Information about the subject

Degree: Bachelor of Science Degree in Veterinary Medicine

Faculty: Faculty of Veterinary Medicine and Experimental Sciences

Code: 1260309 **Name:** Clinical diagnostic techniques I (Clinical Propedeutics)

Credits: 6,00 **ECTS Year:** 3 **Semester:** 1

Module: Module of Clinical Sciences and Animal Health

Subject Matter: Alterations in Structure and Function, and Fundamentals of Diagnosis **Type:**

Compulsory

Department: Veterinary Medicine and Surgery

Type of learning: Classroom-based learning

Languages in which it is taught: Spanish

Lecturer/-s:

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Module organization

Module of Clinical Sciences and Animal Health

Subject Matter	ECTS	Subject	ECTS	Year/semester
Alterations in Structure and Function, and Fundamentals of Diagnosis	36,00	Clinical diagnostic techniques I (Clinical Propedeutics)	6,00	3/1
		Clinical Diagnostic Techniques II (Imaging Diagnosis)	6,00	3/1
		Histopathology and General Pathological Anatomy	6,00	2/1
		Physiopathology and general integrated Pathology I	6,00	2/1
		Physiopathology and general integrated Pathology II	6,00	2/2
		Special pathological anatomy	6,00	2/2
Pharmacology and Therapeutics	12,00	Pharmacology and Toxicology	6,00	3/1
		Pharmacotherapy, preventive medicine and veterinary hygiene	6,00	5/1
Clinical Sciences and Animal Health	60,00	Clinic and health in equines	6,00	3/2
		Clinic and health in water animals	6,00	5/1
		Clinic and health in wild and exotic animals	6,00	3/2

Clinical Sciences and Animal Health	Clinic and health on the farm I	6,00	4/1
	Clinic and health on the farm II	6,00	4/2
	Epidemiology	6,00	3/1
	Pet Clinic	6,00	3/2
	Reproduction and Obstetrics	6,00	3/1
	Veterinary Surgery I	6,00	3/2
	Veterinary Surgery II	6,00	4/1

Recommended knowledge

Previous requirements: To have basic knowledge of Anatomy, Animal Domestication, Physiology and Pathophysiology and biological agents.

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 argues according to rational criteria based on his or her work.
R3	The student is able to solve problems related to the contents of the module.
R4	Analyzing, synthesizing, solving problems and making decisions related to the subject.
R5	Performing a complete medical history and physical examination of a patient.
R6	Collecting information from the patient to diagnose a pathology, making use of direct and indirect exploration methods.
R7	Safely manipulating the patient to be explored.
R8	Performing basic analytics and interpreting their results.
R9	Collecting, preserving and sending different types of biological samples to the laboratory.
R10	The student is able to work effectively independently or in a team, maintaining respect for peers.

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	

GENERAL		Weighting			
		1	2	3	4
CG2	Understanding and applying prevention, diagnosis and individual or collective treatment , and control of animal diseases, individually or in groups, with special attention to zoonoses.				x
CG6	Developing professional practice, acquiring skills related to teamwork, with an efficient use of resources and quality management.				x
CG7	Identifying emerging risks in all areas of the veterinary profession.			x	

SPECIFIC		Weighting			
		1	2	3	4
E22	Knowing and applying principles and bases of nosology.				x
E23	Knowing and applying principles and bases of the description and pathogenesis of general alterations of the structure and function of cells, tissues, organs and systems.				x

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		
E26	Knowing and applying necropsy.	x			
E27	Knowing and applying recognition and diagnosis of different types of injuries and their association with pathological processes.		x		
E29	Knowing and applying diagnosis.				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	
T6	Using information technology to communicate, share, search for, collect, analyze and manage information, especially related to the veterinarian practice.			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
T10	Ability to learn, to research, and to be aware of the need to keep knowledge updated, and attending training programs.				x

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R8, R10	40,00%	Written assessment of acquired knowledge and skills. The test may consist of a series of open-ended questions or multiple-choice questions about the theoretical contents of the module and/or practical exercises (problem-solving).
R2, R3, R4, R5, R6, R7, R8, R9, R10	10,00%	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.
R2, R3, R4, R5, R6, R7, R8, R9, R10	15,00%	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.
R2, R3, R4, R5, R6, R7, R8, R9, R10	15,00%	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, R4, R5, R6, R7, R8, R9, R10	10,00%	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, R8, R9, R10	10,00%	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 course cannot be assessed by a single assessment.
The written exam represents 50% of the final grade. A theoretical exam will be conducted. The theoretical exam will consist of multiple-choice and/or short questions. Failure to pass the theoretical section will prevent the student from passing the entire course.
Attendance at practical sessions is mandatory. During practical sessions, the professor will monitor each student's attendance and attitude. Factors such as attention, participation, and interest shown during the practical session will be taken into account. The practical evaluation will include any aspect related to the practical sessions completed during the academic year. The evaluation of the practical activities constitutes 40% of the final grade. A positive result in the practical evaluation is an essential requirement for passing the course. Failure to pass this section will prevent the student from passing the theoretical section of the course.
The presentation and evaluation of supervised assignments contributes 10% of the final grade.
Overall Assessment:
The results of the various assessment activities are weighted for the final grade. To pass the course, students must obtain a minimum grade equal to or greater than 50 points out of 100 in the first four sections and in the final grade for the course.
Criteria for awarding Honor Rolls: At the instructor's discretion, one Honor Roll may be awarded for every 20 students (not for fractions of 20, except for the first 20 students). Honor rolls may only be awarded in the first sitting of the student's first year of enrollment in the course.
Various assignments will be completed throughout the course to validate the student's continuous assessment. These assignments may be graded, as is the case with individual work, but others may not receive a grade, such as asking questions in lectures or evaluating concepts learned in lectures during their application in practical sessions.
The use of artificial intelligence (AI)-based tools is subject to the instructor's discretion, who may establish specific limits or conditions depending on the training or assessment

activity.
Exam Review: After the grades are published, students will have access to the exam review times published on the intranet to review their exams. Unless specifically indicated otherwise by the instructor, exams will not be displayed outside of these times. Students who, for various reasons, are unable to attend the assessment of some parts on the official exam date may be given an extraordinary assessment through an oral exam.

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.

M4 On-site training activity in groups that takes place in the classroom. It includes working with documents and formulating ideas without handling animals, organs, objects, products, or corpses (e.g., work with articles or documents, clinical case studies, diagnostic analyses, etc.). 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.

M5 On-site training activity in groups that takes place in the Computer Lab where the computer is used as support for learning. It includes work with computer models, specific software, Web queries, etc. 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.

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.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
Theoretical lessons (TL) M1	R1, R2, R3, R4, R8, R10	46,00	1,84
In-Classroom Practice (ICP) M4	R1, R2, R3, R4, R8, R10	10,00	0,40
Laboratory Practice (LP) M6	R3, R4, R6, R8, R9, R10	2,00	0,08
Clinical Practice (CP) M7	R2, R3, R4, R5, R6, R7, R9, R10	21,00	0,84
Tutorial M8	R1, R2, R3, R4	3,00	0,12
Evaluation (Ev) M9	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10	7,00	0,28
TOTAL		**89,00**	**3,56**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M10	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10	25,00	1,00
Individual work M11	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10	36,00	1,44
TOTAL		**61,00**	**2,44**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
DU 1.- INTRODUCTION TO CLINICAL PROPEDEUTIC	Lecture 1. Introduction of the subject and exposure of the assessment method. **COMPETENCES: CB2, CB3, CB4**

DU 1.- SMALL ANIMALS PROPEDEUTIC PROCEDURES	Unit 1. General plan for exploration and taking vital signs in small animals. Anamnesis and Preparation of the Clinical History. Behavior of small animals during exploration and restraint methods. Unit 2. General exploration in small animals. Regional exploration of all vital systems of the dog and cat. Unit 3. Ophthalmological examination in small animals. Evaluation of vision and ocular reflexes. Examination of eye and eye annexes. Unit 4. Thoracic exploration: cardiac and pulmonary in small animals. Semi-technology and semiology of the inspection, palpation, percussion and auscultation of the chest. Differential diagnoses and diagnostic plan. Unit 5. Abdominal examination in small animals. Semi-technology and semiology of abdominal inspection, palpation, percussion and auscultation. Differential diagnoses and diagnostic plan. Unit 6. Genitourinary exploration in small animals. Semi-technology and semiology of inspection, palpation, percussion and auscultation of the genitourinary apparatus in the male and in the female. Differential diagnoses and diagnostic plan. Unit 7. Neurological examination in small animals. Examination of conscience. Examination of the cranial and spinal nerve pairs. Examination of gait, station, posture, proprioception and nocioception. Unit 8. Orthopedic examination in small animals. Unit 9. Exploration in emergency situations in small animals. COMPETENCES: CB2, CB3, CB4, CG6, CG7, T1, T4, T6, T8, T10, E22, E24, E27, E29

UNIT 3.- CLINICAL BIOPATHOLOGY

Unit 10. Assessment of hematology and hemostasis. Red series. Erythrocyte count, hematocrit concept, erythrocyte indices. Alterations in the number and morphology of erythrocytes. Classification of the types of anemias. White series. Leukogram. Leukocyte formula and differences by species. Alterations in the number and morphology of leukocytes. Platelet series, counting and alterations. Coagulation tests. Haemostasis disorders.
Unit 11. Analytical interpretation of the clinical pathology of the urinary system. Differential diagnosis of polydipsia / polyuria. Kidney function assessment.
Unit 12. Analytical interpretation of the clinical pathology of the gastrointestinal tract. Evaluation of the different alterations that occur more frequently in the main domestic species.
Unit 13. Analytical interpretation of the clinical pathology of the liver and pancreas. Evaluation of the different alterations that occur more frequently in the main domestic species.
Unit 14. Analytical interpretation of the clinical pathology of the endocrine system. Evaluation of the different alterations that occur more frequently in the main domestic species.
COMPETENCES: CB2, CB3, CB4, CG6, CG7, T1, T4, T6, T8, T10, E22, E24, E27, E29

UNIT 4.- CLINICAL PROPEDEUTICS IN LARGE ANIMALS	Unit 15. General exploration plan. Equine management and behavior. Determination of age. Anamnesis and clinical history. Layers and review. Unit 16. Methods of administration of medications and taking of constants and samples in equines. Unit 17. Examination of the equine locomotor system. Exam on the move and at the station. Flexural tests. Unit 18. Exploration of the equine digestive and reproductive systems. Nasogastric tube. Rectal and vaginal palpation. Sampling. Unit 19. Physical examination of the equine skin and lymphatic system. Sampling. Unit 20.Exploration of the equine respiratory and cardiovascular system. Unit 21. Equine ophthalmological examination. Evaluation of vision and ocular reflexes. Examination of eye and eye annexes. Unit 22. Equine neurological examination. Unit 23. Small ruminants. General exploration plan 1. General exploration plan. Anamnesis and Preparation of the Clinical History. Topographical regions. Handling and holding. Sampling. Intrauterine and urethral catheterization. Unit 24. Small ruminants. General exploration plan 2 General exploration plan. Anamnesis and Preparation of the Clinical History. Topographical regions. Handling and holding. Sampling. Intrauterine and urethral catheterization. Unit 25. Small ruminants. General exploration plan 3 General exploration plan. Anamnesis and Preparation of the Clinical History. Topographical regions. Handling and holding. Sampling. Intrauterine and urethral catheterization. Unit 26. Small ruminants. General exploration plan 4 General exploration plan. Anamnesis and Preparation of the Clinical History. Topographical regions. Handling and holding. Sampling. Intrauterine and urethral catheterization. Unit 27. General plan of exploration in cattle. General exploration plan. Anamnesis and Preparation of the Clinical History. Topographical regions. Handling and holding. Clinical thermometry and other constants. Sampling. Unit 28. Digestive exploration in cattle. Neck scan. Exploration of the abdomen.Ruminal fluid extraction. Rectal palpation. Exploration of the udder. Intrauterine and urethral catheterization.

	COMPETENCES: CB2, CB3, CB4, CG6, CG7, T1, T4, T6, T8, T10, E22, E24, E27, E29
PRACTICES	Practice 1 small animals. Clinical history and anamnesis, taking vital signs and regional examination in the dog. Practice 2 small animals. Ophthalmological examination in small animals. Practice 3 small animals. Orthopedic examination in small animals. Practice 4 small animals. Neurological examination in small animals. Practice 5 small animals. Cytological interpretation Practice 1 Biopathology. Interpretation of analyzes related to hematology and hemostasis. Interpretation of analyzes related to hemostasis. Practice 2 Biopathology. Interpretation of analyzes related to urinary pathology. Practice 3 Biopathology. Interpretation of analyzes related to gastrointestinal pathology. Practice 4 Biopathology. Interpretation of analyzes related to liver pathology. Practice 5 Biopathology. Interpretation of analyzes related to endocrine pathology. Practice 1 Equidae. Equine management and behavior. Clinical history and age. Practice 2 Equidae. Equine locomotor system. Practice 3 Equidae. Equine digestive and genitourinary system. Practice 4 Equidae. Equine respiratory and cardiovascular apparatus. Practice 5 Equidae. Equine neurological system. Practice 1 Ruminants. General examination of small ruminants. Practice 2 Ruminants. General examination of cattle.
EVALUATION & TUTORIAL	EVALUATION & TUTORIAL

Organization of the practical activities:

	Content	Place	Hours
PR1.	Equine management and behavior learning. Evaluation of the clinical history and age.	Equine hospital	2,00
PR2.	Equine locomotor system.	Equine hospital	2,00
PR3.	Exploration of the equine digestive and genito-urinary system.	Equine hospital	2,00
PR4.	Equine respiratory and cardiovascular systems exploration.	Equine hospital	2,00
PR5.	Equine neurological system examination.	Equine hospital	2,00
PR6.	General examination in the dog: clinical history, anamnesis, recording constants and regional examination.	Drylab	2,00
PR7.	Ophthalmological examination in small animals.	Drylab	2,00
PR8.	Neurological examination in small animals.	Drylab	2,00
PR9.	Orthopedic examination in small animals.	Drylab	2,00
PR10.	Exploration in the emergency patient (small animals).	Lecture room	2,00
PR11.	Small animal cytology	Drylab	2,00
PR12.	Management and exploration in cattle.	Farm	1,30
PR13.	Management and exploration in small ruminants.	Farm	1,30

Temporary organization of learning:

Block of content	Number of sessions	Hours
DU 1.- INTRODUCTION TO CLINICAL PROPEDEUTIC	1,00	2,00
DU 1.- SMALL ANIMALS PROPEDEUTIC PROCEDURES	9,00	18,00
UNIT 3.- CLINICAL BIOPATHOLOGY	5,00	10,00
UNIT 4.- CLINICAL PROPEDEUTICS IN LARGE ANIMALS	14,00	28,00
PRACTICES	13,00	26,00
EVALUATION & TUTORIAL	2,50	5,00

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