Information about the subject

Degree: Bachelor of Science Degree in Veterinary Medicine

Faculty: Faculty of Veterinary Medicine and Experimental Sciences

Code: 1262509 **Name:** Surgical pathology of the musculoskeletal system of small animals

Credits: 6,00 **ECTS Year:** 5 **Semester:** 1

Module: Module of elective courses

Subject Matter: Intensifications per animal group **Type:** Elective

Department: Veterinary Medicine and Surgery

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

OPV04	Vicente Jose Sifre Canet **(Responsible Lecturer)**	vj.sifre@ucv.es
	Claudio Ivan Serra Aguado	ci.serra@ucv.es
	Daniel Sanchez Masian	daniel.smasian@ucv.es

Module organization

Module of elective courses

Subject Matter	ECTS	Subject	ECTS	Year/semester
Intensifications per animal group	24,00	Specialisation in Clinic of Wild and Exotic Animals	6,00	5/1
		Specialisation in the Equine Clinic	6,00	This elective is not offered in the academic year 25/26
		Specialisation in treatment of small animals	6,00	5/1
		Surgical pathology of the musculoskeletal system of small animals	6,00	5/1
Animal Reproduction and Production	30,00	Fighting bull	6,00	5/1
		Reproductive Technology	6,00	This elective is not offered in the academic year 25/26
		Specialisation in animal production	6,00	5/1
		Specialisation in animal research	6,00	This elective is not offered in the academic year 25/26
		Specialisation in aquaculture	6,00	This elective is not offered in the academic year 25/26

Feeding	12,00	Microbiology in Food	6,00	This elective is not offered in the academic year 25/26
		Quality management in the agri-food industry	6,00	This elective is not offered in the academic year 25/26

Recommended knowledge

To have notions of anatomy
To have notions of physiology
To have notions of general pathology
To have notions of companion animal clinics
To have notions of diagnostic techniques I and II
To have notions of surgery I and II

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1	The student searches bibliographic information from different sources and knows how to analyse it with a critical and constructive spirit.
R2	The student knows and understands the concepts and terminology presented in the module.
R3	The student knows the basic concepts of surgical biology.
R4	The student correctly applies the principles of asepsis and antisepsis.
R5	The student is able to propose a treatment for a joint pathology.
R6	The student is able to propose a treatment for a muscle-tendinous pathology.
R7	The student is able to propose a treatment for a neurological problem.
R8	The student is able to write documents on surgery and surgical pathology, working in a team.
R9	The student argues according to rational criteria based on his or her work.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

BASIC		Weighting			
		1	2	3	4
CB2	Capacity to apply knowledge to work or occupation in a professional way and have the competences that are proved by preparing and arguing topics and problem-solving in their specific field of study.			x	
CB3	Capacity to gather and interpret relevant data usually within their specific field of study and capacity to make judgments that include reflection on relevant social, scientific or ethical issues.				x
CB4	Capacity to communicate information, ideas, problems and solutions at specialist and non-specialist levels.		x		
CB5	Capacity to develop those learning skills needed to undertake further studies with a high degree of autonomy.				x

GENERAL		Weighting			
		1	2	3	4
CG0	Capacity to speak well in public.			x	

SPECIFIC		Weighting			
		1	2	3	4
E24	Knowing and applying methods and procedures of clinical examination, additional diagnostic techniques and their interpretation.		x		
E25	Knowing and applying imaging diagnostic and radiation biology.			x	
E27	Knowing and applying recognition and diagnosis of different types of injuries and their association with pathological processes.			x	

E28	Knowing and applying the clinical study of patients and medical, surgical or hygienic-dietary treatments required, as well as sporadic diseases affecting groups.		x		
E29	Knowing and applying diagnosis.			x	
E30	Knowing and applying surgical techniques used in veterinary.				x
E31	Knowing and applying animal anesthesia and resuscitation.		x		

TRANSVERSAL		Weighting			
		1	2	3	4
T1	Capacity of analysis, synthesis, implementation of knowledge for problem-solving and decision-making.				x
T2	Understanding and applying the scientific method to professional practice including evidence-based medicine.			x	
T3	Basic knowledge of the veterinary profession: legal, economic, administrative, planning and time management issues and the veterinarians' society together with the importance of monitoring quality, standardization and protocols of veterinary practice.	x			
T4	Mastering fluency in oral and written mother tongue communication, listening and responding effectively using a language appropriate to audience and context.		x		
T5	Knowledge of a second language, preferably English, especially technical vocabulary of veterinary science.		x		
T6	Using information technology to communicate, share, search for, collect, analyze and manage information, especially related to the veterinarian practice.		x		
T7	Ability to adapt to new situations, self-critical ability, being aware of personal limitations and understanding when and where seeking and obtaining advice and professional help.		x		
T8	Efficient and effective work, both independently and as a member of a multidisciplinary team or unit, showing respect, appreciation and sensitivity to the work of others.			x	
T9	Keeping an ethical behaviour in the exercise of given responsibilities toward the profession and society.			x	

T10	Ability to learn, to research, and to be aware of the need to keep knowledge updated, and attending training programs.		x		
T11	Ability to work in an international context, appreciating diversity and multiculturalism, through the knowledge of foreign cultures and customs.	x			

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R5, R6, R8, R9	15,00%	Evaluation of the use of the practical lessons in the classroom, of problems or computer science, seminars and tutorials, by means of participation, computer-supported problem solving and the elaboration of the corresponding reports.
R1, R2, R3, R4, R5, R6, R7, R8, R9	20,00%	Evaluation of the practical laboratory work, which must demonstrate the competences acquired by the student and his or her ability to use them to solve the different situations and problems that arise in a laboratory; this assessment may consist of one of the following methods, or a combination of several of them: an individual written test, the individual or group performance of a laboratory experience, the delivery of an individual or group report on the work carried out in the laboratory.
R1, R2, R3, R4, R5, R6, R7, R8, R9	20,00%	Evaluation of practical work in a clinic through which the student must demonstrate the competences acquired and the ability to use them to solve the different situations and problems that arise in a clinic; this assessment may involve one of the following methods, or a combination of several of them: a written individual test, the individual or group performance of a clinical experience, the delivery of an individual or group report on the work carried out in the laboratory.
R1, R2, R3, R5, R6, R7, R8, R9	20,00%	Evaluation of group work through a system of continuous assessment throughout the course based on the delivery of assignments the objectives and content of which will be proposed by the teacher.

R1, R2, R3, R4, R5, R6, R7, R9	25,00%	Evaluation of activities in which the student must do some research individually and structure information related to each of the topics through a system of continuous assessment throughout the course based on the delivery of papers, the objectives and contents of which will be proposed by the teacher.

Observations

This subject cannot be assessed through a single assessment.

Attendance at practical sessions is compulsory. During the practical sessions, the lecturer will monitor the attendance and attitude of each student. Factors such as attention, level of participation and interest shown during the practical session will be taken into account.

The use of artificial intelligence (AI) tools is subject to the lecturer's discretion, who may establish specific limits or conditions depending on the training or assessment activity.

MENTION OF DISTINCTION:
In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with 9 Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1 On-site training activity aimed primarily at acquiring knowledge acquisition skills. It is characterised by the fact that students are spoken to. Also called master class or exposition, it refers to the oral presentation made by the teacher, (with the support of blackboard, a computer and a projector for the display of texts, graphs, etc.), in front of a group of students. They are expository, explanatory or demonstrative sessions of contents. The size of the group is determined by the limit or physical capacity of the classroom; therefore, it is a single group.

M2 On-site training activity aimed primarily at obtaining knowledge application and research skills. Knowledge is built through interaction and activities. The activity consists of supervised monographic sessions with shared participation (teachers, students, experts). The size of the group is variable, from one large group to various small groups, with a minimum of 6 students to ensure interaction. The evaluation will be based on follow-up records kept by the teacher. Participation and the development of the capacity to problematize should be taken into account.

M3 On-site group-work training activity oriented toward problem solving under the supervision of a teacher. It would correspond to "Animal-free supervised practical work", type e1, from the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students, to differentiate it from a master class.

M6 On-site training activity in groups carried out in the laboratory. It includes the sessions where the students develop laboratory experiments, make dissections or use the microscopes for the study of histological or histopathological samples actively and autonomously, under the supervision of the professor. It also includes work with healthy animals, objects, products, corpses (e.g., animal handling, bacteriological practices, physiology or biochemistry, meat inspection, etc.). It would correspond to the "Supervised practical non-clinical animal work" type e2 of the European evaluation of EAEVE. The size of the group is variable, in a range of 10 to 20 students.

M7 On-site training activity that is defined as the clinical practical work developed in the Veterinary Clinical Hospital or clinical centres ascribed to the University, as well as itinerant clinical practices, mainly with ruminants, equids, pigs, birds and aquatic animals. Also included are necropsies, surgical workshops and training in clinical examination techniques or diagnosis with healthy patients. In these practical sessions the student will always work with animals, which can be healthy (e.g. propaedeutic or obstetrics) or clinical cases (individual or collective), including a protocol or work scheme, being supervised by a teacher and assuming the provision of a service. This type of training corresponds to type e3 of the EAEVE European evaluation called "Clinical Training" (strickly hands-on)". The size of the group will be 5 students or fewer.

M8 A set of on-site training activities carried out by the teacher to provide personalised attention to the student or in small groups with the aim of reviewing and discussing the materials and topics presented in classes, seminars, readings, carrying out projects, etc. The aim is to ensure a truly comprehensive education of the student rather than a mere transfer of information. It is, therefore, a personalized assistance relationship in which the tutor assists, facilitates and guides one or more students in the learning process.

M9 Set of processes that attempt to evaluate the learning outcomes of students expressed in terms of acquired knowledge, capacities, skills or abilities developed and manifested attitudes. It covers a wide range of activities that can be developed for students to demonstrate their training (e.g. written, oral and practical tests, projects or assignments). It also includes the Official Calls.

M10 Autonomous training activity, including activities and coursework, bibliographic searches. The results obtained from unsupervised group and teamwork will be evaluated, with particular attention paid at the time of evaluation to the acquisition of specific knowledge development skills through group work.

M11 Autonomous training activities related to personal study, or the preparation of individual course assignments. The individual preparation of readings, essays, problem solving, papers, reports, etc. will be evaluated through presentations or submissions during theoretical classes, practical classes, seminars and/or tutorials. The evaluation of the submitted papers will consider the structure of the paper, the quality of the documentation, originality, spelling and presentation.

M12 On-site training activity consisting of an independent clinical rotation with a final assessment of competencies, in university veterinary hospitals, itinerant clinics, farms, pilot plants, departments with devices intended for practical teaching in the degree of veterinary, as well as stays in veterinary slaughterhouses, companies and external agencies in the veterinary or related fields.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons (TL) M1	R2, R3, R4, R5, R6, R7	60,00	2,40
Seminars (S) M3	R2, R3, R4, R5, R6, R7, R9	40,00	1,60
Laboratory Practice (LP) M6	R3, R4, R5, R6, R7	25,00	1,00
Tutorial M8	R2, R3, R4, R5, R6, R7, R9	5,00	0,20
Evaluation (Ev) M9	R1, R2, R3, R4, R5, R6, R7, R8, R9	5,00	0,20
TOTAL		**135,00**	**5,40**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M10	R1, R5, R6, R7, R8, R9	7,50	0,30
Individual work M11	R1, R8, R9	7,50	0,30
TOTAL		**15,00**	**0,60**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
DU-1 ARTICULAR PATHOLOGY	Chapter 1. Approaches to the main joints Chapter 2. Degenerative joint disease (osteoarthritis) Chapter 3. Arthritis/polyarthritis Chapter 4. Shoulder joint pathology Chapter 5. Elbow joint pathology Chapter 6. Hip joint pathology Chapter 7. Stifle joint pathology Chapter 8. Carpus/tarsus joint pathology Chapter 9. Temporomandibular joint pathology Chapter 10. Main myopathies in dogs and cats At the introduction of the subject will be explained the content and the students will be assigned with the topics on which they will be evaluated. **COMPETENCIES: CB2, CB3, CB4, CB5, CG0, CG2, CG5, CG6, T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, E23, E24, E25, E27, E28, E29, E30, E31**
DU-2. NEUROLOGY	Chapter 11. Neurolocalization Chapter 12. Seizures Chapter 13. Head tilt and nystagmus Chapter 14. Tremors, involuntary movements and paroxysmal alterations Chapter 15. Tetraparesis and paraparesis Chapter 16. Monoparesis Chapter 17. Exercise intolerance and collapse Chapter 18. Anal and vesical disfunction **COMPETENCIES: CB2, CB3, CB4, CB5, CG0, CG2, CG5, CG6, T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, E23, E24, E25, E27, E28, E29, E30, E31**

DU-3. Traumatology

Chapter 19. Basis of traumatology I
Chapter 20. External fixation and coaptation
Chapter 21. Internal fixation
Chapter 22. Fractures of the metaphysis and epiphysis I
Chapter 23. Fractures of the metaphysis and epiphysis II
Chapter 24. Diaphyseal fractures I
Chapter 25. Diaphyseal fractures II
Chapter 26. Oncology and amputations
Chapter 27. Mandible and maxilla
Chapter 28. Angular limb deformities
Chapter 29. Regenerative medicine

COMPETENCIES: CB2, CB3, CB4, CB5, CG0, CG2, CG5, CG6, T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, E23, E24, E25, E27, E28, E29, E30, E31

Organization of the practical activities:

	Content	Place	Hours
PR1.	orthopedic examination	Hospital	2,00
PR2.	general joint (artrocentesis)	Hospital	2,00
PR3.	approaches to forelimb joints	Hospital	4,00
PR4.	approaches to hindlimb joints	Hospital	4,00
PR5.	neurologic examination	Hospital	2,00
PR6.	external fixation	Hospital	2,00
PR7.	internal fixation	Hospital	2,00
PR8.	bandages	Hospital	2,00
PR9.	approaches I (forelimb)	Hospital	4,00
PR10.	approaches II (hindlimb)	Hospital	4,00
PR11.	implants 3D	Hospital	2,00
PR12.	implants 3D	Hospital	2,00
PR13.	implants 3D	Hospital	2,00
PR14.	implants 3D	Hospital	4,00

Temporary organization of learning:

Block of content	Number of sessions	Hours
DU-1 ARTICULAR PATHOLOGY	30,00	60,00
DU-2. NEUROLOGY	7,50	15,00
DU-3. Traumatology	30,00	60,00

References

-Tobias KM, Johnston SA. Veterinary Surgery. Small Animal. 2nd Ed. Elsevier & Saunders. Missouri (USA). 2018.
- Fossum TW. Small Animal Surgery. 5th Ed. Mosby Elsevier. Missouri (USA). 2018
- Slatter D. Tratado de Cirugía en Pequeños Animales (4 vol). 3rd Ed. Elsevier. USA. 2003.
- Piermatei D, Flo G, DeCamp C. Handbook of Small Animal Orthopedics and Fracture Repair. 4th Ed Saunders. USA 2006.
- Johnson KA. Piermate's Atlas of surgical Approaches to the Bones and Joints of the dog and cat. 5th Ed. Hardcoover; USA 2013.
- Monnet E. Small animal soft tissue surgery. Hardcover, USA 2013.
- Sharp N, Wheeler S. Small animal spinal disorders: Diagnosis and Surgery. 2nd Ed, Hardcover. 2005.
- Montavon PM, Voss K, Longley-Hobbs SJ. Feline orthopedic surgery and musculoskeletal disease. 1st Ed. Saunders-Elsevier, USA, 2009.
- Johnson AL, Dunning D. Atlas of orthopedic surgical procedures of the dog and cat. Saunders-Elsevier, USA, 2005,
- Johnson AL, Houlton JEF, Vannini R. AO Principles of fracture management in the dog and cat. AO publishing, Clavadelerstrasse, Switzerland, 2005