



Subject card

Subject name and code	Methodology of Experimental Research, PG_00038892						
Field of study	Chemistry						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2024/2025		
Education level	second-cycle 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		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Julia Borzyszkowska-Bukowska				
	Teachers		dr inż. Julia Borzyszkowska-Bukowska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	30.0	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		5.0		15.0	50
Subject objectives	Understanding the basics of rational planning of experiments and the methods of analysis of the results of experimental studies						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K7_K02] is able to cooperate and work in a group, taking on different roles		Is aware of the responsibility for the correctness of the conclusions drawn from the results obtained.		[SK4] Assessment of communication skills, including language correctness [SK5] Assessment of ability to solve problems that arise in practice [SK2] Assessment of progress of work		
Subject contents	<p>The scope of the subject includes: 1. basic concepts of experimental statistics and (sample and population, measures of central tendency and dispersion, distribution of a random variable) 2. experimental design: the choice of sample size, distribution of sampling points in the independent variable space 3. statistical hypothesis testing: confidence intervals of the sample, comparing measurements from two or more series, tests of independence 4. methods of graphical presentation of the results 5. correlation and regression of variables</p> <p>Student: - performs its own statistical analysis of data using a spreadsheet computer program such as Excel, - prepare a reports describing the course of the data analysis and correct presentation, including graphical, of the results obtained.</p>						
Prerequisites and co-requisites							
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	Practical exercises		60.0%		80.0%		
	Project		60.0%		20.0%		
Recommended reading	Basic literature		J.Mazerski: "Statystyczna analiza wyników doświadczalnych", Wydawnictwo Malamut, Warszawa 2009J.Koronacki, J.Mielniczuk: Statystyka dla studentów kierunków technicznych i przyrodniczych. WN-T, W-wa 2001				

	Supplementary literature	E.Steiner: "Matematyka dla chemików", Wydawnictwo Naukowe PWN, Warszawa 2001S.Brandt: Analiza danych, Wydawnictwo Naukowe PWN, Warszawa 1998
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	1. design a set of measurements that allows you to compare yield of product under different reaction conditions 2. present graphically the results of measurements designed in p. 1 3. choose a statistical test to determine whether the studied synthesis conditions affect yield of the product	
Work placement	Not applicable	

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