

**Equine Medicine and Surgery**

Code: 102620  
ECTS Credits: 7

Degree	Type	Year	Semester
2502445 Veterinary Medicine	OB	4	A

**Contact**

Name: Jordi Miro Roig  
Email: jordi.miro@uab.cat

**Use of Languages**

Principal working language: catalan (cat)  
Some groups entirely in English: Yes  
Some groups entirely in Catalan: Yes  
Some groups entirely in Spanish: No

**Other comments on languages**

75% English, 25% Spanish

**Teachers**

Jordi Miro Roig  
Maria Teresa Peña Giménez  
Marta Prades Robles  
Sònia Añor Torres  
Júlia Sanmartí Fierro  
Lucas Troya Portillo  
Frederic Climent Cot  
Eduard Gascón Bayarri  
Mireia Jordana García

**Prerequisites**

There are no official prerequisites, but it is highly recommended to have adequate knowledge of anatomy (morphology), physiology, ethology, animal husbandry, pathology, nutrition, reproduction, pharmacology, production, health and animal welfare.

The ability to observe and relate the previous knowledge of "Exploratory Methods", "Animal Health I" and "Animal Reproduction" among other subjects is very important.

**Objectives and Contextualisation**

The subject of Equine Medicine and Surgery is a compulsory subject in the fourth year. It introduces students to the knowledge of the medical and surgical treatment of diseases most common in horses, from a clinical and integrative perspective.

It includes the basics of medical conditions, feeding, management, and pathology in equine reproduction.

The educational objectives of the course are:

- Understand the basic concepts and methodology used in the study of the most common diseases of the feeding or management.
- Understanding the pathogenic mechanisms that will be the basis for a proper understanding and interpretation of various equine diseases to medical treatment or surgical pathology of reproduction.
- Make differential diagnosis from signs and lesions observed in animals.
- Learn the basics of fluid therapy and treatments applied to horses in emergency clinical situations.
- Develop a treatment plan medical and / or surgical adapted to each case.
- Develop a program of disease prevention program of medical, surgical or reproductive conditions.

This subject includes activities carried out in English, identified in this teaching guide as DA (Teaching English). One of the two theory groups will receive most of the lectures in English, and the other group will receive about 10% of teaching in English and everything else in Catalan / Spanish.

## Competences

- Analyse, synthesise and resolve problems and make decisions.
- Apply scientific method to professional practice, including medicine
- Apply the basic cures that guarantee the correct function of the reproduction cycle and the resolution of obstetric problems.
- Assess and undertake epidemiological studies and therapeutic and preventive programs in accordance with the standards of animal welfare, animal health and public health.
- Attend to emergencies and perform first aid in veterinary science.
- Comunicar la informació obtinguda durant l'exercici professional de manera fluïda, oralment i per escrit, amb altres col·legues, autoritats i la societat en general.
- Demonstrate knowledge and understanding of the general bases of medical and surgical treatments.
- Demonstrate knowledge of English to communicate both orally and in writing in academic and professional contexts.
- Diagnose different individual and collective animal diseases, and know about prevention measures, with emphasis on zoonoses and notifiable disease.
- Diagnose the most common diseases using different general and instrumental techniques.
- Have basic knowledge of the profession, and in particular of the organisation and functions of professional practice.
- Make clinical records and accurate and complete clinical exploration of animals.
- Perform basic analytical techniques and interpret the clinical, biological and chemical results, and interpret the results of tests generated by other laboratories.
- Perform the most common medical and surgical treatments of animals.
- Prescribe and dispense medicines correctly and responsibly in accordance with legislation, and ensure that the medicines and waste are stored and eliminated properly.
- Recognise when euthanasia is necessary and perform it humanely by employing the appropriate method.
- Safely perform sedations and regional and general anaesthesia, and evaluate and control the pain.
- Work effectively in single or multidisciplinary teams and show respect, appreciation and sensitivity for the work of others.

## Learning Outcomes

1. Analyse, synthesise and resolve problems and make decisions.
2. Apply scientific method to professional practice, including medicine
3. Apply specific knowledge off horse sedation to perform examinations.
4. Apply to clinical practice the knowledge acquired from the subjects of Pathology and General Surgery.
5. Communicate information obtained during professional exercise in a fluid manner, orally and in writing, with other colleagues, authorities and society in general.

6. Conduct a complete physical examination and detect disorders.
7. Conduct triage in an emergency.
8. Correct and prevent disorders of the locomotor apparatus and of other sporadic diseases.
9. Correct, regulate and prevent the most frequent metabolic and nutritional diseases.
10. Define the problems found in physical examinations or in the clinical history of an animal.
11. Demonstrate knowledge of English to communicate both orally and in writing in academic and professional contexts.
12. Describe the etiology, etiopathogeny, diagnosis and treatment of the most frequent medical and surgical diseases in small, equine and livestock animals.
13. Describe the suitable methods of euthanasia for the different species of animal and applicable standards.
14. Diagnose and solve obstetric and post- delivery problems.
15. Dispense and administer fluid to hospitalised animals.
16. Identify and prevent problems related with handling of animals that negatively affect their health.
17. Identify and recognise the medical and surgical problems associated to the male and female reproduction apparatus in different animal species.
18. Identify congenital and acquired diseases that affect the proper absorption of foods.
19. Identify disorders of the locomotor apparatus and especially those of members and hooves.
20. Identify neurological diseases and the most relevant ones that can sporadically affect the proper systemic functions of animals.
21. Identify the guidelines for vaccination and deworming applied to small animals, horses and exotic animals.
22. Identify the most frequent metabolic disorders.
23. Identify whether the quality of life of affected animals is good enough and, if it is not, identify euthanasia as an alternative humanitarian procedure.
24. Identify, treat and prevent the causes of infertility in male and females.
25. Identify, treat and prevent the causes that lead to anoestrus and alter normal cyclicity.
26. Identify, treat and prevent the problems that affect neonates.
27. Interpret and administer guidelines for the treatment of hospitalised animals.
28. Interpret basic pathological X-rays and echographies.
29. Perform a hemogram with emergency teams and defend the interpretation.
30. Practise positioning and perform X-rays in clinical cases.
31. Produce a differential diagnosis and its diagnostic plan using the available complementary techniques.
32. Produce an anamnesis report in a real practical context.
33. Properly apply hormonal treatments to the regulation and normalisation of reproduction.
34. Properly calculate medicine doses.
35. Recognise pathological changes in X-rays and echographies of simple cases and interpret them properly.
36. Work effectively in single or multidisciplinary teams and show respect, appreciation and sensitivity for the work of others.

## Content

Three of the 38 lectures will be done in English in both theory groups (EN)

Gastrointestinal section:

- Diseases of the oral cavity, pharynx and esophagus.
- Colic syndrome: predisposing factors and exploratory protocols.
- Medical colic: stomach ulcers, colon impactations, sand, or parasites. (EN)
- Medical colic: emergency treatments, shock, acid-base imbalances, coagulopathies. (EN)
- Acute diarrhea, chronic weight loss.
- Review of exploratory laparotomy and digestive anatomy.

- Basic techniques of intestinal surgery in the horse.

#### Musculoskeletal section:

- Most frequent pathologies of the inner and extremities. Approach the horse with lameness: 2 methods typical and frequent clinical cases.
- Diseases Orthopaedic growth: fisitis, OCD, angular and flexural deformities.
- Chronic laminitis.
- Ataxia in horses.
- Muscle Pathology: rhabdomyolysis.

#### Respiratory section:

- Detection of upper respiratory problems, poor athletic performance: endoscope image.
- Paper, sinusitis, guttural bags.
- Lower airway disorders: Pneumonia and pleuritis. (EN)
- Recurrent lower respiratory tract obstruction (COPD).
- Review of respiratory viral and parasitic diseases: practical approach to the field.

#### Reproductive section:

- Exploration of the mare genital tract.
- Infertility in the mare: problems forming genital tract; ovarian pathology; metritis (Post postpartum metritis persistent): control systems and pharmacologic treatment; endometriosis and syndrome of the old virgin mare.
- Monitoring of pregnancy: fetal development; placentitis
- Loss of gestation: embryonic mortality; abortion
- Exploration of the male genital tract.
- Male infertility: problems in copulation and / or obtaining semen; Semen analysis and fertility; seminal plasma and fertility; improving the quality of semen
- Obstetrics.
- Postpartum disorders: influence on subsequent fertility
- Genital Surgery: castration; ovariectomy; Caslick; vaginoplasty; cervix; Caesarea

#### Neonatology section:

- Newborn Foal: resuscitation, failure of passive transfer of immunity, hypoxic ischemic encephalopathy
- Septicemia, septic arthritis.
- Resolution of scrotal and umbilical hernia .

#### Miscellaneous:

- Hemolinfàtic anemia, piroplasmosis, lymphoma.
- Cardiology: interpretation of heart murmurs and arrhythmias in horses.
- Imaging: radiographic and ultrasonographic basic interpretation: an emphasis on osteoarthritis, OCD, tendonitis.
- Ophthalmology: Ophthalmologic examination of the particular horses, corneal ulcers and uveitis.
- Frequent Emergencies: What to do in case of injury, fracture, horse fell exhausted, traumatized horse serious horse drowning. How eutanasiar a horse safely.
- Preventive medicine: common protocols for vaccination and deworming horses to ride, high competition and stud.

***\*Unless the requirements enforced by the health authorities demand a prioritization or reduction of these contents.***

## Methodology

Learning will be taught in a combined way, with theoretical teaching taught in the form of lectures and practical teaching. This will provide the bases that students will have to expand with reading and consulting the appropriate bibliography. This teaching will also be the basis for the student to be able to expose the clinical cases adequately throughout the module to the HCV and the seminars of clinical cases.

The teaching material used in the subject will be available on the Virtual Campus platform.

Theoretical teaching - Lectures: durant the course 2020-21 lectures will be performed on-line

The lectures will be taught with the help of schematics in power point so that the student can follow the explanations. Due to the importance of the practical contents of this subject, the presentations will accompany, on many occasions, images and videos. The necessary and basic information will be given so that, afterwards, the knowledge and learning can be completed by consulting the appropriate texts.

### Practical teaching:

The practical sessions serve to apply and determine the knowledge that the students have acquired in the theory, as well as the necessary skills to carry out the most common procedures.

During the academic year 2020-21 practical teaching is foreseen both "on-site" in the Veterinary School and on-line. (complementary teaching materials will be available in "virtual campus" prior to the practical sessions)

A. Practices of clinical procedures (laboratory, meeting room Dep MCA and propaedeutics room). Two of the 9 practices will be taught in English.

1. Handling practices, hospital guidance and urgency
2. Protocols of action according to the type of clinical urgency
3. Nasogastric intubation in horses and audiovisual demonstration of different types of colic. (DA)
4. Rectal palpation, demonstration in a horse colic simulator. (DA)
5. Lameness and lameness horse examination videos
6. Ultrasound of the uterus and ovaries of the mare with slaughtering organs.

7. Complete examination of the mouth with "openings" common dental problems
8. Neurological examination in horses and videos atlastic horses
9. Ophthalmological examination and case images to discuss.

*B. Practical in-hospital work in equine medicine, equine surgery and equine reproduction:*

Practices in the HCV will be treated directly with patients who have to perform explorations, treatments or assist in simple medical and surgical procedures. Students will develop and solve cases and discuss them with their peers. These cases will be presented to students during the rounds, and later in clinical case seminars.

The students will carry out the hospitalized practices in small groups. The proposed distribution during the 1st semestre of 2020-21 if the sanitary conditions allow will be 10h of practical training in the veterinary hospital in the following services:

1. Equine Surgery
2. Equine Medicine
3. Equine Reproduction

*C. Seminars of clinical cases*

Students will present the most interesting cases that have been dealt with over a month in order to make a discussion. In these sessions directed by a teacher, the aim is to promote the ability to analyze, synthesise and integrate knowledge, as well as apply scientific evidence to professional practice.

Students have the option of presenting their clinical case in Spanish / Catalan or English. If they choose to present in English they can be rewarded with up to 10% increase in their grade of the case of clinical presentation.

*D. Field to the stables of the "Guardia Urbana", Barcelona: 2h*

At the Cuadras de la Guardia Urbana, Barcelona, near the Barcelona Zoo, horses will be checked with diseases common diseases in the field clinic (pillows, respiratory problems, etc.), and vaccination and deworming plans.

***\*The proposed teaching methodology may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.***

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Field visit to stables "Guardia Urbana"	2	0.08	21
Lectures	38	1.52	34, 8, 9, 13, 12, 14, 15, 31, 29, 22, 16, 17, 19, 18, 20, 21, 23, 26, 25, 24, 28

Practical activities of Equine Medicine and Surgery	18	0.72	3, 2, 29, 28, 32, 35
Practical in-hospital clinical activities - Veterinary Teaching Hospital	22	0.88	1, 4, 3, 33, 2, 34, 5, 8, 9, 10, 13, 12, 14, 15, 7, 31, 29, 22, 16, 17, 19, 18, 20, 21, 23, 26, 25, 24, 27, 28, 30, 6, 32, 35, 36
Seminars of clinical cases	4	0.16	2, 5
Type: Autonomous			
Study and checking bibliography	68	2.72	4, 2, 12, 22, 16, 19, 18, 20, 6, 32
preparation of clinical case	3	0.12	5
preparation of practical sessions	8	0.32	36
self-learning	10	0.4	1, 2

## Assessment

### 1. Evaluation of the theory and practical sessions:

Written exam: A written multiple choice exam will be carried out that will represent 50% of the final mark of the subject. The written exam may include some written development question (short answers). A minimum score of 5 points out of 10 will be required to be able to make average with the other qualifications and to pass the subject. The written exam will allow to evaluate the integration of theoretical knowledge with those acquired in the practical sessions of the subject, the ability to relate concepts and analysis and, in short, to show the final maturity of the student.

MISSING PRACTICAL SESSIONS WITHOUT JUSTIFICATION WILL RESULT IN 0.5 POINTS LESS IN THE FINAL GRADE.

### 2. Evaluation of hospital practices and clinical case seminars:

The attendance to all the practices will be obligatory to pass the subject.

The relevant specific and transversal competencies will be evaluated by using a simplified hospital teaching record with a minimum of 3 independent evaluations (Medicine, Surgery and Reproduction). The HCV practice mark will mean 25% of the final mark of the subject. The note of the presentation to the seminar of clinical cases will be the other 25% of the final grade of the subject. A minimum score of 4 points out of 10 will be required to be able to make the average with the other qualifications and pass the subject.

Main points in the clinical / hospital practice teaching assessment section:

1. Knowledge and integration of these
2. Ability to obtain anamnesis, oral communication in different situations and registers (colloquial vs. professional)
3. Ability to perform physical examination, taking samples, administering medications
4. Clinical judgment, common sense
5. Self-learning, interest in improving / learning

### 3. Evaluation of English:

The assessment of English computes exclusively at the level of the mark obtained in the activity carried out in this language. The bonus rate is established between "no bonus" - 10% bonus on the content note. As an orientation, the following general criteria are established:

- Does not receive bonus: Low or very little communicative ability in English. Your vocabulary is poor and you do not understand or understand very hardly what you want to express.
- 5% of the note on contents: reasonable communicative ability in English. It is understood what he wants to explain although he makes many mistakes and his vocabulary is limited.
- 10% of the note on contents: good communicative ability in English.

The teacher will be the one who ultimately will mark the final bonus that the student will receive (between the "no bonus" range - 10% on the content note)

***\*Student's assessment may experience some modifications depending on the restrictions to face-to-face activities enforced by health authorities.***

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Clinical Case presentations	25%	0	0	1, 4, 34, 10, 12, 31, 28, 6
Evaluation practical clinical activities	25%	0	0	1, 4, 3, 33, 2, 34, 5, 8, 9, 10, 13, 12, 14, 15, 7, 31, 29, 22, 16, 17, 19, 18, 20, 21, 23, 26, 25, 24, 27, 28, 30, 6, 32, 35, 36
Examination of theory	50%	2	0.08	4, 3, 33, 34, 5, 8, 9, 11, 13, 12, 14, 15, 31, 22, 16, 17, 19, 18, 20, 26, 25, 24, 27

## Bibliography

### General Equine Practice:

SPEIRS, VC (1997). Clinical examination of horses. WB Saunders Co.

ROSE, RJ i HODGSON, DR (2000). Manual of equine practice. 2<sup>nd</sup> edition. WB Saunders Co.

ROBINSON, NE (2003). Current therapy in equine medicine 5 y 6. WB Saunders Co.

BROWN, C (1989). Problems in equine medicine. Lippincott Williams & Wilkins.

### Surgery:

AUER, JA i STICK, JA (2012) Equine surgery. WB Saunders Co, Philadelphia.

### Orthopedics:

ROSS, MW i DYSON, SJ (2011). Diagnosis and management of lameness in the horse. WB Saunders Co.

### Imaging:

BUTLER J (2008) Clinical Radiology of the Horse. Blackwell Publishing.

REEF, VB (1998) Equine diagnostic ultrasound. WB Saunders Co.

### Digestive disorders:

WHITE II, NA (1990) The equine acute abdomen. Lea & Febiger.

MAIR T (2001) Manual of Equine Gastroenterology. WB Saunders Co.

### Internal Medicine:

REED, SM; BAYLY, WM i SELLON, DC (2nd ed. 2004, 3rd ed. 2009). Equine internal medicine. WB Saunders Co.

SMITH, BP (2nd ed.1999, 3rd ed.2001, 4rt ed.2009, 5th ed 2015). Large animal internal medicine. Mosby Co.

### Sports Medicine:



HINCHCLIFF, KW; KANEPS, AJ i GEOR, RJ (2004; 2nd ed 2014). Equine sports medicine and surgery. WB Saunders Co.

Neonatology:

KOTERBA, AM; DRUMMOND, WH i KOSCH, PC (1990). Equine clinical neonatology. Lea & Febiger.

KNOTTENBELT D, HOLDSTOCK N, MADIGAN J.(2004) Equine neonatal medicine and surgery. Saunders Co.

PARADIS MR.(2006) Equine Neonatal Medicine: A Case-Based Approach. Saunders Co.

Cardiology:

MARR, C (1999). Cardiology of the horse. WB Saunders Co.

PATTERSON, M (2002). Equine Cardiology. Disponibile on-line a <http://www.provet.co.uk/equinecardiology/>

Neurology:

MAYHEW, IG (1989, 2nd ed 2009). Large animal neurology. Lea & Febiger.

Pharmacology:

BERTONE J (2004). Equine clinical pharmacology. Saunders Co.

Reproduction:

SAMPER J et al (2007) Current therapy in Equine Reproduction. Saunders Co.

**Software**

NO S'UTILITZA