University of Gdańsk

Subject card

Subject name and code	Forecasting of Economic Processes, PG_00199306						
Field of study	Economics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2027/2028		
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	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Logistics -> Faculty of Economics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Beata Chmiel				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	0.0	15.0	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		0.0		20.0	50
Subject objectives	To introduce students to the basic methods of forecasting economic processes and to impart the ability to use them in practice. To familiarise students with the possibilities of using the Statistica programme for forecasting economic processes.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[EKONMU2_U13] can manage teamwork as well as interact and work in a team (including in an international environment) assuming a leading role in it	The student is able to work as part of a team, taking on various roles within the team, including leadership.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU8] observation of student's independent or team work
[EKONMU2_K05] correctly identifies, diagnoses and solves advanced dilemmas and alternative solutions related to the profession	The student identifies, diagnoses and resolves dilemmas and different options for solutions related to forecasting.	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written [SK8] observation of student's independent or team work
[EKONMU2_K01] recognises the importance of knowledge in the field of economics in the process of identifying and solving economic problems and of consulting experts when having difficulties in solving them independently	The student recognises the importance of knowledge in the forecasting process and of consulting experts when having difficulty finding solutions on their own.	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written [SK8] observation of student's independent or team work
[EKONMU2_U07] can independently propose solutions to complex economic or social problems, select methods of analysis and conduct conclusive procedures in this respect	The student is able to select methods for forecasting economic processes and parameters for assessing the quality of forecasts.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU8] observation of student's independent or team work
[EKONMU2_W03] has a knowledge of relations between economic phenomena, entities and organisations as well as public institutions functioning in the national, international and intercultural spheres	The student has an in-depth knowledge of economic processes.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[EKONMU2_U02] can use acquired knowledge to describe and analyse the causes and course of economic and social processes and phenomena, and can formulate his/her own opinions and critically select data and analysis methods based on the achievements of economic and social sciences	The student is able to use his/her knowledge to describe and analyse the causes and course of economic processes and phenomena, preparing a project on forecasting economic phenomena, which is presented in class.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written [SU8] observation of student's independent or team work
[EKONMU2_U04] can forecast and model complex economic and social processes using quantitative and qualitative methods and tools developed by economic sciences (including statistics and econometrics)	The student is able to use his/her knowledge to describe and analyse the causes and course of economic processes and phenomena.	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written [SU8] observation of student's independent or team work
[EKONMU2_W06] has an in-depth understanding of statistical and econometric methods and tools for describing and modelling macro- and microeconomic economic structures and public institutions, as well as the processes taking place within them.	Student knows selected methods and tools for describing and forecasting economic processes.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion

Subject contents	**1.Introduction to the Statistica package as a tool to support data analysis** Documents in Statistica, elements of a worksheet, variable specification window, case name manager, programme modules, importing data from another application, validating data, creating subsets, creating your own worksheet **2. The essence of forecasting** Definitions of forecasting and forecasting, functions and classifications of forecasts, overview of forecasting methods, parameters for assessing the quality of forecasts, costs of forecasting **3. Organisation of the forecasting process** Stages of forecasting: formulation of a forecasting task, provision of forecasting rationale, selection of a forecasting method, determination of a forecast, evaluation of forecast acceptability, verification of a forecast **4. Heuristic forecasting methods** Essence of heuristic methods, brainstorming, Delphi method, questionnaire survey **5. Analogue forecasting** Essence of analogue forecasting, historical analogies, spatial-temporal analogies **6. Time series models** Concept of a time series, components of a time series, time series models **7. Classical trend models** Analytical models, adaptive model **8. exponential smoothing models** Simple Brownian exponential smoothing model, Holt's two-parametric exponential smoothing model, Winter's three-parametric exponential smoothing model **9. forecasting on the basis of autoregressive models** AR autoregressive process, MA moving average process, autoregressive process and mean **10. Forecasting economic processes based on time series using the Statistica software** Creation of a trend model, estimation of structural parameters (using the Multiple Regression module), residuals, assumptions, prediction, forecasting based on the exponential smoothing model (module: Advanced Linear and Nonlinear Models) **11. Causal econometric model** Definition of an econometric model, classifications of models, stages of model construction, use of a causal econometric model for forecasting **12. Forecasting based on a causal econometric model using the Statistica software** Construction of an econometric model (specification of variables using Z. Hellwigs method of integral capacities, parameter estimation and model verification, use of the econometric model for predicting economic processes) In order to deepen the concepts discussed during lectures, students have the opportunity to participate in consultations
Prerequisites and co-requisites	Realised learning outcomes in terms of knowledge and skills in the subjects: Macroeconomics III, Managerial economics, Applications of econometrics, Instrumentation of economic research. Basic economic knowledge.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	0.0%	15.0%
Activity	0.0%	5.0%
Assessment test	51.0%	80.0%

Recommended reading

Basic literature

- L. Reszka: Prognozowanie w logistyce małego przedsiębiorstwa. Wydawnictwo Uniwersytetu Gdańskiego, Gdansk 2010
- A. Luszniewicz, T. Słaby: *Statystyka z pakietem komputerowym Statistica PL. Teoria i zastosowania. C.H.Beck, Warszawa 2008*
- *A. Zeliaś: Prognozowanie ekonomiczne. Wydawnictwo Naukowe PWN, Warszawa 2008*
- *Prognozowanie gospodarcze. Metody i zastosowania.* Praca zbiorowa pod red. M. Cieślak: PWN, Warszawa 2005.
- D. Witkowska: Podstawy ekonometrii i teorii prognozowania. Oficyna Ekonomiczna, Kraków 2012.

	Supplementary literature	• L. Reszka: Decyzje menedżerskie w logistyce. Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2019 • L. Reszka: Econometric Forecasting in Logistics Support System for Small Enterprise [W:] N. Fabbes-Coste, M. Koulikoff-Souviron (red.): Ninth ELA Doctorate Workshop 2004. European Logistics Association 2004 • L. Reszka: Wykorzystanie metod prognostycznych w małych przedsiębiorstwach w Polsce na przykładzie prognozowania popytu pierwotnego [W:] M. Chaberek, A. Jezierski (red.): Modelowanie procesów i systemów logistycznych, cz. VII. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu Lądowego, nr 38 Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2009 • L. Reszka: Prognozowanie w systemie wsparcia logistycznego przedsiębiorstwa [W:] M. Chaberek, A. Jezierski (red.): Modelowanie procesów i systemów logistycznych, cz. VI. Zeszyty Naukowe Uniwersytetu Gdańskiego. Ekonomika Transportu Lądowego, nr 35 Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2007, ISSN 0208-4821, s. 103-114 • G. Elliott, A. Timmermann, Economic Forecasting, Princeton University Press, Princeton, Oxford 2016 • J. W. Wiśniewski: Microecometrics in Business Management, Wiley 2016
	eResources addresses	
Example issues/ example questions/ tasks being completed	-	
Work placement	Not applicable	

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