

# 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 Global University
- » Accreditation: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

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

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

# 01

# Introduction

This high-level training addresses the pharmacology of the digestive tract, both at the level of secretion and motility, laxative and antidiarrheal drugs, as well as pharmacology of vomiting. The content of this program offers the student an exhaustive training in the theoretical and practical aspects of Veterinary Pharmacology. The practical cases that are presented make the course unique by applying different simulated situations that will allow the student to develop skills for their performance in the real clinical environment. Thanks to its innovative teaching methodology, it allows the student to follow its contents in a totally flexible and personalized way, with great availability on the part of the teachers for consultations, doubts or tutorials.







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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"*

This Postgraduate Certificate in Veterinary Pharmacology of the Digestive System. Ruminants is 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.

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.

The program includes practical activities to facilitate students' acquisition and mastery of the theory learned, supporting and complementing the knowledge acquired in the theoretical teaching. The contents are presented to the professional in an attractive and dynamic way in multimedia packages that include videos, images and diagrams in order to reinforce knowledge.

This specialization contains the most complete and up-to-date program, designed by experts in Pharmacology, constituting a great tool for pharmacists who wish to specialize in the Veterinary Pharmacology of the Digestive System, especially in ruminants.

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 of the program include:

- ♦ Practical cases presented by experts in Veterinary Pharmacology
- ♦ The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where self-assessment can be used to improve learning.
- ♦ Its special emphasis on innovative methodologies
- ♦ 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



*A great opportunity for the professional to advance in their competences and get up to date in all the novelties of pharmacological approach"*

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*A revolutionary specialization for its ability to reconcile the highest quality of learning with the most complete online specialization"*

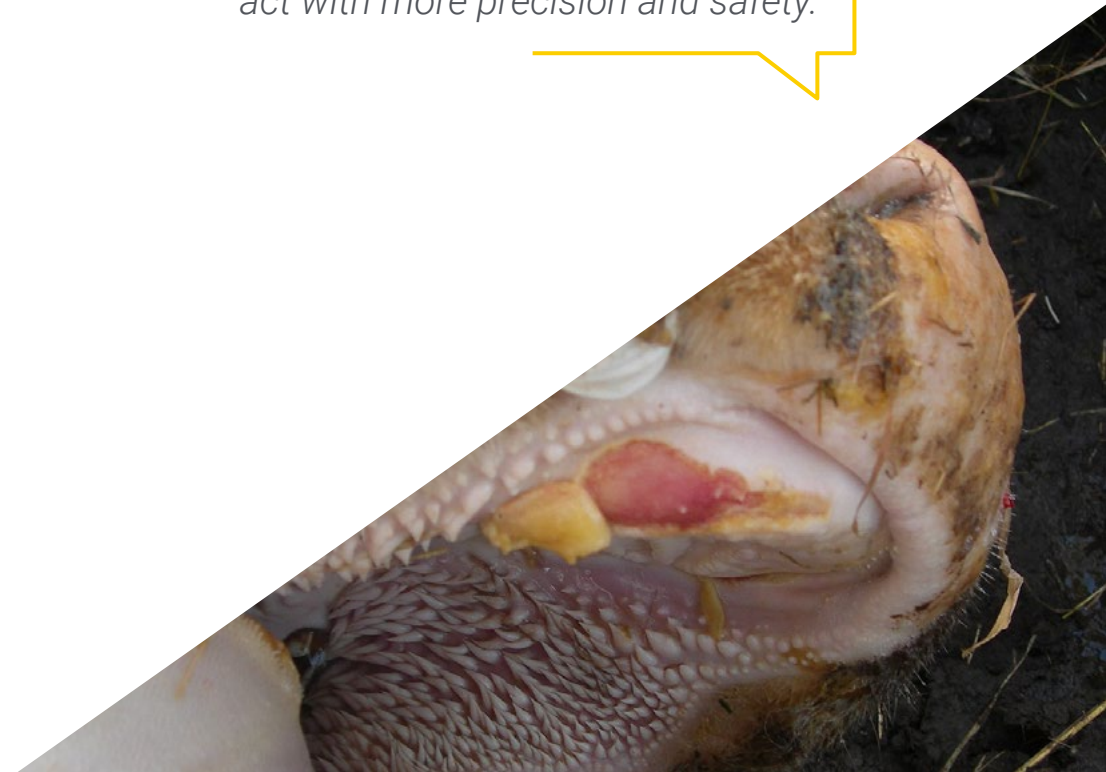
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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 professional must try to solve the different professional practice situations that arise during the. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*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.*

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



# 02 Objectives

The design of this **Postgraduate Certificate** program will allow students to acquire the necessary skills to update their knowledge in the profession after studying in depth the key aspects of Veterinary Pharmacology. Its objective is to provide the student 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 he/she can better incorporate into the professional field.

The knowledge acquired in the development of the points of the syllabus will drive the professional from a global perspective, with full capacity to achieve the proposed goals.





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



## 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 different drug groups' mechanisms of action, properties and pharmacokinetics
- Develop the student's critical and analytical skills through the resolution of clinical cases



*Successfully complete this training program  
and receive your university certificate  
without travel or laborious paperwork"*





### Specific Objectives

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- ♦ Identify the most common routes of administration of each of the drugs and the forms of presentation of the same 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 team of this Postgraduate Certificate is formed 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

- ♦ Associate Professor of the Department of Pharmacology and Physiology. University of Zaragoza
- ♦ Degree in Biology and Biochemistry, specializing in the area of Pharmacology
- ♦ Teaching Coordinator, Department of Pharmacology, University of Zaragoza, Spain
- ♦ PhD with the European Degree from the University of Zaragoza
- ♦ Master's Degree in Environment and Water Management. Andalusia Business School
- ♦ Lecturer in the Postgraduate Certificate "Introduction to Pharmacology: Principles for the Rational Use of Drugs" Basic Program of the University of Experience of Zaragoza
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- ♦ Lecturer in the Postgraduate Certificate "Introduction to Pharmacology: Principles for the Rational Use of Drugs" Basic Program of the University of Experience of Zaragoza
- ♦ Evaluation professor in objective structured clinical evaluation of the medical degree
- ♦ Lecturer in the Postgraduate Certificate "Introduction to Pharmacology: Principles for the Rational Use of Drugs" Basic Program of the University of Experience of Zaragoza

## Professors

### Ms. Lomba, Laura

- ♦ Professor of Pharmacokinetics at San Jorge University in the Degree in Pharmacy
- ♦ Licenciado en Ciencias Químicas por la Universidad de Zaragoza
- ♦ Ph.D. with European Mention in Pharmacy University of Zaragoza
- ♦ Graduate in Pharmacy University of Zaragoza
- ♦ Researcher in the field of Green Chemistry
- ♦ Professor of Biochemistry and Molecular Biology II at San Jorge University in the Degree in Pharmacy
- ♦ Professor of Biochemistry and Molecular Biology, Universidad San Jorge, Degree in Pharmacy
- ♦ Professor of Physicochemistry I at the Universidad San Jorge, degree in Pharmacy
- ♦ Professor of Pharmacology Applied to Physiotherapy, Universidad San Jorge, Physiotherapy degree
- ♦ Professor of Biopharmacy and Pharmacokinetics, Universidad San Jorge, Degree in Pharmacy
- ♦ Master's Degree in Environmental Management in Companies
- ♦ Research stay in the Department of Medicinal Chemistry at the Institute of Cancer Therapeutics, Cradford, UK

### Ms. Luesma Bartolomé, María José

- ♦ Study group on prion diseases, vector-borne diseases and emerging zoonoses. University of Zaragoza
- ♦ Degree in Veterinary Medicine. University of Zaragoza
- ♦ Doctor of Veterinary Medicine. University of Zaragoza
- ♦ Study group of the University Research Institute. Research Institute
- ♦ Film and anatomy teacher. University degree: Complementary Academic Activities. University of Zaragoza
- ♦ Master's Degree in Quality Systems Audits (Project: "Implementation of a quality system in a testing laboratory"). Diputación General de Aragón
- ♦ Professor of Anatomy and Histology. University degree: Graduate in Optics and Optometry. University of Zaragoza
- ♦ Professor of the Final Degree Project for University Degrees: Degree in Medicine. University of Zaragoza
- ♦ Professor of Morphology, Development and Biology. University Degree: Professional Master's Degree in Initiation to Research in Medicine. University of Zaragoza
- ♦ Certificate B for the use of animals for experimental purposes
- ♦ Recognition of a six-year research period by the University Quality and Prospective Agency of Aragon (Government of Aragon)

04

# Structure and Content

In its maxim of offering an elite education for all, TECH counts on renowned professionals so that the student acquires a solid knowledge in the specialty of Veterinary Pharmacology. Therefore, this program has a highly qualified team with extensive experience in the sector, which will offer the best tools for students to develop their skills during the Postgraduate Certificate. It provides all the necessary knowledge to be able to perform, in the best possible way, pharmacology in veterinary medicine. A complete and accessible educational journey that will make a difference in your career progression.





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*The most complete review of the pharmacological bases that compose the therapies that interest the digestive system, in a Postgraduate Certificate of high educational intensity"*

## 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. Aluminium 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



*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.







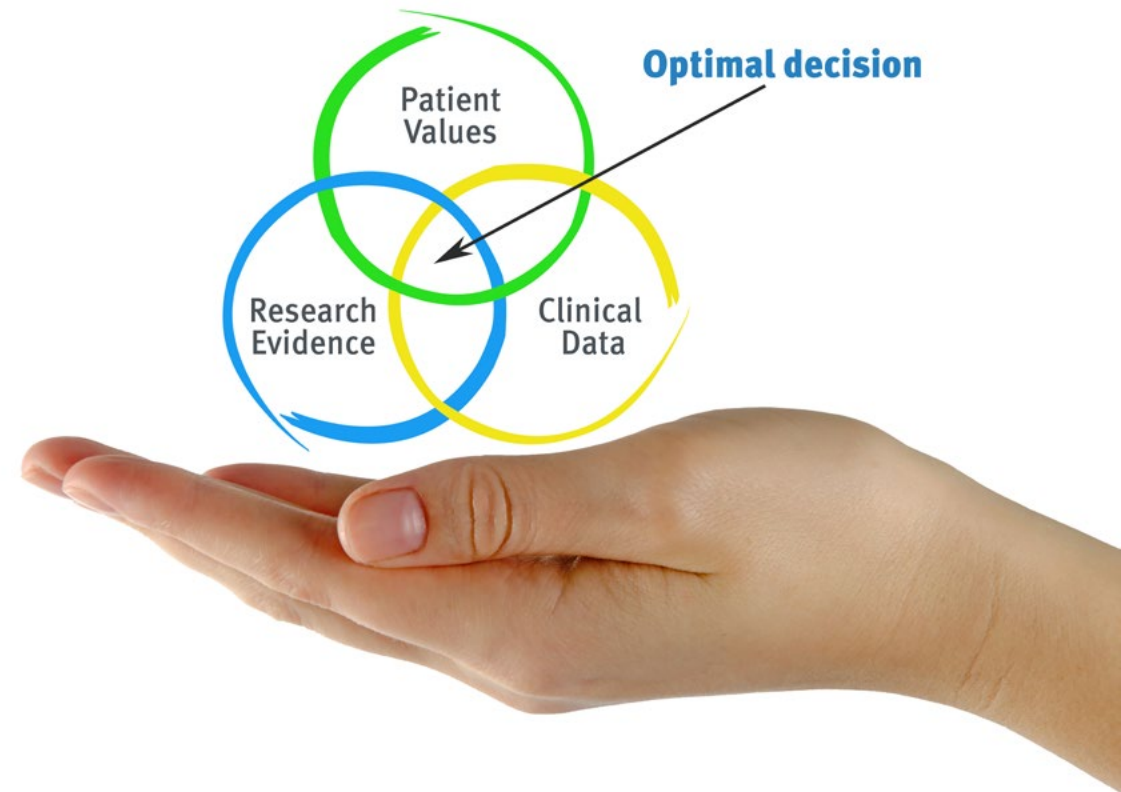
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will be confronted with multiple simulated clinical cases based on real patients, in which they will have to investigate, establish hypotheses and ultimately, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Pharmacists learn better, more quickly 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.*



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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. Pharmacists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
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. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more 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.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.

*Pharmacists will learn through real cases and by solving 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 115,000 pharmacists have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. This pedagogical methodology is developed in a highly demanding environment, with a university student body with a high socioeconomic 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 specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to 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 created specifically for the course by specialist pharmacists who will be teaching the course, so that the didactic development is highly specific and accurate.

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.



#### Video Techniques and Procedures

TECH introduces students to the latest techniques, to the latest educational advances, to the forefront of current pharmaceutical care procedures. All of this, first hand, and explained and detailed with precision to contribute to assimilation and a better understanding. And best of all, you can watch them as many times as you want.



#### Interactive Summaries

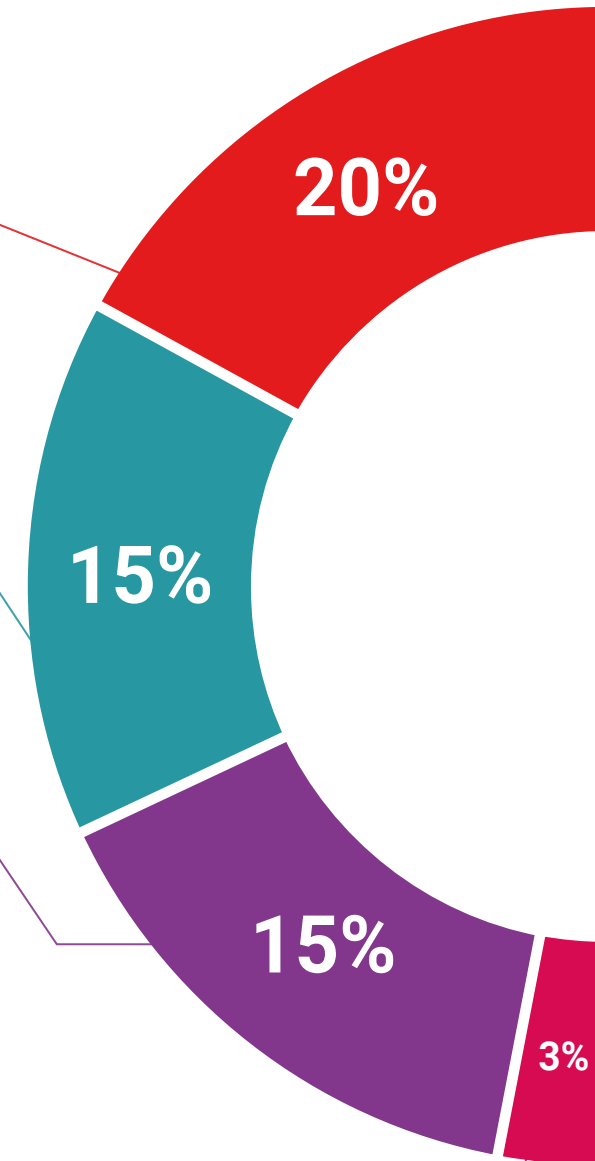
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

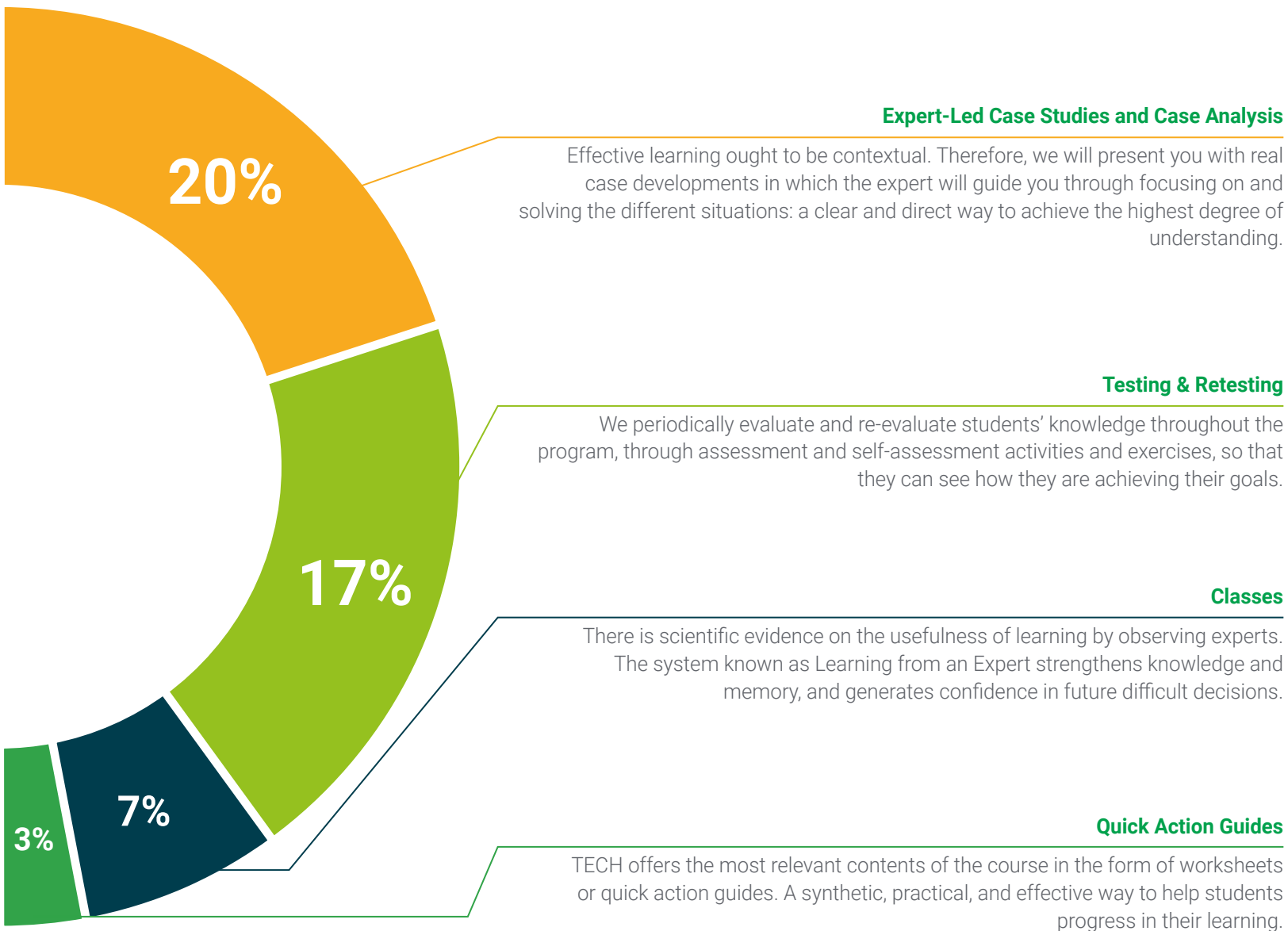
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



#### 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.







# 06 Certificate

The 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 Global University.





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*Successfully complete this training program and receive your university certificate without travel or laborious paperwork”*

This private qualification will allow you to obtain a **ostgraduate Certificate in Veterinary Pharmacology of the Digestive**

**System. Ruminants** 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** private qualification 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.

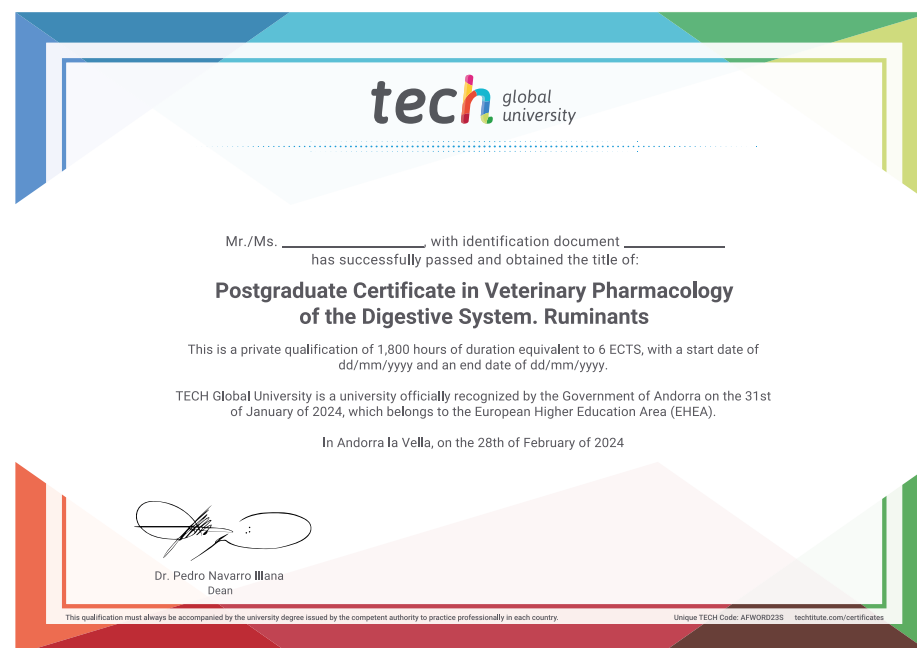
Title: **Postgraduate Certificate in Veterinary Pharmacology of the Digestive**

**System. Ruminants**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**





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