

Subject card

Subject name and code	Forecasting, PG_00157043						
Field of study	Finance and Accounting						
Date of commencement of studies	October 2024		Academic year of realisation of subject			2026/2027	
Education level	undergraduate 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	3		Language of instruction			English	
Semester of study	5		ECTS credits			3.0	
Learning profile	academic		Assessment form				
Conducting unit	Katedra Ekonometrii -> Faculty of Management						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Lech Kujawski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	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	30		10.0		35.0	75
Subject objectives	Acquiring basic knowledge of the theoretical foundations of forecasting theory under conditions of uncertainty/risks. Learning selected, simplest forecasting methods applicable in typical situations encountered in economic decision-making. Gaining practical skills in generating forecasts and analyzing forecasting accuracy both ex ante and ex post.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[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.	Knows and is able to apply the Brown's model (also known as the Brown's exponential smoothing model).	[SK2] presentation/project/paper/report
	[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.	Understands and knows how to interpret the parameters of forecast distributions and ex post forecasting errors, such as MSE (Mean Squared Error), RMSE (Root Mean Squared Error), MAE (Mean Absolute Error), and MAPE (Mean Absolute Percentage Error).	[SW2] presentation/project/paper/report
	[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.	Knows forecasting methods based on smoothing.	[SU2] presentation/project/paper/report
	[FiRL3_U04] The student can forecast economic processes and phenomena in finance and accounting using advanced methods and tools.	Knows and is able to apply Holt's model (also known as Holt's linear trend model).	[SU2] presentation/project/paper/report
	[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.	Knows the basic concepts of forecasting theory, understands the forecasting method, and knows what is meant by forecast variable, forecast, and forecasting error.	[SK2] presentation/project/paper/report
	[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.	Knows and is able to apply Winters' model (also known as Holt-Winters' seasonal model).	[SW2] presentation/project/paper/report
Subject contents	**Basic Concepts of Forecasting Theory:** - **Forecasting Method:** The approach used to predict future values based on historical data. - **Forecast Variable:** The specific variable that is being predicted. - **Forecast:** The predicted value of the forecast variable. - **Forecasting Error:** The difference between the actual value and the forecasted value. **Smoothing-Based Forecasting Methods:** - **Parametric Smoothing Methods:** - **Brown's Method:** A form of exponential smoothing that applies a single smoothing parameter to model level changes. - **Holt's Method:** Extends Brown's method by incorporating a trend component, allowing for forecasts that account for linear trends. - **Holt-Winters' Method:** Further extends Holt's method by adding a seasonal component, which makes it suitable for data with seasonal patterns.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		51.0%	100.0%
Recommended reading	Basic literature	1. Makridakis S., S. C. Wheelright, R. J. Hyndman, Forecasting: Methods and Applications, third edition, John Wiley & Sons, 1998	
	Supplementary literature	None	
	eResources addresses	Adresy na platformie eNauczanie:	

Example issues/ example questions/ tasks being completed	1. Omów sposoby weryfikacji dobroci dopasowania prognoz ex post do danych emirycznych. 2. Zinterpretuj otrzymane miary dopasowania prognoz.
Work placement	Not applicable

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