

Animal breeding and husbandry

Study program	Veterinary Medicine
Year of study	II
Semester	I
Regime of discipline	DOB
Discipline Category	Dpa
Number of lectures hours per week	2
Number of seminar/laboratory/project hours per week	3
Total number of hours according to the curriculum: lectures/seminars/laboratory/project	28 hours of course/ 42 hours of laboratory
Number of transferable credits	5

SPECIFIC SKILLS

Professional Competence	<p>Familiarization with the outside of the animals, recognition of breeds and breeding of animals - the requirements of a breeding program. Doing scientific research in animal production technologies.</p> <p>Knowledge / cognitive Knowledge, understanding and use of specific language / appropriate terminology in raising and breeding animals. Explanation of intra and inter-racial differences and animal breeding, application of learned techniques and quantitative and qualitative interpretation of the zootechnical value of animals.</p> <p>Abilities & skills: Application of learned techniques (assessment of the outside, determination of the degree of inbreeding), transfer and problem solving regarding the components of the breeding program and maintenance of genetic diversity. Critical reflection on animal breeding and breeding, constructive reflection in the breeding program; creativity and innovation in maintaining biodiversity.</p>
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LEARNING OUTCOMES

Knowledge	<p>Understands the principles of animal husbandry and genetic improvement, including reproduction, selection, and population genetic management.</p> <p>Understands the origins of domestic animals, the domestication process, and its effects on morphology, physiology, and productivity.</p> <p>Knows zootechnical systematics, breed classification and structure, as well as the morpho-physiological and productive characteristics of domestic animals.</p> <p>Understands the fundamentals of genetic improvement, objectives of breeding programs, and methods for evaluating breeding value (EBV).</p> <p>Knows the concepts of biodiversity, genetic diversity, and their importance in maintaining healthy populations.</p>
Skills	<p>Evaluates the exterior and productive potential of animals using practical methods (somatometry, somatoscopy, somatography).</p> <p>Determines the age and individual identification of animals.</p> <p>Applies knowledge to plan breeding programs, selection, and mating.</p> <p>Calculates and interprets the degree of inbreeding and predicts selection response.</p> <p>Monitors and interprets genetic diversity, preventing loss of variability and bottleneck effects.</p>
Responsibility and autonomy	<p>Makes autonomous decisions regarding selection and reproduction of animals, within the limits of a graduate's competence, recognizing situations that require specialist consultation.</p> <p>Complies with occupational safety regulations, fire prevention (PSI), and good zootechnical practices during laboratory and field activities.</p> <p>Assumes ethical and responsible practices in managing population genetics and maintaining genetic diversity.</p>

COURSE OBJECTIVES

General objective of the course	Raising animals and breeding animals and animal populations in different contexts - large or small populations while maintaining genetic diversity.
Specific objectives	<ol style="list-style-type: none"> 1. Synthesis examination of the outside of the animals. 2. Acclimatization of animals. 3. Study of animal breeds of species of interest for veterinary medicine. 4. Breeding program: establishment of the production system, breeding objectives, data

	collection, determination of breeding value, ranking of animals, mating of animals, dissemination of genetic progress and evaluation of the breeding program. 5. Maintaining genetic diversity.
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COURSE CONTENT

LECTURES	Number of hours
Topic no. 1: Introductory and historical notions. The importance of raising and breeding animals. Breeding and breeding of animals in Romania, Europe and worldwide.	2
Topic no. 2: The origin of domestic animals. Domestication. Centers of domestication. Stages and factors of domestication. Morphological, physiological and productive changes following domestication. The influence of domestication on society. Key aspects of domestication.	2
Topic no. 3: Taxonomy and animal systematics - establishment, structure and classification of populations. The notion of species; species characters. The notion of race; race characters. Race characters. The standard of the breed. The internal structure of races. Race classification. Adaptation and acclimatization of breeds. Acclimatization capacity. The acclimatization crisis. Degeneration of races.	2
Topic no. 4: Morpho-physiological and productive characteristics of domestic animals: Assessment of the exterior and productive potential of domestic animals. Methods usable in external assessment (somatometry, somatoscopy and somatography). External examination of animals: summary examination and analytical examination. Body development.	2
Topic no. 5: Synthesis examination of the exterior of domestic animals: Animal conformation (overall conformation - morphological type, head conformation, trunk conformation, limb and plumb conformation, skin appearance and coat). The temperament of domestic animals. The constitution of domestic animals. Animal body condition. Productive type. Factors that weaken the constitution.	2
Topic no. 6: Breeding and development of domestic animals. The biological basis of growth and development. Factors influencing growth and development. Environmental influences on phenotype.	2
Topic no. 7: Biodiversity. Zootechnical diversity. The importance of inter-racial variation. The origin of intra-breeding and intra-breed differences. News and trends on zootechnical diversity. The value of animal diversity. The advantages of animal diversity. Genetic diversity in farm animals.	2
Topic no. 8: Introduction to animal breeding. Basics of animal breeding. Breeding Program.	2
Topic no. 9: The goal of animal breeding. Collecting details for the breeding program.	2
Topic no. 10: Choosing the genetic model. Inbreeding and additive relations between animals.	2
Topic no. 11: Transmission of monogenic characters. Ranking of animals by Estimated Breeding Value (EBV).	2
Topic no. 12: Prediction of selection responses. Establishment of breeding pairs. Crossbreeding in animals.	2
Topic no. 13: Crossbreeding in animals. Animal breeding plan.	2
Topic no. 14: Evaluate the breeding program and maintain genetic diversity.	2
SEMINAR/LABORATORY	Number of hours
Topic no. 1: Labor protection measures and PSI norms in animal husbandry.	3
Topic no. 2: Marking, individualization and registration of animals.	3
Topic no. 3: The coat colors of domestic animals.	3
Topic no. 4: Analytical examination of the exterior - the exterior of the horses.	3
Topic no. 5: Practical exercises of appreciating the body of the ruminants. Linear appreciation of the dairy cattle.	3
Topic no. 6: Practical exercises of appreciating the swine, sheep, dogs, poultry and fish.	3
Topic no. 7: Age of domestic animals; establishing age in horses, cattle, sheep, pigs and dogs.	3
Topic no. 8: Practical recognition of the main breeds of horses and donkey and pigs.	3
Topic no. 9: Practical recognition of the main breeds of ruminants (dairy, beef, water buffalo, sheep and goats).	3
Topic no. 10: Practical recognition poultry: (turkey, hens, pheasants, ducks), dogs, cats and fish.	3
Topic no. 11: Growth and Development: Effects of Genetics and Nutrition.	3
Topic no. 12: Inbreeding, Crossbreeding & Heterosis phenomenon and its effects.	3
Topic no. 13: Breeding program - 1. Production system, 2. Breeding objectives, 3. Data collection and 4. Setting selection criteria.	3
Topic no. 14: Breeding program - 5. Mating, 6. Dissemination of genetic progress and 7. Evaluation of the breeding program.	3

BIBLIOGRAPHY:

1. Huțu, I., Oldenbroek, K., & van der Waaij, L. (2000). *Animal breeding and husbandry*. Timișoara, Romania: Agroprint. 448 pages. DOI: 10.13140/RG.2.2.11939.99366. ISBN 978-606-785-148-9
2. Huțu, I., Lungu, B., & Bratu, D. (2024). *Animal husbandry: practical exercises* (3rd edition). Timișoara, Romania: Agroprint. ISBN 978-606-785-294-3
3. Animal Breeding and Breeding Portal - <http://193.230.235.21/moodle/index.php>

ASSESSMENT

Activity type	Assessment criteria	Assessment methods	Percentage of final grade
Lectures	Disclosure of specific information using the right language	ES - Summative Evaluation: Face to face exam: two subjects, minimum 5 to each.	60%
	Knowing the basic concepts of discipline and explain their interdependencies between them;		
	The justice responses to building arguments pro / cons or solving problems posed / Context		
	Demonstration of coherent thinking, scientific, logical, the exposure of technological ideas and the ability to apply theoretical knowledge to solve practical problems		
Seminar /laboratory /clinical sessions	Equipment knowledge and skills in providing exemplary in conducting analyzes in solving exercises and problems in supporting argument, etc;	EC - Continuous evaluation: Practical exam / Ongoing evaluation (minimum 4 topics will be evaluated) Average topics constitute 40 % share mark	20%-40%
	Use of information, knowledge and discipline methods in addressing inter-, intra- , multi- and / or transdisciplinary problems / situations problem		
Other activities	Demonstrating the capacity for analysis, synthesis, abstraction and concretization of theoretical knowledge in building arguments in identifying problems and their solutions	ES - summative assessment, In case of pandemic restrictions or Erasmus program	0%-20%

Course coordinator:

Prof. PhD Ioan HUTU

Practical activities coordinator L/S/P: Assist. Prof. PhD Bianca ZANFIRA