

# Postgraduate Certificate

## Veterinary Pharmacology of the Digestive System. Ruminants





## Postgraduate Certificate Veterinary Pharmacology of the Digestive System. Ruminants

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

Website: [www.techtute.com/us/veterinary-medicine/postgraduate-certificate/veterinary-pharmacology-digestive-system-ruminants](http://www.techtute.com/us/veterinary-medicine/postgraduate-certificate/veterinary-pharmacology-digestive-system-ruminants)

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# 01

# Introduction

This program is a tool of great interest to the veterinarian. A complete review of the Pharmacology of choice in the treatment of digestive pathologies in animals, with a specific vision of the case of ruminants. High-quality learning, offering the most advanced resources in online preparation, to guarantee the student an effective, real and practical learning that boosts their competencies to the highest level in this area of work.





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*The most complete review of the pharmacological bases that make up the therapies that interest the digestive system, in a high intensity training program"*

This Postgraduate Certificate deals with the pharmacology of the digestive system, both at the level of secretion and motility, laxative and antidiarrheal drugs, as well as the pharmacology of vomiting.

It offers specialized knowledge on the different drugs that act on the motility of the stomach and its secretions, as well as drugs that act on gastric pH, on the intestinal tract and on rumen-reticulum motility.



*A complete program on the different routes of administration of the different drugs and their available presentations, which will allow you to act with more precision and safety"*

This **Postgraduate Certificate in Veterinary Pharmacology of the Digestive System. Ruminants** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ Innovative and up-to-date diagnostic techniques in infectious diseases and their application in daily clinical practice, including the use of cytology as a diagnostic tool in these diseases
- ♦ The most frequent and not so frequent pathologies of infectious origin in dogs from a practical and completely up-to-date point of view
- ♦ Infectious Pathologies oriented to the Feline Species, dealing extensively with all those of this species
- ♦ "One Health" vision, in which Zoonoses and their implications for public health will be reviewed
- ♦ At present, there are no more exotic diseases, and they should be included by the clinician in the differential diagnosis when the epidemiology allows to suspect them
- ♦ Prevention and management of all infectious diseases, including clinical, home and community settings

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*A revolutionary study for its ability to reconcile the highest quality of learning with the most comprehensive online program”*

Its teaching staff includes professionals belonging to the field of Veterinary Medicine, who bring to this program the experience of their work, as well as renowned specialists from reference societies and prestigious universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced psychology experts.

*A great opportunity for the veterinary medicine professionals to expand their competencies and catch up on all the latest developments in pharmacological approaches.*

*Learn in an efficient way, with a real qualification objective, with this unique Postgraduate Certificate for its quality and price, in the online teaching market.*



# 02 Objectives

The objective of the Postgraduate Certificate is to provide the students with the required competencies in relation to preclinical or clinical research of drugs used in veterinary medicine, and their application in the therapeutic use of drugs so that they can be integrated into the professional field.







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*A comprehensive, up-to-date and complete syllabus that will boost your skills to the highest level in the approach to digestive pathologies in animals”*



## General Objectives

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- Determine the pharmacological basis of digestive tract therapy
- Identify the main therapeutic groups and their indications in veterinary medicine
- Examine the mechanisms of action of the different drug groups, properties and pharmacokinetics and pharmacokinetics
- Develop students' critical and analytical skills through the resolution of clinical cases

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*Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice”*





## Specific Objectives

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- ◆ Identify the most common routes of administration of each of the drugs and the types of presentation of the drugs in veterinary medicine
- ◆ Examine drugs related to acid secretion: antisecretory, antacids and mucosal protectants, as well as their adverse effects, contraindications and pharmacokinetics
- ◆ Present drugs to improve gastrointestinal motility, their mechanisms of action, drug interactions and adverse reactions
- ◆ Describe the drugs used to treat vomiting
- ◆ Determine the pharmacology of the hepatobiliary and pancreatic systems, their mechanisms of action, interactions and pharmacokinetics
- ◆ Solve problems and clinical cases related to the digestive system
- ◆ Associate the correct drug to the main symptoms and pathologies of the digestive tract

03

# Course Management

The teaching staff of this program is prepared by professionals specialized in the study of Pharmacology, both human and veterinary, with clinical experience in small and large animals. They have extensive and recognized teaching and research experience, with officially recognized six-year research periods, participation in numerous research projects and dissemination of their research both nationally and internationally in high impact journals, books and conferences.



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*A unique opportunity to learn from internationally renowned professors, with teaching, clinical and research experience”*

## Management



### **Dr. Santander Ballestín, Sonia**

- ♦ Teaching Coordinator, Department of Pharmacology, University of Zaragoza, Spain
- ♦ Lecturer in the university course: "Introduction to Pharmacology: Principles for the Rational Use of Drugs" Basic Program of the University of Zaragoza
- ♦ Evaluation professor in: objective-structured clinical evaluation of the Degree in Medicine
- ♦ Degree in Biology and Biochemistry, specializing in the area of Pharmacology
- ♦ PhD with the European Degree from the University of Zaragoza
- ♦ Master's Degree in Environment and Water Management. Andalusia Business School
- ♦ Title of the doctoral program: Biochemistry and Molecular and Cellular Biology

## Professors

### Dr. Lomba, Laura

- Professor of Pharmacokinetics and Physicochemistry at San Jorge University
- Degree in Chemistry from the University of Zaragoza
- Degree in Pharmacy and PhD from the San Jorge University
- Predoctoral stay at the Cancer Therapy Institute (Bradford)
- She has ANECA accreditation in the positions of Assistant Professor Doctor, Hired Professor Doctor and Professor of Private University
- 1 six-year period recognized 2012-2017 by CNAI
- She has directed 10 grants for collaboration and initiation to research, 12 graduate theses and a doctoral thesis. She is currently supervising 3 doctoral theses
- In the teaching field, she has 6 scientific articles, 24 communications in congresses and 6 research projects

### Dr. Luesma Bartolomé, María José

- Veterinarian. Study Group on Prion Diseases, Vectorial Diseases and Emerging Zoonoses at the University of Zaragoza
- Study group of the University Research Institute
- Professor of Film and Anatomy. University Degree: Complementary Academic Activities
- Professor of Anatomy and Histology University degree: Graduate in Optics and Optometry. University of Zaragoza
- Professor of Final Degree Project University Degree, Bachelor's Degree in Medicine
- Professor of Morphology. Development Biology University degree: Professional Master's Degree in Initiation to Research in Medicine. University of Zaragoza
- Doctor of Veterinary Medicine. Official Doctorate Program in Veterinary Sciences. University of Zaragoza
- Degree in Veterinary Medicine. University of Zaragoza

# 04

# Structure and Content

This Postgraduate Certificate provides all the necessary knowledge to be able to perform Pharmacology in Veterinary Medicine in the best possible way. It is important to take into account that the contents allow the student to obtain specialized knowledge of pharmacology, as well as the ability to deal with different solutions for veterinary pathologies. A complete and accessible journey that will make a difference in your career progression.







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*A complete program that will lead you to the exhaustive knowledge necessary to intervene as a specialist in the theoretical and practical aspects of Veterinary Pharmacology in the field of digestive problems”*

## Module 1. Pharmacology of the Digestive System

- 1.1. Pharmacology of Acid Secretion I
  - 1.1.1. Physiology of Secretion and Main Alterations
  - 1.1.2. Antisecretory Agents
  - 1.1.3. Proton Pump Inhibitors
  - 1.1.4. Histamine H<sub>2</sub>-Receptor Antagonists
- 1.2. Pharmacology of Acid Secretion II. Antacids
  - 1.2.1. Magnesium Compounds
  - 1.2.2. Aluminum Compounds
  - 1.2.3. Calcium Carbonate
  - 1.2.4. Sodium Bicarbonate
- 1.3. Pharmacology of Acid Secretion III. Mucous Membrane Protectors
  - 1.3.1. Sucralfate
  - 1.3.2. Bismuth Salts
  - 1.3.3. Prostaglandin Analogs
- 1.4. Pharmacology of Ruminants
  - 1.4.1. Biochemical Alterations of Drugs in the Rumen
  - 1.4.2. Effects of Drugs on Ruminal Microflora
  - 1.4.3. Drug Distribution in the Rumen-Reticulum
  - 1.4.4. Salivary Secretion of Drugs
  - 1.4.5. Agents Affecting Pre-stomach Functions
  - 1.4.6. Treatment of Meteorism, Tympanism, Ruminal Acidosis and Atonia
- 1.5. Pharmacology of Intestinal Motility I
  - 1.5.1. Physiology of Motility and Main Alterations
  - 1.5.2. Prokinetic Drugs
- 1.6. Pharmacology of Intestinal Motility II
  - 1.6.1. Antidiarrheal Drugs
  - 1.6.2. Prebiotics, Probiotics and Flora
- 1.7. Pharmacology of Intestinal Motility III. Constipation
  - 1.7.1. Bolus-Forming Drugs
  - 1.7.2. Lubricants and Emollients
  - 1.7.3. Osmotic Laxatives
  - 1.7.4. Stimulant Laxatives
  - 1.7.5. Enemas



- 1.8. Pharmacology of Vomiting
  - 1.8.1. Antiemetic and Emetic Drugs
  - 1.8.2. d2 Dopaminergic Antagonists
  - 1.8.3. Antihistamines
  - 1.8.4. Muscarinic Antagonists
  - 1.8.5. Serotonergic Antagonists
- 1.9. Pharmacology of the Hepatobiliary and Pancreatic System
  - 1.9.1. Choloretic and Cholagogue Drugs
- 1.10. Pharmacology of Inflammatory Bowel Disease
  - 1.10.1. Corticoids
  - 1.10.2. Immunosuppressants
  - 1.10.3. Antibiotics
  - 1.10.4. Aminosalicylates

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*It advances towards excellence with the help of the best professionals and teaching resources of the moment”*



# 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.

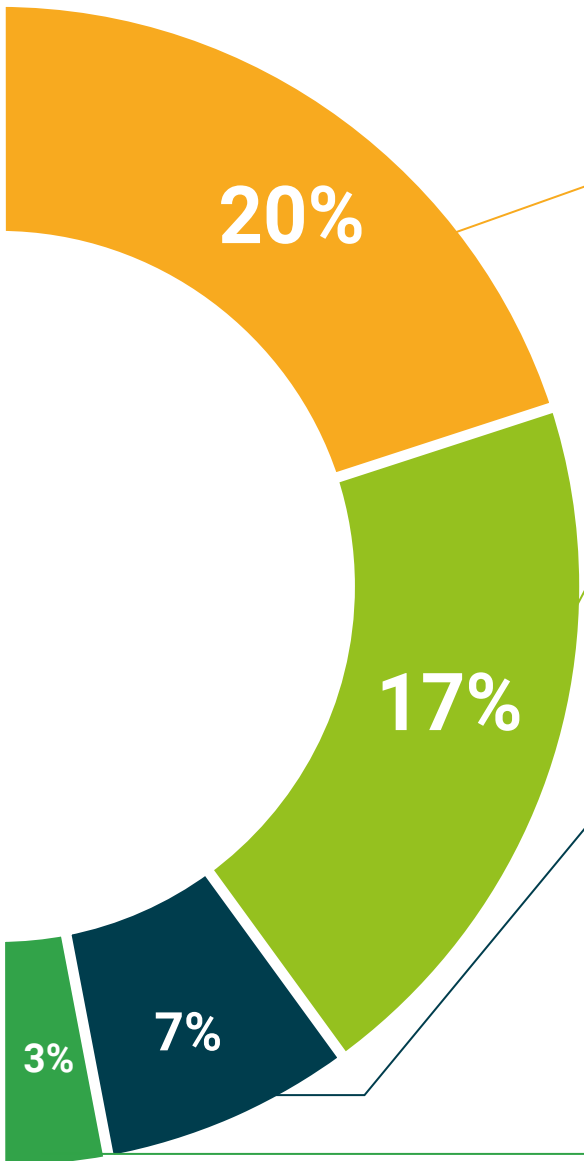
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### 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

Postgraduate Certificate in Veterinary Pharmacology of the Digestive System. Ruminants guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate 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 Certificate in Veterinary Pharmacology of the Digestive System. Ruminants** 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 Certificate** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Certificate in Veterinary Pharmacology of the Digestive System. Ruminants**

Official N° of Hours: **150 h.**



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

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

**tech** technological  
university

personalized service innovation

knowledge present

online teaching

development languages

virtual classroom

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