DESCRIPTION OF THE COURSE OF STUDY

Course code	**0719-2ID-C30-S1**	
Name of the course in	Polish	**Statystyka 1**
	English	**Statistics 1**

1. **LOCATION OF THE COURSE OF STUDY** within the system of studies

1.1. Field of study	Data engineering
1.2. Mode of study	Full time studies
1.3. Level of study	First level studies
1.4. Profile of study*	General academic studies
1.5. Person/s preparing the course description	Hubert Przybycień
1.6. Contact	hprzybycien@ujk.edu.pl

2. **GENERAL CHARACTERISTICS OF THE** course of study

2.1. Language of instruction	english
2.2. Prerequisites*	Basic Mathematics, Mathematics 1, Probability 1

3. **DETAILED CHARACTERISTICS OF THE COURSE OF STUDY**

3.1. **Form of classes**		Lectures, seminars
3.2. **Place of classes**		classes in the teaching rooms of UJK
3.3. **Form of assessment**		exam(lecture), passing with a note (seminar)
3.4. **Teaching methods**		lecture – problem lecture, seminar - group discuss, solving tasks
3.5. **Bibliography**	**Required reading**	1.R.V. Hogg, J.W. McKean, A.T. Craig, *Introduction to Mathematical Statistics*, Pearson Education 2003
	Further reading	1.R. Chattamvelli, R. Shanmugam, *Descriptive statistics for scientist and engineers*, Springer 2023

1. **OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES**

a. **Course objectives** ***(including form of classes)***

Knowledge

C1 – presentation of methods of statistical description and selected methods of statistical inference

Skills

C2 – developing the ability of apply basic statistical methods

Social competencies

C3 - Developing the habit of learning, improving one's own work skills, and formulating questions that serve to deepen one's understanding of a given topic.

b. **Detailed syllabus** ***(including form of classes)***

Lectures

Basic statistical concepts. Classification of statistical features. Designing a statistical study. Grouping and presentation of statistical data. Numerical characteristics of population structure: measures of location, dispersion, skewness, and concentration. Random sample, distributions of sample statistics. The concept of an estimator, properties of 'good' estimators. Basic methods of constructing estimators. Point and interval estimation for population parameters. The issue of minimum sample size. Testing statistical hypotheses. Possible errors in hypothesis testing. The power of a statistical test. Testing hypotheses about population parameters (t-Student tests, one-way and two-way analysis of variance). Non-parametric tests. Goodness-of-fit tests. Correlation analysis and introduction to the topic of linear regression. Laboratory: Grouping and presentation of data. Selection, determination and interpretation of statistical measures in the case of ungrouped and grouped data.

Classes

Grouping and presentation of data. Selection, determination, and interpretation of statistical measures in the case of ungrouped and grouped data. Comprehensive descriptive analysis. Analyzing the distributions of selected statistics from the sample and the properties of estimators. Determining point and interval estimator values for population parameters. Hypothesis testing of population parameters. Application of non-parametric tests. Testing for distribution conformity. Correlation and linear regression analysis..

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of **KNOWLEDGE:**		
W01	Knows basic statistical measures used to describe the studied phenomena Eexplains and illustrates with examples such concepts as: estimator, confidence interval, statistical test, type I and II error in hypothesis testing, power of a statistical test, p-value.	ID1A_W01 ID1A_W02
within the scope of **ABILITIES:**		
U01	Defines and interprets statistical measures, presents data in a graphical way	ID1A_U01 ID1A_U05 ID1A_U06
U02	Selects a statistical procedure appropriate for the analyzed problem, pays attention to the applicability assumptions of a given procedure. Works in a team on the preparation, execution, and presentation of the results of a mini statistical study	ID1A_U01 ID1A_U06 ID1A_U13
within the scope of **SOCIAL COMPETENCE:**		
K01	understands the social aspects of the practical application of acquired knowledge and the need to popularize selected achievements of science and technology	ID1A_K03
...		

4.4. **Methods of assessment of the intended learning outcomes**

Teaching outcomes *(code)*	Method of assessment (+/-)																					
	Exam oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning		
	Form of classes			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*			*Form of classes*		
	L	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...	*L*	*C*	...
W01	+																				
U01					+																
U02					+																
K01					+																
...																					

**delete as appropriate*

4.5. **Criteria of assessment of the intended learning outcomes**

Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	achieving <50-60)% of the requirements
	3,5	achieving <60-70)% of the requirements
	4	achieving <70-80)% of the requirements
	4,5	achieving <80-90)% of the requirements
	5	achieving <90-100>% of the requirements
classes (C)* (including e-learning)	3	achieving <50-60)% of the requirements
	3,5	achieving <60-70)% of the requirements
	4	achieving <70-80)% of the requirements
	4,5	achieving <80-90)% of the requirements
	5	achieving <90-100>% of the requirements

2. **BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT**

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT	***60***	

HOURS/		
*Participation in lectures**	***30***	
*Participation in classes, seminars, laboratories**	***30***	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	***40***	
*Preparation for the lecture**	***7***	
*Preparation for the classes, seminars, laboratories**	***20***	
*Preparation for the exam/test**	***13***	
TOTAL NUMBER OF HOURS	***100***	
ECTS credits for the course of study	***4***	

delete as appropriate

Accepted for execution *(date and legible signatures of the teachers running the course in the given academic year)*

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