

Course title:	Basic statistics	ECTS	4
English translation of the course title:	Basic statistics		
Degree program name:	Food Science Technology and Nutrition		

Course language: English	Stage: I		
Form of studies: <input checked="" type="checkbox"/> intramural <input type="checkbox"/> extramural	Type of module: <input checked="" type="checkbox"/> basic <input type="checkbox"/> directional	<input checked="" type="checkbox"/> mandatory <input type="checkbox"/> elective	Semester: <input checked="" type="checkbox"/> winter semester <input type="checkbox"/> summer semester
Academic year:	2022/2023	Catalogue number:	FSTN_1_L_13

Course coordinator :	Dr hab. Elżbieta Wójcik-Gront, prof. SGGW			
Teachers responsible for the course:	Employees of the Department of Biometry, Institute of Agriculture , WULS			
Objectives and description of the course:	<p>The aim of the lectures is to familiarize students with the basics of statistics and the main methods of analysing data from observation and experimental research. The purpose of laboratory classes is to develop the skills to work independently and freely when describing, analysing and interpreting biological data, as well as the ability to select statistical methods necessary for proper inference based on existing data set.</p> <p>Range of the course: Types of random variables (categorical distribution or continuous distribution) and their distributions and cumulative distribution with the focus on the normal distribution and its standardization. Statistical population and the types of sampling. The estimation of distribution parameters: the point estimations and confidence intervals for following population parameters: mean (expected value), fraction, variation, difference between two means, two fraction difference, variances ratio. Principles of statistical inference. Substantive and statistical hypothesis. Testing the statistical hypothesis (Significance tests). Verification of the population hypothesis related with previously mentioned point estimators. Statistical analysis of data from factor experiments - one-factor experiment in a completely random system. Method of analysis of variance. Multiple average value comparison procedures (object grouping). Chi-square test of compliance and independence. Relations between quantitative traits - correlation analysis and regression analysis.</p>			
Teaching forms, number of hours :	<p>a) lecture; number of hours 15; b) laboratory classes; number of hours 30;</p>			
Teaching methods:	lecture, discussion, problem solving			
Formal prerequisites and initial requirements:	mathematical knowledge in the field of elementary mathematics at the level of elementary school, middle school and high school in the general profile			
Learning outcomes:	The content of the effect assigned to the course:		Relation to the course outcomes	Impact on the course outcomes *
Knowledge: (The graduate knows and understands)	W1	The student has the knowledge of basic statistical methods (in the range necessary for elementary applications).	FSTN1_K_W01	1
Skills: (The graduate is able to)	U1	The student has the elementary ability to use computational programs in analyzing natural phenomena and is able to demonstrate the skills of statistical analysis in relation to his biological knowledge, performing basic statistical analysis and presenting the resulting conclusions	FSTN1_K_U01	1
Competences: (The graduate is ready to)	K1	Seeks to use and expand their knowledge based on statistical analysis	FSTN1_K_K01	1
Program contents ensuring the achievement of the learning outcomes:	Types of random variables (categorical distribution or continuous distribution) and their distributions and cumulative distribution with the focus on the normal distribution and its standardization. Statistical population and the types of sampling. The estimation of distribution parameters: the point estimations and confidence intervals for following population parameters: mean (expected value), fraction, variation, difference between two means, two fraction difference, variances ratio. Principles of statistical inference. Substantive and statistical hypothesis. Testing the statistical hypothesis (Significance tests). Verification of the population hypothesis related with previously mentioned point estimators. Statistical analysis of data from factor experiments - one-factor experiment in a completely random system. Method of analysis of variance. Multiple average value comparison procedures (object grouping). Chi-square test of compliance and independence. Relations between quantitative traits - correlation analysis and regression analysis.			
Methods of the verification of the learning outcomes:	W1, U1, K1 - Lecture test and / or exercise test and / or activity			
Details on the verification methods and of the ways of documenting the learning outcomes:	Paper or electronic personal colloquium and final test cards (from the lecture test)			
Elements and weights influencing the final grade:	Exercise tests - 50%, lecture tests - 40%, activity - 10%			

Teaching place:	Lecture halls and training rooms of the Warsaw University of Life Sciences
Literature:	<ol style="list-style-type: none"> 1. Krysicki W., Włodarski L. „Analiza matematyczna w zadaniach cz. 1, 2” PWN Warszawa 2004. 2. Gilbey J., Pemberton S. „Cambridge International AS & A Level Mathematics: Pure Mathematics 1 Coursebook” Cambridge University Press 2018 3. Linsky J.; Western B. „Complete Pure Mathematics 1 for Cambridge International AS & A Level” Oxford University Press 2018 4. Jewell R., Goldie S., A Level Mathematics: First Aid Kit” Taylor & Francis Group 2020. 5. Skrakowski J., Smith H. (red.) “Pearson Edexcel International A Level Mathematics Further Pure Mathematics 1 Student Book” wydawnictwo Pearson 2018.
ANNOTATIONS	

*) 3 – Significant and detailed, 2 – Partial, 1 – Basic,

Quantitative summary of the course:

Estimated number of work hours per student (contact and self-study) essential to achieve the presumed learning outcomes of the module - base for quantifying ECTS:	65.25 h
Total ECTS points accumulated by the student during contact learning:	5.8 ECTS