

## Opiszając (syllabus)

Course title:	<b>Podstawy genetyki i hodowli zwierząt</b>	ECTS	<b>2</b>
Course title in English	<b>Basics of animal genetics and breeding</b>		
Degree program name:	Biotechnology		

Course language : English		Study level: 1	
Form of study: <input checked="" type="checkbox"/> intramural <input type="checkbox"/> extramural	Course status : <input type="checkbox"/> basic <input checked="" type="checkbox"/> major	<input checked="" type="checkbox"/> mandatory <input type="checkbox"/> elective	Semester 4 <input type="checkbox"/> winter semester <input checked="" type="checkbox"/> summer semester
Academic Year:		2022/2023	Catalogue Number: <b>BBT_BTa-1S-4L-29</b>

Course coordinator:	<b>dr hab. Wiesław Świderek</b>			
Teachers responsible for the course	<b>dr hab. Wiesław Świderek, dr inż. Beata Grzegorzówka, dr inż. Marta Gajewska, mgr inż. Rafał Maciaszek</b>			
Aims, objectives and description of the course:	<p>The aim of the course is to familiarize students with the basics of animal breeding and the mechanisms of inheritance, with particular emphasis on the influence of the genotype on the growth and development of the organism and the shaping of phenotypic features.</p> <p>Lectures Basics of heredity. Architecture of the genome of pro and eukaryotic organisms. Basics of epigenetics - regulation of gene expression. Characteristics of breeds and utility types of selected species of farm animals. Genetic conditioning of animal performance and production traits. Inheritance and sex determination in animals. Breeding use of animals and biotechnology used in reproduction. Molecular basis of hereditary diseases and congenital malformations in animals. Genetic basis of animal disease resistance. Fundamentals of population genetics and animal breeding methods, Modern herd management systems, animal welfare, health and protection. Optimization of animal nutrition, nutrigenomics. The use of molecular genetics in animal breeding.</p> <p>Exercises The interaction of alleles in shaping the characteristics of the organism. Inheritance of sex and gender-linked characteristics. Inheritance of blood groups and coat color of animals. Genetic structure of animal populations. Relationship and inbreeding.</p>			
Teaching forms, number of hours:	Lectures – 30 h, Laboratory classes – 15 h			
Teaching methods:	Lecture, discussion, problem solving; case studies; projects;			
Formal requirements and prerequisites:	Basic biological knowledge			
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	has a consistent knowledge of the mechanisms of inheritance of traits, genetic variation, and the origin and biology of animal reproduction	K_W06 K_W10 K_W07 K_W03	1 1 1 1
	W2	understands the basic issues of genetics and molecular biology and is able to give and explain various detailed examples	K_W06 K_W10 K_W07 K_W03	1 1 1 1
	W3	knows the basic principles of nutrition, breeding use and animal welfare	K_W06 K_W10 K_W07 K_W03	1 1 3 1
Skills: (the graduate is able to)	U1	has the ability to analyze basic issues in genetics and molecular biology and is able to provide and explain various detailed examples	K_U03 K_U17 K_U18 K_U22	2 2 2 2
	U2	is able to give and explain specific examples, and is able to give and apply appropriate experimental methods related to the breeding and use of farm animals	K_U03 K_U17 K_U18 K_U22	2 2 2 2
Competences: (The graduate is ready to)	K1	is able to give and explain specific examples, and is able to give and apply appropriate experimental methods related to the breeding and use of farm animals	K_K01 K_K02 K_K07	1 1 1
	K2	is ready to expand, deepen and update knowledge, knows its practical use	K_K01 K_K02 K_K07	1 1 1

Program contents ensuring the achievement of the learning outcomes:	The inheritance of qualitative and quantitative traits in different species of animals, the basics of population genetics, aspects of breeding work with the use of the latest knowledge in the field of molecular genetics, the issue of animal welfare, which is a guarantee of appropriate breeding conditions and the quality of animal research.
Methods of the verification of the learning outcomes:	W1, W2, W3 – exam, U1, U2, K1, K2- colloquia, projects
Details on the verification methods and of the ways of documenting the learning outcomes:	Archiving of written work in paper or electronic version (tests, projects, exam)
Elements and weights influencing the final grade:	40% - exercise evaluation, 60% - exam evaluation
Teaching place:	Lecture room, educational platform
Literature 1. Brown T. A. 2017. Genomes 4. Published by Garland Science, ISBN 9780815345084 2. Allison L. A. 2021. Fundamental Molecular Biology. Wiley-Blackwell; 3rd ed. ISBN 978-1119156291 3. Singh C.V. 2015. Animal Breeding and Genetics. NIPA ISBN 978-9383305490	
ANNOTATIONS The following scale is used to calculate the final score: 100-91% points - 5.0; 90-81% points - 4.5, 80-71% points - 4.0; 70-61% points - 3.5; 60-51% points - 3.0	

\*) 3 – significant and detailed, 2 – considerable, 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 - basis for the calculation of ECTS credits	<b>140 h</b>
Total number of ECTS credits accumulated by the student during contact learning:	<b>1.8</b>