University of Gdańsk

Subject card

Subject name and code	Quantitative Research, PG_00200442		
Field of study	Logistics and Mobility		
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 Aleksander Jagiełło	
	Teachers	dr Aleksander Jagiełło	

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 purpose of the course is to familiarize students with modern, commonly used statistical methods, so that they are able to understand and correctly interpret the current literature, as well as to be able to use the methods necessary to perform research for the thesis.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[LMMU2_U04] can forecast and model complex economic and social processes, as well as logistics and mobility processes and systems using quantitative and qualitative methods and tools developed by economic sciences (including statistics and econometrics)	is able to construct quantitative models depicting the complexity of the operation of logistics processes and systems	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[LMMU2_U10] has an advanced ability to prepare specialist oral presentations on logistics and mobility 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	Knows how to interpret texts that apply statistical and econometric models, compare results and build a synthesis of conclusions	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[LMMU2_U06] can practically apply various forms and range of acquired knowledge in logistics and mobility, supplementing it with an independent critical analysis of its efficiency and usefulness	Is able to conduct a critique of the results of applying quantitative methods to logistics and transportation processes	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[LMMU2_U07] can independently propose solutions to complex logistics and mobility problems, select methods of analysis and conduct conclusive procedures in this respect	is able to prepare a research plan based on the posed problem of transport nature, design the database and sequence of quantitative methods used	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[LMMU2_K05] correctly identifies, diagnoses and solves dilemmas and alternative solutions related to the profession	Understands the role of the analyst in the processes of optimization of activities of a transport and logistics nature	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written
[LMMU2_U03] can analyse causes and course of logistics and mobility processes and systems, formulate his/her own opinions on the subject, construct research hypotheses, and select and apply methods of their verification	is able to build and verify research hypotheses by operationalizing them into verifiable statistical hypotheses	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[LMMU2_U09] has an advanced ability to prepare specialist written assignments concerning logistics and mobility 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	Knows how to apply a wide range of statistical and econometric methods to complex data sets	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[LMMU2_U02] can use acquired knowledge to describe and analyse the causes and course of logistics and mobility processes and systems, and can formulate his/her own opinions and critically select data and analysis methods based on the achievements of economic and social sciences	understands the importance of the application of quantitative methods for the description of transportation systems	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written
[LMMU2_W06] has an in-depth knowledge of statistical and econometric methods and tools for description and macro- and microeconomic modelling of logistics and mobility processes and systems	knows multidimensional, hierarchical methods and understands their use cases	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
[LMMU2_U01] can creatively interpret and explain economic and social phenomena and relations between them, using acquired knowledge of economics, finance, management sciences, logistics and mobility	Is able to interpret the results of conducted research using quantitative methods	[SU1] oral statement/conversation/ discussion [SU4] test/exam - oral or written

<table>
<tr><td>Subject contents</td><td>1) Introduction to distributions and hypothesis verification

2) Comparing averages

3) Analysis of variance

4) Factor analysis

5) Regression (linear, logistic, survival)

Any doubts regarding the issues discussed will be dispelled during the consultation.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>A basic knowledge of probability theory and mathematical analysis and algebra is advisable to cope with the material covered in this class</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>Written exam</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td>Recommended reading</td><td><table><tr><td>Basic literature</td><td>R.B. Kline, Principles and practice of structural equation modeling, The Guilford Press 2016J.L. Devore, K.N. Berk, Modern Mathematical Statistics with Applications, Springer 2018C. Hirotsu, Advanced Analysis of Variance, Wiley & Sons 2017</td></tr><tr><td>Supplementary literature</td><td>Suchanek, M., & Szmelter-Jarosz, A. (2019). Environmental aspects of generation Ys sustainable mobility. Sustainability, 11(11), 3204.

Adamska-Mieruszewska, J., Mrzygłód, U., Suchanek, M., & Fornalska-Skurczyńska, A. (2021). Keep it simple. The impact of language on crowdfunding success. Economics & Sociology, 14(1), 130-144.</td></tr><tr><td>eResources addresses</td><td></td></tr></table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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