

Subject card

Subject name and code	Financial Econometrics, PG_00157257						
Field of study	Informatics and Econometrics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2025/2026		
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	part-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		3.0		
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		dr hab. Anna Zamojska				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	5.0	10.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
	Additional information:						
	DiscussionSolving tasksLecture with multimedia presentation						
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	15		15.0		45.0	75
Subject objectives	To familiarize students with basic financial econometrics models that enable forecasting rates of return on financial instruments, their volatility and risk.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[liEMU2_U05] The student is able to make a statistical description of basic and detailed economic categories at an advanced level, formulate and verify hypotheses about their formation.	The student is able to formulate and estimate an econometric model and validate it.	[SU2] presentation/project/paper/report [SU6] demonstration of practical skills
	[liEMU2_U07] The student is able to build advanced formal models of complex economic phenomena and processes, estimate them, carry out their verification and apply them to modeling, forecasting and optimization of resources of economic institutions of varying degrees of complexity, their structure and the course of processes in them.	Developing skills in modeling and forecasting rates of return on financial instruments, verifying the operation of the law of one price on financial markets and estimating value at risk for a single financial instrument and portfolios composed of them.	[SU1] oral statement/conversation/discussion [SU3] text preparation/written work
	[liEMU2_W04] The student has an in-depth knowledge of advanced mathematical, statistical, econometric and IT methods that enable the acquisition, processing and analysis of data reflecting the functioning and growth of the national economy and its components, as well as the phenomena and processes occurring in their environment.	Developing skills in modeling and forecasting rates of return on financial instruments, verifying the operation of the law of one price on financial markets and estimating value at risk for a single financial instrument and portfolios composed of them.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[liEMU2_K01] The student understands the need for continuous completion and deepening of acquired knowledge. The student inspires and organizes others' learning processes.	The student is able to independently collect data, formulate an econometric model and present a verification of the hypothesis concerning financial time series.	[SK1] oral statement/conversation/discussion [SK2] presentation/project/paper/report [SK5] implementation of a problem task
	[liEMU2_K03] The student is able to communicate freely with the public inside and outside the workplace, transfer his knowledge and share his skills through various media.	The student is able to present a model describing the formation of financial time series.	[SK1] oral statement/conversation/discussion [SK2] presentation/project/paper/report
Subject contents	[liEMU2_W02] The student has an in-depth knowledge of economic structures and institutions, the processes taking place in them, the connections between them and their dynamics, and has an in-depth knowledge of the phenomena and processes taking place in their environment.	The student is able to formulate and estimate an econometric model and validate it.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW3] text preparation/written work
	Modeling rates of return on financial instruments: statistical description, models of rates of return, determining the shape of the tail of the distribution, modeling the middle part of the distribution, testing covariance stationarity, skewness and kurtosis, distribution of absolute rates of return. The operation of the law of one price in financial markets: purchasing power parity, interest rate parity (CIP, UIP, FRU), hypothesis of expectations of the term structure of interest rates (PEH, CTP, LPH, TVR), the relationship between the spot price and the forward price, prices on geographically distant markets. Estimating and forecasting the risk of financial instruments and the risk of portfolios composed of them: value at risk for a single instrument and portfolio, determining value at risk using the simulation method, stress testing, value at risk for a credit portfolio.		
	Prerequisites and co-requisites		
	Students should be familiar with the theory of market efficiency, the concept of rational expectations, and asset pricing models. Basic knowledge of dynamic econometrics and practical data mining skills are essential.		
	Assessment methods and criteria		
	Subject passing criteria	Passing threshold	Percentage of the final grade
Recommended reading	written test	51.0%	70.0%
	project	51.0%	30.0%
	Basic literature		
Recommended reading	Supplementary literature	P. Best, Wartość narażona na ryzyko. Dom Wydawniczy ABC, Kraków 2000. K. Cuthbertson, D. Nitzsche, Quantitative Financial Economics. Stocks, Bonds and Foreign Exchange. Wiley, Chichester 2004. M. Doman, R. Doman, Modelowanie zmienności i ryzyka. Oficyna Wolters Kluwer Business, Kraków 2009. M. Osińska, Ekonometria finansowa. Polskie Wydawnictwo Ekonomiczne, Warszawa 2006.	
		K. Dowd, Measuring market risk. Wiley, Chichester 2002. K. Dowd, An introduction to market risk measurement. Wiley, Chichester 2002. T.C. Mills, The Econometric Modelling of Financial Time Series. Cambridge University Press, Cambridge 2004. S.J. Taylor, Asset Price Dynamics, Volatility, and Prediction. Princeton University Press, Princeton 2005.	
	eResources addresses		

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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