University of Gdańsk

Subject card

Subject name and code	Statistics, PG_00154866		
Field of study	Finance and Accounting		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2024/2025
Education level	Bachelor'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	6.0
Learning profile	academic	Assessment form	
Conducting unit	Department of Statistics -> Faculty of Management -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Olga Komorowska	
	Teachers	dr Olga Komorowska mgr Teresa Plenikowska-Ślusarz Helena Anacka	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	20.0	20.0	0.0	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	30.0	60.0	150

Subject objectives	The student should understand the essence of statistical methods and master statistical nomenclature fluently. They should be able to freely use elementary statistical methods in solving simple problems. Be able to explain the purposefulness of using particular methods and interpret the obtained results in relation to economic and social phenomena.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[FiRL3_U02] The student can acquire data from various sources to analyze specific economic processes and phenomena related to finance. Is able to use information technologies.	The student knows how to obtain data from various sources, such as financial databases, reports and articles. Uses statistical software and data analysis tools to conduct comprehensive economic analysis.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[FiRL3_K06] Creativity: - thinks creatively, is able to go beyond the usual patterns, - is able to think and act in an entrepreneurial manner, - is able to adapt flexibly to the requirements of the environment.	The student works on projects that require creative thinking and an entrepreneurial approach to problem solving. Is able to adapt analysis methods to changing conditions and requirements of the environment.	[SK2] presentation/project/paper/ report [SK4] test/exam - oral or written
[FiRL3_U03] The student can properly analyse the causes, course and effects of specific processes and phenomena in finance and accounting, using advanced theories and relevant social sciences methods. Can identify stakeholders of processes and phenomena from the disciplines of management and quality sciences and economics and finance.	The student is able to analyze the causes, course and effects of financial and accounting processes by using statistical tools to analyze financial data. Uses statistical methods to study economic phenomena and identify how various stakeholder groups influence financial and accounting processes	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[FiRL3_W06] The student has advanced knowledge of methods and tools, including data acquisition and analysis techniques, appropriate to management science and quality, which allow describing economic structures and institutions and the processes within and between them.	The student knows how to use tools such as Excel or SPSS to analyze data. He uses these tools to describe and analyze economic structures and the processes occurring within them.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
[FiRL3_W05] The student has knowledge of views on economic and social structures and institutions and types of social ties and their historical evolution.	The student knows the evolution of economic and social structures and their impact on contemporary phenomena. Knows how various institutions influence economic processes.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
[FiRL3_U01] The student understands and can correctly interpret complex economic phenomena in finance and accounting, and other social sciences. The student understands and can explain the content of announcements of economic institutions, articles published in the daily press and journals in the field of finance (excluding scientific journals). The student correctly applies concepts of social sciences.	The student is able to perform statistical analyzes on financial data to understand trends and patterns. Is able to correctly interpret financial reports and press articles, using appropriate statistical concepts.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written

Subject contents

Introductory issues and structure analysis: The concept and methods of statistics, applications of statistics, basic concepts, statistical research (types, stages). Data presentation: series, tables, graphs. Analysis of distribution properties: central tendency, dispersion, asymmetry, concentration. **Random variables and their distributions:** Disk random variable and continuous random variable. Properties of distributions: normal, t-Student, chi-square, F-Snedecor. **Statistical inference:** The concept of a random sample, sample statistics and estimator. Point and interval estimation: mean and proportion. Verification of statistical hypotheses: parametric tests (for 1 and 2 means, for 1 and 2 proportions, for 2 variances), nonparametric tests: randomness test (Stevens series), tests of compatibility (chi-square, Kolmogorov), tests of homogeneity (chi-square, Kolmogorov-Smirnov, series, signs). **Analysis of interdependence:** Pearson linear correlation coefficient and testing its significance. Spearman rank correlation coefficient and testing its significance. Correlation of qualitative features (selected association and contingency coefficients) and chi-square test of independence. **Time series analysis:** Essence and types of time series, graphical presentation, measures of the average level of a phenomenon in time series (arithmetic, chronological, geometric mean), individual dynamics indicators, average rate of change, trend function.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3">Mathematics

Basics of economics and social phenomena</td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Final test</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>Solving problem tasks</td><td>51.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Makać W., Urbanek-Krzysztofiak D., Metody opisu statystycznego, Wyd. UG, Gdańsk 2004

Balicki A, Makać W., Metody wnioskowania statystycznego, Wyd. UG, Gdańsk 2002

Aczel A.D., Statystyka w zarządzaniu, PWN, Warszawa, 2017</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">(red.) Wycinka E., Szreder M., Zastosowanie metod ilościowych w ubezpieczeniach, Wyd. UG, Gdańsk 2020

Szreder M. Metody i techniki sondażowych badań opinii, PWE, Warszawa 2010</td></tr>
<tr><td>eResources addresses</td><td colspan="2">Uzupełniające
Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">1. Why should you avoid pie charts?

2. What is data clustering?

3. Why should you not use the arithmetic mean for series with strong asymmetry?

4. Why is it important to draw a correlation diagram when analyzing the correlation of two quantitative features?</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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