

Subject card

Subject name and code	Methods and Tools of Economic Research, PG_00199300						
Field of study	Economics						
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	full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			3.0		
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				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	30.0	0.0	60
	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	60		0.0		15.0	75
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
	[EKONMU2_U01] can creatively interpret and explain economic and social phenomena and relations between them, using acquired knowledge of economics, finance and management sciences	Has the ability to explain the relationship between economic categories based on statistical material	[SU6] demonstration of practical skills
	[EKONMU2_U03] can analyse causes and course of economic and social processes and phenomena, formulate his/her own opinions on the subject, construct research hypotheses, and select and apply methods of their verification	Has the ability to critically analyze existing studies on economic processes in their quantitative part	[SU1] oral statement/conversation/discussion
	[EKONMU2_U06] can practically apply various forms and range of acquired knowledge in economics, finance and management, supplementing it with an independent critical analysis of its efficiency and usefulness	Has the ability to practically use tools to verify statistical hypotheses, doubts arising during the problem-solving stage are addressed during consultations	[SU5] implementation of a problem task
	[EKONMU2_U07] can independently propose solutions to complex economic or social problems, select methods of analysis and conduct conclusive procedures in this respect	Has the ability to propose solutions to an economic problem using simple quantitative tools	[SU5] implementation of a problem task
	[EKONMU2_U10] has an advanced ability to prepare specialist oral presentations on economic and social issues, using specialist theoretical approaches, the principles of collecting various sources of data, their description and interpretation, and drawing conclusions based on scientific literature; can prepare and conduct a debate	Has the ability to properly read and interpret numerical data	[SU4] test/exam - oral or written
	[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)	Has the ability to build simple statistical and econometric models	[SU4] test/exam - oral or written [SU5] implementation of a problem task
	[EKONMU2_K05] correctly identifies, diagnoses and solves advanced dilemmas and alternative solutions related to the profession	has the ability to identify different options in the processes of evaluating economic phenomena	[SK5] implementation of a problem task
	[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	Has the ability to apply quantitative methods in the analysis of market processes	[SU5] implementation of a problem task
	[EKONMU2_U09] has an advanced ability to prepare specialist written assignments concerning economic and social issues, using specialist theoretical and methodological approaches, collecting various sources of data, their description and interpretation, the principles of hypothesis formulation and drawing conclusions on the basis of scientific literature and factual data, and can make extensive international comparisons	Has the ability to prepare reports and studies based on collected statistical data	[SU6] demonstration of practical skills

	Course outcome	Subject outcome	Method of verification
	[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.	knows the basic quantitative and qualitative tools for economic modeling	[SW4] test/exam - oral or written
Subject contents	<p>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)</p> <p>In order to develop the concepts discussed during the lectures, students can take advantage of consultations.</p>		
Prerequisites and co-requisites	Basics of descriptive statistics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam	50.01%	100.0%
Recommended reading	Basic literature	Balicki A., Makać W., <i>Metody wnioskowania statystycznego</i> , Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2007. Sobczyk M., <i>Statystyka matematyczna</i> , Wydawnictwo C.H. Beck, Warszawa 2010. Rószkiewicz M., <i>Metody ilościowe w badaniach marketingowych</i> , Wydawnictwo Naukowe PWN, Warszawa 2002 lub 2014.	
	Supplementary literature	Stanisz A., <i>Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny</i> , StatSoft Polska, Kraków 2006. Internetowy Podręcznik Statystyki, http://www.statsoft.pl/textbook Bizon W., <i>Dobrobyt społeczno-ekonomiczny oraz gospodarka oparta na wiedzy w kontekście historycznych podziałów na Polskę A i Polskę B</i> , "E-mentor" nr 4/2011. Bizon W., <i>Pomiar efektywności nauczania opartego na symulacjach biznesowych i studiach przypadków</i> , [w:] A. Poszewiecki, W. Bizon, P. Kulawczuk [red.], <i>Symulacje menedżerskie i studia przypadków. Szkolenia biznesowe w oparciu o symulacje menedżerskie i studia przypadków najlepsze praktyki</i> , Wydawnictwo Uniwersytetu Gdańskiego, Gdańsk 2012.	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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