



Subject card

Subject name and code	FORECASTING AND SIMULATIONS, PG_00068706						
Field of study	Economic Analytics						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle 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 (on-line)		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		5.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department Of Statistics And Econometrics -> Faculty Of Management And Economics -> Wydział Politechniki Gdańskiej						
Name and surname of lecturer (lecturers)	Subject supervisor						
	Teachers						
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	8.0	0.0	24.0	0.0	0.0	32
	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	32		5.0		88.0	125
Subject objectives	Analyzes economic phenomena in an innovative way, using in-depth knowledge in the selection of appropriate forecasting methods and verification of the received forecasts						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_U04] is able to prepare and convincingly present the results of specialized analyses, providing in-depth interpretation during debates and meetings with various audiences.		prepares professional presentations of innovative solutions to complex problems, interpreting connections between variables in the forecasting and simulation process		[SU5] Assessment of ability to present the results of task		
	[K7_W03] demonstrates in-depth knowledge of the applications of analytical methods and techniques for formulating and solving socio-economic problems.		selects appropriate methods by calculating forecasts of complex socio-economic phenomena		[SW1] Assessment of factual knowledge		
Subject contents	Introduction to the subject of forecasting and simulation - basic concepts Assessment of the quality of forecasting models and forecasts Adaptive forecasting methods review Forecasting based on linear and non-linear trends, with seasonal fluctuations and without fluctuations Other forecasting methods based on time series Assumptions for forecasting based on econometric models Forecasting based on cause-and-effect econometric models - conditional forecasts The use of autoregressive models in forecasting Forecasting in conditions of autocorrelation of the random component Forecasting in conditions of instability of structural parameters Forecasting based on multi-equation models Qualitative data models in forecasting						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Final test		55.0%		20.0%		
	Case study + presentation		55.0%		20.0%		
	Written exam		55.0%		60.0%		

Recommended reading	Basic literature	<p>Zeliaś A., Pawełek B., Wanat S., Prognozowanie ekonomiczne, teoria, przykłady, zadania, PWN, Warszawa 2003</p> <p>Radzikowska B. (red.), Metody prognozowania. Zbiór zadań, AE Wrocław 2004</p> <p>Dittman P., Prognozowanie w przedsiębiorstwie - metody i ich zastosowanie, Wolters Kluwer, Kraków 2008</p>
	Supplementary literature	<p>Cieślak M., Prognozowanie gospodarcze - metody i zastosowania, PWN Warszawa 1997 i nowsze</p> <p>Radzikowska B. (red.), Metody prognozowania. Zbiór zadań, AE Wrocław 2004</p>
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	<p>Based on monthly observations of cash in the vaults of monetary financial institutions of MFIs for the period from January 2017 to July 2020 (National Bank of Poland https://www.nbp.pl/home.aspx?f=/statystyka/statystyka.html), determine all possible expired forecasts and the expired forecast of phenomena for August 2020 using the following methods: naive method, simple moving average method with k smoothing constants of 3.4 and 5, respectively, weighted moving average method with k=3 smoothing constant and simple method of Brown's exponential smoothing with the smoothing constant =0.7 and the real time prediction h=1. Calculate the errors for the August 2020 forecast and the root mean square error of the expired forecasts.</p>	
Work placement	Not applicable	

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