

Identification	Subject (code, title, credits)	ECON 450 Econometrics– 3KU credits/6ECT
	Department	Economics and Management
	Program (undergraduate, graduate)	Undergraduate
	Term	Fall, 2026
	Instructor	Sara Huseynova, Ph.D.
	E-mail:	huseynova.sara@khazar.org
	Classroom/hours	
Prerequisites	BSA 245 Statistics	
Language	English	
Compulsory/Elective	Required	
Required Textbooks and Course Materials	<u>Textbooks:</u> • “Principles of Econometrics ”, R.Carter Hill, Wiliam E.Griffiths, Guay C.Lim 5th Edition, 2023. • “Basic Econometrics”, Damodar Gujarati, Dawn Porter 5th Edition,2023 <u>Supplementary books:</u> • Paul Newbold, William L.Carlson and Betty M.Thorne ``Statistics for Business and Economics’’, 10th edition, 2023. (NW) • Richard Startz “Eviews illustrated”,2023	
Course Outline	This course provides an introduction to the econometric techniques used to analyze data sets in business, economics, finance and statistical theories. It builds on simple and multiple linear regression models. The focus is on understanding how to apply statistical and econometrics tools to the analysis of business and economic applications. The class will cover various topics related with regression analysis, estimation, economic indicators, and surveys. The topics covered in this course include least squares analyses; properties of least squares estimators; statistical inference in simple and multiple regression; regression with dummy variables.	
Course Objectives	Understand the role of econometrics in analyzing economic relationships using real-world data.Apply statistical and mathematical methods to estimate, interpret, and test economic models.Develop and estimate econometric models, including simple and multiple regression models.Evaluate classical linear regression assumptions and diagnose common econometric problems such as: Conduct hypothesis testing using t-tests, F-tests, and confidence intervals. Interpret econometric results for policy analysis, forecasting, and decision-making.Work with time series and panel data, including stationarity, unit root tests, and cointegration analysis.Use econometric software (e.g., EViews) to analyze economic data.Critically assess empirical research published in academic journals.Apply econometric techniques to real economic and financial problems, especially in development, trade, and macroeconomics.	
Learning Outcomes	By the end of the course the students will be able to: - Developing a hypothesis, a research problem, and related questions - Framing the problem with the correct research methodology - Collecting data that accurately addresses the research problem - Measuring the effectiveness of estimation results - Conducting simple and linear regression analysis - Using data to make decisions	
Teaching methods	Lecture	X

	Group Discussion		X
	Experiential Exercise		X
	Case analysis		X
	Course Paper		X
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam	TBA	30
	Class Attendance		5
	Class activity		5
	Quiz	Week 6,12	10
	Home Assignment	Week 15	10
	Final Exam	TBA	40
	Total		100
Policy	Attendance: Students exceeding the 25% absence limit will not be allowed to participate at final exam. Class attendance shall mean physical presence in the classroom which should be 75%. Activity: The evaluation process for student engagement will rely on their level of participation during class discussions, including their responsiveness to the instructor's inquiries and their willingness to pose relevant questions pertaining to the subject matter. Quizzes: Two quizzes are held during the semester. Each quiz is 5% of the final grade and will take 80 minutes. The first quiz is planned to hold on the 6th week and the second quiz will be conducted on the 12th week of the semester. The quizzes are consisting of open-ended and multiple-choice questions. Home Assignment: Group Research report should comprise of the following sections: 1. Introduction 2. Hypothesis development 3. Data 4. Econometric model 5. Estimation result and interpretations 6. Conclusions 7. References Groups shall consist of min 3 and max 4 students. You should hand in group report before the presentations. Presentations shall not be more than 10-14 slides and 15 minutes. More details about the assignments will be provided during the course. Besides this, after the presentations I will ask questions to each team member individually for their individual presentation grading. Correct answers will save you from losing. Additional questions may be asked if necessary. Deadline of this group research is due on 14th week of semester. Cheating / Plagiarism: Cheating or other plagiarism issues during mid-term and final examinations will lead to paper cancellation. As result, the student will automatically get zero (0), without any considerations. Artificial Intelligence Use in the Course Students are allowed to use Artificial Intelligence tools as supplementary learning and analytical tools during the course. AI may be used to support understanding of statistical and econometric concepts, data analysis, idea generation, interpretation of results, and preparation of analytical work. All information, calculations,		

		formulas, references, and analytical results generated by AI must be critically evaluated and verified using reliable academic or official sources. Students must not submit AI-generated content as their own work and remain responsible for the originality, accuracy, and academic integrity of their assignments. Personal, confidential, or sensitive research data should not be entered into AI systems. Any AI-generated calculations, econometric models, statistical procedures, or computer code must be checked and fully understood by the student before use. Where appropriate, students are encouraged to compare AI-generated analytical results with results obtained using EViews or other statistical software. AI should be used ethically and responsibly as a supporting tool to improve students’ analytical and research skills, rather than replacing their own critical thinking and independent analysis.	
Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/Assignments
1		Introduction to Econometrics.The Econometric model.How are data generated?Experimental data , nonexperimental data.Economic data types:Time-series data,cross-section data, panel data .Analyse the data : Descriptive statistics, Covariance and Correlation analyses.Realization on Eviews software program Artificial Intelligence and Econometric Analysis. The role of Artificial Intelligence in econometric research. Machine learning and economic forecasting. AI-based approaches to data analysis. Comparison of traditional econometric methods and AI methods. Applications of Artificial Intelligence in economic analysis.	“Principles of Econometrics ”, R.Carter Hill, Wiliam E.Griffiths, Guay C.Lim 4th Edition.,Chapter 1 Richard Startz “Eviews illustrated”,2023 ,Chapter 2
2		The Simple Linear Regression Model. Assesing the coefficient of simple linear regression equation by the Least Squares Estimators.Elasticity. Realization on Eviews software program	“Principles of Econometrics ”, R.Carter Hill, Wiliam E.Griffiths, Guay C.Lim 4th Edition.,Chapter 2 ,4, Richard Startz “Eviews illustrated”,2023 ,Chapter 3
3		The Simple Linear Regression Model. The Gauss-Markov Theorem.Estimating the variance of the Error term.Using diagnostic residual plots: Heteroskedastic and Homoskedastic residual patterns. White test.Realization on Eviews software program	“Principles of Econometrics ”, R.Carter Hill, Wiliam E.Griffiths, Guay C.Lim 4th Edition.,Chapter 2,4 Richard Startz “Eviews illustrated”,2023 ,Chapter 3
4		The Simple Linear Regression Model. Testing the significance of the model. F-test, Student test, Determination coefficient. Realization on Eviews software program	“Principles of Econometrics ”, R.Carter Hill, Wiliam E.Griffiths, Guay C.Lim 4th Edition.Chapter 6 Richard Startz “Eviews illustrated”,2023 ,Chapter 3
5		Multiple linear regression. The mechanics and interpretation of ordinary least squares	“Principles of Econometrics ”, R.Carter Hill, Wiliam E.Griffiths, Guay C.Lim 4th Edition.,Chapter 5,6

			Richard Startz “Eviews illustrated”,2023 ,Chapter 3
6		Multiple linear regression. The mechanics and interpretation of ordinary least squares. Testing the significance of the model. Autocorrelation: Durbin Watson test. Defining the stability of the model by CUSUM and CUSUM of squares test. Realization on Eviews software program (Quiz 1)	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition.,Chapter 5,6 Richard Startz “Eviews illustrated”,2023 ,Chapter 3
7		Regression with Time-Series Data : Nonstationary time series . Unit root tests for stationarity. Realization on Eviews software program	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition.,Chapter 12 Richard Startz “Eviews illustrated”,2023,Chapter 7
8		Granger causality test. Realization on Eviews software program. VAR models. Impulse response and variance decomposition. Realization on Eviews software program.	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition.,Chapter 12 Richard Startz “Eviews illustrated”,2023 ,Chapter 7
9		Midterm-Exam	
10		Cointegration.Trace test and Max eigenvalue test. Realization on Eviews software program.	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition.,Chapter 12 Richard Startz “Eviews illustrated”,2023 ,Chapter 7,8
11		VEC model. Tests of significance of VEC model. Realization on Eviews software program.	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition.,Chapter 13 Richard Startz “Eviews illustrated”,2023 ,Chapter 7,8
12		Prediction , Goodness-of-Fit and modelling issues. Polynomial model, Log-log model, Log linear model. Examples on Eviews software program.(Quiz 2)	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition., Chapter 7
13		Panel data model	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition., Chapter 15 Richard Startz “Eviews illustrated”,2023 ,Chapter 11
14		Simultaneous equations models	“Principles of Econometrics”, R.Carter Hill, William E.Griffiths, Guay C.Lim 4th Edition., Chapter 11

			Richard Startz “Eviews illustrated”,2023 ,Chapter 12
15		Course Review/ Home assignment	
16		Final Exam	