University of Gdańsk

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, prof. UG	
	Teachers	mgr Paulina Szulc-Fischer dr hab. Wojciech Bizon, prof. UG	

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_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_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_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
[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
[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_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_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_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

	Course outcome	Subject outcome	Method of verification
	[EKONMU2_U07] can independently propose solutions to complex economic or social problems, select methods of analysis and conduct conclusive procedures in this respect	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
	[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

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)

In order to develop the concepts discussed during the lectures, students can take advantage of consultations.

Prerequisites and co-requisites

Basics of descriptive statistics

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
project	51.0%	10.0%
exam	51.0%	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