

Subject card

Subject name and code	Selected Methods of Statistics and Demography, PG_00155982						
Field of study	Management of Healthcare Institutions						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Subject group related to practical vocational preparation		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		4.0		
Learning profile	practical		Assessment form		credit		
Conducting unit	Department of Statistics -> Faculty of Management -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Dorota Banaszkiewicz				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	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	30		10.0		60.0	100
Subject objectives	Learning the principles of planning, conducting and analyzing the results of statistical and demographic research and the use of statistical techniques in organizational management						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[ZISZL3_W01] The student has advanced knowledge of the discipline of management and quality sciences and understands its interrelationships with other social sciences.	The Student demonstrates creativity in solving problems concerning the analysis and interpretation of economic data, independently formulates conclusions based on statistical materials and analysis results, is aware of further supplementing and expanding knowledge	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
	[ZISZL3_U01] The student is able to correctly interpret socio-economic phenomena, current events in the field of economic policy, economics, in particular in the field of health care both in the social and economic dimensions, as well as to independently formulate their own opinions in this regard and to propose appropriate solutions in the case of changes occurring in these areas.	The student is able to prepare and conduct basic statistical research in the field of socio-economic phenomena, is able to perform statistical descriptions, is able to assess interdependencies and build regression models, as well as assess the development of the studied phenomena over time, has the ability to interpret the obtained results	[SU4] test/exam - oral or written [SU5] implementation of a problem task
	[ZISZL3_K02] The student applies an analytical approach to problem solving, is able to independently search for solutions, as well as use expert opinions.	The student demonstrates creativity in solving problems related to the analysis and interpretation of economic data, independently formulates conclusions based on statistical materials and analysis results, is aware of the need to further supplement and expand knowledge	[SK5] implementation of a problem task
	[ZISZL3_K01] The student is able to critically analyse the received content with particular emphasis on social and economic sciences.	The student is able to prepare and conduct basic statistical research in the field of socio-economic phenomena, is able to perform statistical descriptions, is able to assess interdependencies and build regression models, as well as assess the development of the studied phenomena over time, has the ability to interpret the obtained results	[SK2] presentation/project/paper/ report [SK5] implementation of a problem task
	[ZISZL3_U06] The student is able to identify, forecast and simulate selected economic and social phenomena in relation to the macro scale (economy, demography, health), as well as in micro terms (medical entities) using methods and tools applied in management.	The student is able to specify and estimate various types of statistical models describing regularities occurring in the market, verify them and check their forecasting properties.	[SU5] implementation of a problem task
	[ZISZL3_W05] The student has advanced knowledge of the environment of health care entities and changes occurring in their area, as well as the relationship, significance and impact of the environment and stakeholders on the functioning of health care entities. Knows the basic methods of diagnosing the macro- and micro-environment of health care entities.	The student is able to identify and describe events in the environment of health care units using appropriate methods of statistical analysis.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
	[ZISZL3_K03] The student recognizes the complexity of social problems in the field of health care at the micro- and macro-structural level.	The student is able to assess the complexity of social problems in the field of health care.	[SK2] presentation/project/paper/ report

Subject contents	1. Introduction to statistics: data, information, knowledge. The essence of mass phenomena, the definition of statistics, the applications of statistics. The subject, object and functions of statistics. Basic concepts of statistics: population, sample, statistical unit, constant and variable features, measurement scales. Sources of statistical data. 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 a community: the concept and methods of measurement: central tendency and dispersion. Assumptions and principles of constructing classical and positional measures. Assessment of similarity of structures. 3. Correlation analysis: the essence, significance and areas of application of interdependence analysis. Construction and interpretation of a correlation diagram. The essence, conditions of application and interpretation of coefficients: Pearson's linear correlation, Spearman's rank correlation. Analysis of interdependence of qualitative features. 4. Time series analysis: the essence and types of time series. Measures of dynamics. Analysis of the dynamics of simple phenomena: increments and indices. Averages in time series. Linear trend function. Assessment of the fit of the trend function from empirical data. Extrapolation of the trend, forecasting of time series. Applications of trend analysis in the analysis of social phenomena. 5. 1. Demography as a science of population development. 2. Records and statistical information system about the population. 3. Research methods used in demography (analysis: cross-sectional, cohort). 4. Natural movement of population and methods of its measurement. Analysis of births and deaths. Marriages and divorces. Fertility and reproduction. Measures of the natural movement of population: raw (gross), partial, standardized. Demographic and non-demographic factors shaping individual elements of the natural movement. 5. Migration of population - types and methods of measurement. 6. Population structure by age and sex. Factors shaping the population structure by sex and age. The process of demographic aging of the population and its demographic and socio-economic consequences. 7. Demographic problems of the modern world.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final exam	51.0%	50.0%
	written test	51.0%	50.0%
Recommended reading	Basic literature	Aczel A. D. Statistics in Management, PWN, Warsaw 2000 Makać W., Urbanek-Krzysztofiak D. Methods of Statistical Description, UG, Gdańsk 2004 Makać W. Economic Statistics, Selected Macroeconomic Measures, Gdańsk 2010 Krzysztofiak M., Makać W., Plenikowska Ślusarz T., Statistics PWSPSiG, Gdańsk 2003 Holzer J.Z., Demography , PWE, Warsaw 2006; Okólski M., Fihel A., Demography. Contemporary Phenomena and Theories , Wydaw. Naukowe Scholar, Warsaw 2012	
	Supplementary literature	Kassyk Rokicka H. Statistics a collection of tasks, PWE, Warsaw 2001 Hryniewicka I. Statistical exercises in economic sciences, ODiDK, Gdańsk 2003 Jóźwiak J., Podgórski J., Statistics from scratch, PWE Warsaw 2000 Sobczyk M., Statistics, PWN, Warsaw 2000 Szreder M., New sources of information and their use in decision-making, Statistical News 7/2017	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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