ACADEMIC YEAR 2022/2023

Main information on teaching	
Integrated Course Name	**ANIMAL PRODUCTIONS 1**
Integrated didactic modules	**Morpho-Functional Evaluation, Zootechnical Ethology and Ethnography** **General Zootechny**
Study course	Master's Degree in Veterinary Medicine LM42
Year	III
ECTS	10 (9 ECTS: lectures; 1 ECTS: practical training)
Language	Italian
Academic calendar	III and IV 7 weeks period
Attendance	mandatory

Professors **Name and surname**	**e-mail**	**phone**
Alessandra Tateo	alessandra.tateo@uniba.it	0805443937
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Headquarters	Campus of Veterinary Medicine, S.P. 62 per Casamassima km 3, 70010 Valenzano
Virtual Headquarter	Teams platform txww580
Tutoring (days, time and methods)	Tuesday 11.00-13.00; Thursday 15.00-17.00

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 of the same. In addition, it will provide information on the ethogram of the main 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 aimed at the development and management of genetic selection strategies on the farm and 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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Program of the didactic module of: **Morpho-functional evaluation and zootechnical ethology** Teacher: **Alessandra Tateo** **Lectures** **ECTS: 4** **Hours: 52**	The module refers to the Area of Animal Production Introduction to the module, role of the topic in the professional activities of a veterinarian, rules and timing of the training course, biosafety and biohazards management in a farm. Identification techniques in the different species of domestic animals. Age estimation in in horses, cattle, sheep, goats, pigs, dogs and cats. Animal postures and movements. Gaits analysis. –Coats color classification in horses, cattle, sheep, goats and pigs. The morphological evaluation by regions in farm animals. Body measurements and derived patterns. Test day controls rules and methods for meat, milk and wool production. Physiological factors: somatic and sexual precocity, fecundity, fertility and prolificacy. The feed efficiency and the acclimatization capacity. The methods for the morphological evaluation of pets. Animal behavior and domestication. Social, reproductive, maternal and feeding behavior. Behavioral anomarmalities: stereotypies and frustration. Stress and response mechanisms. Approaches to the study of well-being: functional (use of biological indicators), based on feelings (preferences and conditioned aversion) and natural. Main issues relating to the welfare of cattle, pigs, in intensive farming and during transport and slaughter. Animal Need index and other assessment schemes.
Practical activities and exercises **ECTS: 1** **Hours: 15**	Estimation of the age of different species of domestic animals Identification of the breed and recognition of the coats
Program of the didactic module of: **General animal husbandry and ethnography** Teacher: **Prof. Vincenzo Landi** **Lectures** **ECTS: 4** **Hours: 52**	The module refers to the Area of Basic Sciences and the Area of Animal Production **Animal Genetics** Aims and objectives of the subject, classification of the subject in the veterinary profession, rules and timing of the training course, 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; Mendelian inheritance and its chromosomal basis; interaction between genes on different loci; modifier genes; co-dominance; incomplete dominance; dominant, recessive and double epistasis; penetrance and

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	expressiveness; pleiotropy; segregation and recombination of independent and associated genes (linkage); lethal genes; freemartins; 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, 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 and cat breeds Exercises on Mendel's laws, population genetics and race recognition

Biosecurity standards for the frequency of practical activities	Access to the laboratories, 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 lectures– 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 additional teaching material is provided by the teachers at the beginning of the course and 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 power point presentations. reverse teaching and periodic verification of the level of learning on

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	the topics already carried out. Before starting the course, the minimum entry skills on 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 for the recognition of the age of the animals and of the breed through the study of coats.

Expected learning outcomes	
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 with reference of breeding animals ➢ Knowledge of the genetic tools useful for managing livestock populations.
Applied knowledge and understanding	➢ Ability to integrate knowledge relating to the anatomical, physiological and functional aspects of the various species of breeding animals 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.
Transversal skills	➢ Autonomy of judgment o assessment of the attitude of a subject towards a specific production direction, being also able to detect the margins of criticality and improvement of the subject with respect to the production purpose for which it is intended. o contextualize the evaluation of the subject in the various sectors of application, such as buying and selling, phenotypic evaluation, and punctuation aimed at selection programs. ➢ Ability to make use of the main tools for the genetic improvement of species in livestock production. ➢ Communication skills o Ability to communicate the acquired knowledge with adequate terminology in all contexts of animal production ➢ Ability to learn independently o Ability to 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 the breeding, production and breeding of animals. **2.7** Legislation relating to the care and welfare of animals, the movement of animals and notifiable and reportable diseases. **2.11** Principles of effective interpersonal interaction, including 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 member of a multidisciplinary team in the delivery of services.

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	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 ante-mortem 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 and feedback	
Methods of assessment	The exam of the integrated course provides for the acquisition of the 10 ECTS required by the study plan. The exam includes a partial test of the "Morpho - functional evaluation and zootechnical ethology" and "general animal husbandry" modules The CFUs are considered 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 and of the transmission mechanisms of characters and their biological bases.
	• *Applied knowledge and understanding:*
	  ○ Knowledge of the factors that determine the variability of the quantity and quality parameters of livestock production
	• *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 consist in a practical test, testing the abilities in the age estimation of animals, then an oral discussion. The candidate will be asked questions that relate to different points of the program, the purpose of which is to verify the knowledge and ability to critically discuss the topics of the program. The evaluation obtained in the two modules will contribute to the collegial determination of the final grade for the exam in Animal Production 1.
More	

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