1.	Field of study	Computer Science
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2022/2023 (summer term), 2023/2024 (winter term), 2023/2024 (summer term), 2024/2025 (winter term), 2024/2025 (summer term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	part-time

Module: Statistical analysis in research

Module code: W4-IN-N2-20-1-ASwPB

1. Number of the ECTS credits: 2

2. Learning outcomes of the module			
code	description	learning outcomes of the programme	level of competence (scale 1-5)
M_001	The student has knowledge about the average measures, the measures of variability, dispersion, asymmetry, correlation analysis and is able to use them.	K_U03 K_U08 K_W01 K_W09	1 1 1 1
M_002	The student has knowledge about various methods of graphic presentation of qualitative and quantitative data. She\He can choose the appropriate graph for the data and create it.	K_U01 K_W09	1 1
M_003	The student has knowledge about statistical inference. She/He is able to use selected statistical tests to confirm the significance of the hypotheses. She/He can choose the right test depending on the hypothesis and data.	K_U01 K_U03 K_U09 K_W01 K_W09	1 1 1 1 1
M_004	She/He can use the selected program to perform statistical analysis and to confirm the hypotheses. Based on the obtained experimental results, she/he can draw conclusions and confirm their statistical significance.	K_K04 K_U01 K_U03 K_U07	1 1 1 1

3. Module description
Description	

	The purpose of the module is to present the basics of data analysis including: descriptive statistics, graphic methods for the presentation of qualitative and quantitative data, elements of statistical inference. Content: 1. Descriptive statistics: average measures, measures of variability, dispersion, asymmetry, correlation analysis. 2. Graphic methods for the presentation of qualitative and quantitative data: histogram, frequency diagram, scatter plot, box plot. 3. Elements of statistical inference: concepts of the null and alternative hypothesis, significance level and p-value. Selection of test depending on the hypothesis and the data: Student's t test, Wilcoxon test, Friedman test, Kruskal-Wallis test, Fisher test, chi-square test.
Prerequisites	

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
W_001	Examination reports	Preparation of written reports and their oral presentation at a specified time as a verification of acquired skills during problems' solving.	M_001, M_002, M_003, M_004
W_002	Test	Verification of knowledge and skills based on the analysis of tasks solutions during written test.	M_001, M_002, M_003

5. Forms of teaching

code	form of teaching			required hours of student's own work		assessment of the learning outcomes of the module
	type	description (including teaching methods)	number of hours	description	number of hours	
Z_001	lecture	Lecture presenting concepts and facts from the scope of program contents which are listed in the module and illustrating them with numerous examples	10	Self-study of lectures and literature	20	W_002
Z_002	laboratory classes	Laboratory, during which students perform exercises with the help of the teacher, which develop the skills listed in the set of learning outcomes of the module	10	Self-improvement of skills listed in the set of learning outcomes of the module	20	W_001, W_002