



Subject card

Subject name and code	ADVANCED FORECASTING METHODS, PG_00066369						
Field of study	Economic Analytics						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2025/2026		
Education level	second-cycle studies	Subject group			Optional subject group Specialty 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	2	Language of instruction			Polish		
Semester of study	3	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Statistics and Econometrics -> Faculty of Management and Economics						
Name and surname of lecturer (lecturers)	Subject supervisor	dr Aneta Sobiechowska-Ziegert					
	Teachers	dr Aneta Sobiechowska-Ziegert					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	16.0	0.0	0.0	16
	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	16	4.0		55.0		75
Subject objectives	Designs innovative solutions to complex economic phenomena, taking into account many factors shaping them and selecting appropriate methods to achieve a satisfactory result						
Learning outcomes	Course outcome	Subject outcome			Method of verification		
	[K7_W03] Demonstrates in-depth knowledge of the applications of analytical methods and techniques for formulating and solving analytical problems	identifies and selects advanced methods of forecasting economic phenomena appropriate to the situation			[SW1] Assessment of factual knowledge		
	[K7_U01] Develops innovative solutions for complex and unstructured processes, considering unpredictable environmental conditions by synthesizing information from multiple sources	uses advanced methods of forecasting economic phenomena, correctly formulating the research problem and selecting appropriate methods of solving it			[SU4] Assessment of ability to use methods and tools		
Subject contents	Forecasting by analogy - criteria for similarity of variables, partial and global forecasting Forecasting by analogy - leading and imitating variable Use of spatial-temporal variables for forecasting Forecasting of qualitative phenomena - probit and logit models Forecasting of qualitative phenomena - aggregate (synthetic) variables Forecasting on the basis of cohort analysis models Warning forecasting in the enterprise Creation of scenarios for the company Combined forecasts and integration of qualitative and quantitative forecasts Principles and methods of creating long-term forecasts - testing the structural stability of the model Principles and methods of creating long-term forecasts - the idea of a crawling section Application of neural networks in forecasting - introduction, types of networks Application of neural networks in forecasting - network architecture, model testing and validation						
Prerequisites and co-requisites	Knowledge of adaptive forecasting methods, the ability to determine conditional forecasts based on econometric models and to assess the quality and accuracy of forecasts made.						
Assessment methods and criteria	Subject passing criteria	Passing threshold			Percentage of the final grade		
	Test	55.0%			40.0%		
	Tasks to be done	55.0%			60.0%		

Recommended reading	Basic literature	Tadeusiewicz R, Szaleniec M., Leksykon sieci neuronowych, Wydawnictwo Fundacji Projekt Nauka, Wrocław 2015 Miller A., Bućko P. Zastosowanie sieci neuronowych do prognozowania cen na giełdzie energii, ZN WEiA PG nr 40, Gdańsk 2014 Zeliaś A., Pawełek B., Wanat S., Prognozowanie ekonomiczne, teoria, przykłady, zadania, PWN 2003 Cieślak M., red. Nauk. Prognozowanie gospodarcze. Metody i zastosowania, PWN 2022 Maciąg A., Pietroń R., Kukła S., Prognozowanie i symulacja w przedsiębiorstwie, PWE, Warszawa 2013
	Supplementary literature	Perzyńska J. Zastosowanie sztucznych sieci neuronowych do prognozowania szeregów czasowych, Zeszyty Naukowe ZPSB FIRMA i RYNEK 2018/2 (54) Korzeniewska A., Budowanie scenariuszy zmian otoczenia małych firm z wykorzystaniem metody "environmental scanning", Zeszyty Naukowe US 540- Ekonomiczne Problemy Usług nr 34, 341-348. 2009
	eResources addresses	Uzupełniająca Adresy na platformie eNauczenie:
Example issues/ example questions/ tasks being completed	Based on the database for a specific variable, using the spatio-temporal analogy method with an angular shape similarity measure, calculate an expired sequential forecast for the selected country and check its accuracy Based on the database, estimate the logit model of the probability of causing an accident and set forecasts of the probability of causing an accident within a year from the moment of signing the TPL contract for drivers aged 20, 25, 30 and 35, depending on the time of holding a driving license Based on a database of income and expenditure on basic goods, randomly selected families and information on car ownership, use the neural network as a classifier of car-owning families depending on income and expenditure	
Work placement	Not applicable	

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