



Universitat de Lleida

DEGREE CURRICULUM **ANIMAL ANATOMY II**

Coordination: PARES CASANOVA, PERE MIQUEL

Academic year 2019-20

Subject's general information

Subject name	ANIMAL ANATOMY II			
Code	100303			
Semester	2nd Q(SEMESTER) CONTINUED EVALUATION			
Typology	Degree	Course	Character	Modality
	Double bachelor's degree: Bachelor's Degree in Veterinary Medicine and Bachelor's Degree in Science and Production	1	COMMON	Attendance- based
Course number of credits (ECTS)	6			
Type of activity, credits, and groups	Activity type	PRALAB	PRAULA	TEORIA
	Number of credits	0.4	2.4	3.2
	Number of groups	8	4	1
Coordination	PARES CASANOVA, PERE MIQUEL			
Department	ANIMAL HUSBANDRY			
Teaching load distribution between lectures and independent student work	60 contact hours 90 non-contact hours			
Important information on data processing	Consult this link for more information.			
Language	English (introductory classes in Catalan)			
Office and hour of attention	IRINA GARCIA ISPIERTO (coordinadora) Centre: ETSEA Departament: PRODUCCIÓ ANIMAL Horari consulta: 9-19 Cita prèvia			
	PERE MIQUEL PARES I CASANOVA Centre: ETSEA Departament: PRODUCCIÓ ANIMAL Horari consulta: 9-19 Cita prèvia			
	FERNANDO LOPEZ GATIUS Centre: ETSEA Departament: PRODUCCIÓ ANIMAL Horari consulta: 9-19 Cita prèvia			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PARES CASANOVA, PERE MIQUEL	peremiquel.pares@udl.cat	19,2	

Learning objectives

The aim of the this course is to teach this matter to future veterinarians. Learning anatomy allows the student to fill the requirements of the medical act. In particular to localize exactly any organ of an animal, to be able to correlate any reaction of a precise anatomical area to a precise organ, to choose the places of auscultation, palpation, percussion, to choose also precise places of diagnostic or therapeutic intervention and to do any medical act. The aim of the course is also to make understand the normal functioning of organs and, by comparison, the abnormal functioning of these organs. The accent is thus put on the functional and clinical aspects of this matter.

Competences

General skills

Strategic outcomes of the University of Lleida

1. Command of English as foreign language.
2. Respect for and development of human rights, democratic principles, the principles of equality between women and men, and the values of a culture of peace and other democratic values.

Transversal skills of the degree

1. Interpret studies, reports, data and analyze them numerically.
2. Work alone and in multidisciplinary teams.
3. Understand and express themselves with the proper terminology.
4. Discuss and argue in various debates.
5. Analyze and evaluate the social and ethical implications of the professional activity.
6. Have a critical and innovative spirit.

Specific competences:

1. Know the morphology, topography and structure of organs and systems.
2. Be able to recognize the different organs, apparatuses and systems between species.
3. Be able to apply knowledge of animal anatomy in the development of the professional activity.

Subject contents

(chronological teaching order may be changed)

Unit 1. A review of topographical terms. Introduction to Nomina Anatomica Veterinaria.

Unit 2. Angiology (I)

Item 2.1. General pattern of veins and arteries. Pulmonary and systemic circulation. Centrifugal and centripetal circulation. Valves.

Unit 3. Angiology (II)

Item 3.1. Lymph nodes and lymphatic vessels. Lymphocentres. Thoracic duct. Lymphosomes.

Item 3.2. Spleen and thymus: morphology and structure.

Unit 4. Splanchnology (I): digestive system

Item 4.1. Generalities. Muscles of mastication. Functional and comparative aspects. Oral cavity. Lips. Gums. Hard and soft palates. Tongue: intrinsic and extrinsic muscles; blood supply and innervation.

Item 4.2. Salivary glands. Blood supply and innervation. Pharynx. Tonsils.

Item 4.3. Oesophagus: structure, relationships, blood supply and innervation. Abdominal cavity. Peritoneum: structure and layout; greater and lesser omenta.

Item 4.4. Single-chambered stomachs.

Item 4.5. Multi-chambered stomach.

Item 4.6. Small and large intestines. Blood supply, innervation and abdominal lymphocentres.

Unit 5. Splanchnology (II): respiratory system

Item 5.1. Nasal fossae. Vomeronasal organ. Nasal sinuses. Nasopharynx. Equine guttural pouches.

Item 5.2. Larynx. Cartilages and muscles. Laryngeal cavity. Biomechanics of phonation. Blood supply and innervation.

Item 5.3. Trachea. Lungs. Morphology and anatomical relations. Structural organization: bronchial tree and respiratory portion. Bronchopulmonary segment.

Unit 6. Splanchnology (III): urinary tract and udder

Item 6.1. Urinary tract.

Item 6.2. Kidneys: morphology, situation. Renal pelvis. Blood supply and innervation. Ureters: urine, bladder and urethra. Male and female urinary tract. Adrenal glands.

Item 6.3. Udder.

Unit 7. Cranial skeleton

Item 7.1. Neurocranium and splanchnocranium. Anatomical parts. Differentiation between species.

Item 7.2. Main foramina.

Item 7.3. Teeth. Development. Morphology and structure. Brachydont and hypsodont teeth. Dental formulas. Triadan system. Dental chronology.

Unit 8. Myology

Item 8.1. Anatomic classification of muscles. Structural organization of the skeletal muscles. Points of origin and insertion. General principles of anatomical dissection.

Item 8.2. Thoracic Member. Biomechanics. Joints and muscles. Blood supply. Lymphocentres. Innervation. The brachial plexus. Surface Anatomy: identification of the regions and palpable bone points.

Item 8.3. Neck, back, chest and abdomen: epiaxial and hypoaxial muscles. Joints and muscles of the thorax. The

diaphragm; Biomechanics of the breath. Fascias and muscles of the abdomen. The inguinal canal. Muscles of the tail. Blood supply of the neck, trunk and tail. Lymphocentres. Innervation.

Item 8.4. Pelvic Member. Biomechanics. Joints and muscles. Blood supply. Lymphocentres. Lumbosacral plexus. Neurosomes. Surface Anatomy: identification of the regions. Palpable bone points.

Unit 9. Anatomy of other endocrine/exocrine glands.

Item 9.1 Thyroid and parathyroid glands.

Item 9.2 Thymus.

Item 9.3 Liver. Hepatic portal system. Pancreas.

Unit 10. Integuments

Item 10.1 Skin, subcutaneous layer, hair, skin glands. Carpal glands.

Item 10.2 Digital torus. Corneal formations: *unguicula*, *unguis*, *ungula*. "Chestnut", "spur". Horns.

The theoretical notions are the subject to detailed dissections and demonstrations.

Methodology

The course will be held in a weekly theory session from 8 h to 10 h on Thursdays and on some Wednesdays afternoon/evening (although some changes due to course needs can be done). Some additional material presented as well as links of interest for reading and self-learning will be given to students. Practical sessions will be held on Wednesday afternoons and Thursday mornings, although other days can be devoted to extra-campus practices.

Teaching is based on oral lecture by the professor, presentation with ppt, and practical class dissection of several domestic species.

This course is focused mainly on domestic ungulates, although a view on companion animals will be held. No topics on birds will be done.

New pedagogical resources can be introduced during the course.

Development plan

Activitats d'avaluació	
	1st partial
	2nd partial
	Recuperation

Evaluation

The competences achieved will be assessed on a total of 10 points base on the following 5 tests, exams and activities:

1. 60% for 2 individual theoretical written exams at classroom (30 and 30 % for partial and final, respectively)
2. 10% for short individual online exams ratings at home (3 ratings in total, accumulative); this is known as "continuous evaluation" AC; not selectives
3. 30% for the practical exam (individual, on line); not selective.

About online exams – always based on multi-optional answers. They will take place in English. A penalty of -0.1 for each erroneous answer.

The real and achieved participation in any voluntary activity may be marked for each with the equivalent of a continuous evaluation made with a 100% success rate (if so, it will be the Coordinator who will replace this score in the lowest continuous evaluation mark).

Minimum requirements: a minimum of 50% for both theoretical exams separately. No minimum requirement for the rest of test and activities. There will be no control of assistance in practices. In the case of students who choose to submit it to change the first mark of the partial or the final exam, it will take into account the second mark, not the first one. Marks are to the 1st decimal on a 10 scala. There will be tests of recovery only for the partial and final theory exams. In the case of passing the recovery exam, it will continue demanding a 50% minimum to pass it. Practical exam will be done individually "on line".

Students who do not make a proof will be considered as "not evaluated", obtaining a 0 for the corresponding activity. The assistance to a practice or seminar to the non-appropriate group (without having previously requested the authorization to the professor) will have a penalty of 0.25 over the final mark. Similarly, the unjustified delay in a presential exam will be penalized with a 0.25/10 of the final mark.

System review: the revision of the score of the work will be done individually with the Professor, who will propose a data previously.

The rest of tutorials (those not related to exams) must be requested by email to the Professor.

Minimum mark for the course: students will approve the course with a total mark (added partial marks) equal or greater than 5.0 of 10 (with the minimum of 50% for both theoretical exams separately, as stated previously).

Final mark: fail, pass, outstanding, excellent, MH (maximum 5% over the total number of students enrolled), according to University scheme.

Bibliography

1. Dyce, Sack and Wensing (1999). Anatomía veterinaria. Ed. McGrawHill Interamericana
2. Evans, H.E. and de Lahunta, A. (2013). Miller's Anatomy of the Dog. Ed. Elsevier Saunders. St. Louis, Missouri.
3. König and Liebich (2004). Anatomía de los animales domésticos. Tomo 1: Aparato Locomotor. Ed. Médica Panamericana. Nickel, R., Schummer, A., Seiferle, E. The Anatomy of the Domestic Animals (vols. 1-5). Verlag Paul Parey.
4. Schaller (1996). Nomenclatura anatómica veterinaria ilustrada. Ed. Acribia S.A., Zaragoza.

Some links:

- Músculos de los miembros del perro. Atlas virtual.

http://videosdigitals.uab.es/cr-vet/www/102679/atlas/Atlas_virtual/musculos_texto.htm

- Músculos del perro: Cuello, tronco y cola. Atlas virtual.

http://videosdigitals.uab.es/cr-vet/www/21197/AMCTC/atlas_virtual/primer.html

- Inervación y vascularización de los miembros del perro. Atlas virtual.

<http://videosdigitals.uab.es/cr-vet/www/102679/AIVM/inicio.html>

- Iowa State University interactive horse limb anatomy

<http://vetmed.iastate.edu/limbanatomy/horse.html>

- Virtual Radiography of the Horse

<http://www.3d-it.vet.ed.ac.uk/xrayhandbook/webpages/horse.html>

- The Merck Veterinary Manual

<https://www.msdrvmanual.com/>

Some papers will be offered during the course.