

## COURSE SYLLABUS

Academic Year: 2024/2025

Identification and characteristics of the course			
Code	501943 B	ECTS Credits	6
Course title (English)	ANATOMY II		
Course title (Spanish)	ANATOMÍA II		
Degree programs	Veterinary Science		
Faculty/School	School of Veterinary Science		
Semester	2nd	Course type (compulsory/optional)	Compulsory
Module	Basic		
Subject matter	Embryology and Anatomy		
Lecturer/s			
Name	Room	E-mail	Web page
Ana Isabel Mayoral Calzada	110	amayoral@unex.es	
Subject Area	Anatomy and Pathological Anatomy		
Department	Animal Medicine		
Coordinator (Only if there is more than one lecturer)			

Competencies*
<b>Basic and general ones:</b>
CB1 – Students to show knowledge in a basic area of the secondary school and at a level in which with the support in advanced textbooks, some innovative aspects of their topic are also included.
CB2 - Students to know how to apply their knowledge to their work in a professional way and to possess the skills to discuss and solve problems related to their topic.
CB3 - Students to have the capacity to collect and understand data in order to express reflexions about social, scientific and ethical topics.
CB4 - Students to be able to transmit information, ideas, problems and solutions to an specialized and non-specialized audience
CB5 – Students to have achieved the skills for further studies.
CG6 – Development of the professional activity in a respectful way with other professionals, being able to work efficiently in a team.
<b>Transversal ones:</b>
CT1 - Capacity to spread information obtained during their veterinary job to other colleagues, authorities and society and write professional reports with the confidentiality required.
CT2 - Capacity to use computer tools, especially those used for searching information.
CT3 - Capacity to understand and use the English language.
CT4 - Capacity to work in a team being respectful with the work of others.
CT5 - Capacity to obtain advice and help from other professionals.

\* The sections concerning competencies, course outline, teaching activities, teaching methodology, learning outcomes and assessment methods must conform to those included in the ANECA verified document of the degree program.

CT6 - Capacity to recognize and maintain an ethical behavior in their responsibilities.
CT8 - Capacity to analyze, synthesize, solve problems and make decisions.
CT9 - Capacity to plan and manage the time.
CT10 – Capacity to search and manage the information and be aware of the need of update knowledge through a continuous formation.
CT11 – Capacity to apply the scientific method.
<b>Specific ones:</b>
1.CE1.6.1 – To know and understand the normal morphogenetic development of different organs and systems.
2. CE1.6.2 – To know the shape, structure, situation and topography of every organ and system. To know and use properly the anatomical nomenclature. To be able to recognize organs from different domestic animals.
3. CE1.6.3 – To know how to apply the anatomical knowledge to other clinical, zootechnical or food science subjects.
<b>Contents</b>
<b>Course outline*</b>
Systematic and comparative anatomy of organs and systems from domestic animals.
<b>Course contents</b>
<b>BLOCK I: VISCERAL SYSTEMS</b>
Lesson 1.- <u>INTRODUCTION</u> .
Lesson 2.- <u>NECK: VISCERAL CONSTITUTION</u> .- Trachea and oesophagus
Lesson 3.- <u>THORACIC CAVITY AND VISCERA</u> .- Thoracic Wall. Skeleton of thorax: ribs and sternum. Blood circulation and innervation.
Lesson 4.- Diaphragm.
Lesson 5.- Heart. Pericardium.
Lesson 6.- Lungs. Pleuras.
Lesson 7.- Mediastinum.
Lesson 8.- <u>ABDOMINAL CAVITY AND VISCERA</u> .- Study of walls and roof of the abdominal cavity. Blood circulation and innervation.
Lesson 9.- Horse, pig and dog stomach.
Lesson 10.- Ruminants stomach.
Lesson 11.- Duodenum and pancreas.
Lesson 12.- Liver.
Lesson 13.- Spleen.
Lesson 14.- Small intestine.
Lesson 15.- Dog, ruminants and pig large intestine.
Lesson 16.- Horse large intestine.
Lesson 17.- Kidneys.
Lesson 18.- Ureters and adrenal glands.
Lesson 19.- <u>PELVIC CAVITY AND VISCERA</u> .- Rectum and anal tract. Urinary bladder and urethra.
Lesson 20.- Male reproductive system.
Lesson 21.- Penis and prepuce.
Lesson 22.- Female reproductive system. Ovaries and uterine tubes.
Lesson 23.- Uterus. Vagina y vestibulum vaginae. Clitoris and vulva.
Lesson 24.- Perineum.
Lesson 25.- Mammary glands
<b>BLOCK II: HEAD AND SENSE ORGANS</b>
Lesson 26.- Introduction.- <u>CRANIUM</u> .- Base of cranium.

<p>Lesson 27.- Skeleton of cranium.  Lesson 28.- Skeleton of the face. Nasal cavity, nose cartilages and paranasal sinus.  Lesson 29.- Skeleton of the face and cavities in cow, dog and pig.  Lesson 30.- Mandible.  Lesson 31.- Teeth.  Lesson 32.- Facial neuromuscular system.  Lesson 33.- Mastication: mastication neuromuscular system.  Lesson 34.- Nose and nasal cavity.- Oral cavity.-Pharynx cavity.  Lesson 35.- Deglutition.  Lesson 36.- Larynx.  Lesson 37.- Cervicofacial region.  Lesson 38.- Blood flow in the head.</p>
<p><b><u>SKIN AND SENSE ORGANS</u></b>  Lesson 39.- Skin. Hair and cutaneous glands.- Horns.- Cutaneous muscles.  Lesson 40.- Tactile, gustatory and olfactory sense organs.  Lesson 41.- Internal ear  Lesson 42.- Middle ear  Lesson 43.- External ear  Lesson 44.- The eye. Retina. Optic nerve.  Lesson 45.- Lens, aqueous humor and vitreous humor. Vascular tunic: choroid, ciliary body and iris.- Fibrous tunic: sclera and cornea.  Lesson 46.- Accessory organs: - Oculomotor neuromuscular system. Lacrimal apparatus and conjunctival layers. Innervation.  Lesson 47.- Protection of the eye: eyelids, orbit and periorbit.- Blood supply at the eye.</p>
<p><b>BLOCK III: CENTRAL NERVOUS SYSTEM</b>  Lesson 48.- <u>INTRODUCTION</u>. The neuron,  Lesson 49.- <u>MEDULLA</u>.  Lesson 50.- Somatic motor tracts.  Lesson 51.- Medullar vegetative nervous system.  Lesson 52.- Meninges.  Lesson 53.- <u>BRAIN STEM</u>.  Lesson 54.- Afferent roots, nuclei and sensitive tracts.  Lesson 55.- Somatic motor nuclei.  Lesson 56.- Reticular formation.  Lesson 57.- Parasympathetic nuclei in brainstem.  Lesson 58.- Cranial nerves.  Lesson 59.- <u>CEREBELLUM</u>.  Lesson 60.- Archicerebellum, paleocerebellum and neocerebellum.  Lesson 61.- Protection and blood supply in brain stem and cerebellum.  Lesson 62.- <u>DIENCEPHALON</u>.  Lesson 63.- Thalamus and Subthalamus.  Lesson 64.- <u>TELENCEPHALON</u>.  Lesson 65.- Neocortex.  Lesson 66.- External and internal configuration of telencephalon.</p>
<p><b>APPENDIX</b>  Anatomy of birds.</p>

**PRACTICUM**

**BLOCK I** (lessons 2 to 25)

Session 1.- Thorax cavity in dog. Duration: 2.4

Session 2.- Organs in thorax cavity from horse, cow, sheep and pig. Duration: 2.4

Session 3.- Abdominal and pelvic cavities in dog. Duration: 2.4

Session 4.- Organs from abdominal and pelvic cavities in horse, cow, sheep and pig. Duration: 2.4

Session 5.- Birds visceral system. Duration: 2.4

**BLOCK II** (lessons 26 to 47)

Session 6.- Horse skull and mandible Duration: 2.3

Session 7.- Cow and dog skulls and mandibles. Duration: 2.3

Session 8.- Head neuromuscular systems. Oral, pharynx and larynx cavities. Duration: 2.4

**BLOCK III** (lessons 48 to 66)

Session 9.- CNS I Duration: 1.8

Session 10.- CNS II Duration: 1.7

All practical sessions will take place at the dissection room.

**Educational activities \***

Student workload (hours per lesson)		Lectures	Practical sessions				Monitoring activity	Homework
Lesson	Total	L	HI	LAB	COM	SEM	SGT	PS
Introduction	<b>0,5</b>	0,5						
Block I (lessons 2 to 25)	<b>61</b>	15		12				34
Block II (lessons 26 to 47)	<b>44</b>	10		7				27
Block III (lessons 48 to 66)	<b>42,5</b>	10		3,5				29
<b>Assessment **</b>	<b>2</b>	2						
<b>TOTAL ECTS</b>	<b>150</b>	<b>37,5</b>		<b>22,5</b>				<b>90</b>

L: Lectures (100 students)

HI: Hospital internships (7 students)

LAB: Lab sessions or field practice (15 students)

COM: Computer room or language laboratory practice (30 students)

SEM: Problem-solving classes, seminars or case studies (40 students)

SGT: Scheduled group tutorials (educational monitoring, ECTS type tutorials)

PS: Personal study, individual or group work and reading of bibliography

**Teaching Methodology\***

**Teacher lectures to the entire group at the classroom or the dissection room depending on the topic in progress.**

**Presentations done by each two students and discussed among all of us.**

**Dissections done by students under teacher supervision.**

**Learning outcomes \***

Students will know and understand the normal morphogenic development of different organs and systems.

\*\* Insert as many rows as necessary. For instance, you can include one row for a partial exam and another for the final exam.

Students will know the shape, structure, situation and topography of every organ and system and will be able to use properly the anatomical nomenclature. They will also be able to recognize organs from different domestic animals.  
 Students will achieve the skills to apply the anatomical knowledge to other clinical, zootechnical or food science subjects.  
 Finally, we expect them to be able to look for and use information and to be aware that update skills and knowledge and keep on learning is absolutely needed

**Assessment methods \***

**Midterm exams:**  
 Seminars: assistance, participation and discussion of the different activities.  
 Evaluation of Practical skills: assistance, dissection skills and oral questions during each practical session.  
 Midterm written tests (Parts I, II and III): 5 basic short questions and 10/15 more specific short questions.

**Final/global exams:**  
 Final/global exam 10/15 short questions from each part of the subject.

If any student decides to apply for the alternative global evaluation, this election must be done in the first quarter of the teaching of the subject or until the last day of the extension of the enrolment period.

**Alternative Global Evaluation**  
 In accordance with the UEx (DOE nº 212, November 3rd, 2020), the academic staff must establish an alternative global evaluation, so that the accomplishment of it means that the student passes the subject.  
 This alternative global evaluation consists of:  
 - Theoretical exam: Three parts, one for each block of lessons (15 questions each). Each part will be scored from 1 to 10. It is needed at least 5 in each part.  
 - Practical exam: an oral exam will take place at the dissection room. It is compulsory to pass this practical exam in order to pass the whole subject.

**PUNCTUATION CRITERIA:**  
 Variable number of questions (10-20) in each midterm or final exam will reach any of these marks:

- Less than 50% of right answers..... NO APTO
- From 50% to 69% of right answers..... APROBADO
- From 70% to 89% of right answers.....NOTABLE
- More than 90% of right answers.....SOBRESALIENTE

In those exams in which the number of non-answered questions or basic anatomy mistakes turned out to be significantly high, the statement of 50% of right answers to pass the exam could be modified.

Students will have the right to review their exams as said in the UEX web: <http://www.unex.es/organizacion/gobierno/vicerrectorados/vicealumn/normativas/NORMATIVAS/reclamacion>

**Comments**  
 1.- The marks from presentations and academic progress in practical sessions will be considered once the final exam is passed.

- 2.- The results from the mid-term exams of the subject will be kept for the ordinary and extraordinary final exams of the current course.
- 3.- Subject is passed when each part of it has been passed.
- 4.- Feel free to ask any doubt about this subject to the teacher in charge.

### **Bibliography (basic and complementary)**

DYCE, K. M.; W.O. SACK and G.J.G. WENSING, 1996: Veterinary Anatomy. W.B. Saunders Co. Philadelphia.

EVANS, H. E. and A. DE LAHUNTA, 1996: Miller's Dissection of Dog. W.B. Saunders Co. Philadelphia.

FRANDSON, R.D.; SPURGEON, T.L. 1995: Anatomy and Physiology of Domestic Animals. Ed. Interamericana. McGraw-Hill.

POPESKO, P., 1998: Anatomy Atlas of domestic animals. Volumes I, II y III. Masson, S.A.

SCHALLER, O., 1992: Illustrated Veterinary Anatomical Nomenclature. Ferdinand Enke Verlag, Stuttgart.

### **Other resources and complementary materials**

Virtual Campus.

Ossuary and skeletons.

Plastinated organs.

Collections of drawings and photographs.