



Subject card

Subject name and code	ECONOMETRICS, PG_00070836						
Field of study	Economic Analytics						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2027/2028		
Education level	first-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	Full-time studies	Mode of delivery			at the university		
Year of study	2	Language of instruction			Polish		
Semester of study	4	ECTS credits			4.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Statistics and Econometrics -> Faculty of Management and Economics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Dagmara Nikulin					
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=47539						
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	60		3.0		37.0	100
Subject objectives	preparing students to construct and verify econometric models that enable the analysis of economic phenomena and solving economic problems, based on knowledge in the fields of statistics, mathematics, and economics, as well as preparing them to use quantitative methods in decision-making processes within a company.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_K02] is prepared to make competent and ethical decisions to create and maintain economic, social, and environmental values, demonstrating entrepreneurial actions.		is ready to make ethical decisions based on econometric analysis results and to responsibly interpret models in the context of their economic and social consequences.		[SK5] Assessment of ability to solve problems that arise in practice		
	[K6_U07] uses advanced information technologies to enhance data analysis and decision-making processes.		is able to apply specialized econometric software to construct, estimate, and validate econometric models, thereby enhancing data analysis and supporting decision-making processes in enterprises and the economy.		[SU1] Assessment of task fulfilment [SU5] Assessment of ability to present the results of task		
	[K6_W05] possesses advanced knowledge in integrating data from various sources and in methods that enable a comprehensive analysis of economic problems.		knows and understands the methods of constructing, estimating, and validating econometric models in the context of analyzing complex economic processes and phenomena, economic problems, and decision-making issues within an enterprise.		[SW1] Assessment of factual knowledge		

Subject contents	<p>Course content – lecture</p> <ol style="list-style-type: none"> 1. The econometric model and its components 2. Simple and multiple regression 3. Stages of building an econometric model 4. Specification of an econometric model 5. Estimation of parameters in a linear econometric model 6. The least squares method (OLS) for estimating a linear econometric model 7. Stochastic assumptions in an econometric model 8. Economic verification/validation of an econometric model 9. Statistical verification, assessment of model fit, and testing the stochastic properties of the model 10. Estimation of a linear regression model using the method of moments and maximum likelihood 11. Multiplicative models: properties and parameter estimation methods 12. Autocorrelation of the error term: causes, consequences, measurement, testing, and remedies 13. Heteroskedasticity of the error term 14. Generalised least squares (GLS) 15. Estimation of model parameters under autocorrelation and heteroskedasticity of the error term 16. Instrumental variables regression (IV) 17. Introduction to panel data 18. Introduction to time series 19. Dynamic models and causal effects over time 20. Experiments and quasi-experiments 21. Forecasting and big data an introduction 											
	<p>Course content – laboratory</p> <ol style="list-style-type: none"> 1. The econometric model and its components 2. Simple and multiple regression 3. Stages of building an econometric model 4. Specification of an econometric model 5. Estimation of parameters in a linear econometric model 6. The least squares method (OLS) for estimating a linear econometric model 7. Stochastic assumptions in an econometric model 8. Economic verification/validation of an econometric model 9. Statistical verification, assessment of model fit, and testing the stochastic properties of the model 10. Estimation of a linear regression model using the method of moments and maximum likelihood 11. Multiplicative models: properties and parameter estimation methods 12. Autocorrelation of the error term: causes, consequences, measurement, testing, and remedies 13. Heteroskedasticity of the error term 14. Generalised least squares (GLS) 15. Estimation of model parameters under autocorrelation and heteroskedasticity of the error term 16. Instrumental variables regression (IV) 17. Introduction to panel data 18. Introduction to time series 19. Dynamic models and causal effects over time 20. Experiments and quasi-experiments 21. Forecasting and big data an introduction 											
Prerequisites and co-requisites	mathematics, microeconomics, macroeconomics, statistics, mathematical statistics											
Assessment methods and criteria	<table border="1"> <thead> <tr> <th>Subject passing criteria</th> <th>Passing threshold</th> <th>Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Problem questions (oral exam)</td> <td>60.0%</td> <td>70.0%</td> </tr> <tr> <td>Computational and decision-making tasks (written test)</td> <td>60.0%</td> <td>30.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Problem questions (oral exam)	60.0%	70.0%	Computational and decision-making tasks (written test)	60.0%	30.0%
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Recommended reading	Basic literature	<ol style="list-style-type: none"> 1. Maddala, G.S. (2022). Ekonometria, Warszawa: Wydawnictwo Naukowe PWN 2. Borkowski, B., Dudek, H., Szczęsny, W. (2020). Ekonometria. Wybrane zagadnienia, Warszawa: Wydawnictwo Naukowe PWN 										
	Supplementary literature	<ol style="list-style-type: none"> 1. Nowak, E. (2022) Zarys metod ekonometrii. Zbiór zadań, Warszawa: Wydawnictwo Naukowe PWN 										
	eResources addresses											
Example issues/ example questions/ tasks being completed	<p>Consider the following inflation model: $\text{inf}_t = 8,0 + 0,6\text{inf}_{t-1} - 0,7 r_t + \epsilon_t$, where: inf_t annual inflation in period t (in%), r_t real interest rate at the beginning of period t (in%). Identify the short-term effect of the impact of the interest rate on the level of inflation and the time-lagged inflation level.</p>											
Practical activities within the subject	Not applicable											

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