

Subject card

Subject name and code	Dynamic Econometrics, PG_00178705						
Field of study	Informatics and Econometrics						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study Optional subject group 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	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		7.0		
Learning profile	academic		Assessment form		exam		
Conducting unit	Department of Econometrics -> Faculty of Management -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Marta Chylińska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	8.0	16.0	16.0	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		2.0		133.0	175
Subject objectives	Introduction of students to the basic models of dynamic econometrics.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[liEMU2_U01] The student can creatively and profoundly analyze complex social and economic processes using structured knowledge, econometrics, informatics, or statistics tools.		The student selects and constructs appropriate models in the field of dynamic econometrics.		[SU2] presentation/project/paper/report		
	[liEMU2_W02] The student comprehends advanced theoretical and practical concepts in econometrics, informatics, or statistics, which are essential for a deeper understanding of economic and social phenomena.		The student identifies appropriate methods for processing time series.		[SW4] test/exam - oral or written		
	[liEMU2_W05] The student possesses advanced knowledge and understanding of informatics, statistics, and econometrics techniques and tools used to acquire, process, or visualise data to aid in decision-making and verify research hypotheses.		The student identifies and discusses issues in the field of dynamic econometrics.		[SW4] test/exam - oral or written		
	[liEMU2_U03] The student is able to obtain and verify data from properly selected sources and to collect, process, and visualize it using modern econometrics, informatics or statistics tools.		The student obtains financial time series of various frequencies from databases, verifies their validity, and uses the data to construct dynamic econometric models.		[SU2] presentation/project/paper/report [SU4] test/exam - oral or written		

Subject contents	1. Dynamic econometric models. Examples of dynamic relationships in economics and finance. 2. Basic tools for dynamic analysis: ACF and PACF functions, Ljung-Box test statistic. 3. Single-equation, linear models of stationary time series (AR, MA, ARMA). 4. Modeling of seasonal phenomena (SARIMA models). 5. Modeling of high-frequency financial processes. ARCH and GARCH models. 6. Models of non-stationary time series and their applications. 7. Spurious regression. The concept of cointegration of variables and methods of its testing. Univariate error correction model (ECM). 8. Multivariate time series models and their applications. 9. Analysis of relationships between selected economic and financial categories. VAR model. 10. Vector error correction model (VECM). Engle-Granger and Johansen procedures.		
Prerequisites and co-requisites	Basic knowledge of time series analysis.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Assessment of auditorium classes: written test.	51.0%	40.0%
	Laboratory class assessment: team project and its presentation.	51.0%	30.0%
	Lecture assessment based on a written exam.	51.0%	30.0%
Recommended reading	Basic literature	Osińska M. (2006), Ekonometria finansowa, Polskie Wydawnictwo Ekonomiczne. Witkowska D., Matuszewska-Janica A., Kompa K. (2012), Wprowadzenie do ekonometrii dynamicznej i finansowej, Wydawnictwo SGGW	
	Supplementary literature	Tsay R.S. (2012), An Introduction to Analysis of Financial Data with R., Wiley.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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