

# Postgraduate Diploma Ruminant Internal Medicine





## Postgraduate Diploma Ruminant Internal Medicine

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/pk/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-ruminant-internal-medicine](http://www.techtute.com/pk/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-ruminant-internal-medicine)

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# 01

# Introduction

This comprehensive program offers the most complete specialization in the approach to neurological, infectious, parasitic and metabolic diseases in ruminants. A complete review of the diagnosis and treatment of these conditions that entail a high cost in production losses, with the differential considerations that this area of work develops in all its aspects. A high-quality program that will allow the student to intervene as an expert.







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*The most relevant and complex areas of ruminant internal medicine, with the most advanced concepts of intervention in this field, developed along the most up-to-date training"*

Neurological diseases are frequent in ruminants. This Postgraduate Diploma provides students with the necessary tools to identify the main neurological pathologies in cattle and small ruminants. Ruminants can develop neurological diseases, which, if unknown, are virtually impossible to diagnose.

Metabolic diseases represent one of the main causes of consultation in the ruminant clinic, being particularly important during peripartum, since metabolic problems such as puerperal hypocalcemia and ketosis in cattle, or pregnancy toxemia in small ruminants, are directly linked to endocrine function. This module will address metabolic disorders along with the accompanying endocrinopathies.

Infectious and parasitic diseases are very frequent in ruminants and have a very important implication for the management of the rest of the animals in the same farm or even for public health if they are zoonoses. In-depth knowledge of the diagnosis, treatment and prevention of these diseases is essential for the clinical veterinarian.



*Essential yet rare training for the specialist veterinary clinician that will set you apart as a specialist in this field of work"*

This **Postgraduate Diploma in Ruminant Internal Medicine** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- ◆ The latest technology in Online teaching software
- ◆ A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ◆ Practical cases presented by practising experts
- ◆ State-of-the-art interactive video systems
- ◆ Teaching supported by telepractice
- ◆ Continuous updating and recycling systems
- ◆ Autonomous learning: full compatibility with other occupations
- ◆ Practical exercises for self-assessment and learning verification
- ◆ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ◆ Communication with the teacher and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an internet connection
- ◆ Supplementary documentation databases are permanently available, even after the course has finished

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*The clinical, specialized and advanced fundamentals, based on veterinary evidence, that will allow you to face the daily intervention in cattle and ruminants”*

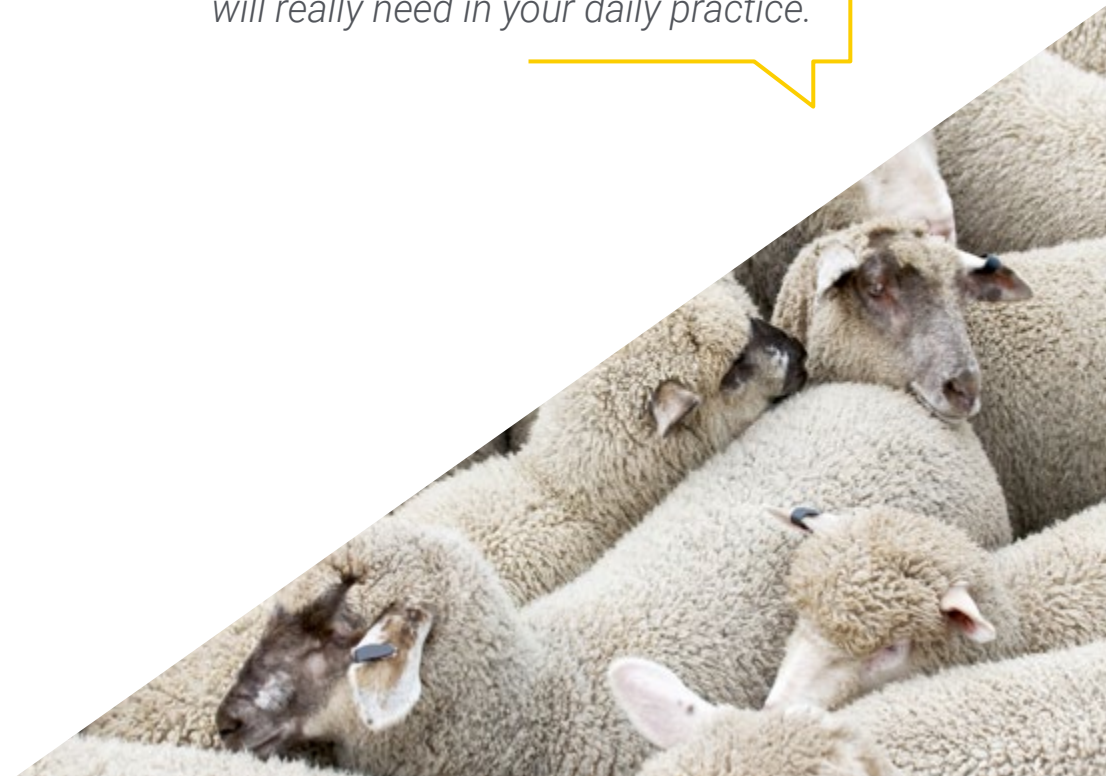
Our teaching staff is made up of professionals from different fields related to this specialty. In this way, TECH makes sure to offer professionals the up-to-date objective it intends. A multidisciplinary team of professionals trained and experienced in different environments who will develop theoretical knowledge efficiently, but, above all, will provide students with practical knowledge derived from their teaching experience: one of the differential qualities of this program.

This mastery of the subject is complemented by the effectiveness of the methodological design. Developed by a multidisciplinary team of e-Learning experts, it integrates the latest advances in educational technology. In this way, the student will be able to study with comfortable and versatile multimedia tools that will give them the operability they need in their training.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. To achieve this remotely telepractice will be used: with the help of an innovative system of interactive videos and learning from an expert you will be able to acquire the knowledge as if you were facing the case you are learning at that moment. A concept that will make it possible to integrate and fix learning in a more realistic and permanent way.

*With the experience of working professionals and the analysis of real success stories, in a high-impact training approach.*

*Supported by evidence, the approach of this program will allow you to learn in a contextual way and acquire the skills you will really need in your daily practice.*





# 02 Objectives

The completion of this Postgraduate Diploma provides the veterinary professional with specialized and advanced clinical fundamentals based on evidence to face the daily clinical practice in cattle and ruminants.

Additionally to this up-to-date approach to the problems encountered in daily clinical practice, the bibliography provided and the structuring of the topics will allow you to keep this knowledge up to date.





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*The Postgraduate Diploma in Ruminant Internal Medicine will allow the veterinary clinician to update and broaden their knowledge and skills in Ruminant Medicine and Surgery”*



## General Objectives

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- ♦ Provide specialized knowledge of the most common neurological problems in ruminants
- ♦ 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
- ♦ Address the main ocular pathologies affecting ruminants, their diagnosis and treatment
- ♦ Determine the importance of ocular diseases in ruminants
- ♦ Analyze the economic and health impact of diseases with ocular signs
- ♦ Develop screening procedures and specific treatments for ruminants that differ from other species
- ♦ Examine the main diseases and their specific treatment
- ♦ Generate specialized knowledge of the most frequent dermatological problems in cattle and small ruminants
- ♦ 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 endocrine pathologies in ruminants and their relationship with metabolic diseases of the puerperium
- ♦ Generate specialized knowledge on the main metabolic diseases in cattle and small ruminants
- ♦ Examine the clinical approach to the different infectious and parasitic diseases in ruminants
- ♦ Compile the complementary methods available to diagnose the main infectious and parasitic pathologies
- ♦ Determine the general and specific treatment of the main infectious and parasitic pathologies
- ♦ Generate advanced knowledge on the prevention of the main infectious and parasitic diseases



*Join one of the largest online universities in the world"*



## Specific Objectives

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### Module 1. Neurological and Ophthalmological Diseases

- ◆ Specify the information needed in the clinical examination of the neurological patient
- ◆ Be able to perform a neurological examination in bovines and small ruminants
- ◆ Localize lesions in a patient with a neurological disorder
- ◆ Identify the main pathologies affecting the bovine brain, brainstem, cerebellum and spinal cord
- ◆ Develop the main alterations affecting peripheral nerves in cattle
- ◆ Study the main nervous pathologies affecting small ruminants
- ◆ Examine the particular examination protocols in ophthalmology in ruminants
- ◆ Enable the student to diagnose the main ocular pathologies and their relationship with other diseases
- ◆ Determine the necessary therapeutic and/or surgical treatments for each pathology
- ◆ Establish management measures and treatment protocols for the main neurological pathologies affecting cattle and small ruminants
- ◆ Develop the main ocular pathologies affecting bovines
- ◆ Develop the main ocular pathologies affecting sheep and goats



## Module 2. Ruminant Metabolic, Endocrine and Dermatological Diseases Toxicology and Neonatology

- ◆ Identify the main pathologies affecting the skin of ruminants
- ◆ 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 infectious origin (viral, bacterial, fungal and parasitic) and propose therapeutic options
- ◆ Establish the symptoms of cutaneous and mucocutaneous diseases, and propose therapeutic and management options, and determine if it is a reportable disease
- ◆ Recognize the main cutaneous neoplasms in cattle and small ruminants, propose appropriate treatment and determine the prognosis
- ◆ Identify the clinical signs of metabolic diseases and understand the endocrinopathies associated with them, as well as their prognosis, treatment options and prevention
- ◆ Specify the diagnostic procedures used in endocrinology and their interpretation
- ◆ Recognize the main manifestations of the most frequent nutritional problems in cattle and small ruminants
- ◆ Establish management strategies to correct nutritional problems in a production system and to treat affected individuals
- ◆ Recognize the clinical manifestations of the main causes of poisoning in cattle and small ruminants
- ◆ Establish an appropriate treatment plan for animals with exposure to toxic agents







### Module 3. Ruminant Infectious and Parasitic Diseases

- ◆ Identify the main infectious diseases affecting ruminants
- ◆ Establish the differential diagnosis of the clinical signs of the main infectious and contagious pathologies in ruminants
- ◆ Propose a work methodology for patients with infectious and contagious disorders
- ◆ Provide specialized knowledge to treat and prevent the main infectious and contagious pathologies in ruminants
- ◆ Understand and identify the different realities and challenges faced by ruminants according to the type of production system in which they are involved
- ◆ Be able to identify the technical differences, advantages and disadvantages of vaccines available on the market
- ◆ Be able to, depending on the infectious challenge faced by ruminants, develop an effective, efficient and economically justifiable vaccination plan adapted to the reality of each farm
- ◆ Identify the clinical signs of parasitic diseases affecting ruminants
- ◆ Specify the diagnostic procedures used in parasitology and their interpretation
- ◆ Determine a theoretical-practical methodology for the patient with parasitic diseases
- ◆ Provide specialized knowledge to establish programs for the control and management of parasites in ruminants

03

# Course Management

Within the concept of total quality of our program, TECH is proud to provide students with a teaching staff of the highest level, chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team.

A unique opportunity to learn from the best.







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*An impressive teaching staff, made up of professionals of the highest level, will be the professors throughout the program providing the most real, close and current learning experience"*

## Management



### Dr. Ezquerra Calvo, Luis Javier

- ♦ PhD in Veterinary Medicine from the University of Extremadura (1987).
- ♦ Degree in Veterinary Medicine from the University of Zaragoza 1982
- ♦ Specialist in Applied and Experimental Animal Surgery University of Zaragoza, 1982
- ♦ Specialist in Animal Reproduction and Artificial Insemination University of Zaragoza, 1985
- ♦ Diploma of the European College of Veterinary Surgeons (Large Animals). 1998
- ♦ Presents 6 five-year teacher evaluation periods

## Professors

### Dr. Barba Recreo, Martha

- ♦ Veterinary Outpatient Equine Clinic, Gres-Hippo, St. Vincent de Mercuze, France
- ♦ Professor, researcher and clinical veterinarian in the Equine Internal Medicine Service, Faculty of Veterinary Medicine, CEU Cardenal Herrera University, Valencia
- ♦ Degree in Veterinary from the University of Zaragoza
- ♦ PhD in Biomedical Sciences, Auburn University, Alabama, USA
- ♦ Diploma of the American College of Internal Medicine, Large Animals
- ♦ Rotating internship in Equine Medicine and Surgery at the University of Lyon, VetAgro-Sup, France
- ♦ Residency in Equine Internal Medicine, J.T. Vaughan Large Animal Teaching Hospital, Auburn University, Alabama, U.S.
- ♦ Assistant Professor, Department of Animal Medicine and Surgery, Faculty of Veterinary Medicine, CEU Cardenal Herrera University, Valencia
- ♦ Professor and veterinary specialist in Equine Internal Medicine and research associate, Weipers Centre Equine Hospital, University of Glasgow, Scotland, United Kingdom

### Dr. Galapero Arroyo, Javier

- ♦ External advisor to national companies in the Agro-Livestock sector
- ♦ PhD and degree in Veterinary Medicine from the University of Extremadura
- ♦ Degree in Veterinary Medicine from the University of Extremadura
- ♦ Master's Degree in extensive livestock farming management
- ♦ Teacher in different graduate and postgraduate courses, university specialization programs and master's degrees
- ♦ Development of doctoral theses and final projects in the Veterinary Degree and as external expert evaluator and member of the tribunal of different doctoral theses
- ♦ Reviewer of scientific articles in three journals indexed in the Journal Citation Report (JCR)



**Dr. Delpón, Héctor Santo-Tomás**

- ◆ Degree in Veterinary from the University of Zaragoza
- ◆ Degree in Veterinary Medicine from the University of Zaragoza with specializations in Clinical and Animal Production
- ◆ Postgraduate studies at the University of Liverpool, UK for the Certificate in Advanced Veterinary Practice (CertAVP)
- ◆ Volunteer in Mozambique to train local livestock farmers in milk production

**Dr. Medina Torres, Carlos E.**

- ◆ Veterinarian from the National University of Colombia
- ◆ Assistant Professor and Internal Medicine Specialist, School of Veterinary Medicine, Faculty of Science, University of Queensland
- ◆ PhD in Veterinary Science from the University of Guelph, Ontario
- ◆ Master's Degree of Science, University of Liverpool, England
- ◆ Diploma of the American College of Internal Medicine in the specialty of Large Animals and of the European College of Internal Medicine
- ◆ Certificate in University Teaching Practice (CUTP) from The University of Queensland
- ◆ PhD at the University of Queensland
- ◆ Assistant and Clinical Professor of Large Animal Internal Medicine at the Large Animal Clinic, Faculty of Veterinary Medicine and Animal Husbandry, National University of Colombia
- ◆ Research Associate in Sports Physiology at the Department of Morphology, Anatomy, Physiology and Pathology of the University of Messina, Italy
- ◆ Tutor, Teaching Assistant and Professor in Anatomy, Physiology, Internal Medicine of Production Animals and Internal Medicine and Surgery of Companion Animals
- ◆ Assistant Professor, Research Associate and Director of the Equine Herpesvirus Research Laboratory at the University of California, Berkeley, USA
- ◆ Equivalent to Senior Lecturer and Clinical Specialist in Internal Medicine at the University of Queensland, Australia

**Dr. Soler Rodríguez, Francisco**

- ◆ Professor of Toxicology at the Department of Animal Health Medicine of the University of Extremadura in Cáceres
- ◆ PhD in Veterinary Medicine from the University of Córdoba, doing his doctoral thesis on veterinary plant toxicology at the Department of Pharmacology and Toxicology of the Faculty of Veterinary Medicine of Córdoba
- ◆ Degree in Veterinary Medicine from the University of Córdoba ( Degree thesis on plant intoxication)
- ◆ All his teaching experience has been focused on veterinary Toxicology, starting as a collaborator in the Department of Pharmacology and Toxicology of the Faculty of Veterinary Medicine of Córdoba during the academic year 1984/85
- ◆ Since 1987, the subjects of Veterinary Toxicology and Veterinary Law and Deontology have been taught in the Bachelor's Degree and later in the Degree in Veterinary Medicine in University of Extremadura
- ◆ In addition to teaching graduate courses, he also teaches in different postgraduate courses and university specialization master's degrees



*The leading professionals in the field have come together to offer you the most comprehensive knowledge in this field, so that you can develop with total guarantees of success"*

# 04

# Structure and Content

The contents have been developed by the different experts of this program with with a clear purpose: to ensure that students acquire each and every one of the skills necessary to become true experts in this field.

A very complete and well-structured program that will lead the student to the highest standards of quality and success.







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*A comprehensive teaching program,  
structured in well-developed teaching units,  
oriented towards learning that is compatible  
with your personal and professional life"*

## Module 1. Neurological and Ophthalmological Diseases

- 1.1. Neurological Examination and Main Diagnostic Tests: in Bovines
  - 1.1.1. Clinical Examination and Clinical Signs
  - 1.1.2. Dynamic Assessment and Localization of the Lesion
  - 1.1.3. Diagnostic Tests: Cerebrospinal Fluid Extraction and Analysis
  - 1.1.4. Other Diagnostic Tests
- 1.2. Alterations Mainly Affecting the Brain in Bovines
  - 1.2.1. Polioencephalomalacia
  - 1.2.2. Other Causes. Bovine Spongiform Encephalopathies
  - 1.2.3. Viral Disorders
    - 1.2.3.1. Rabies
    - 1.2.3.2. Bovine Herpesvirus Encephalomyelitis
    - 1.2.3.3. Aujeszky's Disease
    - 1.2.3.4. Other Viruses
  - 1.2.4. Bacterial Disorders
    - 1.2.4.1. Bacterial Meningitis
    - 1.2.4.2. Pituitary Abscess
    - 1.2.4.3. Others
  - 1.2.5. Parasitic Disorders
    - 1.2.5.1. Nervous Coccidiosis
    - 1.2.5.2. Others
  - 1.2.6. Intoxications
    - 1.2.6.1. Urea Toxicity
    - 1.2.6.2. Others
- 1.3. Disorders Mainly Affecting the Brainstem in Bovines
  - 1.3.1. Listeriosis
  - 1.3.2. Thromboembolic Meningoencephalitis
  - 1.3.3. Otitis Media/Internal
  - 1.3.4. Others
- 1.4. Disorders Mainly Affecting the Cerebellum in Bovines
  - 1.4.1. Bovine Viral Diarrhea Virus (BVDV)
  - 1.4.2. Tremorgenic Toxins
  - 1.4.3. Others
- 1.5. Alterations Mainly Affecting the Spinal Cord in Bovines
  - 1.5.1. Spinal Lymphoma
  - 1.5.2. Vertebral Osteomyelitis
  - 1.5.3. Trauma
  - 1.5.4. Spastic Paresis
  - 1.5.5. Spastic Paralysis
  - 1.5.6. Botulism
  - 1.5.7. Tetanus
  - 1.5.8. Aberrant Parasitic Migration
  - 1.5.9. Others
- 1.6. Alterations Mainly Affecting the Peripheral Nerves in Bovines
  - 1.6.1. Suprascapular Nerve
  - 1.6.2. Radial Nerve
  - 1.6.3. Femoral Nerve
  - 1.6.4. Sciatic Nerve
  - 1.6.5. Obturator Nerve
  - 1.6.6. Downer Cow Syndrome
- 1.7. Neurological Examination and Main Diagnostic Tests in Small Ruminants
  - 1.7.1. Clinical Examination and Clinical Signs
  - 1.7.2. Dynamic Assessment and Localization of the Lesion
  - 1.7.3. Diagnostic Tests: Cerebrospinal Fluid Extraction and Analysis
  - 1.7.4. Other Diagnostic Tests
- 1.8. Small Ruminant Neurological Disorders
  - 1.8.1. Disorders Mainly Affecting the Brain in Small Ruminants
  - 1.8.2. Disorders Mainly Affecting the Brainstem in Small Ruminants
  - 1.8.3. Disorders Mainly Affecting the Cerebellum in Small Ruminants
  - 1.8.4. Disorders Mainly Affecting the Spinal Cord in Small Ruminants





- 1.9. Ophthalmology in Cattle
  - 1.9.1. Examination of the Eye in Cattle
  - 1.9.2. Specific Management in the Examination
  - 1.9.3. Ophthalmic Examination. Inspection
  - 1.9.4. Probing and Washing of the Nasolacrimal Duct
  - 1.9.5. Orbital Abnormalities
  - 1.9.6. Anophthalmia, Microphthalmia
  - 1.9.7. Exophthalmia and Anophthalmia
  - 1.9.8. Inflammation and Orbital Cellulitis
  - 1.9.9. Orbital Neoplasms
  - 1.9.10. Eyelid Abnormalities
    - 1.9.10.1. Palpebral Neoplasms
    - 1.9.10.2. Ectropion and Entropion
    - 1.9.10.3. Other Eyelid Disorders
  - 1.9.11. Corneal and Conjunctival Diseases
    - 1.9.11.1. Corneal Characteristics
    - 1.9.11.2. Corneal and Scleral Lacerations and/or Fractures
    - 1.9.11.3. Corneal Foreign Bodies
    - 1.9.11.4. Corneal Ulcers
    - 1.9.11.5. Corneal Edema
    - 1.9.11.6. Vascularization
    - 1.9.11.7. Infectious Bovine Keratoconjunctivitis (IBK, Pink-Eye)
    - 1.9.11.8. Conjunctival and Corneal Tumors. Squamous Cell Carcinoma
  - 1.9.12. Uveal Diseases
- 1.10. Small Ruminant Ocular Disorders
  - 1.10.1. Orbital Diseases
  - 1.10.2. Infectious Keratoconjunctivitis
  - 1.10.3. Parasitic Keratitis
  - 1.10.4. Retinal Degeneration
  - 1.10.5. Blindness

## Module 2. Ruminant Metabolic, Endocrine and Dermatological Diseases Toxicology and Neonatology

- 2.1. Bovine Dermatological Disorders
  - 2.1.1. Congenital Dermatological Pathologies
  - 2.1.2. Skin and Hair Diseases
  - 2.1.3. Subcutaneous Diseases
  - 2.1.4. Hoof and Horn Diseases
  - 2.1.5. Cutaneous Neoplasms
- 2.2. Small Ruminant Dermatological Disorders
  - 2.2.1. Congenital Dermatological Pathologies
  - 2.2.2. Infectious Dermatitis
  - 2.2.3. Vesicular and Mucocutaneous Junction Diseases
  - 2.2.4. Parasitic Diseases of Hair and Wool
  - 2.2.5. Caseous Lymphadenitis
  - 2.2.6. Skin and Adnexal Diseases Associated with Toxicity and Nutritional Problems
  - 2.2.7. Cutaneous Neoplasms
- 2.3. Metabolic and Endocrine Disorders in Bovines
  - 2.3.1. Ketosis
  - 2.3.2. Calcium, Magnesium and Phosphorous Disorders
  - 2.3.3. Other Endocrinopathies
- 2.4. Metabolic and Endocrine Disorders of Small Ruminants
  - 2.4.1. Pregnancy Toxemia
  - 2.4.2. Stump, Rickets
- 2.5. Nutritional Deficiencies in Bovines
  - 2.5.1. Introduction
  - 2.5.2. Copper Deficiencies
  - 2.5.3. Selenium and Vitamin E Deficiencies
  - 2.5.4. Cobalt Deficiencies
  - 2.5.5. Iodine Deficiency
  - 2.5.6. Manganese Deficiency
  - 2.5.7. Iron Deficiency
  - 2.5.8. Zinc Deficiency
  - 2.5.9. Main Vitamin Deficiencies
- 2.6. Nutritional Deficiencies in Small Ruminants
  - 2.6.1. Copper Deficiencies
    - 2.6.1.1. Enzootic Ataxia
    - 2.6.1.2. Bone Alterations
  - 2.6.2. Cobalt Deficiencies
    - 2.6.2.1. Ill-Thrift
    - 2.6.2.2. White Liver Disease
  - 2.6.3. Selenium Deficiencies
    - 2.6.3.1. White Muscle Disease
  - 2.6.4. Vitamin E Deficiency
  - 2.6.5. Iodine Deficiency
  - 2.6.6. Deficiencies in Trace Elements
- 2.7. Main Intoxications in Ruminants I
  - 2.7.1. Introduction. General Aspects
  - 2.7.2. General Diagnostic and Therapeutic Guidelines for Intoxications
  - 2.7.3. Intoxications Related to Ingestion of Toxic Plants
    - 2.7.3.1. Neurotoxic
    - 2.7.3.2. Hepatotoxic
    - 2.7.3.3. Nephrotoxic
    - 2.7.3.4. Phototoxic
    - 2.7.3.5. Cardiotoxic
    - 2.7.3.6. Anticoagulants
    - 2.7.3.7. Other Toxic Plants
- 2.8. Main Intoxications in Ruminants II
  - 2.8.1. Mycotoxins
  - 2.8.2. Feed Additive Intoxications
    - 2.8.2.1. Nitrogen Compounds (Urea)
    - 2.8.2.2. Copper
    - 2.8.2.3. Drugs

- 2.8.3. Environment-Related Intoxications
  - 2.8.3.1. Pesticides
  - 2.8.3.2. Inorganic Elements (Lead, Arsenic, Selenium, Fluorine...)
  - 2.8.3.3. Quality of Drinking Water
    - 2.8.3.3.1. Intoxications by Other Industrial and Commercial Chemical Compounds
    - 2.8.3.3.2. Therapeutic Guide in Ruminant Intoxications
- 2.9. Main Calf Problems
  - 2.9.1. Congenital Diseases
  - 2.9.2. Trauma and Death During Labor
  - 2.9.3. Prematurity, Dysmaturity and Neonatal Maladjustment
  - 2.9.4. Perinatal Diseases and Problems
  - 2.9.5. Diseases Associated with Reproductive Biotechnologies
  - 2.9.6. Failure of Colostral Immunoglobulins Transfer
- 2.10. Main Problems of Neonatal Small Ruminants
  - 2.10.1. Congenital Diseases
  - 2.10.2. Prematurity, Dysmaturity and Neonatal Maladjustment
  - 2.10.3. Perinatal Problems
  - 2.10.4. Gastrointestinal Tract Diseases
  - 2.10.5. Locomotor System Diseases
  - 2.10.6. Failure of Colostral Immunoglobulins Transfer

### Module 3. Ruminant Infectious and Parasitic Diseases

- 3.1. Prevention and Control of Infectious Diseases
  - 3.1.1. Laboratory Diagnostic Tests
  - 3.1.2. Antimicrobial Treatments and Resistance
  - 3.1.3. Use of Vaccines
  - 3.1.4. Biosecurity and Control Measures
- 3.2. Bovine Vaccination Plan
  - 3.2.1. There is No Single Vaccination Plan. Premises to Consider
  - 3.2.2. Considerations to Be Taken into Account When Choosing a Vaccine
  - 3.2.3. Vaccination Plans by Production System or Age Group
    - 3.2.3.1. Vaccination Plan for Dairy and Heifer Rearing
    - 3.2.3.2. Vaccination Plan for Sucklers
    - 3.2.3.3. Vaccination Plan for Meat and Heifer Rearing
    - 3.2.3.4. Vaccination Plan for Grazing Fattening Cattle
    - 3.2.3.5. Vaccination Plan for Dairy Cows
    - 3.2.3.6. Vaccination Plan for Meat Cows
    - 3.2.3.7. Stallion Vaccination Plan (Artificial Insemination Center)
- 3.3. Vaccination Plan for Small Ruminants
  - 3.3.1. There is No Single Vaccination Plan. Premises to Consider
  - 3.3.2. Considerations to Be Taken into Account When Choosing a Vaccine
  - 3.3.3. Vaccination Plans by Production System or Age Group
    - 3.3.3.1. Vaccination Plan for Rebreeding Dairy Ewe Lambs/Goats
    - 3.3.3.2. Vaccination Plan for Rebreeding Meat Ewe Lambs/Goats
    - 3.3.3.3. Vaccination plan for Fattening Ewe Lambs/Goats
    - 3.3.3.4. Vaccination Plan for Dairy Sheep/Goats
    - 3.3.3.5. Vaccination Plan for Meat Sheep/Goats
- 3.4. Main Bovine Infectious and Contagious Diseases I
  - 3.4.1. Notifiable Diseases
  - 3.4.2. Bacterial Diseases
  - 3.4.3. Fungal Diseases
- 3.5. Main Bovine Infectious and Contagious Diseases II
  - 3.5.1. Viral Diseases
  - 3.5.2. Prion Diseases
- 3.6. Main Small Ruminant Infectious and Contagious Diseases I
  - 3.6.1. Notifiable Diseases
  - 3.6.2. Bacterial Diseases
  - 3.6.3. Fungal Diseases
- 3.7. Main Small Ruminant Infectious and Contagious Diseases II
  - 3.7.1. Viral Diseases
  - 3.7.2. Prion Diseases



- 3.8. Main Parasites Affecting Bovines
  - 3.8.1. Hemoparasites
  - 3.8.2. Gastrointestinal Nematodes
  - 3.8.3. Nematodes Affecting the Respiratory Tract
  - 3.8.4. Cestodes
  - 3.8.5. Trematodes
  - 3.8.6. Coccidia
- 3.9. Main Parasites Affecting Small Ruminants
  - 3.9.1. Hemoparasites
  - 3.9.2. Gastrointestinal Nematodes
  - 3.9.3. Nematodes Affecting the Respiratory Tract
  - 3.9.4. Cestodes
  - 3.9.5. Trematodes
  - 3.9.6. Anthelmintic Resistance in Small Ruminants
  - 3.9.7. Management, Treatment and Control Programs (FAMACHA)
- 3.10. Prevention and Treatment of Parasitic Diseases
  - 3.10.1. Diagnostic Techniques
  - 3.10.2. Therapeutic Principles
  - 3.10.2. Resistance Development
  - 3.10.3. Management and Control Programs







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*This program will allow you to advance in your career comfortably”*

# 05 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.



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*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. Gérvas, 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 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.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful. Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.





# 06 Certificate

The Postgraduate Diploma in Ruminant Internal Medicine guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.



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

This **Postgraduate Diploma in Ruminant Internal Medicine** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Diploma** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the **Postgraduate Diploma**, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Diploma in Ruminant Internal Medicine**

Official N° of Hours: **450 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.



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education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development language  
virtual classroom



**Postgraduate Diploma**  
Ruminant Internal  
Medicine

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Postgraduate Diploma Ruminant Internal Medicine

