

ACADEMIC YEAR 2023/2024

General Information	
Integrated course	Systematic and Comparative Veterinary Anatomy
Integrated academic modules	Anatomy of Domestic Animals 1; Anatomy of Domestic Animals 2.
Degree course	Veterinary Medicine
Academic Year	I
European Credit Transfer and Accumulation System (ECTS):	10
Language	Italian
Academic calendar (starting and ending date)	III two months period
Attendance	Mandatory

Docenti del Corso Nome e Cognome	indirizzo mail	telefono
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Department and address	Campus of Veterinary Medicine, S.P. per Casamassima km 3, 70010 Valenzano (Ba), Italy
Virtual headquarters	Teams platform
Tutoring (time and day)	Prof. L. Passantino: Tuesday -Thursday; 14:30 - 16:30 Prof. T. Martinello: Tuesday 9:00-11:00, Wednesday 14:30-16:30

Syllabus	
Learning Objectives	<p>The educational objectives of the integrated Systematic and Comparative Veterinary Anatomy course aim to provide students with knowledge and skills in both macroscopic and microscopic anatomy of the musculoskeletal, integumentary, and internal organ systems of animals relevant to zootechnics and veterinary medicine, including avian species.</p> <p>The course aims to provide students with an understanding of: the morphological and structural characteristics of the musculoskeletal and integumentary systems of domestic animals; recognition and knowledge of the main features of bone structures (skull, trunk, and limbs); identification and understanding of the origins, insertions, and actions of major muscles in each region; awareness of the principal cutaneous appendages. The organization of different systems and apparatuses, including major blood vessels, nerves, and lymph nodes, facilitates enhanced learning of subjects related to clinical and veterinary inspection practices.</p>
Course prerequisites	The student should have a solid understanding of basic cellular biology and histology. They should also possess the ability to organize their study materials effectively, delve into details, and synthesize information. Proficiency in the Italian language is important for proper comprehension and presentation of the topics covered.



<p>Contents of: ANATOMY OF DOMESTIC ANIMALS 1</p> <p>Teacher: Tiziana Martinello</p> <p>ECTS: 4</p> <p>Lectures: ECTS: 3 Hours: 30</p> <p>Practical activities and exercises ECTS: 1 Hours: 15</p>	<p>The module is part of Basic Sciences,</p> <ul style="list-style-type: none"> - <u>Introduction</u>: Anatomical terminology; general overview of bones (architecture and classification), general overview of joints (classification of different joint types and description of their components; joint movements); general overview of muscles (architecture and classification) and their appendages (tendons, muscle fascia, bursae, and synovial sheaths). Division of the body into regions. - <u>Osteology and Arthrology</u> HEAD: Bones of the neurocranium and viscerocranium; head joints. TRUNK: Vertebral column: cervical, thoracic, lumbar, sacral, coccygeal vertebrae; Spinal joints. Ribs, sternum; chest joints. THORACIC LIMB: Scapula, humerus, radius, ulna, carpus, metacarpus, phalanges; joints: scapulohumeral, elbow, antebrachial, carpal, interphalangeal. PELVIC LIMB: Coxal bones, femur, patella, tibia, fibula, tarsus, metatarsus, phalanges. Pelvic joints, coxofemoral, femorotibial, tarsal, foot joints. - <u>Myology</u> HEAD: Main muscles. TRUNK: Neck muscles, chest muscles, abdominal muscles, tail muscles. THORACIC LIMB: Shoulder muscles, arm muscles, forearm muscles, hand muscles and fascia. PELVIC LIMB: Pelvic muscles, thigh muscles, leg muscles, foot muscles and fascia. Integumentary System: Skin, cutaneous appendages, keratin productions, mammary gland, hoof. <p>Practical activities include the study of skeletal preparations, anatomical models, and guided sessions of joint and muscle dissections.</p>
<p>Contents of: ANATOMY OF DOMESTIC ANIMALS 2</p> <p>Teacher: Letizia PASSANTINO</p> <p>ECTS:6</p> <p>Lectures: ECTS: 4 Hours: 40</p> <p>Practical activities and exercises ECTS: 2</p>	<p>The module is part of Basic Sciences.</p> <ul style="list-style-type: none"> - Introduction: Body cavities, serous membranes, morpho-structural organization of viscera. - Digestive System: Mouth, Pharynx, Esophagus, Stomach, Intestines, Liver, Exocrine Pancreas. - Respiratory System: Nasal cavities, Larynx, Trachea, Bronchi, Lungs, Pleura. - Circulatory System: Heart, Arteries, Veins. - Lymphatic System: Vessels, lymph nodes and hemolymph nodes, Spleen, Thymus. - Urinary System: Kidneys, Ureters, Bladder, Urethra. - Male Reproductive System: Testes, Epididymis, Vas deferens, Spermatic cord, Testicular tunics, Accessory glands, Penis. - Female Reproductive System: Ovary, Uterine tubes, Uterus, Vagina, Vulva and Clitoris. - Endocrine System: Pituitary gland, Pineal gland, Thyroid gland, Parathyroid glands, Adrenal glands, Endocrine Pancreas. - Central Nervous System: Brain (medulla oblongata, pons, midbrain, cerebellum, diencephalon, telencephalon) and spinal cord. - Peripheral Nervous System: Spinal nerves and Cranial nerves. Autonomic nervous system. Sense Organs: Vision, Hearing, Smell, and Taste. - Introduction to Avian Anatomy. <p>Visualization, opening, and dissection of the major organs in horses, ruminants, swine, and carnivores, describing their macroscopic characteristics and</p>



Hours: 30	highlighting comparative notes among different species.
Organization of practical activities	The practical activities take place in the dedicated Anatomy laboratory and are scheduled in the afternoon hours during the two-month teaching period, following the timetable outlined in the lesson plan. Students will be divided into groups, potentially with subgroups (5-6 students each), and the activities will be repeated for each group. The number of groups and the number of students in each group will depend on the nature of the practical activity and the capacity of the practice room.
Biosecurity standards for the practical activities	Access to the laboratories is only allowed for students wearing appropriate protective attire (lab coats and disposable latex gloves, boots), who have reviewed the biosafety manual and signed the consent form for exposure to risk. For specific details, please refer to the biosafety manual and the biosafety sheets of the Normal Anatomy laboratory.

Personal study books and bibliography	
Books and bibliography	<p>Anatomy of Domestic Animals 1: Konig H.E., Liebich H.G., Atlante dei mammiferi domestici. Vol. I Apparato locomotore. Piccin Nuova Libreria. Barone R., Anatomia comparata dei mammiferi domestici, Vol. 1, 2 (Osteologia, Artrologia, Miologia), Edagricole, Bologna.</p> <p>Anatomy of Domestic Animals 2: R. Barone: Anatomia Comparata degli Animali Domestici – Edagricole Konig-Liebich, Anatomia dei mammiferi domestici, Piccin. G.V. Pelagalli, V. Botte: Anatomia Veterinaria Sistemática e Comparata – Edi Ermes H.D. Dellmann, E.M. Brown, Istologia e anatomia microscopica veterinaria, Ed. Grasso. T. Zavanella, Anatomia Microscopica Veterinaria, Antonio Delfino Editore. P. Popesko, Atlas of Topographical Anatomy of the Domestic Animals.</p>
Additional materials	Additional teaching materials will be provided by the instructors during the course and will be available on the TEAMS platform for the subject.

Work schedule			
Hours			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
115	70	45	115
ETCS			
10	7	3	

Teaching strategy	The main teaching methodologies employed in the integrated course encompass various approaches aimed at promoting comprehensive and engaging learning. Traditional classroom lectures are one of the central methods, during which instructors present key content to students. These lectures are supplemented by other methodologies to integrate information and reinforce students'
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	<p>understanding. Self-learning activities utilize audiovisual materials and videos provided to students for independent exploration of topics covered in the lectures, allowing them to develop a deeper understanding of concepts. Another important aspect is the use of self-assessment tests provided by the instructors. These tests enable students to gauge their level of comprehension and identify areas for improvement, offering valuable feedback for the learning process. During practical activities, the course adopts a "learning by doing" approach with a strong emphasis on hands-on manipulation and study of bones, organs, cadavers, or parts thereof. Additionally, dissectible animal models are utilized to facilitate the acquisition of specific skills and competencies.</p> <p>Practical lessons take place in the specialized Normal Anatomy laboratory, with students divided into small groups of maximum 5-6 individuals. Each student is tasked with independently studying assigned organs and anatomical regions during the exercises and discussing them with the instructor and/or collaborators. This direct interaction with the instructor and collaborators promotes personalized and in-depth learning.</p> <p>Furthermore, it is important to note that the course is not delivered in an e-learning mode, so students attend in-person classroom lectures and engage in practical activities within the Normal Anatomy laboratory.</p> <p>Regarding the Anatomy 1 module, group objectives are defined through completion sheets, which also facilitate student self-assessment. The instructor plays a pivotal role as a guide and support for groups that require assistance, contributing to ensuring an effective and stimulating learning environment. For the Anatomy 2 module, theoretical-practical assessments are also conducted to evaluate students' learning levels. These assessments encompass both theoretical aspects acquired during classroom lectures and practical competencies developed during hands-on activities.</p>
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Expected learning outcomes	
Knowledge and understanding on:	<p>At the end of the course, the student will acquire knowledge and comprehension skills related to:</p> <ul style="list-style-type: none"> • The ability to approach logical scientific reasoning (DOC 2.1) • Research methods and the contribution of basic and applied research to veterinary science (DOC. 2.2) • The structure of systems and organization of various body regions, as well as the physiological needs of animals (DOC 2.3) • The principles of effective interpersonal interaction, including communication, management, and teamwork (DOC 2.11)
Applied knowledge and understanding on:	<p>At the end of the course, the student should be capable of:</p> <ul style="list-style-type: none"> • Reviewing and critically evaluating literature and presentations (DOC 1.8) • Demonstrating a capacity for lifelong learning and its application to professional development (DOC 1.13) • Participating in self-assessment processes and peer review to enhance performance (DOC 1.14)
Soft skills	<p>At the end of the course, the student will:</p> <p>Autonomy of Judgment</p> <ul style="list-style-type: none"> • Review and critically evaluate literature (DOC 1.8).



	<ul style="list-style-type: none"> • Demonstrate the ability to independently determine the most suitable histological and anatomical approach for studying different structures in animal species, showcasing competence in logical approaches to scientific reasoning (DOC 2.1). <p>Communication Skills</p> <ul style="list-style-type: none"> • Be capable of communicating using accurate scientific terminology (DOC 1.4). • Possess the ability to work within a group, employing appropriate communication and interaction strategies (DOC 1.6). <p>Self-directed Learning Ability</p> <ul style="list-style-type: none"> • Be capable of examining and critically evaluating literature and presentations (DOC 1.8). • Demonstrate the capacity to independently learn and delve into topics of professional interest, maintaining a commitment to lifelong learning (DOC 1.13).
<p>Summary of the acquired knowledge and skills (Day One Competence) as provided by the EAEVE</p>	<p>Knowledge:</p> <p>2.1 2.2 2.3 2.11</p> <p>Skills:</p> <p>1.4 1.6 1.8 1.13 1.14</p>

Assesment and feedback	
<p>Methods of assesment</p>	<p>The examination for the integrated " Systematic and Comparative Veterinary Anatomy" course allows the acquisition of 10 ECTS credits as specified in the study plan.</p> <p>The examination comprises partial assessments of both the Anatomy 1 and Anatomy 2 modules. The partial exams for the two parts can be taken in the same session or in separate sessions. The 10 ECTS credits are considered acquired only after passing both parts and recording the results on the ESSE3 portal.</p> <p>The partial exam for Anatomy 1 consists of an oral test, which involves the recognition and macroscopic description of bones, description of muscles and muscle regions, and description of cutaneous appendages.</p> <p>The partial exam for Anatomy 2 includes optional ongoing assessments and an oral examination for the module. The oral exam entails microscopic identification of structures within an organ and the macroscopic description of organs presented on the anatomical table.</p>
<p>Evaluation criteria</p>	<ul style="list-style-type: none"> • Knowledge and Understanding: <p>Thorough and in-depth acquisition of osteomyology knowledge, both microscopic and macroscopic organ knowledge.</p>



	<p>Score range: 1 to 8</p> <ul style="list-style-type: none"> • <i>Applied Knowledge and Understanding:</i> Demonstrates good abilities to apply acquired knowledge in locating skeletal and muscular components and recognizing studied microscopic and macroscopic structures. Score range: 1 to 8 • <i>Autonomy of Judgment:</i> Displays the ability to identify the best approach for recognition, manipulation, description, and interspecific differentiations of proposed structures. Score range: 1 to 8 • <i>Communication Skills:</i> Demonstrates strong presentation skills for studied topics and appropriate usage of technical-scientific terminology. Score range: 1 to 3 • <i>Learning Ability:</i> Shows the capacity for independent reworking of acquired knowledge and the ability to access scientific literature and databases for continuous updating. Score range: 1 to 3
<p>Criteria for assessment and attribution of the final grade</p>	<p>The outcomes of the assessments for Anatomy 1 and Anatomy 2 will contribute to defining the final grade for the Systematic and Comparative Veterinary Anatomy examination.</p> <p>The final grade is the result of a collegial evaluation of the two partial assessments, in which the student must demonstrate a critical understanding of the studied topics. The final evaluation, expressed on a scale of thirty, will be considered passed with a grade equal to or higher than 18. The assessment takes into consideration not only the accuracy of the response but also the ability to communicate, clarity of presentation, disciplinary competence, and depth of understanding. In case of the maximum mark (30/30), honors (lode) may be awarded.</p>
<p>Additional information</p>	