

Subject card

Subject name and code	Fundamentals of Statistics Applications in Medicine, PG_00155859						
Field of study	Medical Physics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2024/2025		
Education level	Master's studies		Subject group		Obligatory subject group 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	1		ECTS credits		4.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Wiesław Miklaszewski				
	Teachers		dr hab. Wiesław Miklaszewski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	15.0	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		0.0		55.0	100
Subject objectives	Learning the basics of scientific research methodology in medicine. To familiarize the student with the method of description and analysis of statistical data, taking into account the specificity of biomedical process models.Acquiring the ability to use statistical methodology to solve research problems in medicine and health care. The student should be able to assess the usefulness and select the most appropriate statistical methods and tools to solve a given problem in the field of biomedical sciences.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[FIZMEDMU2_W13] knows the principles of using medical databases and consolidating these data scattered in several types of databases along with statistical analysis		The student knows the basics of scientific research methodology in medicine. The student knows methods of description and analysis of statistical data, taking into account the specificity of models of biomedical processes.		[SW4] test/exam - oral or written		
	[FIZMEDMU2_U13] is able to use medical databases and consolidate these data scattered in several types of databases and perform statistical analysis on these data		The student is able to use statistical methodology to solve research problems in medicine and health care. The student is able to select appropriate methods and statistical tools to solve a given problem in the field of biomedical sciences.		[SU4] test/exam - oral or written		

Subject contents	The ABC of a statistical report. Sampling. Descriptive statistics: measures of location, measures of variability, asymmetry, and concentration.		
	Distributions. Distribution of a continuous random variable. Distribution of a discrete random variable.		
	Tests of significance of differences for independent samples.		
	Tests of significance of differences for dependent samples.		
	Goodness-of-fit tests		
	Non-parametric tests		
	Analysis of variance one-factor classification.		
	Analysis of variance multifactor classification. Analysis of variance post hoc testing.		
	Non-parametric ANOVA.		
	Correlation analysis. Linear Regression. Other regression analyses.		
Survival analysis. Multivariate analyses.			
Prerequisites and co-requisites	Not required		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test	51.0%	30.0%
	Tests	51.0%	70.0%
Recommended reading	Basic literature	Andrzej Stanisław Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach medycznych. Tomy 1, 2, 3 Statystyki podstawowe Kraków 2007 (wyd. 2) Statsoft Inc.	
		Anna Baranowska, "Elementy statystyki dla studentów uczelni medycznych", Oficyna Wydawnicza GiS, Wrocław 2022	
	Supplementary literature	A. Petrie, C. Sabin, Statystyka medyczna w zarysie, PZWL, 2006	
	eResources addresses	Basic http://www.statsoft.pl/textbook/stathome.html -	
Example issues/ example questions/ tasks being completed	Not required		
Work placement	Not applicable		

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