small-Sample Tests for the Difference Between Two Means	**Chapter 6 (NW)**
13	06.05.24 06.05.24	Correlation and Simple Linear Regression Correlation	**Chapter 7 (NW) (Quiz3)**
14	13.05.24 13.05.24	The Least-Squares Line Uncertainties in the Least-Squares Coefficients Checking Assumptions and Transforming Data	**Chapter 7 (NW)**
15	20.05.24 20.05.24	Multiple Regression The Multiple Regression Model Confounding and Collinearity Model Selection	**Chapter 8 (NW)**
	TBA	**Final Exam**	

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