

Subject card

Subject name and code	Forecasting, PG_00156754						
Field of study	Informatics and Econometrics						
Date of commencement of studies	October 2024		Academic year of realisation of subject			2026/2027	
Education level	Bachelor'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	full-time studies		Mode of delivery			at the university	
Year of study	3		Language of instruction			Polish	
Semester of study	5		ECTS credits			8.0	
Learning profile	academic		Assessment form			exam	
Conducting unit	Department of Econometrics -> Faculty of Management -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Juliusz Giżyński				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	30.0	15.0	0.0	0.0	75
	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	75		30.0		95.0	200
Subject objectives	Gain practical skills in determining forecasts and evaluating their acceptability and accuracy.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[liEL3_U09] The student can prepare a typical written work, oral speech and multimedia presentation on the functioning and development of the national economy and its elements, the course of simple economic phenomena and processes, obtaining data about them, collecting, processing and analyzing them. and economic processes, obtaining data about them, their collection, processing and analysis using modern mathematical, statistical, econometric and IT techniques, econometric and information technology, as well as their use in modeling, forecasting and optimization.	The student is able to prepare a credit project, based on the acquired statistical data, using selected forecasting methods.	[SU2] presentation/project/paper/report [SU5] implementation of a problem task
	[liEL3_W04] The student has advanced knowledge of mathematical, statistical, econometric and computer methods of obtaining, processing and analysing data depicting the functioning and development of the national economy and its elements, as well as the phenomena and processes occurring in their environment.	The student is able to identify different ways of forecasting economic data depending on the type of data, as well as identify tools for verifying these forecasts and ways of interpreting them.	[SW4] test/exam - oral or written [SW5] implementation of a problem task
	[liEL3_W05] The student has advanced knowledge of the sources of socio-economic data, their databases and ways of creating them.	The student has knowledge of obtaining socio-economic data from diverse sources (databases).	[SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report [SW5] implementation of a problem task
	[liEL3_U03] The student is able to identify institutional-legal and social constraints on the functioning of economic structures and institutions and reflect them in modelling, forecasting and optimization.	The student is able to identify various limitations in forecasting economic phenomena.	[SU4] test/exam - oral or written [SU5] implementation of a problem task
	[liEL3_K01] The student understands the need to constantly supplement and deepen acquired knowledge; is open to new ideas and teaching methods.	The student understands the need to deepen knowledge and acquire skills in forecasting.	[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written
	[liEL3_K02] The student can communicate with the public on computer science and econometrics topics in and outside the workplace, communicate his knowledge and share his skills through various media.	The student is able to perform and in an understandable, accessible way to present to the group a presentation of a credit work in the field of forecasting.	[SK1] oral statement/conversation/discussion [SK2] presentation/project/paper/report
	[liEL3_U06] The student can forecast complex economic phenomena and processes and verify the properties of the obtained forecasts.	Students are able to forecast complex phenomena and processes in the economy, as well as to check the properties of the obtained results based on selected statistical tests.	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written [SU5] implementation of a problem task
	[liEL3_U07] The student can build formal models of complex economic phenomena and processes, estimate them, carry out their verification, and apply them to modelling, forecasting and optimization of the resources of low-complexity economic institutions, their structure and the course of processes in them.	The student is able to specify and estimate different types of econometric models, verify them and check their predictive properties.	[SU2] presentation/project/paper/report [SU4] test/exam - oral or written [SU5] implementation of a problem task

Subject contents	1. Learning the basic concepts of forecasting. 2. Forecasting based on moving average (simple, weighted); decomposition of forecast errors. 3. Forecasting using exponential smoothing (methods: Brownian, Holt, Winters). 4. Forecasting based on trend models (linear, nonlinear). 5. Forecasting on the basis of trend models with seasonal fluctuations. 6. Causal model. Quality of an econometric model vs. its usefulness in forecasting, tests of stability of structural parameters of models, tests of forecasting properties of models. 7. Survey methods in forecasting. 8. Forecasting methods on the basis of expert opinion (individual and team). 9. Forecasting methods on the basis of scenarios. 10. Qualitative methods of forecasting: delphi, reflection and brainstorming. 11. Analog methods of forecasting.		
Prerequisites and co-requisites	A. Prerequisites Students should be familiar with the behavioral principles of national economy models, capital market equilibrium, etc. Elementary knowledge of linear algebra, differential and integral calculus, descriptive and mathematical statistics and practical data mining skills are essential. B. Formal requirements Prior passing of economics I, economics II, mathematics I, financial and insurance mathematics, descriptive and economic statistics, mathematical statistics with elements of probability calculus.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Examination grade (written exam)	51.0%	30.0%
	Project grade (credits)	51.0%	60.0%
	Activity in class	51.0%	10.0%
Recommended reading	Basic literature		
	A.1. <i>used during classes:</i> 1. Cieślak M. (2008). Prognozowanie gospodarcze. Metody i zastosowania. Wydawnictwo Naukowe PWN, Warszawa. 2. Dittmann P. (2003), Prognozowanie w przedsiębiorstwie, Oficyna Ekonomiczna. 3. Gajda J.B. (2017), Prognozowanie i symulacja w ekonomii i zarządzaniu, C.H.Beck. 4. Maciejewski W. (2018). Prognozy analogowe. Metody heurystyczne Uniwersytet Warszawski, Wydział Nauk Ekonomicznych. A.2. <i>studied independently by the student:</i> 1. Hyndman R.J., Athanasopoulos A., Forecasting: Principles and Practice, Monash University, Australia, https://otexts.com/fpp3/ . 2. Jakimowicz A. (2012), Modele i prognozy w ekonomii i finansach, PWN.		

	Supplementary literature	1. Makridakis S.G., Wheelwright S.C., Hyndman R.J. (1998), Forecasting: Methods and Applications, Wiley. 2. Matejun M., Kuczmera-Ludwicyńska E. (red.) (2012). Metoda delficka w naukach o zarządzaniu Oficyna Wydawnicza SGH, Warszawa. 3. Philip E. Tetlock, Dan Gardner (2017), SUPERPROGNOZOWANIE. Sztuka i nauka prognozowania, CeDeWu, Warszawa.
	eResources addresses	Basic https://bg.ug.edu.pl/e-biblioteka/e-ksiazki - Library of the University of Gdansk
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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