Appendix No. 1.5 to the Resolution No. 61/2025
of the Rector of the University of Rzeszów

SYLLABUS

REGARDING THE QUALIFICATION CYCLE FROM 2026/2027 TO 2029/2030
ACADEMIC YEAR 2026/2027

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	**Basics of Statistics in Agriculture**
Course/Module code *	
Faculty (name of the unit offering the field of study)	Faculty of Technology and Natural Sciences
Name of the unit running the course	Faculty of Technology and Natural Sciences
Field of study	Agriculture
Qualification level	first-cycle studies
Profile	general academic
Study mode	full-time
Year and semester of studies	Year 1, semester 1
Course type	Basic subjects
Language of instruction	English
Coordinator	Dr Agnieszka Podolak
Course instructor	Dr Agnieszka Podolak

* - as agreed at the faculty

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Laboratories	Seminars	Practical classes	Internships	others	**ECTS credits**
1			30					2

1.2. Course delivery methods

☒ conducted in a traditional way
☐ involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)
Pass with a grade

2. PREREQUISITES

Knowledge of mathematics and information technology at upper-secondary school level.

3. OBJECTIVES, LEARNING OUTCOMES, COURSE CONTENT, AND INSTRUCTIONAL METHODS

3.1. Course/Module objectives

O1	To familiarize students with statistical methods and tools necessary for the analysis and presentation of various phenomena.
O2	To familiarize students with the role of statistics in agricultural sciences.
O3	To familiarize students with the proper selection of statistical methods appropriate to the specific nature of the problem under study.
O4	To develop an understanding of the application of statistical methods necessary for understanding and quantitatively describing phenomena.
O5	To develop skills in obtaining information, selecting and interpreting it, and integrating it with previously acquired knowledge.
O6	To enable students to acquire the ability to use computer software for the statistical analysis of agricultural data.

3.2. COURSE/MODULE LEARNING OUTCOMES

Learning Outcome	The description of the learning outcome defined for the course/module	Relation to the degree programme outcomes
LO_01	The student knows and understands the concept of statistical description of data and knows how to interpret measures of location, dispersion and asymmetry.	K_W04
LO_02	The student knows and understands the concept of statistical inference, point estimation and interval estimation.	K_W04
LO_03	The student is able to apply selected methods of statistical data analysis (e.g. Regression and correlation analysis) using computer-based information technologies.	K_U02, K_U06
LO_04	The student is able to determine statistical parameters and uses built-in spreadsheet functions or a statistical package for calculations.	K_U02, K_U06
LO_05	The student is able to interpret the obtained results and present them graphically.	K_U02
LO_06	The student is able to cooperate in a group and understands the need to apply the acquired knowledge.	K_U10
LO_07	The student is ready to seek advice when encountering difficulties in solving a problem independently and is aware of the limitations of statistical methods.	K_K02

3.3. Course content

A. Laboratories

Content outline
Variables and their types. Elements of descriptive statistics. Measures of location, dispersion and variability.
Introduction to the use of computer software in statistical analyses.
Normal distribution - W. Shapiro-Wilk test; homogeneity of variance - Brown-Forsythe test.
Tests for two independent and dependent samples - different types of Student's t-test; Mann-Whitney U test.
Analysis of variance (ANOVA) and the Kruskal-Wallis test; post-hoc tests.
Pearson and Spearman correlation; linear regression analysis.
Graphical presentation of the results of statistical analyses.

3.4. Methods of Instruction

Laboratory classes: performing calculations and tasks, selecting and carrying out analyses using Excel and Statistica, group work, discussion.

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

Learning outcome	Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes)	Learning format (lectures, classes…)
LO_01	test, verification of completed tasks and analyses, observation during classes	laboratory classes
LO_02	test, verification of completed tasks and analyses, observation during classes	laboratory classes
LO_03	test, verification of completed tasks and analyses, observation during classes	laboratory classes
LO_04	test, verification of completed tasks and analyses, observation during classes	laboratory classes
LO_05	test, verification of completed tasks and analyses, observation during classes	laboratory classes
LO_06	test, verification of completed tasks and analyses, observation during classes	laboratory classes
LO_07	test, verification of completed tasks and analyses, observation during classes	laboratory classes

4.2 Course assessment criteria

Laboratory classes - pass with a grade based on the test grade and observation during classes, involving verification of correct statistical reasoning while performing tasks and analyses. The condition for passing the course is the achievement of all intended learning outcomes. A positive final grade is determined by the number of points obtained (>50% of the maximum

number of points): satisfactory 51-60%, satisfactory plus 61-70%, good 71-80%, good plus 81-90%, very good 91-100%.

5. Total student workload needed to achieve the intended learning outcomes – number of hours and ECTS credits

Activity	Number of hours
Course hours	30
Other contact hours involving the teacher (consultation hours, examinations)	10
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	20
Total number of hours	60
Total number of ECTS credits	2

* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

Number of hours	Not applicable
Internship regulations and procedures	Not applicable

7. Instructional materials

Compulsory literature: materials provided by the teacher and online resources on the topics covered
Complementary literature: online resources on the topics covered

Approved by the Head of the Department or an authorised person