Attachment No. 5 to Rector's ordinance No. 22/2020

DESCRIPTION OF THE COURSE OF STUDY

Course code	0541.6.MAT1.C.STAT1	
Name of the course in	Polish	**Statystyka I**
	English	**Statistics I**

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	mathematics
1.2. Mode of study	full-time studies
1.3. Level of study	Undergraduate (Bachelor)
1.4. Profile of study*	general academic profile of studies
1.5. Person/s preparing the course description	dr Michał Popławski
1.6. Contact	mpoplawski@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	Polish and English
2.2. Prerequisites*	Probability theory I

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes		lectures and classes
3.2. Place of classes		classes in the UJK teaching room
3.3. Form of assessment		graded credit
3.4. Teaching methods		Lecture – informative lecture; classes - task solving, problem method, case analysis
3.5. Bibliography	**Required reading**	Sobczyk M.. Statystyka. Wydawnictwo Naukowe PWN. Warszawa 2007.
	Further reading	Ostasiewicz S., Rusnak Z., Siedlecka U.. Statystyka. Elementy teorii i zadania. Wydawnictwo Akademii Ekonomicznej. Wrocław 2003. Starzyńska W.. Statystyka praktyczna. Wydawnictwo Naukowe PWN. Warszawa 2006. Liero H., Zwanzig S. Introduction to the theory of statistical inference, CRC Press, 2012. Hogg R., Tanis E., Zimmerman D., Probability and statistical inference, Pearson, 2019

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

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

Lecture:

C1 - familiarization with elementary methods of description and statistical inference

Classes:

C1 - formation of the ability to apply basic methods of descriptive and mathematical statistics

C2 - formation of a critical attitude to the results of statistical inference carried out

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

Lecture:

Subject, purposes and tasks of statistics. Basic statistical notions: statistical unit, statistical population, statistical characteristic. Division of statistical characteristics. Types of statistical data. Stages of statistical survey. Development and presentation of statistical data. Grouping of data. Statistical charts. Numerical characteristics of the structure of the population: measures of average, dispersion, asymmetry and concentration. Descriptive measures of the dynamics of phenomena. Random sample, distributions of sample statistics. Concept of estimator, properties of "good" estimators. Point and interval estimation for population parameters. Testing of statistical hypotheses. Errors possible to make when testing hypotheses. Examples of statistical tests for hypotheses about population parameters. Tests of compatibility and independence. Statistical description of interdependence of phenomena and selected statistical tests in correlation and regression analysis.

Classes:

Basic statistical concepts: statistical unit, statistical population, statistical characteristic. Processing and presentation of statistical data. Grouping of data. Statistical charts. Numerical characteristics of the structure of the population: measures of average, dispersion, asymmetry and concentration. Analysis of the dynamics of phenomena using descriptive measures. Determination of the values of point and interval estimators for population parameters. Testing hypotheses about population parameters. Testing the compatibility of distributions. Correlation and regression analysis.

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of **KNOWLEDGE:**		
W01	describes the basic steps of a statistical survey	MAT1A_W01
W02	characterizes statistical measures used in statistical description	MAT1A_W04 MAT1A_W05
W03	explains and illustrates with examples the terms: estimator, confidence interval, statistical test, error of the first and second type in hypothesis testing, p-value	MAT1A_W04 MAT1A_W05
within the scope of **ABILITIES:**		
U01	carries out statistical description taking care to select appropriate statistical measures and adequate ways to visualize the data	MAT1A_W04 MAT1A_W12
U02	determines confidence intervals in typical issues and executes basic statistical tests, paying attention to the assumptions of applicability of a given procedure	MAT1A_W04 MAT1A_W12 MAT1A_W13
U03	prepares, carries out and presents the results of a mini statistical survey	MAT1A_W04 MAT1A_W12 MAT1A_W13 MAT1A_W15

4.4. Methods of assessment of the intended learning outcomes

Teaching outcomes *(code)*	Method of assessment (+/-)					
	Test*			Project*		
	Form of classes			*Form of classes*		
	L	*C*	...	*L*	*C*	...
W01	+					
W02	+					
W03	+					
U01		+				+
U02		+				+
U03						+

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**	at least 50% and no more than 60% of the total number of points possible
	3,5	more than 60% and no more than 70% of the total number of points possible
	4	more than 70% and no more than 80% of the total number of points possible
	4,5	more than 80% and no more than 90% of the total number of points possible
	5	more than 90% of the total number of points possible
classes (C)* (including e-learning)	**3**	at least 50% and no more than 60% of the total number of points possible
	3,5	more than 60% and no more than 70% of the total number of points possible
	4	more than 70% and no more than 80% of the total number of points possible
	4,5	more than 80% and no more than 90% of the total number of points possible
	5	more than 90% of the total number of points possible

5. 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 HOURS/	***62***	
*Participation in lectures**	30	
*Participation in classes, seminars, laboratories**	30	

*Preparation in the exam/ final test**	2	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	***38***	
*Preparation for the classes, seminars, laboratories**	8	
*Preparation for the exam/test**	15	
*Gathering materials for the project/Internet query**	15	
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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