University of Gdańsk

Subject card

Subject name and code	Statistics, PG_00156133		
Field of study	Sport Management		
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	full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	Polish
Semester of study	2	ECTS credits	5.0
Learning profile	academic	Assessment form	
Conducting unit	Department of Statistics -> Faculty of Management -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Krzysztof Najman	
	Teachers	dr Agnieszka Pobłocka	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	30.0	0.0	0.0	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	19.0	61.0	125

Subject objectives	The student should understand the essence of statistical methods and master statistical nomenclature fluently. He should be able to freely use elementary statistical methods in solving simple problems. Possess the ability to explain the purpose of using individual methods and interpret the obtained results in relation to economic and social phenomena.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[ZSSML3_W13] The student knows advanced methods, techniques of management analysis to support the process of economic decision-making, as well as sources of data and information from various fields of social sciences.	Knows advanced statistical methods supporting economic decision-making, in particular in the field of sports market entities.	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[ZSSML3_U03] The student is able to take into account ethical, social and environmental consequences in the decision-making process.	Is able to take into account ethical, social and ecological aspects in statistical analysis.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[ZSSML3_U10] The student can prepare written works and multimedia presentations on specific issues in the field of management and quality studies, present them and lead discussions in Polish and foreign languages.	Is able to prepare a written work and a multimedia presentation concerning the sports market. Is able to discuss them in Polish and a foreign language.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report
[ZSSML3_U05] The student can correctly select and apply methods and tools used in management and quality sciences.	Is able to select and apply appropriate statistical methods in the analysis of selected problems related to the sports market.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[ZSSML3_K06] The student is ready to work in, co-create or manage a group. The student is able to think and act in an entrepreneurial manner.	Is ready to implement a team project and is able to act in an entrepreneurial manner.	[SK2] presentation/project/paper/ report
[ZSSML3_K03] The student knows the need to identify important problems, including economic and social issues, and plan ways to solve them.	Understands the need to identify and solve social and economic problems in the sports market.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[ZSSML3_K02] The student is aware of the need to supplement and expand the acquired knowledge and skills and strives to combine knowledge from different fields and disciplines of science interdisciplinarily.	Is aware of the need to supplement, expand and interdisciplinarily combine knowledge in the field of the sports market.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report
[ZSSML3_W11] The student knows and understands the principles of acquiring and using various types of resources in achieving the development objectives of the enterprise and other entities of the sports market.	Knows and understands the principles of acquiring and using various resources typical for the development of sports market entities.	[SW1] oral statement/ conversation/discussion
[ZSSML3_U06] The student can forecast and simulate selected economic and social phenomena concerning the macro scale (economy) and micro (enterprise) using methods and tools applied in management and quality studies.	Is able to apply statistical methods in forecasting and simulating selected micro- and macroeconomic phenomena important for sports market entities.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report [SU4] test/exam - oral or written

Subject contents	1. Introduction to statistics: data, information, knowledge. The essence of mass phenomena, the definition of statistics, the applications of statistics. The subject, entity and functions of statistics. Basic concepts of statistics: population, sample, statistical unit, constant and variable features, measurement scales. Sources of statistical data, types and stages of statistical research. Quality of statistical data. Public statistics institutions in Poland and around the world. Legal aspects of statistical research in Poland. Methods of presenting statistical data: series, tables and statistical graphs. The concept of empirical distribution, types and properties of distributions. Absolute and relative indicators. 2. Analysis of the structure of the population: the concept and methods of measurement: central tendency, dispersion, asymmetry and concentration. Assumptions and principles of building classical and positional measures. Central and ordinary moments. Assessment of similarity of structures. 3. Analysis of correlation: Correlation analysis: the essence, significance and areas of application of interdependence analysis. The concept of stochastic dependence and correlation of quantitative phenomena. Construction and interpretation of a correlation diagram. Analysis of linear interdependencies of quantitative features. Essence, conditions of application and interpretation of coefficients: Pearson's linear correlation, Spearman's rank correlation. Analysis of interdependencies of qualitative features. Construction of association and contingency tables. Essence of Chi Sq statistics. Principles of construction and interpretation of association and contingency coefficients. Apparent correlation. Regression analysis: The idea of cause-effect relationships between various social phenomena. The concept of two-variable regression. Regression functions - linear and curvilinear regression. Analytical methods of determining regression function parameters. Essence of the least squares method. Assessment of the fit of the regression function to empirical data. Applications of regression analysis to the study of selected social and economic phenomena. Apparent regression. 4. Time series analysis: the essence and types of time series. The concept of the dynamics of simple and complex phenomena. Measures of dynamics. Analysis of dynamics of simple phenomena: increments and indices. Analysis of dynamics of complex phenomena: aggregate indices of absolute values. Averages in time series. Time series decomposition: mechanical and analytical methods of trend determination. Linear and curvilinear trend functions. Evaluation of trend function fit from empirical data. Trend extrapolation, time series forecasting and forecast quality assessment. Applications of trend analysis in the analysis of social phenomena.Seasonality analysis: concept and examples of seasonality in social research. Seasonal fluctuations and methods of their isolation. Additive and multiplicative seasonality indicators. Time series forecasting in the presence of trend and seasonal fluctuations. Evaluation of forecast quality.Economic statistics: subject and methods of economic statistics. Basic directions of economic statistics research. Public Statistics Information System. Statistical identification and classification. National Accounts System. Labor market statistics. Economic situation survey. Household budget survey. Price statistics.
Prerequisites and co-requisites	
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
final project	51.0%	20.0%
written test	51.0%	30.0%
written exam	51.0%	50.0%

Recommended reading	Basic literature	1. Aczel A.D., Statystyka w zarządzaniu, PWN, Warszawa, 2000; 2. Makać W., Urbanek-Krzysztofiak D., Metody opisu statystycznego, UG, Gdańsk, 2000; 3. Anderson C, Sally D., Futbol i statystyki, 2014;
	Supplementary literature	1. Rosling H., Factfulness, Media Rodzina, 2018
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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