General information		
Academic subject	**HISTOLOGY AND APPLIED ANATOMY OF DOMESTIC ANIMALS** (integrated exam of ZOOLOGY, HISTOLOGY AND ANATOMY)	
Degree course	Animal Science	
Academic Year	2022/2023 – I year	
European Credit Transfer and Accumulation System (ECTS)		8
Language	Italian	
Academic calendar (starting and ending date)	II semester	
Attendance	Compulsory	

Professor/ Lecturer	
Name and Surname	Aldo Corriero; Rosa Zupa
E-mail	aldo.corriero@uniba.it; rosa.zupa@uniba.it
Telephone	+390805443907
Department and address	Campus of Veterinary Medicine, S.P. 62 per Casamassima km 3, 70010 Valenzano (Ba)
Virtual headquarters	Teams code: fn2rdoz
Tutoring (time and day)	Wednesday 15.30-17.30 h; Friday 11.30-13.30 h

Syllabus	
Learning Objectives	The teaching course of Histology and Applied Anatomy of Domestic Animals provides basic elements regarding the comparative macro- and microscopic anatomy of domestic animals taught from an applicative perspective.
Course prerequisites	The teaching course of Structural and Metabolic Biochemistry is preparatory to the exam of Zoology, Histology and Anatomy.
Contents	Introduction: aims of the course and teaching modalities. Criteria of evaluation of knowledge, competence and skill. Histology: epithelial tissues; connective tissue proper; specialised connective tissues; muscle tissues; nervous tissue. Covered animal species. Anatomical terminology. Body regions. Osteology: general structure of skeletal bones; axial skeleton; appendicular skeleton. Arthrology: classification of joints. Myology: structure of skeletal muscles; muscles of the neck, thorax, abdomen, shoulder, thoracic limb, pelvis, pelvic limb. Integumentary apparatus: skin and epidermal derivatives. Splanchnology: body cavities and serous membranes. Digestive system: mouth; pharynx; oesophagus; stomach; intestine; liver; pancreas. Respiratory system: nasal cavities; bronchi; lungs; pleurae. Blood circulatory system: heart; arteriae; venae. Lymphatic system: haemolymph nodes; spleen; thymus; bone marrow. Urinary system: kidneys; ureters; urinary bladder; and urethra. Male reproductive system: testis; epididymis; vas deferens; spermatic cord; scrotum; accessory glands; penis. Female reproductive system: ovary; oviducts; uterus; vagina; vulva; clitoris. Endocrine system: hypophysis; pineal gland; thyroid gland; parathyroid glands; adrenal glands; pancreas. Elements of Central Nervous System: spinal cord; brain. Elements of Peripheral and Autonomous Nervous Systems. Practical activities – Use of light microscope and observations of histological sections. Observation and group-study of skeletal elements, joints, muscles and visceral organs from animal species covered by the course (equine, bovine, small

	ruminants, swine, dog and cat). Videos, plastic anatomical models and dissections of small ruminant carcasses will be used as didactic subsidies.
Books and bibliography	Bortolami - Callegari - Beghelli - Anatomia e fisiologia degli animali domestici. Edagricole. König-Liebich – Anatomia degli Animali Domestici. Testo-Atlante a Colori. Piccin. Pelagalli-Botte. Anatomia veterinaria sistematica e comparata. Edi-Ermes. Appunti di lezione e diapositive in formato ppt fornite dai docenti.
Additional materials	Merighi – Anatomia applicata e Topografia regionale veterinaria

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
200	***70***	***25***	***105***
ECTS			
8	***7***	***1***	

Teaching strategy	The teaching course of Histology and Applied Anatomy of Domestic Animals in not taught in e-learning mode. Frontal lectures will be carried out through Powerpoint presentations in classrooms provided with multimedial devices. Practical lectures will be carried out partly using video tutorial produced by the teachers or available in the web, and partly using original or plastic animal models available in the anatomy room. Organs taken from local slaughterhouses might also be used.
Expected learning outcomes	
Knowledge and understanding on:	The teaching course will provide the bases of: ○ Investigation techniques used in morphological sciences. ○ Basic elements of macro- and microscopical anatomy of domestic animals.
Applying knowledge and understanding on:	○ Identification of animal tissues. ○ Identification of skeletal elements. ○ Identification of animal organs based on their macroscopical appearance and microscopical structure.
Soft skills	• Making informed judgments and choices ○ Students will be able to correctly identify skeletal elements and organs belonging to animal species covered by the course. • Communicating knowledge and understanding ○ Students will be familiar with anatomical terminology. To this aim, students will be encouraged to describe anatomical structures in the framework of flipped classroom sessions. • Capacities to continue learning ○ In order to stimulate student's autonomy, group-study sessions will be organized. This will eventually help students autonomously study the anatomy of animal species not covered by the course.

Assessment and feedback	
Methods of assessment	The exam will involve two optional ongoing tests, the first one on Histology and the second one on Locomotor and Nervous Systems. During the first tests, students will

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Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it

	be asked to identify three tissues and three bone elements. Students that will correctly identify two tissues and two bones will pass the Histology test. The second test will be based on multiple-choice tests. The final examination will involve the identification and description of animal organs and will last about 30 minutes. The ability to correctly describe the structural details using the appropriate terminology will determine the final mark. The outcome of the integrated exam of "Zoology, Histology and Anatomy" will result from the weighed mean of the marks of the exams of "Histology and Applied Anatomy of Domestic Animals" and "Zoology and Cell Biology". A 30-point scale will be used, divided into failing (0 to 17) and passing (18 to 30 cum laude) grades.

Evaluation criteria	• *Conoscenza e capacità di comprensione:*
	  ○ Basic elements of macro- and microscopical structure of organs domestic animals: student's ability to describe the main macro- and microscopic features of animal organs animals will be evaluated.
	• *Conoscenza e capacità di comprensione applicate:*
	  ○ Identification of animal tissues: student's ability to correctly identify both tissue type and sub-type will be evaluated.
	  ○ Identification of skeletal elements: student's ability to correctly identify skeletal elements will be evaluated.
	  ○ Identification of animal organs based on macroscopical appearance and microscopical structure: student's ability to correctly identify animal organs on the bases of their macroscopical appearance and microscopical structure will be evaluated.
	• *Autonomia di giudizio*:
	  ○ Student's ability to correctly attribute a skeletal element or organ to one of the animal species covered by the course will be evaluated.
	• *Abilità comunicative:*
	  ○ The correct use of the anatomical terminology will be evaluated.
	• *Capacità di apprendere:*
	  ○ The student's capacity to describe anatomical structures of animal species not covered by the teaching course might be also evaluated.

Criteria for assessment and attribution of the final mark	The minumum mark to pass the exam is 18 and the maximum mark is 30 cum laude. Students will pass the exam if they pass all the three tests: Histology, Locomotor and Nervous Systems, and final exam. The ability to correctly describe tissue and organs using the proper anatomical terminology will be evaluated. The maximum mark will be given to students that will correctly recognize all the submitted tissues and organs and will be able to describe their morphological and structural details using the correct anatomical terminology.
Additional information	
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