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

SYLLABUS

REGARDING THE QUALIFICATION CYCLE FROM 2026/2027TO2027/2028
ACADEMIC YEAR 2026/2027

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	**Biological Progress in Plant Production**
Course/Module code *	
Faculty (name of the unit offering the field of study)	Faculty of Technology and Life Sciences
Name of the unit running the course	Institute of Agricultural Sciences, Environmental Protection and Management/Department of Crop Production
Field of study	Agriculture
Qualification level	Second-cycle studies
Profile	general academic
Study mode	stationary
Year and semester of studies	year 1, semester 1
Course type	major
Language of instruction	English
Coordinator	Tobiasz-Salach Renata (Associate Professor)
Course instructor	Tobiasz-Salach Renata (Associate Professor) - lectures Tobiasz-Salach Renata (Associate Professor) - laboratory classes:

* - 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	15		28					3

1.2. Course delivery methods
X- 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)
Lectures: exam
Laboratory classes: graded credit

2. PREREQUISITES

The student is familiar with the subject matter of the following courses: Plant Breeding and Seed Science, General Crop and Soil Management, Special Crop Production, Soil Science.

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

3.1. Course/Module objectives

O1	To familiarize students with the most significant achievements in biological progress regarding key groups of cultivated plants.
O2	Presentation of issues regarding increasing plant productivity.
O3	Presentation of methods for calculating biological progress indicators.

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	knows and understands biological progress in agriculture	K_W05, K_W07
LO_02	knows the main determinants of biological progress within individual plant species	K_W05, K_W07
LO_03	is able to calculate basic indicators of biological progress	K_U02, K_U05 K_U06
LO_04	can determine the impact of biological progress on changes in cultivation technology and the quality of agricultural crops	K_U02, K_U05 K_U06
LO_05	is ready to take responsibility for adhering to and developing the principles of professional ethics related to the implementation of biological progress	K_K04

3.3. Course content

A. Lectures

Content outline
Characteristics of agricultural progress – basic concepts.
The effects of biological progress in agriculture. GMO plants.
Biological progress in cereal crop cultivation.
Biological progress in root crop cultivation.
Biological progress in the cultivation of industrial crops.
Biological progress in forage crop cultivation.

B. Laboratories

Content outline
Assessment of the impact of biological progress on the yield and quality of agricultural products.
Presentation and calculation of biological progress metrics – calculation techniques and interpretation of results.
Analysis of the effects of biological progress in agriculture – case study, debate
Analysis of economic and social aspects of introducing biological progress in plant production (debate, case study)
Biological progress based on genetic modifications (GMOs, NGTs) (debate)
Mutagenesis as a tool for obtaining new traits in crop plants (laboratory experiment).

3.4. Methods of Instruction

Lecture: multimedia presentation.
Laboratories: presentation, group work, calculation of varietal progress indicators, laboratory experiments.

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	EXAM	LECTURE
LO-02	EXAM	LECTURE
LO-03	PROJECT PREPARATION	LABORATORIES
LO-04	COLLOQUIUM, PRESENTATION	LABORATORIES
LO-05	OBSERVATION DURING CLASS	LECTURE, LABORATORIES

4.2 Course assessment criteria

Lecture: written exam with open-ended questions.
Laboratory exercises: graded assessment, grading based on partial grades for the project, presentation, and test.
A passing grade for the course is determined by the number of points obtained (>50% of the maximum score): satisfactory 51–60%, satisfactory plus 61–70%, good 71–80%, good plus 81–90%, very good 91–100%.
The condition for passing the course is to achieve all the assumed learning outcomes.

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

Activity	Number of hours
Course hours	43

Other contact hours involving the teacher (consultation hours, examinations)	6
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	26
Total number of hours	75
Total number of ECTS credits	3

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

6. Internships related to the course/module

Number of hours	
Internship regulations and procedures	

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