



## Information about the subject

**Degree:** Bachelor of Science Degree in Veterinary Medicine

**Faculty:** Faculty of Veterinary Medicine and Experimental Sciences

**Code:** 1260304 **Name:** Clinic and health in equines

**Credits:** 6,00 **ECTS Year:** 3 **Semester:** 2

**Module:** Module of Clinical Sciences and Animal Health

**Subject Matter:** Clinical Sciences and Animal Health **Type:** Compulsory

**Department:** Veterinary Medicine and Surgery

**Type of learning:** Classroom-based learning

**Languages in which it is taught:** Spanish

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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

To have Knowledge of Animal Anatomy and Physiology, Pathophysiology, Pharmacology, Propedeutic and Imaging Diagnosis.



## 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 knows and understands with a critical attitude, the concepts included in the syllabus/content of the module of clinic and health in equids.
- R2 The student is able to solve problems related to the contents of the module.
- R3 The student knows how to use different working techniques in the laboratory and interpret the results.
- R4 The student is capable of working in a laboratory correctly performing the basic operations both in the planning and development of each of the laboratory practices.
- R5 The student is able to write a comprehensible and organized text on various aspects of equine medicine.
- R6 The student searches bibliographic information from different sources and knows how to analyse it with a critical and constructive spirit.
- R7 The student is able to produce documents on equine medicine, through teamwork.
- R8 Defending their work or arguing the questions asked according to rational criteria.



## 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	
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
CG3	Understanding and applying control of animal breeding, management, health, reproduction, protection, and feed as well as improving production.	X			
CG5	Understanding and applying laws, regulations and administrative provisions in all areas of the veterinary profession and public health, understanding the ethical implications of health in a changing global context.			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
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	
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		
E32 Knowing and applying reproduction, birth and postpartum: care and disease.				X
E33 Knowing and applying assisted reproduction.				X
E36 Knowing and applying pharmacotherapy.			X	
E39 Knowing and applying transmission and maintenance of disease and methods of study of disease in populations.		X		
E40 Knowing and applying infectious and parasitic diseases related to veterinary practice including diagnosis and control.		X		
E41 Knowing and applying zoonoses and public health.		X		



E42 Knowing and applying the promotion of collective health in animals, including wildlife, in order to maximize the economic performance in a social, ethical and healthy way.

X

E43 Knowing and applying technical measures and regulations for the prevention, control and eradication of animal diseases.

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

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





## Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
	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).
	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.
	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.
	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.



15,00%

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

**The average grade of the theoretical exam must be equal to or greater than 50%, in order to be averaged along with the rest items. The written test represents 40% of the final grade.**

**To do an examination on theoretical knowledge is developed.** The theoretical exam will consist of 30 multiple choice questions (each question with 4 options, of which only one is correct), 4 development questions and two clinical cases. The ratio of 3 wrong questions removes a correct question. **If the theoretical part is not approved you cannot pass the course. Attendance at practices is considered mandatory.** During the practical sessions the teacher will control attendance and attitude of each student. Factors such as attention, the degree of participation and the interest shown during practice will be considered. Practical assessments shall include any aspect related to the practices during the academic year. The assessment of practical activities constitutes 15% of the final mark and will consist in performing one of the randomly selected by Professor practices. Also, this assessment may include questions that students must answer orally. The favorable outcome of the evaluation of the practices will be essential to pass the course requirement. **Failure to pass this block will make it impossible to overcome the theoretical part of the course. The submission and evaluation of targeted work contributes 15% of the final grade. Overall evaluation:** For the final grade, the results of the various evaluation activities are weighted. To pass the subject it will be necessary to obtain, at least, an equal or 50 points out of 100 in the theoretical examination and in the final grade of the course. Approved ratings will be kept for 2 years. **Review examinations** after the appearance of the notes, the student will have times published on the platform, to review its examination, unless specifically instructed otherwise by the faculty and outside these hours no exams are displayed. Those students who for various reasons do not attend the assessment of some of the parties on the official date of calls, extraordinary evaluations **will be conducted with 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.
- 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.



- 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, R5, R7, R8	50,00	2,00
Seminars (S) M1, M5	R2	2,00	0,08
In-Classroom Practice (ICP) M4	R5, R7	2,00	0,08
Laboratory Practice (LP) M6	R3, R4	7,00	0,28
Clinical Practice (CP) M7	R1, R3, R4, R8	25,00	1,00
Tutorial M8	R1, R6, R7, R8	2,00	0,08
Evaluation (Ev) M9	R1, R2, R3, R4, R5, R7, R8	2,00	0,08
<b>TOTAL</b>		<b>90,00</b>	<b>3,60</b>

## LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
Group work M10	R5, R6, R7, R8	20,00	0,80
Individual work M11	R1, R2, R6, R7, R8	40,00	1,60
<b>TOTAL</b>		<b>60,00</b>	<b>2,40</b>



## Description of the contents

Description of the necessary contents to acquire the learning outcomes.

### Theoretical contents:

Content block	Contents
UD1. Introduction to equine health and clinical medicine	T1. Introduction to equine clinic
UD2. Clinical Analysis	T1. Reference values for adult horses and foals T2. Study of the erythrogram. Anemia and polycythemia T3. Study of the leukogram T4. Alterations of hemostasis
UD3. Anesthesia	T1. Pharmacology. Anesthetic protocols T2. Anesthetic blocks. Neurectomy
UD4. Musculoskeletal	T.1. Lameness diagnosis. Clinical cases T2. Diseases of Tendons and Ligaments T3. Diseases of Joints T4. Diseases of the foot T5. Laminitis. T.6. Navicular Disease T7. Bone Spavin
UD5. Dermatology	T1. Main skin diseases and treatments
UD6. Gastrointestinal	T1. Differential diagnosis of dysphagia in horses T2. Colic syndrome T3. Gastric pathologies T4. Small intestine diseases T5. Pathologies of the large intestine T6. Colic Pain T7. Differentiation between medical and surgical colic T8. Colic syndrome Complications
UD7. Urinary and hepatic	T1. Diagnostic approach the horse with urinary pathologies T2. Acute and chronic renal failure T3. Urinary tract infections and obstructive processes of the urinary tract T4. Liver Pathologies



## UD8. Reproduction

T1. Examination of the male reproductive and female  
T2. Pathologies of the estrous cycle of the mare. Pathologies postmating or artificial insemination  
T3. Pathophysiology of pregnancy I. The first quarter. Pathophysiology of pregnancy II. Common causes of abortions  
T4. Pathophysiology of parturition. Exploration of the neonate and passive immunity. Peripartum diseases in the mare. The postpartum. Most common complications  
T5. Comprehensive reproductive management of stud farm

## UD9. Cardiac and Respiratory

T1. Diagnostic approach the horse with heart pathologies  
T2. Vascular pathology  
T3. Heart failure  
T4. Patologías del pericardio  
T5. Myocarditis  
T6. Endocarditis and valvulopathy.  
T7. Arrhythmias  
T8. Diagnostic approach the horse with respiratory pathologies  
T9. Upper respiratory tract diseases  
T10. Non infectious diseases of the respiratory system  
T11. Pathologies of the pleura  
T12. Infectious diseases of the respiratory system

## UD.10 Physiotherapy and Rehabilitation

T.1. Physiotherapy and Rehabilitation

## UD.11 Ambulatory clinic

T1. Mobile clinic





## Organization of the practical activities:

	Content	Place	Hours
PR1.	Practice 1. Neurectomy and tenotomy, techniques	Hospital	2,00
PR2.	Practice 2 Musculoskeletal	Riding club	2,00
PR3.	Practice 3. Gastrointestinal	Riding club	2,00
PR4.	Practice 4. Cardiac and respiratory	Riding club	2,00
PR5.	Practice 5. Physiotherapy and Rehabilitation	Riding club	4,00
PR6.	Seminario 1. Conference	Lecture room	2,00
PR7.	Práctica 6. Emergency week	Field visit	6,00
PR8.	Practical Examination. For those who have no attended at least 80% of the practices	Riding club	2,00
PR9.	Mobile clinic	Field visit	8,00



## Temporary organization of learning:

Block of content	Number of sessions	Hours
UD1. Introduction to equine health and clinical medicine	1,00	2,00
UD2. Clinical Analysis	3,00	6,00
UD3. Anesthesia	2,00	4,00
UD4. Musculoskeletal	7,00	14,00
UD5. Dermatology	2,00	4,00
UD6. Gastrointestinal	7,00	14,00
UD7. Urinary and hepatic	2,00	4,00
UD8. Reproduction	3,00	6,00
UD9. Cardiac and Respiratory	7,00	14,00
UD.10 Physiotherapy and Rehabilitation	4,00	8,00
UD.11 Ambulatory clinic	7,00	14,00



## References

AUER, J. (2011). Equine surgery. Philadelphia. Saunders Co.- BRINSKO. (2010). Manual of Equine Reproduction. Brinsko SP, Blanchard T, Varner DD. 3rd Edition, CV Mosby.- COWELL, R.L., TYLER, R.D. (2002). Diagnostic Cytology and Hematology of the Horse, 2nd Edition, Elsevier Health Sciences.- GINTHER OJ. (1995). Ultrasonic imaging and animal reproduction. Book 2. Horses. Cross Plains, WI: Equiservices Publishing.- GINTHER OJ. (2007). Ultrasonic imaging and animal reproduction. Book 4: Color Doppler Ultrasonography. Cross Plains, Equiservices Publishing.- KANEKO, J.J., HARVEY, J.W., BRUSS, M.L. (2008). Clinical Biochemistry of Domestic Animals, 6th Edition, Elsevier.- MEANA, A., ROJO, F.A. (2010). 87 Q&A sobre parasitología equina. Servet. Zaragoza.- RADOSTITS O.M.; GAY C.C.; HINCHCLIFF K.W.; CONSTABLE P.D. (2007). Veterinary Medicine: A textbook of the diseases of cattle, horses, sheep, pigs and goats. Saunders.- REED, S.M., BAYLY, W.M., SELLON, D.C. (2010). Equine internal medicine. Philadelphia. Saunders Co.- ROBINSON N.E., SPRAYBERRY K.A. (2008). Current Therapy in Equine Medicine, 6ed. Saunders.- SAMPER JC, PYCOCK J, MCKINNON AO. (2007). Current Therapy in Equine Reproduction. Saunders, Elsevier.- SELLON D.C., LONG M. (2006). Equine Infectious Diseases. Saunders.- SMITH, BRANDFORD. P. (2010). Medicina interna de grandes animales. Elsevier España.- STASHAK, T.S. (2010). Adam's lameness in horses. Williams and Wilkins.- STOCKHAM, S.; SCOTT, M.A. (2008). Fundamentals of Veterinary Clinical Pathology, 2nd Edition. Blackwell Publishing.- TAYLOR, M.A., COOP, R.L., WALL, R.L. (2007). Veterinary Parasitology. 3rd edition. Blackwell publishing.- VAN DE KOLK. 2012. Infectious diseases of the horse. Mason pub. London.- WEISS, D.J., WARDROP, K.J. SCHALM'S (2010). Veterinary Hematology, 6th Edition. Wiley Blackwell.- ZACHARY, J. F.; MCGAVIN, D. (2011). Pathologic Basis of Veterinary Disease. 5ª ed. Editorial Mosby Elsevier.