University of Gdańsk

Subject card

Subject name and code	Statistics in Medicine, PG_00182195						
Field of study	Medical Physics						
Date of commencement of studies	October 2027		Academic year of realisation of subject	2027/2028			
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	2		ECTS credits	6.0			
Learning profile	academic		Assessment form	exam			
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Anita Dąbrowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	45.0	0.0	0.0	75
	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	75		0.0	75.0	150	
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_U01] Can apply the scientific method in solving physical and medical problems, carrying out experiments and drawing conclusions in the field of physics, medical physics and other fields, based on in-depth knowledge, appropriate selection of sources, and mathematical and computer science methods and tools.	The student is able to: apply statistical methodology to solve research problems in medical physics and medicine; select appropriate statistical methods and tools for the analysis of data in the field of medical sciences.	[SU4] test/exam - oral or written [SU6] demonstration of practical skills
[FIZMEDMU2_K02] Is ready to create, adhere to and develop patterns of good conduct, including the principles of professional ethics and intellectual honesty in one's own activities and in the work environment; is aware of ethical issues in the context of research integrity and in the work of a medical physicist.	The student applies the principles of intellectual honesty and recognizes ethical issues related to conducting medical research.	[SK8] observation of student's independent or team work
[FIZMEDMU2_W02] Knows and understands in depth the issues of mathematics and mathematical methods used in physics and medicine, as well as the relationships between them.	The student knows and understands: the methodology of scientific research in medicine. The student knows the methods of describing and analyzing statistical data, taking into account the specificity of biomedical process models.	[SW4] test/exam - oral or written

Subject contents

Distribution of a continuous random variable. Distribution of a discrete random variable.

Determining confidence intervals for the mean and for the proportion.

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.

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
Obserwacja	100.0%	0.0%
Tests	51.0%	50.0%
Exam	51.0%	50.0%

Recommended reading	Basic literature	Andrzej Stanisz Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach medycznych. Tomy 1, 2, 3 Statystyki podstawowe, Statsoft, Kraków 2007. (wyd. 2) Anna Baranowska, Elementy statystyki dla studentów uczelni medycznych, Oficyna Wydawnicza GiS, Wrocław 2022 J. Grus, Analiza danych w Pythonie, Helion SA, 2020.
	Supplementary literature	A. Petrie, C. Sabin, Statystyka medyczna w zarysie, PZWL, 2006. C. Watała, M. Różalski, M. Boncler, P. Kaźmierczak, Badania i publikacje w naukach biomedycznych, Tom 1. Planowanie i prowadzenie badań, alfa-medica press, 2011.
	eResources addresses	
Example issues/ example questions/ tasks being completed	Not required	
Work placement	Not applicable	

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