1.	Field of study	Computer Science
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2021/2022 (summer term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

Module: Statistical analysis in research

Module code: W4-INA-S2-20-1-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 knows the average measures of variability, dispersion, asymmetry, correlation analysis and can use them.	K_U03	1
		K_U08	1
		K_W01	1
		K_W09	1
M_002	The student knows various methods of graphic presentation of qualitative and quantitative data. They can choose the graph for the data and create it.	K_U01	1
		K_W09	1
M_003	The student knows statistical inference. They can use selected statistical tests to confirm the significance of the hypotheses. They can choose the right test, depending on a hypothesis and data.	K_U01	1
		K_U03	1
		K_U09	1
		K_W01	1
		K_W09	1
M_004	They can use the selected program to perform statistical analysis and to confirm the hypotheses. Based on the obtained experimental results, they can conclude and show their statistical significance.	K_K04	1
		K_U01	1
		K_U03	1
		K_U07	1

3. Module description

Description	

	The module's purpose is to present the basics of data analysis, including descriptive statistics, graphic methods for the presentation of qualitative and quantitative data, and statistical inference elements. Content: The module's purpose is to present the basics of data analysis, including descriptive statistics, graphic methods for the presentation of qualitative and quantitative data, and statistical inference elements. Content: 1. Descriptive statistics: average measures, measures of variability, dispersion, asymmetry, correlation analysis. 2. Graphic methods for presenting 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	Test	The test verifies knowledge and skills based on completed tasks.	M_001, M_002, M_003
W_002	Examination reports	The students prepare written reports and their oral presentation at a specified time as verification of gained skills during problem-solving.	M_001, M_002, M_003, M_004

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	The lectures present concepts and facts from the programme contents listed in the module and illustrate them with many examples.	15	The students self-study the lectures and recommended literature.	15	W_001
Z_002	laboratory classes	During the laboratory classes, the students complete tasks with the teacher's help, which develops the skills listed in the set of learning outcomes of the module.	15	The students improve the skills listed in the set of learning outcomes of the module.	15	W_001, W_002