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

SYLLABUS

REGARDING THE QUALIFICATION CYCLE FROM 2026/2027TO2029/2030
ACADEMIC YEAR *2026/2027*

1. BASIC COURSE/MODULE INFORMATION

Course/Module title	**Meadow management**
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, Land Management and Environmental Protection
Field of study	agriculture
Qualification level	first-degree
Profile	general academic
Study mode	stationary
Year and semester of studies	year 1, semester 2
Course type	major
Language of instruction	English
Coordinator	dr inż. Krzysztof Rogut
Course instructor	dr inż. Krzysztof Rogut, dr inż. Paweł Wolański

* - as agreed at the faculty

1.1. Learning format – number of hours and ECTS credits

Semester (no.)	Lectures	Classes	Laboratories	Seminars	Practical classes	Internships	Field classes	**ECTS credits**
2	15			30			10	4

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)

2. PREREQUISITES

Natural Science Foundations of Agriculture, Soil Science, Agricultural Chemistry, Plant Physiology, Water Management and Agrometeorology, Agricultural Engineering, Environmental Protection

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

3.1. Course/Module objectives

O1	To provide students with knowledge regarding the productive and non-productive significance of meadows and pastures.
O2	Expanding knowledge regarding the impact of environmental factors on grassland vegetation, fertilization principles, sward utilization and forage production technologies, methods for rehabilitating degraded meadows and pastures, and biology.
O3	To familiarize students with issues concerning the fodder and ecological significance of plants found in meadows and pastures.

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 impact of ecological and anthropogenic factors on the botanical composition of the sward, as well as the yield and quality of forage from grasslands.	K_W01
LO_02	- knows and understands the technology based on modern methods and machinery for meadow sward maintenance, and understands the significance of modern trends in pasture utilization	K_W02, K_U05
LO_03	- is able to identify and evaluate the value of selected species of forage grasses, legumes, sedges, and herbs, as well as meadow types	K_U03
LO_04	- is able to select grass and legume species for mixtures intended for permanent and rotational grasslands	K_U07, K_U10
LO_05	- is able to determine mineral and organic fertilizer application rates for meadows and pastures based on soil type and the method and intensity of use	K_U09
LO_06	- is prepared to appreciate the role of grasslands in the production of healthy and low-cost feed for ruminants, as well as in shaping the agricultural landscape and protecting the environment	K_K01

3.3. Course content

A. Lectures

Content outline
Origins and distribution of permanent grasslands in Poland and worldwide. Natural and anthropogenic grasslands. Current state of grassland management in Poland; causes and consequences of its decline. Changing perspectives on grassland management in Western Europe and Poland.

Forage and ecological functions of grassland ecosystems.
Typological and phytosociological classification of grasslands.
The influence of soil factors on grassland productivity.
Water as the most important ecological factor shaping the botanical composition and yield of meadow and pasture sward. Irrigation of grasslands.
The influence of climatic factors (geographical location, terrain, air temperature, light intensity) on the botanical composition and productivity of the sward. The influence of biotic factors on the botanical composition and yield of the sward from meadows and pastures.
Effect of mineral fertilization on yield and the botanical and chemical composition of the sward. Methods for determining the fertilizer requirements of grasslands.
Effect of organic fertilization on yield and the botanical and chemical composition of the sward.
Fertilization principles. Types of fertilizers and application rates. Methods for assessing the fertilization needs of grasslands.
Mowing and rotational use. Production of hay, dried forage, and silage (factors affecting feed quality).
Pasture management – benefits of grazing, grazing systems.
Pasture management – principles of pasture fertilization and maintenance.
Economic determinants of forage production on grassland.
Causes of grassland degradation. Criteria for selecting management methods.

B. Laboratories, field classes

Content outline
Familiarizing students with the course content, requirements, and assessment criteria. Botanical taxonomy of meadow, pasture, and wetland plants. Categorization of grassland plants based on their economic importance. Classification of meadow vegetation according to its utility value.
Morphology, biology, and chemical properties of meadow vegetation. Growth and development of grasses.
Forage grasses: *Phalaris arundinacea, Alopecurus pratensis, Phleum pratense, Agrostis alba, Agrostis capillaris, Poa pratensis, Poa palustris* – distinguishing characteristics based on the inflorescence, economic importance, and habitat requirements.
Forage grasses: *Festuca arundinacea, Festuca pratensis, Festuca rubra, Lolium perenne, Lolium multiflorum, Dactylis glomerata, Bromus inermis, Bromus unioloides, Arrhenatherum elatius* - distinguishing characteristics based on the inflorescence, economic importance, and habitat requirements.
Forage grasses of medium and low value not sown in mixtures – identifying characteristics based on the inflorescence, economic and ecological significance, and habitat requirements.
Grass identification based on inflorescences (oral assessment).
Leguminous plants of meadows and pastures – identifying characteristics, biology, habitat, and economic importance.
Temporary grasslands and their importance in forage production. Selection of grass and legume species for permanent and temporary grassland mixtures. Grass seed science.
Written test on the identification of grass and legume seeds and the principles of mixture formulation. Plants of wetland habitats: sedges, rushes, and horsetails – economic and ecological significance and characteristics of selected species.
Herbs and weeds in grasslands – economic and ecological significance and characteristics of selected species.

Principles of recognizing grasses in the vegetative stage. Overview of a key for identifying grass species based on leaf structure. Identification of grass species using freshly collected specimens.
Identification of grass species in the vegetative stage within multi-species meadow communities.
Oral assessment on identifying grasses in the vegetative stage.
Herbarium assessment.

C. Field classes

Content outline
Field identification of common grass species, legumes, herbs, and weeds found in meadows and pastures across diverse habitat conditions.

3.4. Methods of Instruction

Lecture with multimedia presentation
Exercises with multimedia presentation, laboratory work, field classes.

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	TEST, REPORT	LABORATORY EXERCISES, FIELD CLASSES
LO_04	TEST	LABORATORY EXERCISES
LO_05	TEST	LABORATORY EXERCISES
LO_06	OBSERVATION DURING CLASSES	LABORATORY EXERCISES

4.2 Course assessment criteria

Laboratory classes: graded assessment
Test
determining the final grade based on component grades.
Field classes: assessment based on a report
Lecture: an extended piece of writing.

To pass the course, students must achieve all the intended learning outcomes. The final grade is determined by the number of points obtained: satisfactory (dst) > 50% of the maximum

possible points; satisfactory plus (dst plus) > 60%; good (db) > 70%; good plus (db plus) > 80%; very good (bdb) > 90%.

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

Activity	Number of hours
Course hours	**55**
Other contact hours involving the teacher (consultation hours, examinations)	**15**
Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.)	**30**
Total number of hours	**100**
Total number of ECTS credits	**4**

* 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