

Subject card

Subject name and code	Quantitative Research, PG_00188092						
Field of study	International Business						
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			English	
Semester of study	2		ECTS credits			3.0	
Learning profile	academic		Assessment form			exam	
Conducting unit	Department of Economics and Management of Transportation Companies -> Faculty of Economics -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Michał Suchanek, prof. UG				
	Teachers		dr hab. Michał Suchanek, prof. UG				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	15.0	0.0	45
	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	45		0.0		30.0	75
Subject objectives	The aim of the course is to develop knowledge and skills in the application of quantitative methods in business research and the analysis of economic phenomena. Particular emphasis is placed on formulating and testing research hypotheses, selecting appropriate statistical methods, interpreting analytical results, and applying quantitative tools in research related to international business.						
Learning outcomes	Course outcome		Subject outcome			Method of verification	
	[IBMU2_U04] can formulate and test research hypotheses concerning advanced problems in international business, selecting appropriate research methods and tools.		The student is able to formulate and test research hypotheses related to international business problems and interpret the results of analyses using appropriately selected statistical methods and quantitative tools.			[SU2] presentation/project/paper/report	
	[IBMU2_W02] knows and understands in an advanced manner research methods and tools, including data collection techniques, applied in the analysis of business entities operating in the international market as well as the processes and phenomena occurring within and between them.		The student knows and understands quantitative methods and tools used in the study of economic and business phenomena, including techniques for collecting, processing, and analysing data related to international business.			[SW4] test/exam - oral or written [SW2] presentation/project/paper/report	

Subject contents	LECTURES (15 hours) 1. Introduction to Quantitative Methods in Business Research (3 hours) a) the role of quantitative methods in economic and business research b) types and sources of business data c) statistical distributions and their applications d) logic of formulating and testing research hypotheses 2. Group Comparison Methods and Analysis of Variance (3 hours) a) methods for comparing means b) assumptions and applications of ANOVA c) interpretation of comparative analyses d) applications in international business research 3. Factor Analysis and Data Reduction (3 hours) a) objectives and applications of factor analysis b) identification of latent variables c) principal component analysis (PCA) d) applications of data reduction techniques in business research 4. Regression Models in Business Research (3 hours) a) linear regression and its applications b) logistic regression and its applications c) survival analysis as a research method d) interpretation of regression model parameters 5. Interpretation and Reporting of Quantitative Research Results (3 hours) a) interpretation of statistical results b) verification of research hypotheses c) presentation of quantitative research findings d) use of research results in business decision-making CLASSES (15 hours) 1. Preparing Data for Statistical Analysis (3 hours) a) collecting data from different sources b) preparing datasets for analysis c) identifying and correcting data errors d) descriptive statistical analysis 2. Hypothesis Testing and Group Comparisons (3 hours) a) selection of statistical tests b) conducting comparative analyses c) interpretation of test results d) formulation of research conclusions 3. Application of ANOVA and Factor Analysis (3 hours) a) conducting ANOVA b) interpretation of ANOVA results c) conducting factor analysis d) interpretation of extracted factors 4. Building and Interpreting Regression Models (3 hours) a) estimation of linear regression models b) estimation of logistic regression models
------------------	---

	c) model quality assessment d) interpretation of regression results 5. Data Analysis in International Business Research (3 hours) a) matching methods to research problems b) analysis of real-world business and economic data c) interpretation of analytical results d) formulation of recommendations based on research findings PROJECT (15 hours) Quantitative Research Project The project is carried out individually or in teams and involves conducting a quantitative study addressing a selected issue related to international business. Project stages: 1. Selection of the research problem and formulation of research objectives and hypotheses (2 hours) 2. Collection and preparation of data for analysis (3 hours) 3. Selection of appropriate statistical methods and analytical tools (2 hours) 4. Conducting quantitative analyses and testing research hypotheses (4 hours) 5. Interpretation of results and development of conclusions (2 hours) 6. Preparation of a research report and presentation of project results (2 hours) The final outcome of the project is a research report containing the research problem, methodology, analytical results, interpretation of findings, and conclusions with recommendations.														
Prerequisites and co-requisites	Prerequisites: A basic knowledge of probability theory and mathematical analysis and algebra is advisable to cope with the material covered in these classes. Course Completion Requirements - A final course grade may be awarded only after all course components have been successfully completed (lectures, classes, project).														
Assessment methods and criteria	<table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>written class test</td><td>51.0%</td><td>30.0%</td></tr><tr><td>Project</td><td>51.0%</td><td>20.0%</td></tr><tr><td>Written exam</td><td>51.0%</td><td>50.0%</td></tr></table>			Subject passing criteria	Passing threshold	Percentage of the final grade	written class test	51.0%	30.0%	Project	51.0%	20.0%	Written exam	51.0%	50.0%
Subject passing criteria	Passing threshold	Percentage of the final grade													
written class test	51.0%	30.0%													
Project	51.0%	20.0%													
Written exam	51.0%	50.0%													
Recommended reading	Basic literature	Kline R.B. (2023), Principles and practice of structural equation modeling, 5th Ed. The Guilford Press (earlier editions also possible). Devore J.L., Berk K.N. (2018). Modern Mathematical Statistics with Applications, Springer. Hirotsu C (2017). Advanced Analysis of Variance, Wiley & Sons. Fornalska A., Suchanek M., Adamska J., Gorszczyńska P., Mrzygłód U. (2026). <i>Seducing the crowd: An LDA literature review on language in crowdfunding</i>. International Entrepreneurship Review, 12(1), 157–173. DOI: 10.15678/IER.2026.1201.09. Selected current scientific articles applying quantitative methods in business and economic research, indicated by the instructor.													

	Supplementary literature	Suchanek, M., & Szmelter-Jarosz, A. (2019). Environmental aspects of generation Ys sustainable mobility. Sustainability, 11(11), 3204. Adamska-Mieruszevska, J., Mrzyglód, U., Suchanek, M., & Fornalska-Skurczyńska, A. (2021). Keep it simple. The impact of language on crowdfunding success. Economics & Sociology, 14(1), 130-144
	eResources addresses	
Example issues/ example questions/ tasks being completed	Data analysis using the following methods: cross tables, ANOVA, factor analysis, MANOVA, principal component analysis, dependency tests	
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.