GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	ECONOMETRICS, PG_00066523		
Field of study	Economic Analytics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
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	Part-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	4	ECTS credits	5.0
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	dr hab. Dagmara Nikulin	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	16.0	0.0	16.0	0.0	0.0	32

E-learning hours included: 0.0

eNauczanie source address: https://enauczanie.pg.edu.pl/moodle/course/view.php?id=47540

Moodle ID: 47540 Ekonometria nstac 2026 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=47540

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	6.0	87.0	125

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_W05] Possesses advanced knowledge of data integration from multiple sources and advanced analytical methods, enabling the analysis of complex economic problems.	knows and understands the methods of building, estimating, and verifying econometric models in the context of analyzing complex economic processes and phenomena, economic problems, and decision-making problems in an enterprise.	[SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge
[K6_U05] Designs innovative solutions to challenging problems by applying knowledge from the field of economic analytics, achieving economically and socially valuable outcomes.	is able to select and apply econometric model estimation and verification methods to solve complex economic problems, including identifying interdependencies between economic processes and determining solutions for the decision-making process in an enterprise.	[SU4] Assessment of ability to use methods and tools

<table>
<tr><td>Subject contents</td><td>Course content – lecture
The econometric model and its components
Simple and multiple regression
Stages of building an econometric model
Specification of an econometric model
Estimation of parameters in a linear econometric model
The least squares method (OLS) for estimating a linear econometric model
Stochastic assumptions in an econometric model
Economic verification/validation of an econometric model
Statistical verification, assessment of model fit, and testing the stochastic properties of the model
Estimation of a linear regression model using the method of moments and maximum likelihood
Multiplicative models: properties and parameter estimation methods
Autocorrelation of the error term: causes, consequences, measurement, testing, and remedies
Heteroskedasticity of the error term
Generalised least squares (GLS)
Estimation of model parameters under autocorrelation and heteroskedasticity of the error term
Instrumental variables regression (IV)
Introduction to panel data
Introduction to time series
Dynamic models and causal effects over time
Experiments and quasi-experiments
Forecasting and big data an introduction</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>mathematics, macroeconomics, microeconomics, statistics, mathematical statistics</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<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>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Maddala, G.S. (2022). Ekonometria, Warszawa: Wydawnictwo Naukowe PWN
Borkowski, B., Dudek, H., Szczęsny, W. (2020). Ekonometria. Wybrane zagadnienia, Warszawa: Wydawnictwo Naukowe PWN</td></tr>
<tr><td>Supplementary literature</td><td>Nowak, E. (2022) Zarys metod ekonometrii. Zbiór zadań, Warszawa: Wydawnictwo Naukowe PWN</td></tr>
<tr><td>eResources addresses</td><td>Basic
https://www.sea-stat.com/wp-content/uploads/2020/08/James-H.-Stock-Mark-W.-Watson-Introduction-to-Econometrics-Global-Edition-Pearson-Education-Limited-2020.pdf - Handbook: Introduction to Econometrics, J.H. Stock, M.W. Watson</td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Consider the following inflation model: $inf_t = 8,0 +0,6inf_{t-1} -0,7\ r_t +_t$,
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.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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