

Subject card

Subject name and code	Econometrics in Finance, PG_00154891						
Field of study	Finance and Accounting						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2026/2027		
Education level	Bachelor'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	part-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	5		ECTS credits		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Econometrics -> Faculty of Management -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Sabina Nowak				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	20.0	0.0	0.0	0.0	40
	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	40		25.0		10.0	75
Subject objectives	Demonstrate how to use econometric models as a measurement tool in finance and become aware of their limitations.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[FiRL3_U03] The student can properly analyse the causes, course and effects of specific processes and phenomena in finance and accounting, using advanced theories and relevant social sciences methods. Can identify stakeholders of processes and phenomena from the disciplines of management and quality sciences and economics and finance.	The student can use econometric modelling methods to recognize patterns and trends in financial markets and corporate finance.	[SU5] implementation of a problem task
	[FiRL3_K03] Communication: - is able to present his view, issue in a way that others can understand - boldly (but thoughtfully) expresses his opinion, is not afraid to ask questions - is able to culturally participate in discussions - is able to give constructive criticism.	The student can discuss topics such as financial data analysis, quantitative analysis in corporate finance, and market modelling.	[SK1] oral statement/conversation/discussion
	[FiRL3_W02] The student has advanced knowledge of various types of economic structures and institutions and changes in them, in particular: banking system, insurance system, taxation system, financial markets, organization of the public finance system and the private sector. The student knows the interrelationships between these structures and social institutions on a national and international scale.	The student possesses advanced knowledge of modelling financial data at various frequencies.	[SW4] test/exam - oral or written
	[FiRL3_K02] Cooperation: - can harmoniously interact and work in a group, taking on different roles in it - is able to agree with the group on goals and division of tasks - is open-minded and respects the differences of other team members.	The student can effectively work in a group to analyze issues in the financial market and corporate finance.	[SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[FiRL3_K01] Self-development: - understands the need for development and lifelong learning - is able to supplement and improve the acquired knowledge and skills - knows his strengths and weaknesses, sets ambitious goals to the best of his ability - knows how to accept failure and admit mistakes.	The student recognizes the importance of improving modelling skills in finance and is willing to learn about the modern financial market and corporate finance analysis methods.	[SK8] observation of student's independent or team work
	[FiRL3_U04] The student can forecast economic processes and phenomena in finance and accounting using advanced methods and tools.	The student can use independently specified and estimated econometric models to predict financial market and corporate finance phenomena.	[SU4] test/exam - oral or written
	[FiRL3_U02] The student can acquire data from various sources to analyze specific economic processes and phenomena related to finance. Is able to use information technologies.	The student can obtain financial data from various sources and databases at different frequencies.	[SU5] implementation of a problem task
	[FiRL3_W06] The student has advanced knowledge of methods and tools, including data acquisition and analysis techniques, appropriate to management science and quality, which allow describing economic structures and institutions and the processes within and between them.	The student can access and analyze financial data that describes patterns in the financial market and is used in corporate finance research.	[SW5] implementation of a problem task

Subject contents	1. Econometrics in economic sciences. Financial time series. Types and examples of financial data. 2. Classical linear regression model. Examples of econometric models. 3. Ordinary Least Squares method of estimation (OLS). OLS estimator and its properties. Application of the OLS estimator. Classical linear regression model assumptions. 4. Model verification (part I). Assessing the goodness of fit. 5. Model verification (part II). Testing the individual and joint significance of structural parameters. Confidence intervals. 6. Model verification (part III). Testing the classical linear regression model assumptions: homoscedasticity of the error term, lack of autocorrelation, and normality of distribution. Assessing the correctness of model specification. 7. Forecasts based on econometric models and their accuracy. 8. Dynamic models. Multipliers: calculation and interpretation. Examples of dynamic models. 9. Dummy variables in modelling qualitative and cyclical phenomena. 10. Financial time series and their features. Tests for stationarity. 11. Modelling and forecasting based on autoregressive processes (ARMA, ARIMA). 12. Examples of asset pricing models (Sharpe's, CAPM). 13. Application of econometric modelling techniques in corporate finance.		
Prerequisites and co-requisites	Students should have a good understanding of consumer and producer market behaviors, basic models of market competition, equilibrium and economic growth, international trade, and capital and money markets. Additionally, they should possess elementary knowledge of statistics and practical data mining skills.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written test	51.0%	60.0%
	Closed and open questions from the lecture section	51.0%	40.0%
Recommended reading	Basic literature	1. T. Kufel, Rozwiązywanie problemów z wykorzystaniem programu Gretl. Wydawnictwo Naukowe PWN, Warszawa 2004. 2. G. Koop, Wprowadzenie do ekonometrii. Oficyna Wolters Kluwer, Warszawa 2011. 3. M. Gruszczyński M. Podgórska, T. Kuszewski, Ekonometria i badania operacyjne. Podręcznik dla studiów licencjackich. Wydawnictwo Naukowe PWN, Warszawa 2022.	
	Supplementary literature	1. R. Ramanathan, Introductory Econometrics with Applications. South-Western, Mason 2002. 2. M. Osińska, Ekonometria finansowa. Wydawnictwo PWE, Warszawa 2005. 3. L.C. Adkins, Using <i>gretl</i> for Principles of Econometrics, 5th Edition, Version 1.0, 2018.	
	eResources addresses	Supplementary https://www.learneconometrics.com/gretl/poe5/using_gretl_for_POE5.pdf - L.C. Adkins, Using <i>gretl</i> for Principles of Econometrics, 5th Edition, Version 1.0, 2018.	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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