University of Gdańsk

Subject card

Subject name and code	Methods and Tools of Economic Research, PG_00200072		
Field of study	International Economic Relations		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
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	part-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	2.0
Learning profile	academic	Assessment form	exam
Conducting unit	Department of Macroeconomics -> Faculty of Economics -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Wojciech Bizon, prof. UG	
	Teachers	dr hab. Wojciech Bizon, prof. UG dr Lilia Neumann	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	10.0	0.0	12.0	0.0	32
	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	32	0.0	18.0	50

Subject objectives	The purpose of the course is to provide students with the necessary knowledge and skills in the use of available tools in conducting economic research necessary in the development of thesis work, as well as to familiarize them with the possibilities of using Statistica and Excel in advanced data analysis.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[MSGMU2_U14] has a thorough ability to prepare specialist oral presentations on economic and social issues, using specialist theoretical approaches, the principles of collecting data from various sources, their description and interpretation, and drawing conclusions on the basis of scientific literature; can prepare and lead a debate	The student is able to complete a project assignment using quantitative methods and consults its assumptions and progress with the course instructor during scheduled consultations and project sessions. Project sessions are included in the course timetable, while the dates and locations of consultations are published on the University of Gdańsk website	[SU2] presentation/project/paper/ report [SU6] demonstration of practical skills
	[MSGMU2_U13] has a thorough ability to prepare specialist written work on economic and social issues, using specialist theoretical and methodological approaches, collecting data from various sources, their description and interpretation, the principles of hypothesis formulation and drawing conclusions on the basis of scientific literature and factual data, and can perform advanced international comparisons	Is able to incorporate quantitative parts into the reports and discussions being developed	[SU6] demonstration of practical skills
	[MSGMU2_U11] independently formulates and tests hypotheses related to simple research problems, appropriately selects and applies methods and tools, including statistical tools and data acquisition techniques in order to verify hypotheses and diagnose economic processes, and on this basis to take appropriate economic decisions	independently formulates statistical hypotheses	[SU4] test/exam - oral or written
	[MSGMU2_U01] can creatively interpret and explain complex and atypical economic phenomena and the relations occurring between them, using the acquired knowledge in economics, finance and international economic relations	can interpret and explain unusual economic phenomena	[SU4] test/exam - oral or written
	[MSGMU2_U09] can innovatively solve problems in the field of international economic relations and the functioning of economic entities on the international market, adapting existing or developing new methods and tools	is able to solve problems in the area of international economic relations using approaches typical fot economic research	[SU5] implementation of a problem task
	[MSGMU2_K06] is ready to independently identify, diagnose and responsibly resolve dilemmas and alternative solutions related to his/her profession and the development of professional achievements	is familiar with variant analysis	[SK5] implementation of a problem task
	[MSGMU2_K02] is ready to critically assess the level of acquired knowledge, skills and professional competence in the area of international economic relations	Is aware of the vastness of available knowledge and their own shortcomings	[SK4] test/exam - oral or written
	[MSGMU2_U02] can observe, evaluate and critically analyse the causes and course of processes and phenomena taking place in the open economy; can formulate his/her own opinions on the subject, interpret statistical data and economic indicators necessary in this respect, and also forecast economic processes and phenomena using advanced methods and tools applied in economic sciences	knows how to use economic research tools in describing economic reality	[SU5] implementation of a problem task

Course outcome	Subject outcome	Method of verification
[MSGMU2_U10] can accurately select and use sources of information on international economic relations, evaluate, critically analyse and creatively interpret them, and can present them in an innovative way, using advanced information and communication techniques	knows how to analyze statistical and numerical information contained in works on international economic relations	[SU4] test/exam - oral or written
[MSGMU2_U06] can identify types of risks related to international operations of enterprises and correctly determine their consequences and methods of mitigation, with a skilful application of theory, using appropriate research method	understands the issue of risk in economic research	[SU5] implementation of a problem task
[MSGMU2_K01] is ready to recognise the importance of knowledge of economics in the process of identifying and solving problems in the area of international economic relations and to consult experts in case of difficulties in solving them independently	understands the importance of knowledge in economics	[SK4] test/exam - oral or written
[MSGMU2_W13] has an in-depth knowledge of methods and tools for describing economic phenomena, including data acquisition techniques, which make it possible to describe and analyse economic entities functioning on the international market as well as processes and phenomena occurring in them and between them, and also those supporting decision-making processes	knows and understands the most important methods and tools for describing economic phenomena	[SW4] test/exam - oral or written

Subject contents

Research plan. Research objective and hypotheses. Design of the economic study. Data and their sources. Qualitative and quantitative research. Qualitative research in practice. Observation. Individual interviewing. Group interviews (focus groups). Experiment. (lecture 2 h)Quantitative research in economic practice. Concept and properties of normal distribution. Other distributions of variables. Statistical hypotheses and their verification. Statistical significance. Statistical tests. Generalization of results. (lecture 2 h + computer lab 2 h)Data analysis support tools - STATISTICA (data analysis software system). StatSoft, Inc.: presentation of Statistica program as a tool to support analysis of macroeconomic and microeconomic data. Perform tasks using statistical methods, perform analysis using Excel. (computer laboratory 2 h)Analysis of interdependence of economic phenomena. Use of knowledge of correlation and regression in economy and enterprise. Scatter plot. Pearson's and Spearman's correlation coefficients. The explanatory and explanatory variable. Regression function. (Lecture 2 h + computer lab 2 h)Evaluating the effectiveness of changes in economic parameters. Comparisons against groups. Tests for independent and dependent samples. (lecture 2 h + computer laboratory 2 h)Search for similar economic arrangements and market segmentation. Cluster analysis - multivariate clustering of objects. Spatial variation of economic variables. Methods of optimal allocation. The k-means method. (lecture 2 h + computer lab 2 h)Creation of valuable research questionnaires. Reliability and item analysis. Cronbach's alpha. Elements of factor analysis. Bartlett and KMO tests. Shape of questions in a questionnaire. (lecture 4 h + computer lab 4h)

Any doubts related to the lecture topics and questions regarding the course material are addressed during consultation hours. Participation in consultations enables the clarification of substantive issues and deepens the understanding of subject-related concepts.

Prerequisites and co-requisites

Basics of descriptive statistics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
project	50.1%	10.0%
exam	50.1%	90.0%

Recommended reading

Basic literature

Balicki A., Makać W., *Metody wnioskowania statystycznego,* Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2007.
Sobczyk M., *Statystyka matematyczna*, Wydawnictwo C.H. Beck, Warszawa 2010.
Rószkiewicz M., *Metody ilościowe w badaniach marketingowych*, Wydawnictwo Naukowe PWN, Warszawa 2002 lub 2014.

	Supplementary literature	Stanisz A., *Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny*, StatSoft Polska, Kraków 2006. Internetowy Podręcznik Statystyki, http://www.statsoft.pl/textbook Bizon W., *Dobrobyt społeczno-ekonomiczny oraz gospodarka oparta na wiedzy w kontekście historycznych podziałów na Polskę A i Polskę B* , "E-mentor" nr 4/2011. Bizon W., *Pomiar efektywności nauczania opartego na symulacjach biznesowych i studiach przypadków*, [w:] A. Poszewiecki, W. Bizon, P. Kulawczuk [red.], S*ymulacje menedżerskie i studia przypadków. Szkolenia biznesowe w oparciu o symulacje menedżerskie i studia przypadków najlepsze praktyki*, Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2012.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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