

ANIMAL NUTRITION AND AGRONOMY 2

Study program	Veterinary Medicine
Year of study	III
Semester	I
Regime of discipline	DOB
Category of discipline	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>C 5. Development and management of principles of nutrition, sanitation, animal husbandry technology, and environmental protection.</p> <p><i>Cognitive:</i> Knowledge and understanding of the importance of establishing and observing feeding standards as close as possible to the animals' nutritional requirements, in order to ensure correct feeding. Mastery of the fundamental notions of anatomy and physiology of nutrition, the chemical composition of feeds, and the metabolic particularities of animals. Theoretical foundation required for the elaboration of rations and feed formulas, adapted both to healthy animals and to those in various physiological and/or pathological states. The discipline of Animal Nutrition and Agronomy provides: Elaboration and management of rations and feed formulas for cattle, sheep, horses, pigs, poultry, fur animals, dogs, and cats, respecting principles of sanitation, animal husbandry technology, and environmental protection. Assessment of the nutritional value and recognition of roughages and concentrates. Authorization of the production, marketing, storage, and use of feeds and feed preparations according to legal standards. Quality and safety control of feeds intended for animal nutrition, through organoleptic, bacteriological, mycological, mycotoxicological, parasitological, phytotoxicological, and chemical evaluations. Interpretation and integration of laboratory analysis results for feed samples and correlation of data regarding veterinary sanitary quality in order to optimize the use of feed resources. Recommendation and implementation of biosecurity protocols in feed use. Conduct of scientific research and professional training activities in the field of animal nutrition and agronomy, integrating the principles of "One Health" and sustainable development.</p> <p><i>Skills:</i> Apply the acquired knowledge in the organoleptic, bacteriological, mycological, mycotoxicological, parasitological, phytotoxicological, and chemical examination of feeds. Understand and interpret the results of laboratory analyses of feed samples. Correlate all data regarding the veterinary sanitary quality of feeds in order to optimize the use of certain types of feeds. Elaborate rations and feed formulas for the main species and categories of farm animal.</p>
--------------------------------	---

LEARNING OUTCOMES

Knowledge	The student expresses the need and conditions for feeding and housing animals, with the aim of ensuring their welfare and protection, as well as environmental protection and increasing economic efficiency.
Skills	<p>The student estimates the relationships of animals with the natural and artificial living environment, created through housing (feeding, maintenance, etc.).</p> <p>The student applies the necessary hygiene measures to ensure the health and economic efficiency of livestock and estimates the main environmental protection measures against the resulting pollutants.</p>
Responsibility and autonomy	<p>The student evaluates, through specific methods, the main characteristics of raw materials and feed and of all microclimate factors in the shelter and the main indicators of animal welfare.</p> <p>The student analyzes international and national legislation regarding the welfare and protection of livestock, in terms of economic efficiency and companion and leisure animals.</p>

COURSE OBJECTIVES

General objective of the course	Transmission of knowledge on assessing the nutritional value of forage on chemical composition, digestibility, energy exchanges, measures of nutritional and general about the main types of feed. The data on nutrition and the specifics of feed utilization in domestic animal species are also based on the knowledge acquired in the disciplines of Physiology, Anatomy, Biochemistry and transcend to the hygienic-dietetic treatment of all diseases taught in the clinical disciplines, especially in the diagnosis of nutritional and metabolic diseases, in specifying a correct diagnosis: deficiency, excess, multidisease.
Specific objectives	<p>The specific objectives of the discipline of Animal Nutrition and Agronomy aim to know and understand terms, concepts, units of measurement of the nutritional value of forage specific to the discipline, its subdivisions and relationships with other disciplines. It is aimed at students' understanding, knowledge, explanation and interpretation of the principles of healthy nutrition, as economical as possible, while respecting animal health and welfare.</p> <p>The approximation (superimposition) of rations and recipes to the feeding norms with the possibility of adapting and/or substituting some ingredients in the feed list according to the specific conditions in each animal husbandry unit, allows students to explain and interpret the various situations they may find themselves in at any given time.</p> <p>It creates affective-attitudinal relationships with students, who subsequently opt for integration into the research activity of the discipline or complete their studies by writing their thesis in the discipline.</p>

COURSE CONTENT

LECTURES	Number of hours
<u>Theme 1. Animal nutrition</u> Meat meal, meat-and-bone meal, blood meal, bone meal, fish meal, feather meal. Slaughterhouse offal. Occasional sources of protein. Technical fat. Milk and milk by-products.	2
<u>Theme 2. Other feed categories.</u> Non-protein nitrogenous substances. Mineral feed. Feed additives. Antibiotics, chemotherapeutics and growth promoters. Natural and chemical binders. Unidentified growth promoters. Emulsifiers. Probiotic products	2
<u>Theme 3 and 4. Compound feeds.</u> Types of compound feeds. Technologies for obtaining compound feeds. Milk replacers.	4
<u>Theme 5. Organisation of the forage base on livestock farms.</u> Physical pollution of feed. The production of illnesses through the consumption of plants containing toxic substances. Pollution of plants with various chemicals. Biological pollution of feed	2
<u>Theme 6. Special nutrition - small animals.</u> Specifics of feed utilization and feeding of poultry and turkeys, palmipeds, ducks and geese.	2
<u>Theme 7. Special nutrition - small animals.</u> Specifics of feed utilization and nutrition of different categories of pigs.	2
<u>Theme 8. Special nutrition - small animals.</u> Specifics of feed utilization and nutrition of rabbits, dogs, cats and laboratory animals.	2
<u>Theme 9 and 10. Special nutrition - large animals.</u> Specifics of feed utilization and nutrition of different categories of cattle.	4
<u>Theme 11. Special nutrition - large animals.</u> Specifics of feed utilization and nutrition of different categories of sheep and goats.	2
<u>Theme 12. Special nutrition - large animals.</u> Specifics of feed utilization and feeding of horses	2
<u>Theme 13. Special nutrition - large animals.</u> Specifics of feed utilization and nutrition of other equine categories.	2
SEMINAR/LABORATORY	Number of hours
Theme 1. Veterinary control of feed. Veterinary control of feed organoleptic, chemical, bacteriological, mycotoxicological and parasitological	15

Theme 2. Establishing rations and feed recipes for laying hens	3
Theme 3. Establishment of rations and feed recipes for broilers and young poultry	3
Theme 4. Establishing rations and feed recipes for pigs	3
Theme 5. Establishment of rations and feed recipes for cattle	6
Theme 6. Establishing rations and feed recipes and consumption for sheep and goats	3
Theme 7. Establishing rations and feed recipes for horses	3
Theme 8. Establishment of rations and feed recipes for rabbits, fur animals and carnivores. Establishing rations using a computer	3
Topic no. 9 The knowledge check	3

BIBLIOGRAPHY:

1. Hotea Ionela, 2022- Note from course and laboratory – electronic material
 2. Hotea Ionela, Colibar Olimpia, 2019 – Introduction to animal nutrition, Ed. Agroprint, Timisoara
 3. Colibar Olimpia, Ionela Hotea, 2015, Tehnici de elaborare a ratiilor si retetelor furajere & Diet's elaboration technics, Ed. Agroprint, Timisoara.
- Bibliography supplementary:
4. Wu Guoyao, 2018 – Principles of animal nutrition, CRC Press.

ASSESSMENT

Activity type	Assessment criteria	Assessment methods	Percentage of final grade
Lectures	Communication of information using specialized scientific language correctly circulated within the discipline of Nutrition, Food and Agronomy	Final examination with a test, having the possibility for an oral examination	60%
	Knowledge of basic concepts and acquire their own discipline		
	Originality and correctness of answers to building arguments pro / against		
	Demonstration of coherent thinking, logic, the exposure to ideas and the ability to apply theoretical knowledge to solve practical problems		
Seminar/laboratory/clinical sessions	Application acquisitions providing examples in conducting analyzes in solving exercises and problems, supporting arguments, etc.	Periodic assessment (through oral/written assessment tests). Practical examination.	40%
	Using their procurement discipline in addressing intra-, inter-, multi- and / or transdisciplinary issues / problem situations		
Other activities			

Course coordinator: Assoc. Prof. PhD Ionela HOTEA

Practical activities coordinator L/S/P: Asist. Prof. PhD St. Ana-Maria PLOTUNA