

Identification	Subject (code, title, credits)	PSIR309, Political Data and Statistics 3 KU / 6 ECTS
	Department	Political Science and Philosophy
	Program (undergraduate, graduate)	Undergraduate
	Term	Spring 2026
	Instructor	Kamran Shirinzade
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	Phone:	
	Classroom/hours	41 Mehseti str. (Neftchilar campus)
	Office hours	By appointment
Prerequisites	None	
Language	English	
Compulsory/Elective	Required	
Required textbooks and course materials	<p>Core textbooks: Didier Bigo, Engin Isin, Evelyn Ruppert. <i>Data Politics Worlds, Subjects, Rights</i> Routledge, 2019. Sean Gailmard. <i>Statistical Modeling and Inference for Social Science</i>. New York, NY: Cambridge University Press, 2014.</p> <p>Supplementary textbook: David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition</i>. Pearson, 2023.</p>	
Course outline	<p>This course explores different ways to use data to understand social science phenomena. Data science is a quickly growing field, and data analysis skills are often essential for those pursuing careers in political and policy-related industries, such as issue advocacy, program evaluation, political reporting, and campaigns. Data science requires a balance of creativity and statistical reasoning. In this course, students will combine both and learn how to explore, analyze, and visualize data to conduct social science research. We will use real datasets to answer questions, such as: Does increasing the minimum wage affect unemployment? Do natural resources make a country less democratic? This course introduces students to basic statistical concepts and programming using the free, open-source statistical software, students are not expected to have previous programming or statistical knowledge. This course is geared toward students who want to become intelligent consumers of quantitative information and develop the computational skills needed to manipulate and analyze data. Students should expect to devote several hours outside of class each week to work on their programming skills and understanding of statistical concepts.</p>	
Course objectives	Students will gain experience using and understanding the basic foundations of all quantitative social science. This experience will allow them to conduct	

	<p>their own projects, progress to more advanced courses on regression and causal inference, and evaluate published work.</p> <ul style="list-style-type: none"> • Learn basic probability axioms and rules and the moments of discrete and continuous random variables as well as be familiar with common named discrete continuous random variables. • Use summary statistics and graphs to conduct exploratory data analysis. • Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables. • Conduct hypothesis tests. • Understand the fundamental problem of causal inference. 		
Learning outcomes	<p>At the end of the semester, students who successfully completed the course are expected to:</p> <ol style="list-style-type: none"> Provide examples of how quantitative data may be used to help answer social science research questions. Compare and contrast the goals of description, causation, prediction, and discovery in social science research. Use the programming language R to import and explore social science data and conduct basic statistical analyses. Interpret and describe visual displays of social science data, such as graphs and maps. Develop their own analyses and visualizations to understand social science phenomena. 		
Teaching methods	Lecture		X
	Group discussion		X
	Experiential exercise		X
	Case analysis		X
	Simulation		X
	Course paper		
	Others (internet resources, Handouts and supplementary materials)		
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Class attendance		5
	Active participation		10
	Assignments		20
	Final Exam		35
	Total		100
Policy	<p><u>Assignments:</u> Two assignments will be held throughout the semester. One before midterm, second after the midterm exam. The assignment questions, tasks will be prepared based on the materials taught during the previous lectures. The idea behind the assignments is to make sure that students have successfully grasped the main points covered in the materials. The goal of assignments set is to help you learn the material and enable you to perform</p>		

well on the exams. These are an opportunity for students to apply data science concepts and programming skills to social science applications.

Active participation: Students are expected to attend each class meeting and be an active participant. Active participation involves engaging in class discussion, as well as participating in interactive class exercises.

Midterm: Exam will include the topics covered till the exam date. On the exam date the class will not be held.

Final: Final exam will be comprehensive in nature and will be held at the end of semester.

All exams will be in written and subject to time change.

Make-up Exam Policy:

There are no previously scheduled make-up exams. Students missing both midterm and final exam will automatically be failed, even though they possess a valid excuse. Students missing either midterm or final exam and possess a valid excuse meeting University set standards will be required to take another exam where the questions will completely be different. Same applies for the quizzes. I strongly recommend students to take the exams on scheduled time.

Class attendance:

Students are required to comply with the attendance policy of Khazar University. Full-time students are expected to attend all classes unless they are sick or have the permission of the instructor (*approved absence*).

A student must submit an absence request in anticipation of an absence from the course. In case he/she fails to do so, his absence will be considered unapproved. Specifically, to be eligible for taking exams, students must not miss more than 25% of class hours (*unapproved absences*). Otherwise, the student can take the exam only with the approval of the School Dean. Continuing unapproved absences or lack of participation may lead to withdrawal from the course.

Academic misconduct

Academic honesty plays an essential part in maintaining the integrity of Khazar University. Students are expected to recognize and uphold high standards of intellectual and academic integrity. The following acts are examples of academic dishonesty, therefore are strictly forbidden and will, if proven, be penalized:

- plagiarism,
- cheating,
- unauthorized collaboration,
- falsification,

	<p style="text-align: center;">- multiple submissions.</p> <p><i>On plagiarism:</i> Plagiarism is unethical and an <u>offence</u> under the University regulations. Please familiarize yourself with the regulations relating to plagiarism and cheating in examinations.</p> <p>Plagiarism is copying other people's work without <u>proper</u> attribution. The students committing plagiarism and the students providing materials for plagiarizing will automatically receive a zero (0) for the assignment. Students must always indicate that they used someone else's words and ideas if they have done so, by using quotation marks and mentioning the source in the text or a footnote. A bibliography must also follow after the end of your essays.</p> <p>Rules of Professional Conduct 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. Classroom behavior that seriously interferes with either (a) the instructor's ability to conduct the class or (b) the ability of other students to benefit from the course program will not be tolerated. When a student's behavior in a class is so seriously disruptive as to compel immediate action, the instructor has the authority to remove a student from the class on an interim basis, pending an informal hearing on the behavior.</p>
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Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/Assignments
1	17.02.2026	Introduction and Defining and Collecting Data	(Chapter 1) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition</i> . Pearson, 2023.
2	24.02.2026	Descriptive Statistics and Political Data Obtainment	(Chapter 2) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition</i> . Pearson, 2023.
3	03.03.2026	Numerical Descriptive Measures	(Chapter 3) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition</i> . Pearson, 2023.
4	10.03.2026	Basic Propability	(Chapter 4) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition</i> . Pearson, 2023.
5	17.03.2026	Discrete Probability Distributions	(Chapter 5) David Levine, Kathryn Szabat, David Stephan. <i>Business</i>

			<i>Statistics, 8th edition.</i> Pearson, 2023.
6	24.03.2026	The Normal Distribution	(Chapter 6) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
7		Midterm Exam	
8	07.04.2026	Sampling Distributions	(Chapter 7) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
9	14.04.2026	Confidence Interval Estimation	(Chapter 8) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
10	21.04.2026	Hypothesis Testing I	(Chapter 9) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
11	28.04.2026	Hypothesis Testing II	(Chapter 10) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
12	05.05.2026	Chi-Square Tests	(Chapter 11) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
13	12.05.2026	Simple Linear Regression	(Chapter 12) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
14	19.05.2026	Multiple Regression	(Chapter 13) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
15	26.05.2026	Multivariate Regression and Final Wrap-up	(Chapter 14) David Levine, Kathryn Szabat, David Stephan. <i>Business Statistics, 8th edition.</i> Pearson, 2023.
		Final Exam	

Additional readings and assignments will be provided by the instructor for this course. *If necessary, some minor modifications may be made to this syllabus by the instructor.*