

Subject card

Subject name and code	Econometrics, PG_00188091						
Field of study	International Business						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Subject group related to scientific research in the field of study		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		English		
Semester of study	2		ECTS credits		4.0		
Learning profile	academic		Assessment form		exam		
Conducting unit	Department of International Economics and Economic Development -> Faculty of Economics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Dorota Ciolek, prof. UG				
	Teachers		dr hab. Dorota Ciolek, prof. UG				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	15.0	0.0	45
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	45		0.0		55.0	100
Subject objectives	The aim of the course is to develop knowledge and skills in the use of econometric methods for analysing economic and business data. Particular emphasis is placed on the specification, estimation, validation, and interpretation of econometric models applied to the analysis of economic phenomena and international business issues.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[IBMU2_U03] can critically evaluate and select sources of information and synthesise knowledge related to international business, and present analytical results in a methodologically justified manner.		The student is able to critically analyse and interpret the results of research employing econometric modelling and present findings in a methodologically justified manner.		[SU2] presentation/project/paper/report		
	[IBMU2_W01] knows and understands in an advanced manner selected facts, objects and phenomena related to economics and finance, as well as complex interrelations between them in the international dimension.		The student knows and understands the role and application of econometric models in analyzing economic and financial phenomena and in interpreting the relationships between them.		[SW4] test/exam - oral or written [SW2] presentation/project/paper/report		
	[IBMU2_U02] can interpret statistical data and economic indicators and select and use information technologies when working with data related to international business.		The student is able to build and estimate an econometric model and verify and interpret it.		[SU2] presentation/project/paper/report [SU4] test/exam - oral or written		

Subject contents	LECTURES (15 hours) 1. Nature of Economic Data a) types of data used in business, finance, economics, and other social sciences b) challenges of causal inference in the social sciences c) econometrics as a tool for testing economic theories and evaluating the effects of economic policies 2. Simple and Multiple Linear Regression Models a) analysing relationships between variables b) multiple regression as a fundamental tool of empirical analysis c) interpretation of regression models as a ceteris paribus analytical framework 3. Estimation of Parameters Using the Ordinary Least Squares (OLS) Method a) the concept of OLS estimation b) interpretation of regression equations c) fitted values and residuals d) goodness-of-fit measures e) properties of OLS estimators f) testing model assumptions 4. Selected Issues in Model Estimation a) irrelevant explanatory variables b) omitted variable bias c) multicollinearity d) outliers and influential observations e) logarithmic functional forms f) models with quadratic terms and interaction effects 5. Regression Analysis with Qualitative Information a) dummy variables b) qualitative explanatory variables c) interpretation of coefficients d) dummy variables for multiple categories 6. Time Series Data a) characteristics of time series data b) trends and seasonality c) unit root tests d) integration order of variables PROJECT – Analytical Laboratory (15 hours) The Analytical Laboratory provides a practical complement to the topics covered during classes. The laboratory focuses on the acquisition, preparation, and analysis of economic data, as well as the use of statistical and econometric software, supporting the development of skills required for the construction and interpretation of econometric models. The scope of the laboratory includes: 1. Acquiring economic and business data from selected national and international sources. 2. Preparing and organizing datasets for econometric analysis. 3. Describing and conducting preliminary data analysis using descriptive statistics and data visualization techniques. 4. Identifying and selecting variables for econometric models. 5. Using statistical and econometric software for data preparation and analysis. 6. Preparing data for regression model estimation and time series analysis. 7. Performing analytical tasks supporting the topics covered during classes. CLASSES (15 hours) 1. Analysis and interpretation of economic data. 2. Construction and interpretation of simple regression models. 3. Construction and interpretation of multiple regression models. 4. Estimation of models using the OLS method and evaluation of model fit. 5. Identification of estimation problems and their impact on analytical results. 6. Application of qualitative variables in regression models. 7. Analysis and interpretation of time series models.
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Prerequisites and co-requisites	Student should be familiar with the principles of consumer and producer behavior, basic models of market competition. General equilibrium and growth, international trade, capital and money markets.		
	The knowledge of elementary linear algebra, differential and integral calculus, statistical theory.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project	51.0%	20.0%
	Practical test	51.0%	30.0%
	Written Exam	51.0%	50.0%
Recommended reading	Basic literature	Koop G., Introduction to Econometrics., John Wiley and Sons, (2008)	
		Wooldridge J.M., Introductory Econometric. A modern approach. , South-Western Cengage Learning (4e - 2009 or 5e - 2013)	
		Ramanathan R., Introductory Econometrics with Applications. South-Western, Mason (2002)	
		Measuring territorial cohesion trends in Europe: a correlation with EU Cohesion Policy Medeiros Eduardo, Zaucha Jacek, Ciolek Dorota, European Planning Studies, 2023, vol. 31, nr 9, s.1868-1884. Przejdź do dokumentu po identyfikatorze cyfrowymDOI:10.1080/09654313.2022.2143713	
	Supplementary literature	Verbeek M., A guide to Modern Econometrics., John Wiley & Sons, Ltd (2e-2004)	
		Greene W.H., Econometric analysis., Prentice Hall, Upper Saddle River, (2008)	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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