GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	QUANTITATIVE METHODS IN THE INTERNATIONAL ECONOMY, PG_00067220		
Field of study	Economics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	first-cycle studies	Subject group	Optional subject group 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	2.0
Learning profile	general academic profile	Assessment form	assessment
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 Aleksandra Kordalska	
	Teachers	dr Aleksandra Kordalska	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	30.0	0.0	0.0	0.0	30

E-learning hours included: 0.0

eNauczanie source addresses:

Moodle ID: 36472 Metody ilościowe w ekonomii międzynarodowej 2026
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=36472

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	5.0	15.0	50

Subject objectives

preparing students to critically choose and apply quantitative methods in international economics based on knowledge of how to obtain and assess reliable data sources, as well as fostering attitudes related to independently acquiring and expanding knowledge in the context of solving cognitive and practical problems in the global economy

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U06] Acquires new specialized knowledge related to the field of economic analytics by planning a personal lifelong learning strategy	acquires, verifies, and processes reliable statistical and economic data from national and international databases, is able to select and apply the quantitative methods learned to analyze phenomena in international economics, and to solve research and practical problems of the global economy	[SU3] Assessment of ability to use knowledge gained from the subject
[K6_K03] Critically evaluates their own knowledge necessary to solve cognitive and practical problems, supplementing gaps with input from external experts.	is ready to critically evaluate his/her own knowledge of quantitative methods and data analysis in international economics, systematically supplementing it through cooperation with experts and in team projects, using up-to-date sources, and maintaining integrity and transparency in the acquisition and interpretation of data	[SK5] Assessment of ability to solve problems that arise in practice

<table>
<tr><td>Subject contents</td><td>Course content – exercises
Introduction to the course, quantitative versus qualitative approach to analyses in the field of international economics, examples of applications and the problem of choosing a research method
Introduction to the software - the use of selected modules of the STATA package (and / or R packages) with examples of applications in international economics
Macroeconomic, sectoral, and microeconomic sources of data for international analyses and examples of their use
Merging economic data that come from different sources
Value added in exports - methods of gross exports decomposition
Functional specialisation in international trade - a way of identification
Creating a database with two-level (country-year) and multi-level (e.g. country-section-year) identification
Calculation of macroeconomic and sectoral indicators
Methods of an initial analysis of the created databases (descriptive statistics, graphical methods of presenting multidimensional data, outliers)
Preliminary examination of the relationship between data, selection of variables for analysis: exo- and endogenous variables - illustration on the example of determinants of economic growth
One- and multi-dimensional analyses on the example of the absolute and conditional convergence model
Bilateral data and gravity model for international trade
Final test</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>macroeconomics, microeconomics, statistics, econometrics</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>Analytical project</td><td>60.0%</td><td>90.0%</td></tr>
<tr><td>Presentation of the results of the conducted analysis</td><td>60.0%</td><td>10.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Krugman, P., Obstfeld, M., Melitz, M.J. (2023). International Economics. Theory and Practice. Pearson Education Limited.
Wooldridge, J. (2019). Introductory Econometrics: A Modern Approach, SOUTH WESTERN EDUC PUB
Heiss, F. (2020). Using R for Introductory Econometrics, companion website http://www.urfie.net</td></tr>
<tr><td>Supplementary literature</td><td>Feenstra, R.C., Taylor, A.M. (2020). International Economics, Worth Publishers.
Maddala, G.S, Lahiri, K. (2011). Introduction to Econometrics, Wiley.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Given the data on GDP per capita and trade openness (100 countries, 1980-2010) calculate average annual rate of growth of each of the analysed countries in the period 1980-2010 and verify the hypothesis of conditional beta convergence.

On the basis of gross exports decomposition (Wang, Wei, and Zhu, 2013) answer the question of the size of domestic and foreign value-added embodied in gross exports for 28 EU countries in the period 2005-2018.</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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