ACCADEMIC YEAR 2023/2024

Main information on teaching	
Integrated Course Name	**ANIMAL PRODUCTIONS 1**
Integrated didactic modules	**Morpho-functional evaluation and zootechnical ethology;** **General zootechny and ethnography**
Study course	Single cycle degree in Veterinary Medicine (LM42)
Year	III
ECTS	10 (8 ECTS: lectures; 2 ECTS: practical training)
Language	Italian
Academic calendar	Morpho-functional evaluation and zootechnical ethology III 7 week period General zootechny and ethnography IV 7 week period
Attendance	Mandatory

Professors **Name and surname**	**e-mail**	**phone**
Alessandra Tateo	alessandra.tateo@uniba.it	0805443937
Vincenzo Landi	vincenzo.landi@uniba.it	3519175572

Headquarters	Campus of Veterinary Medicine, S.P. 62 per Casamassima km 3, 70010 Valenzano
Virtual headquarters	Teams Piattaforms: Tateo, **txww580**; Landi, **w4bgzrn**
Tutoring (days, time and methods)	appointments to be agreed with the teacher. Offices: Animal husbandry section, first floor

Syllabus	
Educational objectives	The course aims to provide the necessary skills to evaluate the productive attitude of animals of zootechnical interest, starting from the morphological and functional evaluation. In addition, it will provide information on the ethogram of the leading behavioral activities of animals of zootechnical interest. The student should have adequate knowledge of general and animal genetics, quantitative, and population genetics. Theoretical and practical knowledge will be provided to develop and manage genetic selection strategies on the farm.
Prerequisites	Prerequisite: ANATOMY 2 The student must know the structural and functional fundamentals of all animal systems and organs.

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Contents of the didactic module: **Morpho-functional evaluation and zootechnical ethology** **Teacher:** **Alessandra Tateo** **Lectures** **ECTS: 4** **Hours: 52**	**The module affers to Clinical sciences of food-producing animals**: Aims and objectives of the subject, classification of the subject in the veterinary profession, rules and timing of the training course, and biosecurity standards in the farm. Historical notes and aims of the discipline. The identification of pets. Age determination in horses, cattle, sheep and pigs, dogs and cats. Animal mechanics, definition, aims, and subdivision. Forms of decubitus in various animal species. Gaits. The elements of the morphological evaluation of domestic animals - The coats in horses, cattle, sheep, and pigs. The zoognostic regions. Somatic measurements. The aspects of functional evaluation - The functional control of productive aptitudes: milk production in cattle and sheep and goats; meat production; the production of wool; the production of labor. Physiological factors: somatic and sexual precocity, fecundity, fertility, and prolificacy. The food processing capacity and the acclimatization capacity. Constitutional Types - The temperament, blood, and background. The methods of evaluating pets. The choice of aptitude types. The morphological types of bovines, pig, ovine, caprine, and equine. Animal trade. Animal behavior and domestication. Social, reproductive, maternal, and dietary behavior. Behavioral anomalies: stereotypies and frustration. Stress and response mechanisms. Approaches to studying well-being: functional (use of biological indicators), based on feelings (preferences and conditioned aversion), and natural. Main issues relating to the welfare of cattle, and pigs in intensive farming and during transport and slaughter. Animal Need Sindex and other assessment schemes. The breeding of animals in zootechnical production.
Contents of the didactic module: **General animal husbandry and Ethnography** **Teacher:** **Vincenzo Landi** **Lectures** **ECTS: 4** **Hours: 52**	**The module affers to Basic Sciences and Clinical sciences of food-producing animals:** **General animal husbandry**: Aims and objectives of the subject, classification of the subject in the veterinary profession, rules and timing of the training course, and biosecurity standards in the biotechnology laboratory. basic concepts and terminology of genetics; the discovery of the hereditary material through the experiments conducted; organization of genetic material; concepts related to DNA replication, transcription, translation; cytogenetics and chromosomes; concepts of genomics; the nuclear and mitochondrial genome; the C value; the transmission of characters; genetic code and gene structure; notes on gene regulation and expression mechanisms; hints of epigenetics and methylation; Mendelism and its chromosomal basis; interaction between genes on different loci; modifier genes; co-dominance; incomplete dominance; dominant, recessive and double epistasis; penetrance and expressiveness; pleiotropy; segregation and recombination of independent and associated genes (linkage); lethal genes; freemartinism; examples relating to traits of zootechnical interest. Gene maps and distances; multiple allelism; heredity and sex: chromosomal determination of sex (type XY and type ZW); sex-bound, restricted, and sex-influenced characters; dosage compensation for supernumerary X chromosomes (Barr's body); genomic, chromosomal and gene mutations and aberrations; concepts of population genetics: gene and genotype frequencies, Hardy-Weinberg equilibrium and the factors that influence it. Similarity between individuals: kinship and inbreeding.; hints on the applications of molecular genetics and genetic engineering. Notes on biotechnologies for the study of DNA. **Ethnography:** Bovine breeds (Frisona, Bruna, Pied Rossa, Jersey, Rendena, Valdostana, Reggiana, Bruna Originaria, Grigio Alpina, Modicana, Limousine, Charolaise,

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	Chianina, Marchigiana, Romagnola, Podolica, Maremmana, Piemontese, Bianca Blue Belga, Angus, Herford, notes on zebuine breeds; sheep breeds (Sopravissana, Merinizzata it., Gentile di Puglia, Sarda, Comisana, Valle del Belice, Massese, Assaf, Lacaune, Leccese and Altamurana, Appeninica, Suffolk, ile de France, Berrichonne du Cher, Bergamasca); goat breeds (Saanen, Camosciata, Garganica, Jonica, Maltese, Sarda, Valdostana, Valnerina); pig breeds (Duroc, Largewhite, Pietrain, ladrance, Cinta Senese, Mora Romagnola, Pugliese); horse breeds (P.S.A, P.S.I., Lipizzaner, Trotter, Maremmano, Murgese, Haflinger, Pure Spanish Blood); Mediterranean buffalo; donkey breeds (Martina Franca; Romagnolo, Ragusa); Notes on dog breeds
Practical activities and exercises **ECTS: 2 (1 for each module)** **Hours: 30**	**Morpho-functional evaluation and zootechnical ethology**: Practical activities: recognition of the age of animals from dental tables. Identification of the breed and recognition of coats. Visits to livestock farms **General Zootechnics and Ethnography module**: practical applications of population genetics, case studies on kinship and genetic diagnosis of diseases, identification of livestock breeds. Visits to livestock farms

Biosecurity standards for the frequency of practical activities	Access to the laboratories and animal shelters is allowed only to students equipped with protective clothing (gowns and disposable latex gloves), who have read the biosecurity manual.

Personal study material	- Notes of the lessons– Dialma Balasini: Zoognostica Ed. agricole BO; - Tortorelli: Zoognostica Degli Animali Domestici Edagricole BO; - Meregalli A.: Conoscenza Morfo□funzionale Degli Animali Domestici Ed. Liviana - Houpt, K. A. (2000). Il comportamento degli animali domestici. Emsi, Roma - P. J. Russell, GENETICA ANIMALE – applicazioni zootecniche e veterinarie II edizione, Casa Editrice Ambrosiana
Reference texts	
Notes to the reference texts	The teachers provide the additional teaching material at the beginning of the course, and it is available on the TEAMS teaching platform.

Organization of teaching			
Hours			
Totals	lectures	Practice (laboratory, field, practice, other)	Individual study
250	104	30	116
CFU/ETCS			
10	8	2	/

Teaching methods	The teaching will mainly consist of lectures with the help of PowerPoint presentations. reverse teaching and periodic verification of the level of learning on the topics already carried out. Before starting the course, the minimum entry skills in the anatomy and physiology of animals will be verified. Students divided into groups of 8-10 people, followed and guided by the teacher and collaborators, participate in working groups to recognize the age of the animals and of the breed through the study of coats.

Expected learning outcomes	

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Knowledge and understanding	➢ knowledge of the fundamental principles and technical terminology of the morphological and functional evaluation of each species and productive type of breeding animals from the anatomical and physiological, and functional point of view of all the aspects that assume particular relevance in animal production. ➢ Knowledge of the main concepts regarding Mendelian and quantitative genetics concerning breeding animals ➢ Knowledge of genetic tools that help manage livestock populations.
Applied knowledge and understanding	➢ ability to integrate knowledge relating to the various breeding species' anatomical, physiological, and functional aspects for production and animal welfare purposes. (Milk, meat, sport, work, beauty, attitude to the relationship with humans in pets, etc.). ➢ ability to operate in the genetic management of breeding animals.
Soft skills	➢ Autonomy of judgment or assessment of a subject's attitude towards a specific production direction, being able to detect the margins of criticality and improvement of the subject concerning the production purpose for which it is intended. o, contextualize the evaluation of the subject in various application sectors, such as buying and selling, phenotypic evaluation, and punctuation aimed at selection programs. ➢ Ability to use the main tools for genetically improving species in livestock production. ➢ Communication skills: Ability to communicate the acquired knowledge with adequate terminology in all contexts of animal production. ➢ Ability to learn independently or acquire the methodology to deepen and update one's knowledge, according to a multidisciplinary approach.
Summary of the knowledge and skills that the integrated course helps students acquire (Day One Competence) provided by the EAEVE	***Knowledge:*** **2.3** The structure, function, and behavior of animals and their physiological and welfare needs. **2.4** Knowledge of activities related to animal breeding, production, and breeding. **2.7** Legislation relating to the care and welfare of animals, the movement of animals, and notifiable and reportable diseases. **2.11** Effective interpersonal interaction principles include communication, leadership, management, and teamwork. **Skills:** **1.4** Communicate effectively with customers, the public, professional colleagues, and responsible authorities, using language appropriate to the public concerned and in full compliance with confidentiality and privacy. **1.6** Work effectively as a multidisciplinary team member in the delivery of services. **1.13** Demonstrate lifelong learning ability and a commitment to learning and professional development. This includes recording and reflecting on professional experience and taking steps to improve performance and skills. **1.14** Participate in self-audit and peer review processes to improve performance. **1.15** Obtain an accurate and relevant history of the individual animal or animal group and her / their environment. **1.34** Carry out antemortem inspection of animals destined for the food chain, also paying attention to welfare aspects; correctly identify conditions that affect the quality and safety of products of animal origin to exclude those animals whose condition makes their products unsuitable for the food chain.

Assessment	

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Methods for verifying learning	The exam of the integrated course provides for the acquisition of the 10 ECTS required by the study plan. The exam consists of a partial test of the "Morpho-functional evaluation and zootechnical ethology" and "General animal husbandry and ethnography" modules. The CFUs are acquired only after the two parts have been passed and the minutes have been registered on the ESSE3 portal.

Evaluation criteria	• *Knowledge and understanding:*
	  ○ Descriptive skills of the main attitudinal types, characters' transmission mechanisms, and their biological bases.
	• *Applied knowledge and understanding:*
	  ○ Knowledge of the factors that determine the variability of livestock production's quantity and quality parameters.
	• *Autonomy of judgment*:
	  ○ Ability to apply suitable tools for the quantitative and qualitative improvement of livestock production.
	• Communication skills:
	  Ability and ability to describe zootechnical phenomena and production processes with the scientific-technical terminology of the sector.
	• Ability to learn:
	  ○ Reworking of concepts learned and ability to solve new and complex problems

Measurement criteria learning and attribution of the final grade	The exam will include a practical test, reading the dental tables, and a subsequent oral interview. The candidate will be asked questions relating to different points of the program, the purpose of which is to verify the knowledge and ability to discuss the program's topics critically. The evaluation obtained in the two modules will contribute to the collegial determination of the final grade for the exam in Animal Production 1.
Additional information	

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