

Master's Degree

Internal Medicine in Large Animals





Master's Degree Internal Medicine in Large Animals

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitude.com/us/veterinary-medicine/master-degree/master-internal-medicine-large-animals



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01

Introduction

Internal Medicine in Large Animals, Equidae (Horses, Donkeys and Mules), Small Ruminants (Cattle, Sheep, Goats) and Camelids (Llamas and Alpacas), represents the main cause of consultation in daily clinical practice, requiring in-depth knowledge of the main pathologies that may be encountered in practice. On the one hand, early recognition of symptoms is essential.

On the other hand, tools are needed to establish effective treatment protocols and a realistic prognosis.

This program compiles information on all of the illnesses that can compromise the life of an animal, as well as the tools that allow us to establish treatment protocols.





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Large animals can have complex pathologies, so it is necessary to have specialized veterinarians who can treat them”

The Master's Degree in Internal Medicine in Large Animals incorporates innovative knowledge, based on the latest scientific evidence, that allows veterinary professionals to stay up-to-date on the newest treatments and emerging diseases that affect large animals across the world as a consequence of globalization.

Specialized and advanced knowledge of these diseases is necessary since outbreaks of some diseases considered eradicated or new ones may occur in all countries of the world.

Clinical practice is a very dynamic activity, new treatments are constantly appearing in scientific publications and veterinarians must be aware of them in order to be able to offer these options to their clients. Each of the modules in this Master's Degree covers one of the organ systems, with emphasis on those systems that are most frequently affected in the large animals.

With respect to ruminants, although their handling and the diseases they suffer from are different from those of horses, they must also be understood with sufficient scientific expertise to be able to establish adequate treatments and accurate prognoses.

Camelids of the new world or South America, which include mainly llamas and alpacas as domesticated animals, are animals bred for different purposes including fiber production, pack animals or meat production in South America. Horses are animals that are used both for leisure and as companion animals, as well as in different sports disciplines, which adds an important added economic value. It is essential to have a high level of knowledge in internal medicine to be able to work with these horses, since, due to their economic value, they are not readily accessible to clinicians with little training.

This Master's Degree is designed by professors with the highest recognized degree of specialization, thus guaranteeing quality in all aspects, both clinical and scientific, in large animals.

This **Master's Degree in Internal Medicine in Large Animals** contains the most complete and up-to-date educational program on the market. The most important features include:

- ♦ Practical cases presented by experts in Internal Medicine in Large Animals
- ♦ The graphic, schematic, and practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Latest innovations on Internal Medicine in Large Animals
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Special emphasis on innovative methodologies in Internal Medicine in Large Animals
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



Get trained with us and learn how to diagnose and treat diseases in large animals, in order to improve their quality of life"

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With this Master's Degree, you will learn to establish a specific clinical approach to horses with cardiac or vascular alterations”

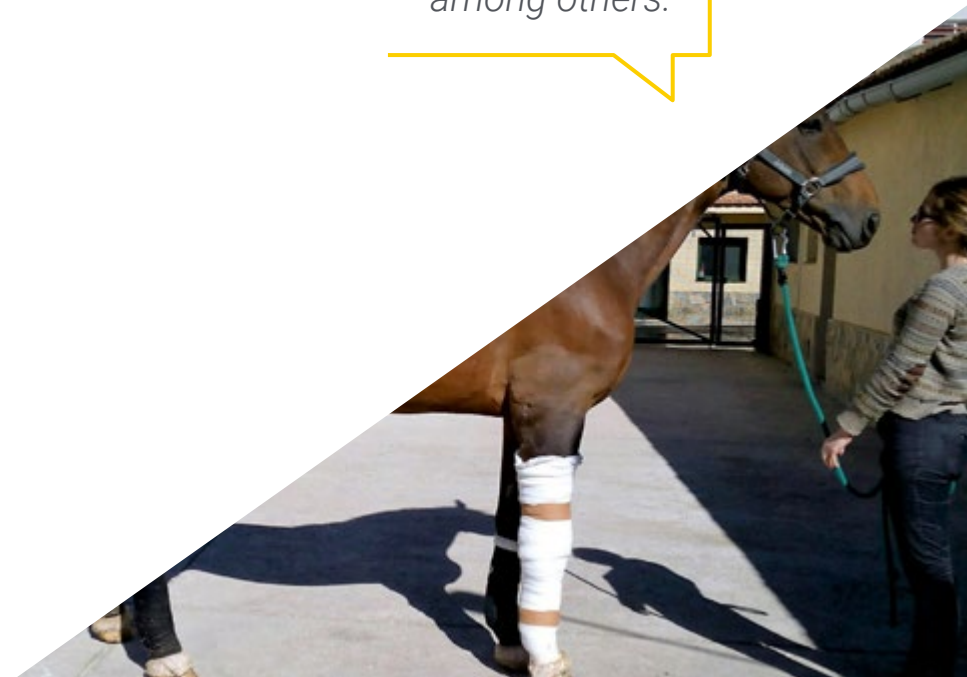
Its teaching staff includes professionals belonging to the veterinary field, who contribute their expertise to this specialization, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem-Based Learning, whereby the specialist must try to solve the different professional practice situations that arise throughout the program. For this, the professional will have the help of an innovative interactive video system made by renowned and experienced experts in Internal Medicine in Large Animals.

This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.

Thanks to this program you will be capable of establishing an appropriate methodology for the examination of a patient with urinary and renal problems, among others.



02 Objectives

The Master's Degree in Internal Medicine in Large Animals is aimed at facilitating the performance of professionals dedicated to veterinary medicine with the latest advances and most up-to-date treatments in the sector.





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You will develop specialized knowledge of the most common gastrointestinal problems in large animals with the help of experts in the subject”



General Objectives

- ♦ Generate specialized knowledge on the cardiovascular pathophysiology in large animals
- ♦ Identify all clinical signs associated with cardiovascular disease
- ♦ Design diagnostic protocols with appropriate complementary tests
- ♦ Establish the specific clinical approach to horses with a cardiac or vascular disorder
- ♦ Establish an appropriate methodology for the examination of patients with respiratory problems
- ♦ Identify all clinical signs associated with respiratory disease
- ♦ Analyze the differences between pathologies of the upper and lower airways
- ♦ Approach the main respiratory pathologies that affect large animals, their diagnosis and treatment
- ♦ Provide specialized knowledge on the most common neurological problems
- ♦ Identify all clinical signs associated with each neurological disease
- ♦ Establish the specific clinical approach for each pathology
- ♦ Determine the prognosis and the most appropriate treatment in each case
- ♦ Develop specialized knowledge on the most common gastrointestinal problems
- ♦ Identify all clinical signs associated with each disease
- ♦ Examine the physiological functioning of the urinary system
- ♦ Establish an appropriate methodology for the examination of patients with urinary and renal problems
- ♦ Identify all clinical signs associated with kidney disease
- ♦ Establish the specific clinical approach to animals with a kidney disorder
- ♦ Establish an appropriate methodology for emergency care in newborns
- ♦ Develop knowledge of the main pathologies that affect them, their diagnosis and treatment
- ♦ Establish monitoring and treatment guidelines for a hospitalized foal
- ♦ Establish a suitable methodology for animal ophthalmology examination
- ♦ Identify all clinical signs associated with ocular alterations in large animals
- ♦ Determine the specific clinical approach to patients with an ocular disorder
- ♦ Examine the complementary methods available to diagnose the main ocular alterations in large animals
- ♦ Generate specialized knowledge on the main ocular pathologies in large animals
- ♦ Analyze the general and specific treatment for the main ocular pathologies
- ♦ Generate specialized knowledge of the most common vascular problems
- ♦ Identify all clinical signs associated with each dermatological disease
- ♦ Establish the specific clinical approach for each pathology and determine the prognosis and the most appropriate treatment for each skin disease.
- ♦ Determine the importance of the endocrine pathologies in horses and their relationship with laminitis
- ♦ Generate specialized knowledge of the main endocrine pathologies in cattle, small ruminants and camelids
- ♦ Establish how to carry out correct analytical interpretation both in adult as well as geriatric and newborn animals
- ♦ Develop the basics of hemostasis and coagulation, as well as the pathologies associated with their failure



- ♦ Establish the different types of immunological reactions, as well as the diseases they cause
- ♦ Generate advanced knowledge in acid-base interpretation
- ♦ Specify the basics of fluid therapy
- ♦ Examine the clinical approach of the different infectious and parasitic diseases in large animals
- ♦ Compile the complementary methods available to diagnose the main infectious and parasitic pathologies
- ♦ Determine the general and specific treatment for the main infectious and parasitic pathologies
- ♦ Generate advanced knowledge on the prevention of the main infectious and parasitic diseases



Specific Objectives

Module 1. Alterations of the Cardiovascular System in Large Animals

- ♦ Recognize the specific anatomy, physiology and pathophysiology that underlies heart disease
- ♦ Gain in-depth knowledge of the action mechanisms of the drugs used in diseases of the heart and blood vessels
- ♦ Specify the necessary information required in clinical examination of cardiopathy patients
- ♦ Establish a work methodology for patients with murmurs and for patients with arrhythmias
- ♦ Establish diagnostic and therapeutic protocols of horses with syncope
- ♦ Study heart failure in large animals in detail

Module 2. Alterations of the Respiratory System in Large Animals

- ♦ Carry out a complete physical examination of upper and lower airways
- ♦ Examine the diagnostic procedures used in cases of suspected respiratory pathology and the interpretation of their results
- ♦ Precisely recognize the specific symptoms of upper and lower airway pathologies
- ♦ Establish the main pathologies that affect the regions of the nasal cavity, guttural pouches, pharynx and larynx
- ♦ Develop knowledge of the main diseases which affect the trachea, bronchi and lungs

Module 3. Neurological Alterations in Large Animals

- ♦ Examine the specific anatomy, physiology and pathophysiology that underlies neurological disease in large animals (ruminants, cattle, camelids and equidae)
- ♦ Identify the main diseases affecting the central and peripheral nervous system
- ♦ Specify the necessary information required in clinical examination of neurologic patients
- ♦ Locate lesions in a patient that has suffered trauma to the central nervous system
- ♦ Establish management measures and treatment protocols
- ♦ Identify horses with spinal cord compressions and establish their sporting diagnosis
- ♦ Recognize patients affected by parasitic illnesses and determine their treatment options
- ♦ Identify the patients affected with viral diseases and establish management and containment measures
- ♦ Recognize patients with neuromuscular junction disorders
- ♦ Establish prognosis and treatment options for patients with neuromuscular junction pathologies
- ♦ Establish the clinical signs of patients with congenital and degenerative alterations and the signs of patients with motor neurone alterations
- ♦ Establish treatment and prognosis steps in intoxicated patients

Module 4. Alterations of the Gastrointestinal System in Large Animals

- ♦ Develop knowledge of the main gastrointestinal pathologies that affect, cattle, small ruminants and camelids
- ♦ Recognize the clinical and laboratory signs of the main pathologies affecting the gastrointestinal system
- ♦ Develop knowledge of the main pathologies that affect the stomach
- ♦ Establish treatment protocols in treatment of horses with EGUS (Equine Gastric Ulcer Syndrome)
- ♦ Determine the origin of the problem and establish the prognosis of choking lesions
- ♦ Recognize the signs of horses with obstructive lesions and the possible steps for treatment
- ♦ Propose a treatment plan for horses with IBD
- ♦ Establish the prognosis of horses with liver problems and propose possible treatment options
- ♦ Analyze the mechanisms of endotoxemia and systemic inflammatory response syndrome
- ♦ Identify the symptoms of colitis/enteritis and propose treatment options
- ♦ Examine, in detail, the possible complications of horses with gastrointestinal alterations
- ♦ Establish action protocols to avoid complications in horses with digestive pathologies
- ♦ Gain in-depth knowledge of other, less frequent, digestive diseases such as intoxications or congenital alterations

Module 5. Alterations of the Urinary System in Large Animals

- ♦ Develop specialized knowledge of clinical examination in urinary and renal problems
- ♦ Perform renal controls to avoid renal toxicity
- ♦ Identify the alterations specific to the different renal diseases
- ♦ Establish an appropriate diagnostic plan for the main clinical manifestations of renal problems
- ♦ Correctly diagnose the different renal problems and establish a prognosis for these animals
- ♦ Determine a treatment plan, both short- and long-term, for the main urinary and renal problems

Module 6. Neonatology in Large Animals

- ♦ Determine how to perform a complete physical examination of systems in a newborn foal
- ♦ Analyze the diagnostic procedures used in neonatology and their interpretation
- ♦ Establish neonatal intensive care, care of the nursing foal, and enteral and parenteral feeding of the foal that cannot suckle
- ♦ Determine the need to carry out a cardiopulmonary resuscitation and how to do so
- ♦ Identify foals in a critical condition and establish the prognosis according to the clinical and laboratory parameters
- ♦ Examine the particularities of antibiotherapy, fluid therapy and other treatments in newborn foals
- ♦ Analyze the main pathologies affecting newborn calves, sheep, goats and camelids

Module 7. Ophthalmology in Large Animals

- ♦ Generate specialized knowledge to carry out a correct ophthalmologic examination in large animals
- ♦ Accurately recognize clinical signs of eye pain
- ♦ Establish differential diagnoses of ocular clinical signs
- ♦ Propose a working methodology for patients with corneal ulcers and/or infectious keratitis
- ♦ Determine a working methodology for the patient with stromal abscess, immune-mediated keratitis and recurrent equine uveitis
- ♦ Establish a working methodology for patients that present ocular neoplasms

Module 8. Endocrinology and Dermatology in Large Animals

- ♦ Identify the main pathologies affecting the skin
- ♦ Analyze the origin of the problem and establish the prognosis of dermatitis
- ♦ Recognize the clinical and laboratory signs of the main dermatological diseases
- ♦ Determine the symptoms of skin diseases of fungal and parasitic origin and propose therapeutic options
- ♦ Establish the symptoms of allergic and immune-mediated skin diseases and propose therapeutic options
- ♦ Examine the different types of skin neoplasms, propose an appropriate treatment and determine the prognosis
- ♦ Identify the symptoms of other skin diseases as well as their prognosis and treatment options

- ♦ Gain sound knowledge of the diagnostic procedures used in endocrinology and their interpretation
- ♦ Determine the endocrine influence in certain disorders attributed, in principle, to other etiologies: laminitis, sepsis, decreased performance, bone pathologies in horses
- ♦ Establish the main endocrine pathologies that can be found in both adult horses and neonates, how to diagnose them and how to treat them
- ♦ Establish a working methodology for cattle, small ruminants and camelids with ocular neoplasia

Module 9. Laboratorial Diagnosis in Equidae. Alterations of the Hematopoietic System and Immunology in Large Animals

- ♦ Develop an advanced methodology to carry out a correct diagnosis of red series and white series alterations
- ♦ Identify and implement the necessary therapy in case of coagulation disorders
- ♦ Perform basic cytological interpretation of blood smears, peritoneal fluid and cerebrospinal fluid
- ♦ Perform a correct interpretation of analytical tests with biochemical alterations in adults and foals
- ♦ Identify and treat immune-mediated pathologies
- ♦ Carry out a complete analysis of the state of the acid-base in a critical patient
- ♦ Implement an appropriate fluid therapy plan based on the patient's imbalances



Módulo10. Infectious and Parasitic Diseases in Large Animals

- ♦ Identify the main infectious diseases that affect large animals
- ♦ Establish differential diagnosis of the clinical signs in the main infectious pathologies in big animals
- ♦ Propose a work methodology for the patient with infectious alterations
- ♦ Provide specialized knowledge to treat and prevent the main infectious pathologies in large animals
- ♦ Identify the clinical signs of parasitic diseases that affect large animals
- ♦ Gain sound knowledge of the diagnostic procedures used in parasitology and their interpretation
- ♦ Determine a theoretical and practical methodology for patients with parasitic diseases
- ♦ Provide specialized knowledge to establish parasite control and management programs in large animals



Join one of the largest online universities in the world"

03 Skills

After passing the assessments in the Master's Degree in Internal Medicine in Large Animals, the professional will have acquired the skills required for quality and up-to-date practice based on the most innovative teaching methodology.



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*This program will help you acquire the skills
you need to excel in your daily work"*



General Skills

- ♦ Identify all clinical signs associated with cardiovascular disease
- ♦ Analyze the differences between pathologies of the upper and lower airways
- ♦ Identify all clinical signs associated with each neurological disease
- ♦ Develop specialized knowledge on the most common gastrointestinal problems
- ♦ Identify all clinical signs associated with kidney disease
- ♦ Establish an appropriate methodology for emergency care in newborns
- ♦ Identify all clinical signs associated with ocular alterations in large animals
- ♦ Analyze the general and specific treatment for the main ocular pathologies
- ♦ Establish the specific clinical approach for each pathology and determine the prognosis and the most appropriate treatment for each skin disease
- ♦ Develop the basics of hemostasis and coagulation, as well as the pathologies associated with their failure
- ♦ Compile the complementary methods available to diagnose the main infectious and parasitic pathologies





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*Take the step to get up to date
on the latest developments
in Internal Medicine in Large
Animals”*

04

Course Management

The program's teaching staff includes leading experts in Internal Medicine in Large Animals who contribute their vast work experience to this academic program. Renowned professionals have joined forces to offer you this high-level program.



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Our team of teachers, experts in Internal Medicine in Large Animals, will help you reach success in your profession"

Management



Dr. Martín Cuervo, María

- Doctor of Veterinary Medicine from the University of Extremadura. Doctoral thesis on Inflammation Markers in Horses in a Critical Condition, 2017
- Degree in Veterinary Medicine from the University of Cordoba
- President of the Scientific Committee in the National Congress of the Spanish Association of Equine Veterinarians (AVEE), 2020
- Member of the Scientific Committee in the International Committee of the International Purebred Spanish Horse Show (SICAB), 2020
- Veterinarian, member of the European Board of Veterinary Specialization (EBVS) and the European College of Equine Internal Medicine (ECVIM)
- Member of the Spanish Association of Equine Veterinarians (AVEE)
- Head of the Equine Internal Medicine Services in the University of Extremadura (from 2015-present)



Dr. Barba Recreo, Marta

- PhD in Biomedical Sciences, Auburn University, Alabama, USA, in 2016.
- Diplomate of the American College of Internal Medicine, Large Animal in 2015
- Degree in Veterinary Medicine from the University of Zaragoza in 2009
- Head of the Equine Internal Medicine Service, Clinical Veterinary Hospital, CEU Cardenal Herrera University, Valencia

Professors

Dr. Díez de Castro, Elisa

- ♦ PhD Veterinary Medicine from the University of Cordoba Doctoral thesis in Equine Endocrinology in 2015
- ♦ Graduate of the European College of Equine Internal Medicine (ECEIM)
- ♦ Degree in Veterinary Medicine from the University of Cordoba
- ♦ Associate Professor of the Animal Medicine and Surgery Department at the University of Cordoba for the training and evaluation of the supervised internship (rotatory) of the fifth year students of the veterinary degree
- ♦ Equine Internal Medicine Service at Clinical Veterinary Hospital at the University of Cordoba

Dr. Viu Mella, Judit

- ♦ Cum Laude PhD in Animal Medicine and Health from the Autonomous University of Barcelona in 2013.
- ♦ Outstanding award for the thesis "Desequilibrios ácido-base en potros recién nacidos y caballos adultos evaluados por el enfoque cuantitativo." (Acid-base imbalances in newborn foals and adult horses evaluated by quantitative approach)
- ♦ Diplomate of the American College of Internal Equine Medicine in 2019
- ♦ Degree in Veterinary Medicine from the Autonomous University of Barcelona 2003
- ♦ Member of the Spanish Association of Specialist Veterinarians (AVEDE)
- ♦ Equine Internal Medicine and Anesthesia Services in the Sierra de Madrid Veterinary Hospital
- ♦ Anesthetist in the equine unit of the UAB Veterinary Clinical Hospital (May 2007 to August 2018)

Dr. Villalba Orero, María

- ♦ Doctor in Veterinary Medicine, Madrid Complutense University. Doctoral thesis in Equine Anesthesia in 2014
- ♦ Degree in Veterinary Medicine from the Complutense University Madrid
- ♦ Associate Professor in the Department of Animal Medicine and Surgery at the Complutense University Madrid, with teaching experience in equine internal medicine, specializing in cardiology, since 2017
- ♦ Professor of Pathophysiology at the Alfonso X el Sabio University (2014- 2017)
- ♦ Scientific advisor of cardiovascular and pulmonary ultrasound in the National Center of Cardiovascular Research Since 2017
- ♦ Private Equine Cardiology Service, working throughout Spain, since 2008.

Dr. Medina Torres, Carlos E.

- ♦ PhD in Veterinary Sciences from the University of Guelph, Ontario, Canada, 2009
- ♦ Diploma from the American College of Internal Medicine, specializing in Large Animals and from the European College of Equine Internal Medicine
- ♦ PhD from the University of Queensland, Australia, 2015
- ♦ 2017- Senior Lecturer and Clinical Specialist in Internal Medicine at the University of Queensland, Australia

05

Structure and Content

The structure of the content has been designed by the best professionals in the field of Internal Medicine in Large Animals, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied, and diagnosed, and with extensive knowledge of new technologies applied to veterinary medicine.



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We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too"

Module 1. Alterations of the Cardiovascular System in Large Animals

- 1.1. Cardiovascular Anatomy and Clinical Pathophysiology
 - 1.1.1. Embryonic Development and Anatomy of the Heart
 - 1.1.2. Fetal Circulation
 - 1.1.3. Cardiac Cycle
 - 1.1.4. Ion Channels and Action Potentials
 - 1.1.5. Neurohormonal Control of the Heart
 - 1.1.6. Arrhythmogenic Mechanisms
- 1.2. Cardiovascular Examination
 - 1.2.1. Medical History
 - 1.2.2. Cardiovascular Examination
- 1.3. Diagnostic Tests
 - 1.3.2. Tensiometry
 - 1.3.3. Electrocardiography
 - 1.3.4. Echocardiography
 - 1.3.5. Vascular Ultrasound
- 1.4. Congenital and Valvular Heart Disease in Horses
 - 1.4.1. Ventricular Septal Defect
 - 1.4.2. Tetralogy of Fallot
 - 1.4.3. Patent Ductus Arteriosus
 - 1.4.4. Aortic Insufficiency
 - 1.4.5. Mitral Insufficiency
 - 1.4.6. Tricuspid Regurgitation
- 1.5. Arrhythmias in Horses
 - 1.5.1. Supraventricular Arrhythmias
 - 1.5.2. Ventricular Arrhythmias
 - 1.5.3. Conduction Disturbances
- 1.6. Pericarditis, Myocarditis, Endocarditis and Vascular Alterations in Horses
 - 1.6.1. Pericardial Disorders
 - 1.6.2. Myocardial Disorders
 - 1.6.2.1. Endocardial Disorders
 - 1.6.2.2. Aorto-Cardiac and Aorto-Pulmonary Fistulas
- 1.7. Cardiovascular Diseases in Cattle
 - 1.7.1. Examination of the Cardiovascular System in Cattle
 - 1.7.2. Congenital Cardiovascular Pathologies
 - 1.7.3. Arrhythmias
 - 1.7.4. Heart Failure and Cor Pulmonale
 - 1.7.5. Valvular and Endocardial Diseases
 - 1.7.6. Myocardial Diseases and Cardiomyopathies
 - 1.7.7. Pericardial Diseases
 - 1.7.8. Thrombosis and Embolism
 - 1.7.9. Neoplasia
- 1.8. Cardiovascular Diseases in Small Ruminants
 - 1.8.1. Examination of the Cardiovascular System in Small Ruminants
 - 1.8.2. Congenital Cardiovascular Pathologies
 - 1.8.3. Acquired Cardiovascular Pathologies
 - 1.8.4. Toxic Cardiopathies or Due to Nutritional Deficiencies
 - 1.8.5. Vascular Diseases
- 1.9. Cardiovascular Diseases in Camelids
 - 1.9.1. Examination of the Cardiovascular System in Camelids
 - 1.9.2. Congenital Cardiovascular Pathologies
 - 1.9.3. Acquired Cardiovascular Pathologies
 - 1.9.4. Toxic Cardiopathies or Due to Nutritional Deficiencies
 - 1.9.5. Anemia, Polycythemia and Erythrocytosis
 - 1.9.6. Neoplasia



- 1.10. Cardiovascular Pharmacology
 - 1.10.1. Vasodilators
 - 1.10.2. Positive Inotropes
 - 1.10.3. Diuretics
 - 1.10.4. Antiarrhythmics
 - 1.10.5. Treatment of Heart Failure

Module 2. Alterations of the Respiratory System in Large Animals

- 2.1. Clinical Examination and Main Diagnostic Techniques of the Upper Respiratory Tract
 - 2.1.1. Anamnesis and General Physical Examination
 - 2.1.2. Examination of Upper Respiratory Tract
 - 2.1.3. Endoscopy at Rest
 - 2.1.4. Dynamic Endoscopy
 - 2.1.5. Ultrasound and Radiography of Upper Respiratory Tract
 - 2.1.6. Culture and Antibigram
- 2.2. Clinical Examination and Main Diagnostic Techniques of the Lower Respiratory Tract
 - 2.2.1. Examination of Lower Respiratory Tract
 - 2.2.2. Thoracic Ultrasound Scan
 - 2.2.3. Thoracic Radiography
 - 2.2.4. Sample Collection: Tracheal Aspirate, Bronchoalveolar Lavage and Thoracocentesis
 - 2.2.5. Arterial Blood Gases
 - 2.2.6. Pulmonary Function Tests
 - 2.2.7. Pulmonary Biopsy
- 2.3. Diseases of the Upper Respiratory Tract in Horses
 - 2.3.1. Ethmoidal Hematoma
 - 2.3.2. Sinusitis
 - 2.3.3. Sinus Cysts
 - 2.3.4. Guttural Pouch Pathologies: Tympanism, Mycosis, Empyema
 - 2.3.5. Lymphoid Hyperplasia
 - 2.3.6. Epiglottic Entrapment
 - 2.3.7. Pharyngeal Collapse
 - 2.3.8. Dorsal Displacement of the Soft Palate
 - 2.3.9. Recurrent Laryngeal Papillomatosis

- 2.3.10. Arytenoid Chondritis
- 2.3.11. Rostral Displacement of Palatopharyngeal Arch
- 2.4. Equine Respiratory Viruses
 - 2.5.1. Influenza
 - 2.4.2. Herpesvirus
 - 2.4.3. Other Respiratory Viruses
- 2.5. Exercise-Induced Pulmonary Hemorrhage in Horses
 - 2.5.1. Clinical Signs
 - 2.5.2. Pathogenesis.
 - 2.5.3. Diagnosis
 - 2.5.4. Treatment
 - 2.5.5. Prognosis
- 2.6. Pleuropneumonia and Bacterial Pneumonia in Equidae
 - 2.6.1. Clinical Signs
 - 2.6.2. Pathogenesis.
 - 2.6.3. Diagnosis
 - 2.6.4. Treatment
 - 2.6.5. Prognosis
- 2.7. Severe or Acute Asthma in Equidae
 - 2.7.1. Clinical Signs
 - 2.7.2. Pathogenesis.
 - 2.7.3. Diagnosis
 - 2.7.4. Treatment
 - 2.7.5. Prognosis
- 2.8. Respiratory Pathologies in Cattle
 - 2.8.1. Examination of the Respiratory System in Cattle
 - 2.8.2. Alterations in the Upper Respiratory Tract
 - 2.8.3. Bovine Respiratory Syndrome
 - 2.8.4. Interstitial Pneumonia and Other Causes of Pneumonia in Bovines
 - 2.8.5. Alterations of the Thoracic Cavity
- 2.9. Respiratory Pathologies in Small Ruminants
 - 2.9.1. Examination of the Respiratory System in Sheep and Goats
 - 2.9.2. Alterations in the Upper Respiratory Tract
 - 2.9.3. Pneumonia

- 2.9.4. Alterations of the Thoracic Cavity
- 2.10. Respiratory Pathologies in Camelids
 - 2.10.1. Examination of the Respiratory System in Camelids
 - 2.10.2. Alterations in the Upper Respiratory Tract
 - 2.10.3. Pneumonia and Other Pulmonary and Thoracic Pathologies
 - 2.10.4. Neoplasty.

Module 3. Neurological Alterations in Large Animals

- 3.1. Neurological Examination and Main Diagnostic Tests
 - 3.1.1. Clinical Examination and Clinical Signs
 - 3.1.2. Dynamic Evaluation and Locating the Lesion
 - 3.1.3. Diagnostic Tests: Cerebrospinal Fluid Extraction and Analysis
 - 3.1.4. Other Diagnostic Tests
- 3.2. Epilepsy, Convulsions, Congenital and Degenerative Diseases in Horses
 - 3.2.1. Epilepsy and Convulsions
 - 3.2.2. Sleep Disorders
 - 3.2.3. Cerebellar Abiotrophy
 - 3.2.4. *Shivers*
 - 3.2.5. Degenerative Myeloencephalopathy
 - 3.2.6. Polineuritis
- 3.3. Central Nervous System Trauma and Vestibular Syndrome in Equidae
 - 3.3.1. Cerebral Trauma
 - 3.3.2. Spinal Cord Trauma
 - 3.3.3. Vestibular Syndrome
- 3.4. Compressive Diseases of the Spinal Cord in Horses
 - 3.4.1. Pathogenesis and Clinical Signs
 - 3.4.2. Diagnosis
 - 3.4.3. Treatment and Prognosis
- 3.5. Viral Diseases That Affect the Central Nervous System (CNS) in Equidae
 - 3.5.1. Equine Herpesvirus Myeloencephalopathy
 - 3.5.2. Togavirus Encephalitis
 - 3.5.3. West Nile Virus Encephalitis
 - 3.5.4. Rabies

- 3.5.5. Bornavirus and Other Viral Encephalitides
- 3.6. Other Diseases that Affect the CNS
 - 3.6.1. Equine Motor Neurone Disease (EMND)
 - 3.6.2. Grass Sickness (Equine Dysautonomia)
 - 3.6.3. Neoplasms
 - 3.6.4. Metabolic Alterations That Cause Neurological Symptomology
 - 3.6.5. Toxins
 - 3.6.6. *Headsaking*
 - 3.6.7. Lyme Disease
- 3.7. Tetanus and Botulism
 - 3.7.1. Tetanus
 - 3.7.2. Botulism
- 3.8. Bovine Neurological Diseases
 - 3.8.1. Examination of the Nervous System in Cattle
 - 3.8.2. Alterations that Mainly Affect the Brain in Cattle
 - 3.8.3. Alterations that Mainly Affect the Brainstem in Cattle
 - 3.8.4. Alterations that Mainly Affect the Cerebellum in Cattle
 - 3.8.5. Alterations that Mainly Affect the Spinal Cord in Cattle
 - 3.8.6. Alterations that Mainly Affect the Peripheral Nerves in Cattle
- 3.9. Neurological Diseases in Small Ruminants
 - 3.9.1. Examination of the Nervous System in Sheep and Goats
 - 3.8.2. Alterations that Mainly Affect the Brain in Small Ruminants
 - 3.8.3. Alterations that Mainly Affect the Brainstem in Small Ruminants
 - 3.8.4. Alterations that Mainly Affect the Cerebellum in Small Ruminants
 - 3.8.5. Alterations that Mainly Affect the Spinal Cord in Small Ruminants
- 3.9. Neurological Diseases in Camelids
 - 3.9.1. Examination of the Nervous System and Diagnostic Techniques in Camelids
 - 3.9.2. Congenital Pathologies and Development of the Nervous System
 - 3.9.3. Infectious Meningoencephalitis
 - 3.9.4. Main, Non-infectious Neuropathologies
 - 3.9.5. Secondary Neuropathologies
 - 3.9.6. Myopathies and Vertebral Pathologies
 - 3.9.7. Visual and Hearing Impairments of Neurological Origin

Module 4. Alterations of the Gastrointestinal System in Large Animals

- 4.1. Clinical Examination and Diagnostic Tests
 - 4.1.1. Physical Examination
 - 4.1.2. Imaging Techniques
 - 4.1.3. Endoscopy
 - 4.1.4. Absorption and Digestion Test
 - 4.1.5. Other Tests
- 4.2. Alterations that Affect the Stomach of Equidae
 - 4.2.1. Gastric Ulcer Syndrome
 - 4.2.2. Stomach Impactions
 - 4.2.3. Other Diseases that Affect the Stomach
- 4.3. Strangulation Lesions in Horses
 - 4.3.1. Strangulation Lesions of the Small Intestine
 - 4.3.2. Strangulation Lesions of the Large Intestine
- 4.4. Obstructive Lesions in Horses
 - 4.4.1. Obstructive Lesions of the Esophagus
 - 4.4.2. Obstructive Lesions of the Small Intestine
 - 4.4.3. Obstructive Lesions of the Large Intestine
- 4.5. IBD: Inflammatory Diseases/ Malabsorption Syndrome in Equidae
 - 4.5.1. Clinical Approach
 - 4.5.2. Alimentary Lymphosarcoma
 - 4.5.3. Granulomatous Enteritis
 - 4.5.4. Eosinophilic Enterocolitis
 - 4.5.5. Lymphocytic-Plasmocytic Enterocolitis
 - 4.5.6. Proliferative Enteropathy
 - 4.5.6. Others

- 4.6. Pathologies that Affect the Liver
 - 4.6.1. Liver Disease and Liver Failure
 - 4.6.2. Clinical Signs of Liver Disease
 - 4.6.3. Acute Liver Diseases
 - 4.6.4. Chronic Liver Diseases
 - 4.6.5. Vascular and Congenital Diseases
- 4.7. Colitis, Enteritis and Peritonitis
 - 4.7.1. Colitis
 - 4.7.2. Enteritis
 - 4.7.3. Treatment Options for Horses With Acute Diarrhea
 - 4.7.4. Peritonitis
- 4.8. Gastrointestinal Alterations in Cattle
 - 4.8.1. Examination of the Gastrointestinal System in Cattle
 - 4.8.2. Alterations of the Oral Cavity
 - 4.8.3. Indigestion
 - 4.8.4. Traumatic Reticuloperitonitis
 - 4.8.5. Abomasal Displacements and Other Abomasal Alterations
 - 4.8.6. Obstructive Intestinal Alterations
 - 4.8.7. Diarrhea in Adult Cattle
- 4.9. Gastrointestinal Alterations of Small Ruminants
 - 4.9.1. Examination of the Gastrointestinal System in Small Ruminants
 - 4.9.2. Alterations of the Oral Cavity
 - 4.9.3. Indigestion and Other Pre-Stomach Disturbances
 - 4.9.5. Enterotoxemias
 - 4.9.4. Diarrhea in Adult Sheep and Goats
- 4.10. Gastrointestinal Alterations in Camelids
 - 4.10.1. Anatomy and Physiology of the Gastrointestinal Tract of Camelids
 - 4.10.2. Diagnostic Techniques
 - 4.10.3. Congenital Gastrointestinal Pathologies
 - 4.10.4. Diseases of the Oral Cavity



- 4.10.5. Diseases of the Esophagus
- 4.10.6. Pathologies of Gastric and Pre-Stomach Compartments
- 4.10.7. Enteritis and Diarrhea
- 4.10.8. Acute Abdomen and Colic
- 4.10.9. Neoplasms of the Gastrointestinal Tract

Module 5. Alterations of the Urinary System in Large Animals

- 5.1. Anatomy, Physiology and Diagnostic Tests
 - 5.1.1. Anatomy
 - 5.1.2. Physiology
 - 5.1.2.1. Elimination of Nitrogenous Components
 - 5.1.2.2. Electrolyte Removal and Recovery (Tubular Function)
 - 5.1.2.3. Water Balance
- 5.2. Hematology and Blood Biochemistry
 - 5.2.1. Urinalysis
 - 5.2.1.1. Density
 - 5.2.1.2. Test Strip
 - 5.2.1.3. Microscopy
 - 5.2.1.4. Enzimuria
 - 5.2.1.5. Excretional Fractions
 - 5.2.1.6. Cultures
 - 5.2.2. Imaging Techniques
 - 5.2.2.1. Ultrasound
 - 5.2.2.2. Radiology
 - 5.2.2.4. Endoscopy
 - 5.2.2.5. Gammagraphy
 - 5.2.3. Renal Biopsy
 - 5.2.4. Quantification of Renal Function (Clearance)
- 5.3. Acute Renal Insufficiency (ARF) in Horses
 - 5.3.1. Causes
 - 5.3.2. Pathophysiology
 - 5.3.3. Acute Tubular Necrosis
 - 5.3.4. Acute Interstitial Nephritis
 - 5.3.5. Acute Glomerulonephritis
 - 5.3.6. Diagnosis
 - 5.3.7. Treatment
 - 5.3.8. Prognosis
- 5.4. Chronic Renal Insufficiency in Horses
 - 5.4.1. Predisposing Factors
 - 5.4.2. Glomerulonephritis
 - 5.4.3. Acute Interstitial Nephritis
 - 5.4.4. Other Causes
 - 5.4.5. Diagnosis
 - 5.4.6. Treatment
 - 5.4.7. Prognosis
- 5.5. Renal Tubular Acidosis in Horse
 - 5.5.1. Pathophysiology
 - 5.5.2. Type 1
 - 5.5.3. Type 2
 - 5.5.4. Type 3
 - 5.5.5. Quantitative/ Traditional Approximation of Imbalances
 - 5.5.6. Diagnosis
 - 5.5.7. Treatment
- 5.6. Investigation and Differential Diagnosis of Polyuria/Polydipsia
 - 5.6.1. Diagnostic Protocol
 - 5.6.2. Causes
 - 5.6.2.1. Renal Insufficiency
 - 5.6.2.2. Cushing

- 5.6.2.3. Primary Polydipsia
 - 5.6.2.4. Excessive Consumption of Salt
 - 5.6.2.5. Diabetes Insipidus
 - 5.6.2.6. Diabetes Mellitus
 - 5.6.2.7. Sepsis
 - 5.6.2.8. Iatrogenic
- 5.7. Investigation and Differential Diagnosis of Pigmenturia (Renal Hemorrhage, Urolithiasis, Urethritis)
 - 5.7.1. Urethritis/Urethral Defects
 - 5.7.2. Cystitis
 - 5.7.3. Pyelonephritis
 - 5.7.4. Urolithiasis
 - 5.7.4.1. Urethral Calculi
 - 5.7.4.2. Bladder Stones
 - 5.7.5. Idiopathic Renal Hematuria
 - 5.7.6. Hematuria Associated with Exercise
 - 5.7.7. Pigmenturia Caused by Systemic Pathology
- 5.8. Genitourinary Diseases in Cattle
 - 5.8.1. Congenital Genitourinary Pathologies
 - 5.8.2. Kidney Damage and Failure
 - 5.8.3. Other Diseases of the Kidneys
 - 5.8.4. Diseases of the Urethra, Bladder and Urethra
- 5.9. Genitourinary Diseases in Small Ruminants
 - 5.9.1. Congenital Genitourinary Pathologies
 - 5.9.2. Kidney Damage and Failure
 - 5.9.3. Other Diseases of the Kidneys
 - 5.9.4. Urinary Obstruction.
 - 5.9.5. Diseases of the Urethra, Bladder and Urethra

- 5.10. Genitourinary Diseases in Camelids
 - 5.10.1. Congenital Genitourinary Pathologies
 - 5.10.2. Kidney Damage and Failure
 - 5.10.3. Other Diseases of the Kidneys
 - 5.10.4. Urinary Obstruction.
 - 5.10.5. Diseases of the Urethra, Bladder and Urethra
 - 5.10.6. Neoplasty.

Module 6. Neonatology in Large Animals

- 6.1. Clinical Approach to Newborn Foals
 - 6.1.1. Examination of Newborn Foals
 - 6.1.2. System Evaluation
 - 6.1.3. Examination of the Mother and the Placenta
- 6.2. Septicemia in Foals
 - 6.2.1. Risk Factors
 - 6.2.2. Clinical Signs
 - 6.2.3. Diagnosis
 - 6.2.4. Treatment
 - 6.2.5. Prognosis
- 6.3. Neonatal Hypoxia Syndrome in Foals
 - 6.3.1. Etiopathogenesis
 - 6.3.2. Clinical Signs
 - 6.3.3. Diagnosis
 - 6.3.4. Treatment
 - 6.3.5. Prognosis
- 6.4. Respiratory Alterations in Newborn Foals
 - 6.4.1. Choanal Atresia
 - 6.4.2. Wry Nose
 - 6.4.3. Pneumonia

- 6.4.4. Acute Respiratory Distress Syndrom
- 6.4.5. Rib Fracture
- 6.4.6. Management of Foals With Pulmonary Pathologies
- 6.5. Genitourinary Alterations in Newborn Foals
 - 6.5.1. Patent Urachus
 - 6.5.2. Uroperitoneum
 - 6.5.3. Renal Insufficiency
 - 6.5.4. Inguinal and Scrotal Hernias
 - 6.5.5. Ectopic Urethters
- 6.6. Digestive Alterations in Newborn Foals
 - 6.6.1. Dysphagia
 - 6.6.2. Gastric Ulcer Syndrome
 - 6.6.3. Approach to Newborns With Colic
 - 6.6.4. Meconium Impaction
 - 6.6.5. Diarrhea / Enterocolitis
- 6.7. Intensive Care, Treatment and Procedures
 - 6.7.1. Monitoring of the Newborn
 - 6.7.2. Care of the Nursing Foal
 - 6.7.3. Fluid Therapy
 - 6.7.4. Food for a Sick Foal
 - 6.7.5. Antibiotherapy
 - 6.7.6. Cardiopulmonary Resuscitation
- 6.8. Main Problems in Calves
 - 6.8.1. Congenital Diseases
 - 6.8.2. Trauma and Death During Birth
 - 6.8.3. Prematurity, Dysmaturity and Neonatal Maladjustment
 - 6.8.4. Diseases and Perinatal Problems

- 6.8.5. Diseases Associated With Reproductive Biotechnologies
- 6.8.6. Failure of Transfer of Colostral Immunoglobulins
- 6.8.7. Diarrhea in Calves
- 6.9. Main Problems in New Born Small Ruminants
 - 6.9.1. Congenital Diseases
 - 6.9.2. Prematurity, Dysmaturity and Neonatal Maladjustment
 - 6.9.3. Perinatal Problems
 - 6.9.4. Gastrointestinal Tract Diseases
 - 6.9.5. Locomotor Apparatus Diseases
 - 6.9.6. Failure of Transfer of Colostral Immunoglobulins
- 6.10. Main Problems in Newborn Camelids
 - 6.10.1. Congenital Diseases
 - 6.10.2. Prematurity, Dysmaturity and Neonatal Maladjustment
 - 6.10.3. Perinatal Problems
 - 6.10.4. Gastrointestinal Tract Diseases
 - 6.10.5. Locomotor Apparatus Diseases
 - 6.10.6. Failure of Transfer of Colostral Immunoglobulins

Module 7. Ophthalmology in Large Animals

- 7.1. Anatomy and Diagnostic Tests
 - 7.1.1. Anatomy and Physiology of the Eyeball
 - 7.1.2. Optic Nerve Blocks
 - 7.1.3. Ophthalmologic examination
 - 7.1.4. Basic Diagnostic Tests
 - 7.1.5. Tonometry
 - 7.1.6. Direct and Indirect Ophthalmoscopy
 - 7.1.7. Ocular Ultrasonography
 - 7.1.8. Other Diagnostic Imaging Tests
 - 7.1.9. Electroretinography
 - 7.1.10. Sub-palpebral Catheter Placement

- 7.2. Alterations of the Eyelids, Conjunctiva and Nasolacrimal Duct in Equidae
 - 7.2.1. Anatomy of Adnexal Tissues
 - 7.2.2. Alterations of the Ocular Orbit
 - 7.2.3. Eyelid Alterations
 - 7.2.4. Alterations of the Ocular Conjunctiva
 - 7.2.5. Alterations of the Nasolacrimal Duct
- 7.3. Corneal Ulcers in Horses
 - 7.3.1. General Aspects
 - 7.3.2. Classification of Corneal Ulcers
 - 7.3.3. Simple, Complex and Severe Ulcers
 - 7.3.4. Indolent Ulcer
 - 7.3.5. Iridocoele and Ocular Perforation
 - 7.3.6. Keratomalacia (*Melting*)
- 7.4. Infectious Keratitis and Stromal Abscesses in Equidae
 - 7.4.1. Parasitic Keratitis
 - 7.4.2. Viral Keratitis
 - 7.4.3. Fungal Keratitis
 - 7.4.4. Bacterial Keratitis
 - 7.4.5. Stromal Abscess
 - 7.4.6. Corneal Surgery
- 7.5. Immune-Mediated Diseases and Idiopathic Nonulcerative Keratitis of the Cornea in Equidae
 - 7.5.1. General Aspects. Classification
 - 7.5.2. Superficial Immune-Mediated Keratitis
 - 7.5.3. Deep-Mid-Stromal Immune-Mediated Keratitis
 - 7.5.4. Endothelial Immune-Mediated Keratitis
 - 7.5.5. Other Immune-Mediated Diseases of the Cornea
- 7.6. Equine Recurrent Uveitis and Other Uveal Disorders in Equidae
 - 7.6.1. Anatomy and Physiology of the Uveal Tract
 - 7.6.2. Congenital Diseases of the Uvea
 - 7.6.3. Acute Uveitis
 - 7.6.4. Equine Recurrent Uveitis





- 7.7. Other Ocular Alterations of Equidae
 - 7.7.1. Crystalline Lens Alterations
 - 7.7.2. Alterations of the Retina and Glaucoma
 - 7.7.3. Ocular Neoplasms and the Adjacent Structures
- 7.8. Ocular Alterations in Cattle
 - 7.8.1. Infectious Keratoconjunctivitis
 - 7.8.2. Ocular Carcinoma
 - 7.8.3. Other Alterations of the Eyelids, Conjunctiva and Adjacent Tissue
 - 7.8.4. Other Ocular Alterations
- 7.9. Ocular Alterations in Small Ruminants
 - 7.9.1. Diseases of the Ocular Orbit
 - 7.9.2. Infectious Keratoconjunctivitis
 - 7.9.3. Parasitic Keratitis
 - 7.9.4. Retinal Degeneration
 - 7.9.5. Blindness
- 7.10. Ocular Alterations in Camelids
 - 7.10.1. Congenital Diseases
 - 7.10.2. Ulcerative Keratitis
 - 7.10.3. Parasitic Keratitis

Module 8. Endocrinology and Dermatology in Large Animals

- 8.1. Clinical Approach and Diagnostic Tests in Equine Dermatology
 - 8.1.1. Medical History
 - 8.1.2. Sampling and Main Diagnostic Methods
 - 8.1.3. Other Specific Diagnostic Techniques
- 8.2. Infectious, Immune-Mediated and Allergic Diseases in Horses
 - 8.2.1. Viral Diseases
 - 8.2.2. Bacterial diseases
 - 8.2.3. Fungal Diseases
 - 8.2.4. Parasitic diseases
 - 8.2.5. Hypersensitivity Reactions: Types
 - 8.2.6. Insect Sting Allergy
 - 8.2.7. Other Types of Allergies and Skin Reactions

- 8.3. Cutaneous Neoplasms in Equidae
 - 8.3.1. Sarcoids
 - 8.3.2. Melanoma
 - 8.3.3. Squamous Cell Carcinoma
 - 8.3.4. Other Skin Tumors
- 8.4. Alterations to the Thyroid and Adrenal Gland in Equidae
 - 8.4.1. Functions of the Thyroids
 - 8.4.2. Factors Affecting the Measurement of Thyroid Hormones
 - 8.4.3. Diagnostic Test for Thyroid Function
 - 8.4.4. Hypothyroidism
 - 8.4.5. Hyperthyroidism
 - 8.4.6. Neoplasms of the Thyroids
 - 8.4.7. Adrenal Insufficiency in Adults
 - 8.4.8. Adrenal Insufficiency in Foals
 - 8.4.9. Hyperadrenocorticism
 - 8.4.10. Adrenocortical Neoplasms
- 8.5. Dysfunction of the Pars Intermedia of the Pituitary in Equidae
 - 8.5.1. Etiopathogenesis
 - 8.5.2. Clinical Signs
 - 8.5.3. Diagnosis
 - 8.5.4. Treatment
- 8.6. Equine Metabolic Syndrome
 - 8.6.1. Etiopathogenesis
 - 8.6.2. Clinical Signs
 - 8.6.3. Diagnosis
 - 8.6.4. Treatment
- 8.7. Alterations in the Metabolism of Calcium, Phosphorus and Magnesium in Horses. Anhidrosis
 - 8.7.1. Alterations That Occur With Hypocalcemia
 - 8.7.2. Alterations That Occur With Hypercalcemia
 - 8.7.3. Diseases That Occur With Hypophosphatemia
 - 8.7.4. Pathologies Associated with Hyperphosphatemia
 - 8.7.5. Hypomagnesemia
 - 8.7.6. Hypermagnesemia
 - 8.7.7. Anhidrosis
- 8.8. Dermatological, Metabolic and Endocrine Alterations in Cattle
 - 8.8.1. Congenital Dermatological Pathologies
 - 8.8.2. Skin and Fur Diseases
 - 8.8.3. Diseases of the Subcutis
 - 8.8.4. Diseases of Hooves and Horns
 - 8.8.5. Cutaneous Neoplasms
 - 8.8.6. Ketosis
 - 8.8.7. Calcium, Magnesium and Phosphorous Disorders
 - 8.8.8. Other Endocrinopathies
- 8.9. Dermatological and Endocrine Alterations in Small Ruminants
 - 8.9.1. Congenital Dermatological Pathologies
 - 8.9.2. Infectious Dermatitis
 - 8.9.3. Vesicular and Mucocutaneous Junction Diseases
 - 8.9.4. Parasitic Diseases of Hair and Wool
 - 8.9.5. Caseous Lymphadenitis
 - 8.9.6. Skin and Adnexal Diseases Associated with Toxicity and Nutritional Problems
 - 8.9.7. Neoplasty.
 - 8.9.8. Pregnancy Toxemia
 - 8.9.9. Stump, Rickets
- 8.10. Dermatological and Endocrine Alterations in Camelids
 - 8.10.1. Infectious Dermatitis
 - 8.10.2. Mucocutaneous Junction Diseases
 - 8.10.3. Diseases Affecting Fiber Quality

Module 9. Laboratorial Diagnosis in Equidae. Alterations of the Hematopoietic System and Immunology in Large Animals

- 9.1. Hematology in Adult Horses: Alterations in the Red Series
 - 9.1.1. Physiology of Red Blood Cells and Platelets
 - 9.1.2. Interpretation of Alterations in the Red Series
 - 9.1.3. Iron Metabolism
 - 9.1.4. Thrombocytopenia/Thrombocytosis
 - 9.1.5. Polycythemia
 - 9.1.6. Anemia
 - 9.1.6.1. Losses: Bleeding
 - 9.1.6.2. Destruction
 - 9.1.6.2.1. Infectious and Parasitic Diseases That Cause Anemia: Piropasmosis, EIA and Other Diseases
 - 9.1.6.2.2. Immune-mediated Hemolysis
 - 9.1.6.2.3. Neonatal Isoerythrolisis
 - 9.1.6.2.4. Oxidative Damage
 - 9.1.6.3. Lack of Production
 - 9.1.6.3.1. Anemia Chronic Inflammation
 - 9.1.6.3.2. Myeloptosis/Aplasia Medular
 - 9.1.7. Physiology of the White Series
 - 9.1.7.1 Neutrophils
 - 9.1.7.2 Eosinophils
 - 9.1.7.3 Basophils
 - 9.1.7.4 Lymphocytes
 - 9.1.7.5 Mast cells
 - 9.1.7.6 Leukemias
- 9.2. Biochemistry in Adult Horses
 - 9.2.1. Renal Profile
 - 9.2.2. Liver Profile
 - 9.2.3. Acute Phase Proteins
 - 9.2.4. Muscular Profile
 - 9.2.5. Other Determinants
- 9.3. Hematology and Biochemistry in Foals/ Geriatric Horses
 - 9.3.1. Differences in Hematology
 - 9.3.2. Differences in Biochemistry
 - 9.3.2.1.Differences in Renal Function
 - 9.3.2.2 Differences in Liver Function
 - 9.3.2.3 Differences in Muscular Profile
- 9.4. Immune Response of Foals and Geriatric Horses
 - 9.4.1. Peculiarities of the Immune System of Neonatal Foals
 - 9.4.2. Evolution of the Immune Response During the First Year of Age
 - 9.4.3. Senecundity: Peculiarities of the Geriatric Immune System
- 9.5. Hypersensitivity Reactions. Immune-Mediated Diseases
 - 9.5.1. Hypersensitivity Type 1
 - 9.5.2. Hypersensitivity Type 2
 - 9.5.3. Hypersensitivity Type 3
 - 9.5.4. Hypersensitivity Type 4
 - 9.5.5. Immunocomplexes Manifestations of Immune-Mediated Diseases
- 9.6. Hemostasis Disorders
 - 9.6.1. Primary Hemostasis
 - 9.6.2. Secondary Hemostasis
 - 9.6.3. Coagulation Based on Intrinsic and Extrinsic Pathways vs. Cell-Based Coagulation Model (Initiation, Propagation and Amplification)
 - 9.6.4. Anticoagulation
 - 9.6.5. Fibrinolysis/Antifibrinolysis

- 9.6.6. Disseminated Intravascular Coagulation
- 9.6.7. Hemorrhagic Purpura
- 9.6.8. Hereditary Problems
- 9.6.9. Procoagulant and Anticoagulant Treatments
- 9.7. Basic Principles of Acid-Base Equilibrium. Fluid Therapy
 - 9.7.1. Introduction. Why is Acid-Base Equilibrium Important?
 - 9.7.2. Basic Concepts
 - 9.7.3. Protection Mechanisms: Short and Long-Term Slope Compensations
 - 9.7.4. Interpreting Methods
 - 9.7.5. Step by Step. How to Interpret the Acid-Base to Obtain Maximum Information
 - 9.7.5.1. Lactate
 - 9.7.5.2. Electrolytes
 - 9.7.5.2.1. Hypernatremia ($>145\text{mmol/l}$)
 - 9.7.5.2.2. Hyponatremia (Horse $<134\text{ mmol/l}$)
 - 9.7.5.2.3. Hyperpotassemia or Hyperkalemia ($>4,5\text{mmol/l}$)
 - 9.7.5.2.4. Hypotassemia or Hypokalemia ($<3.5\text{ mmol/l}$)
 - 9.7.5.2.5. Hyperchloremia ($>110\text{ mmol/l}$)
 - 9.7.5.2.6. Hypochloremia ($<90\text{ mmol/l}$)
 - 9.7.5.3. SIDm
 - 9.7.5.4. ATO
 - 9.7.5.5. SIG
 - 9.7.6. Classification of the Alterations
 - 9.7.7. Basic Principles of Fluid Therapy
 - 9.7.8. Body Composition of Fluids and Electrolytes
 - 9.7.9. Estimation of Dehydration
 - 9.7.10. Types of Fluid
 - 9.7.10.1. Crystalloid Solutions
 - 9.7.10.1.1. Ringer's Lactate
 - 9.7.10.1.2. Isofundin®
 - 9.7.10.1.3. Saline Solution (0.9% NaCl)
 - 9.7.10.1.4. Sterovet®
 - 9.7.10.1.5. Bicarbonate
 - 9.7.10.1.6. Glucosaline 0,3/3,6%

- 9.7.10.1.7. Hypertonic Saline Solution (7.5% NaCl)
- 9.7.10.2. Colloidal Solutions
 - 9.7.10.2.1. IsoHes®
 - 9.7.10.2.2. Plasma
- 9.8. Interpretation of Laboratory Analysis and Immunological and Hematopoietic Alterations in Cattle
 - 9.8.1. Blood Count
 - 9.8.2. Blood Biochemistry
 - 9.8.3. Allergies
 - 9.8.4. Immune-Mediated Anemia
 - 9.8.5. Thrombocytopenia
- 9.9. Interpretation of Laboratory Analysis and Immunological and Hematopoietic Alterations in Small Ruminants
 - 9.9.1. Blood Count
 - 9.9.2. Anemia and the FAMACHA System
 - 9.9.3. Blood Biochemistry
- 9.10. Interpretation of Laboratory Analysis and Immunological and Hematopoietic Alterations in Camelids
 - 9.10.1. Blood Count
 - 9.10.2. Anemia
 - 9.10.3. Blood Biochemistry

Module 10. Infectious and Parasitic Diseases in Large Animals

- 10.1. Prevention and Control of Infectious Diseases
 - 10.1.1. Laboratory Diagnostic Tests
 - 10.1.2. Antimicrobial Tests and Resistances
 - 10.1.3. Use of Vaccines
 - 10.1.4. Biosecurity and Control Measures
- 10.2. Main Infectious and Contagious Diseases in Horses
 - 10.2.1. Notifiable Diseases
 - 10.2.2. Diseases Caused by Bacteria
 - 10.2.3. Viral diseases
 - 10.2.4. Diseases Caused by Fungi

- 10.3. Main Infectious and Contagious Diseases in Cattle
 - 10.3.1. Notifiable Diseases
 - 10.3.2. Diseases Caused by Bacteria
 - 10.3.3. Viral diseases
 - 10.3.4. Diseases Caused by Fungi
 - 10.3.5. Diseases Caused by Prions
- 10.4. Main Infectious and Contagious Diseases in Small Ruminants
 - 10.4.1. Notifiable Diseases
 - 10.4.2. Diseases Caused by Bacteria
 - 10.4.3. Viral diseases
 - 10.4.4. Diseases Caused by Fungi
 - 10.4.5. Diseases Caused by Prions
- 10.5. Main Infectious and Contagious Diseases in Camelids
 - 10.5.1. Notifiable Diseases
 - 10.5.2. Diseases Caused by Bacteria
 - 10.5.3. Viral diseases
 - 10.5.4. Diseases Caused by Fungi
- 10.6. Main Parasites Affecting Horses
 - 10.6.1. Hemoparasites
 - 10.6.2. Small Strongyls or Cyathostomes
 - 10.6.3. Big Strongyls
 - 10.6.4. Ascarids
 - 10.6.5. Other Nematodes
 - 10.6.6. Cestodes
- 10.7. Main Parasites Affecting Cattle
 - 10.7.1. Hemoparasites
 - 10.7.2. Gastrointestinal Nematodes
 - 10.7.3. Nematodes That Affect the Respiratory Tract
 - 10.7.4. Cestodes
 - 10.7.5. Trematodes
 - 10.7.6. Coccidia
- 10.8. Main Parasites Affecting Small Ruminants
 - 10.8.1. Hemoparasites
 - 10.8.2. Gastrointestinal Nematodes

- 10.8.3. Nematodes That Affect the Respiratory Tract
- 10.8.4. Cestodes
- 10.8.5. Trematodes
- 10.8.6. Resistance to Anthelmintics in Small Ruminants
- 10.8.7. Management, Treatment and Control Programs (FAMACHA)
- 10.9. Main Parasites Affecting Camelids
 - 10.9.1. Hemoparasites
 - 10.9.2. Coccidia
 - 10.9.3. Nematodes
 - 10.9.4. Cestodes
- 10.10. Prevention and Treatment of Parasitic Diseases
 - 10.10.1. Diagnostic Techniques
 - 10.10.2. Therapeutic Principles
 - 10.10.2. Resistance Development
 - 10.10.3. Management and Control Programs



*This training will allow you
to advance in your career
comfortably"*

06 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.



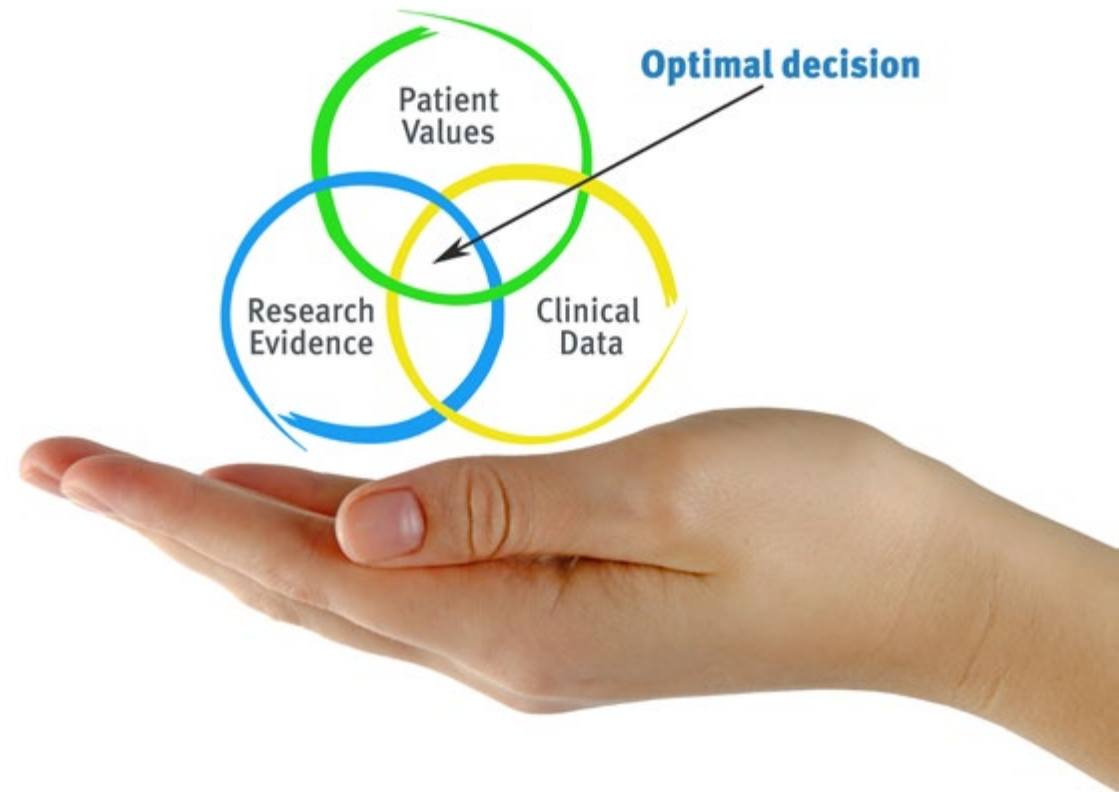
“

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.



According to Dr. Gervas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, in an attempt to recreate the actual conditions in a veterinarian's professional practice.

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Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”

The effectiveness of the method is justified by four fundamental achievements:

1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the time dedicated to working on the course.



Relearning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Veterinarians will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort
and better performance, involving you more
in your training, developing a critical mindset,
defending arguments, and contrasting opinions: a
direct equation for success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



Interactive Summaries

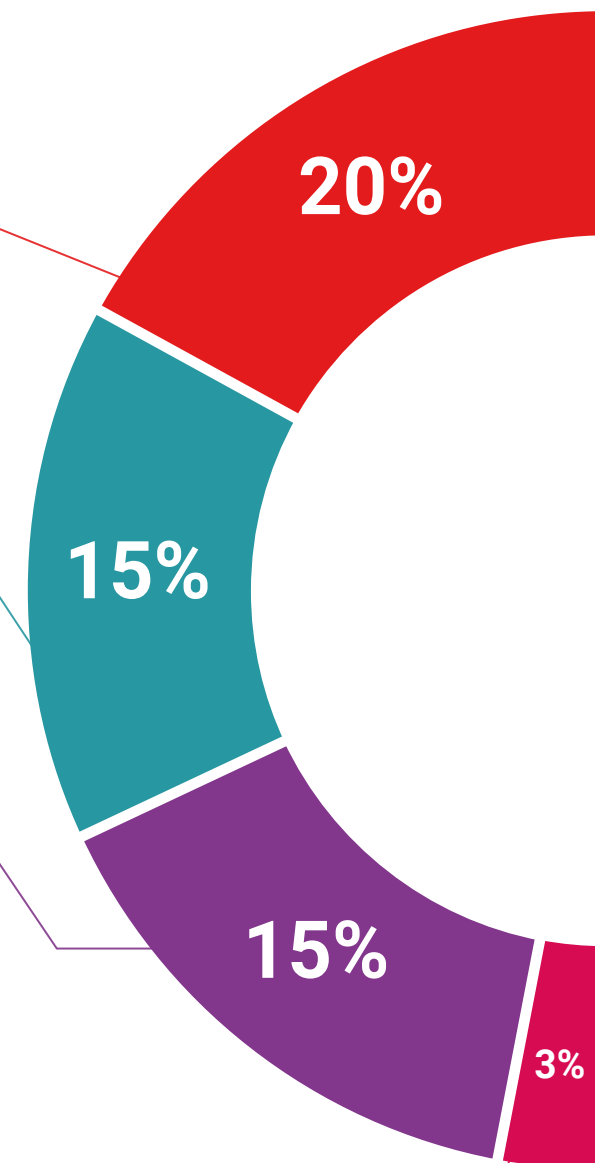
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

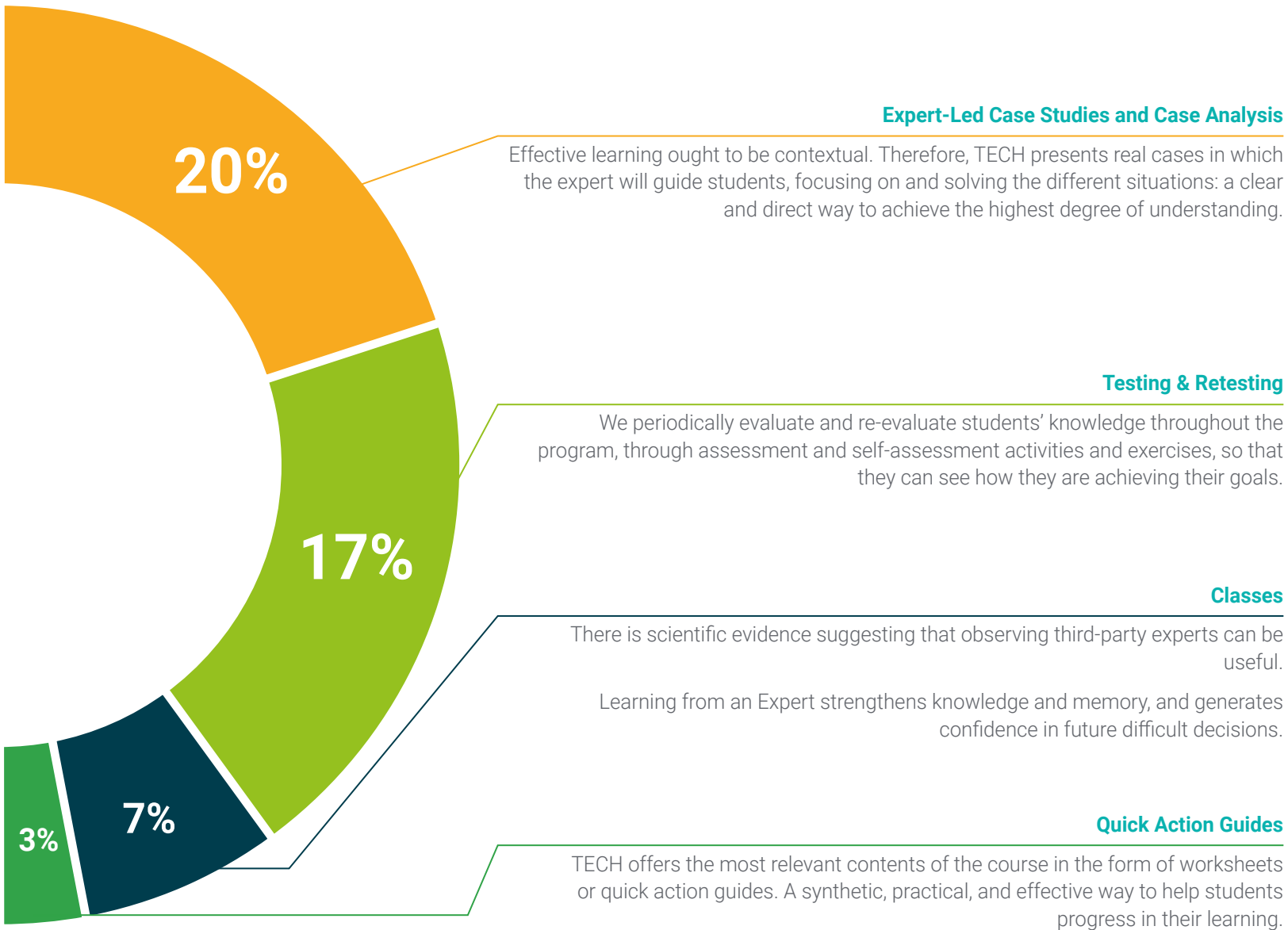
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





07 Certificate

The Master's Degree in Internal Medicine in Large Animals guarantees students, in addition to the most rigorous and up-to-date education, access to a Master's Degree issued by TECH Global University.



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Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This program will allow you to obtain your **Master's Degree diploma in Internal Medicine in Large Animals** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Master's Degree in Internal Medicine in Large Animals**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**





Master's Degree
Internal Medicine
in Large Animals

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Master's Degree Internal Medicine in Large Animals