

# Postgraduate Diploma

## Veterinary Oncologic and Reproductive Pharmacology





## Postgraduate Diploma

### Veterinary Oncologic and Reproductive Pharmacology

Course Modality: **Online**

Duration: **6 months.**

Certificate: **TECH Technological University**

Official N° of Hours: **450 h.**

Website: [www.techtute.com/pharmacy/postgraduate-diploma/postgraduate-diploma-veterinary-oncologic-reproductive-pharmacology](http://www.techtute.com/pharmacy/postgraduate-diploma/postgraduate-diploma-veterinary-oncologic-reproductive-pharmacology)

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# 01

# Introduction

This program is a great tool available to the professional pharmacist that allows him/her to specialize in the area of oncological pharmacology in the veterinary clinic, since there are more and more pets and exotic animals that require specific medication for certain pathologies. Throughout this Postgraduate Diploma, the professional will identify the therapeutic groups and their mechanisms of action, as well as hormones and their therapeutic, regulatory, diagnostic and even fraudulent use. A high-quality training, offering the most advanced resources in online specialization, to guarantee the student an effective, real and practical learning that will boost their competencies to the highest level in this area of work.





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*Learn efficiently, with a real qualification objective, with this Postgraduate Diploma, unique for its quality and price, in the online teaching market"*

Veterinary Pharmacology is the science in charge of the search for and adaptation of medicines capable of solving animal health problems. It is a branch that aims to improve the current results in the prevention and treatment of the disease at the veterinary level through pharmacological strategies.

Given the importance of oncologic, reproductive and endocrine system pharmacology in animal health, livestock production and veterinary law, this Postgraduate Diploma has been developed with a holistic approach, starting with the physiology of both systems, listing the hormones secreted by them and determining the pathologies derived from their possible dysfunction: a complete and highly valuable training for the professional pharmacist.

During these months of training, the student will study the pharmacology of reproduction, gestation and parturition in different species, both production and domestic.

Likewise, the professional will study in depth anti-infectious pharmacology, which is characterized by the study of drugs that have to act on cells other than those of the veterinary patient, which are intended to be eliminated in their entirety. They are capable of destroying or inhibiting the development of live germs that cause infections by acting through different pharmacological targets.

Finally, it will delve into antineoplastic pharmacology that can act by destroying or inhibiting the development of tumor cells. This section is of great interest due to the increasing incidence of neoplastic diseases in animals, with special emphasis on small animals.

The content of each module provides the student with comprehensive training in the theoretical and practical aspects of Veterinary Pharmacology. The practices that are proposed make the program unique by applying different simulated situations that will allow the student to develop skills for their performance in the real clinical environment.

This **Postgraduate Diploma in Veterinary Oncologic and Reproductive Pharmacology** contains the most complete and up-to-date scientific program on the market. The most important features 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 comprehensive, up-to-date and high-quality review of Veterinary Oncologic and Reproductive Pharmacology for professionals who aspire to excellence in their field.*”

“ *Acquire the knowledge and skills necessary for the practical application of new techniques in the use of pharmacology in cancer and animal reproduction, in a training created for excellence”*

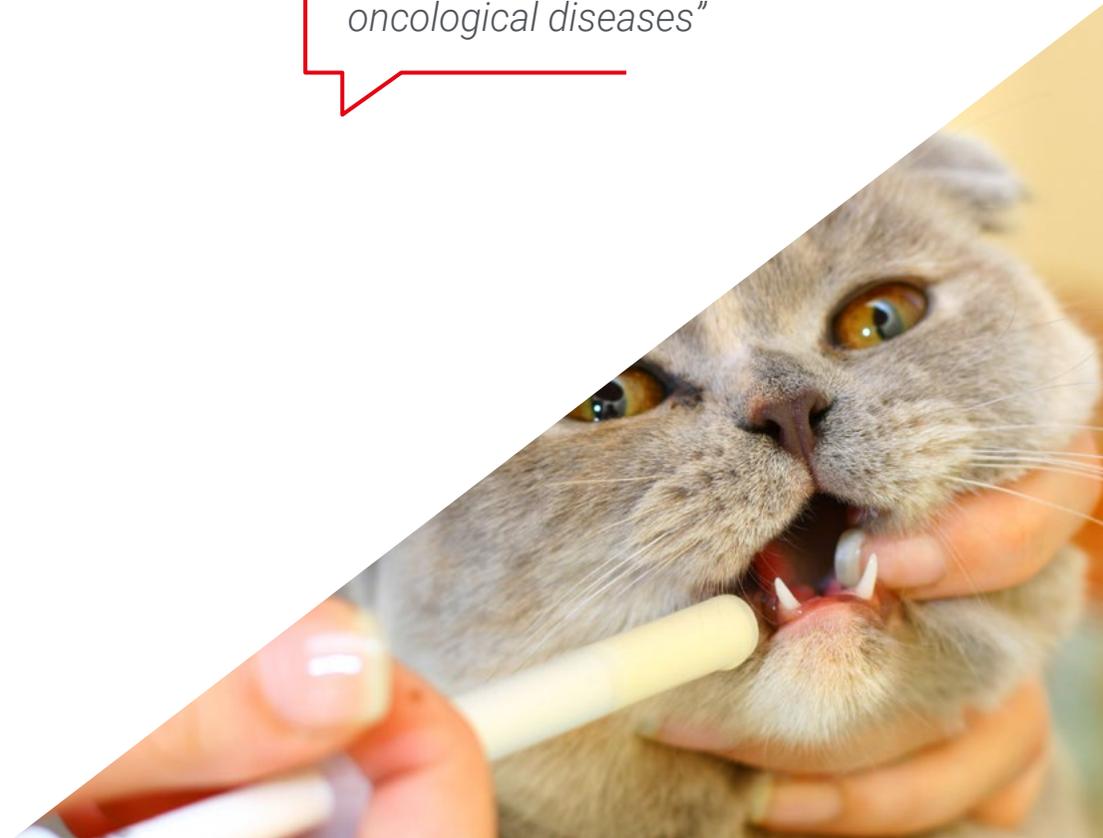
*A comprehensive, up-to-date and high-quality review of Veterinary Oncologic and Reproductive Pharmacology for professionals who aspire to excellence in their field”*

*A complete training in the use of veterinary drugs in cases of reproductive and oncological diseases”*

The program's teaching staff includes professionals from 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 academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.



# 02

# Objectives

The program design of this program will allow the student to acquire the necessary competencies to update 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 poured in the development of the points of the study plan will drive the professional from a global perspective, with full training for the achievement of the proposed objectives.





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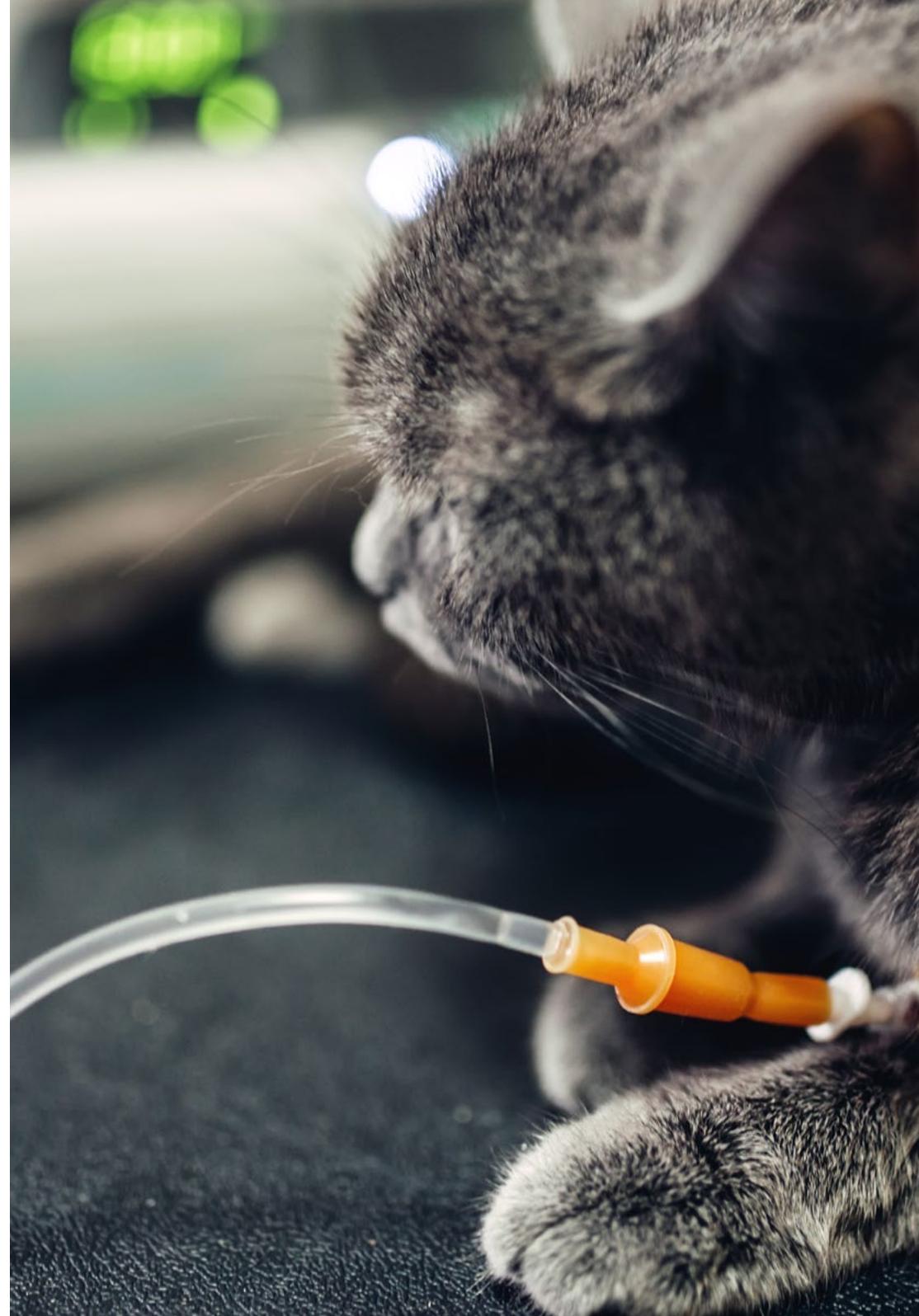
*A great opportunity for the professional to advance in their competences and get up to date in all the novelties of pharmacological approach"*



## General Objectives

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- ♦ Examine pharmacology in relation to reproduction and metabolism.
- ♦ Identify each pharmacological group with its uses and applications.
- ♦ Prescribe drugs in a reasonable manner
- ♦ Examine and explain the main pharmacological properties of the anti-infective drug groups
- ♦ Identify the different pharmacological targets involved in anti-infective agents.
- ♦ Recognize the main pharmacological characteristics (mechanism of action, pharmacokinetics, and therapeutic and toxic effects) of groups of anti-infective drugs.
- ♦ Examine and explain the main pharmacological properties of the antineoplastic drug groups
- ♦ Identify the different pharmacological targets involved in antineoplastic agents.
- ♦ Know the main toxic effects of antineoplastic drugs.





## Specific Objectives

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### **Module 1. Pharmacology of the Endocrine and Reproductive System. Reproductive Disorders**

- ♦ Determine the pharmacological basis of reproductive system therapy.
- ♦ Examine different drug groups' mechanisms of action, properties and pharmacokinetics
- ♦ Identify the main therapeutic groups and their indications in veterinary reproduction.
- ♦ Treat the most prevalent obstetric cases.
- ♦ Present reproductive biotechnologies and understand the scope of their application.
- ♦ Solving individual and population reproductive problems
- ♦ Establish the different animal pathologies of the endocrine system and their treatment.
- ♦ Identify the main therapeutic groups and their indications in endocrine system pathologies.
- ♦ Develop the student's critical and analytical skills through the resolution of clinical cases.

### **Module 2. Antiseptics and Chemotherapeutics I**

- ♦ Analyze the historical development of antiseptic and chemotherapeutic substances.
- ♦ Point out the general principles of chemotherapy and the drugs that comprise it.
- ♦ Define the concepts of antiseptic and antibiotic.
- ♦ Explain the mechanisms of antibiotic resistance.
- ♦ Classify antibiotics according to mechanism of action
- ♦ Describe each of the groups of antibiotics and know their mechanism of action.
- ♦ Classifying antifungal and antiviral drugs
- ♦ Describe each of the groups of antifungal and antiviral drugs and their mechanism of action.
- ♦ Analyze the importance of antiparasitics in veterinary medicine.

### **Module 3. Chemotherapy II: Antineoplastic Drugs**

- ♦ Analyzing cancer in small animals
- ♦ Point out the general principles in the use of antineoplastic drugs.
- ♦ Know the care in the application of antineoplastic drugs.
- ♦ Classify the main families of chemotherapeutics.
- ♦ Determine the main drugs for palliative use in neoplasms.
- ♦ Consider the use of each antineoplastic according to the pathology.
- ♦ Analyze the main toxicity effects of antineoplastic drugs.
- ♦ Describe each of the groups of antifungal and antiviral drugs and their mechanism of action.
- ♦ Analyze the importance of antiparasitics in veterinary medicine.

03

# Course Management

The teaching team of this Postgraduate Diploma is made up of 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 complete educational program that will lead you to the comprehensive training necessary to intervene as a specialist in the theoretical and practical aspects of Veterinary Oncologic and Reproductive Pharmacology”.*

## 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

### Dr. García Barrios, Alberto

- ◆ Professor at the University of Zaragoza
- ◆ Degree in Veterinary Medicine
- ◆ PhD in Veterinary Science
- ◆ Casetas Veterinary Clinic
- ◆ Utebo Veterinary Clinic
- ◆ Nanoscale Biomagnetics R&D Researcher
- ◆ Veterinary Clinic Utebo. Clinical Veterinarian
- ◆ Postgraduate Veterinary Oncology (Improve International). Homologation of the qualification to work with experimental animals

### Ms. Arribas Blázquez, Marina

- ◆ Bill & Melinda Gates Foundation: Post-doctoral teaching and research labor contract
- ◆ Degree in Biology from the University of Salamanca.
- ◆ Doctorate in Neuroscience from the Complutense University of Madrid.
- ◆ Institute of Biomedical Research: Alberto Sols Labor researcher and teacher
- ◆ Complutense University of Madrid: Post-doctoral teaching and research labor contract
- ◆ Complutense University of Madrid: Teaching and research labor contract
- ◆ Severo Ochoa Molecular Biology Center: Predoctoral teaching and research labor contract
- ◆ Complutense University of Madrid: Predoctoral teaching and research labor contract
- ◆ Bachelor's Degree in Biology Specialty: Fundamental Biology and Biotechnology
- ◆ Category B qualification in Protection of animals used for experimental and other scientific purposes.
- ◆ Master in Neurosciences

### Dr. Luesma Bartolomé, María José

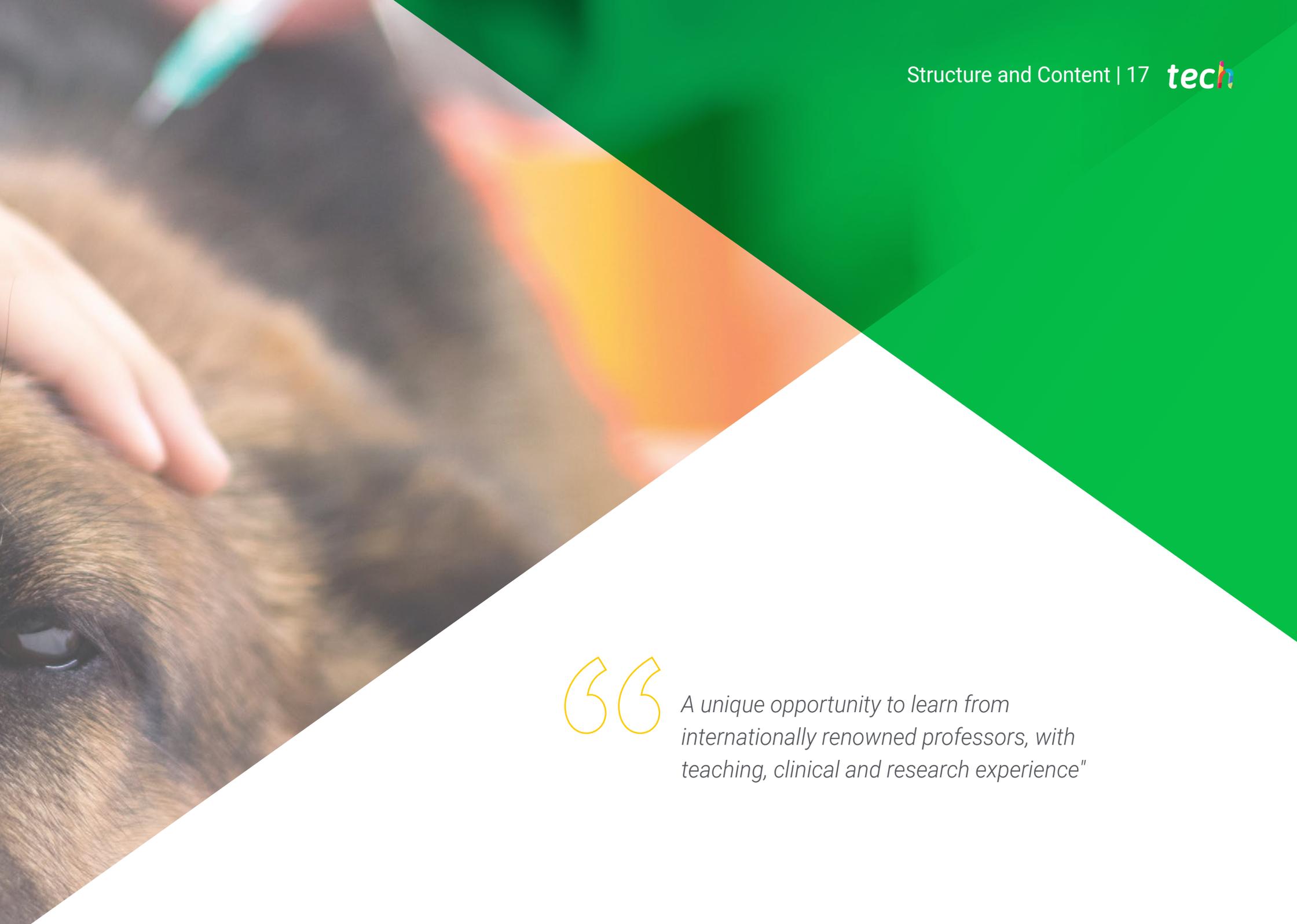
- ◆ Study group on prion diseases, vector-borne diseases and emerging zoonoses. University of Zaragoza
- ◆ Degree in Veterinary Medicine. University of Zaragoza
- ◆ Doctor of Veterinary Medicine. University of Zaragoza
- ◆ Study group of the University Research Institute. Research Institute
- ◆ Film 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 Aragón (Government of Aragón).

04

# Structure and Content

The structure of this program has been designed in such a way that the professional to whom it is addressed will be able to identify and solve problems related to veterinary pharmacology, thanks to a unique methodology and the support of the experts who have developed it. This Postgraduate Diploma offers the student a realistic learning in the context of Veterinary Pharmacology, which makes it an extremely useful tool for the pharmaceutical professional. Through clinical simulations at a practical level, you will be able to face real situations and provide a broader and more effective response to them.



A close-up photograph of a person's hand gently petting the head of a brown horse. The horse's eye is visible in the lower-left corner. The background is blurred, showing a person in a blue shirt. The image is overlaid with a green geometric shape in the top right and a white geometric shape in the bottom right.

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

## Module 1. Pharmacology of the Endocrine and Reproductive System. Reproductive Disorders

- 1.1. Endocrine System Pharmacology.
  - 1.1.1. Introduction
  - 1.1.2. Classification of Hormones of Pharmacological Interest
  - 1.1.3. Mechanisms of action
  - 1.1.4. General Information on Hormone Therapeutics
- 1.2. Hormones Involved in Metabolism and Electrolyte Balance
  - 1.2.1. Adrenal Pharmacology: Mineralocorticoids and Glucocorticoids
  - 1.2.2. Pharmacological Actions
  - 1.2.3. Therapeutic Uses
  - 1.2.4. Side effects:
- 1.3. Thyroid and Parathyroid Pharmacology
  - 1.3.1. Thyroid Hormones
  - 1.3.2. Antithyroid Drugs
  - 1.3.3. Calcemia Regulation
    - 1.3.3.1. Calcitonin
    - 1.3.3.2. Parathormone
- 1.4. Pharmacology of the Pancreas
  - 1.4.1. Insulin
  - 1.4.2. Oral Hypoglycemic Agents
  - 1.4.3. Glucagon
- 1.5. Hormones Involved in Reproduction
  - 1.5.1. Introduction
  - 1.5.2. Gonadotropin-Releasing Hormone
  - 1.5.3. Pituitary and Non-pituitary Gonadotropins



- 1.6. Sex Hormones
  - 1.6.1. Androgens
  - 1.6.2. Estrogens
  - 1.6.3. Progestogens
  - 1.6.4. Actions in the Organism
  - 1.6.5. Clinical Uses
  - 1.6.6. Toxicity
- 1.7. Luteolytic Drugs
  - 1.7.1. Prostaglandins
  - 1.7.2. Oxytocic Drugs: Oxytocin
  - 1.7.3. Pharmacology of Lactation
- 1.8. Hormones of Diagnostic Utility in Veterinary Medicine
  - 1.8.1. Diagnostic tests
    - 1.8.1.1. Hormones of Diagnostic Utility in Large Animals: Production Animals
    - 1.8.1.2. Testosterone
    - 1.8.1.3. Estrogens
    - 1.8.1.4. Progesterone
    - 1.8.1.5. Iodothyronines
  - 1.8.2. Hormones of Diagnostic Utility in Companion Animals
    - 1.8.2.1. Reproductive Hormones
    - 1.8.2.2. Metabolic Hormones
- 1.9. Pharmacology of the Reproductive System
  - 1.9.1. Introduction
  - 1.9.2. Classification of Hormones of Pharmacological Interest
  - 1.9.3. Mechanisms of action
  - 1.9.4. Therapeutics in General
- 1.10. Pharmacology of Reproductive Disorders
  - 1.10.1. Main Reproductive Disorders
    - 1.10.1.1. Large Animals: Production Animals
    - 1.10.1.2. Companion Animals

- 1.10.2. Estrous Cycle Control
- 1.10.3. Melatonin

## Module 2. Antiseptics and Chemotherapeutics I

- 2.1. Introduction. Definition of Antiseptic and Chemotherapeutic. Antiseptics
  - 2.1.1. Introduction
  - 2.1.2. Antiseptic and Disinfectant Concept
  - 2.1.3. Factors Affecting the Potency of Antiseptics and Disinfectants
  - 2.1.4. Characteristics of an Ideal Antiseptic and Disinfectant
  - 2.1.5. Classification of Disinfectants and Antiseptics
  - 2.1.6. Main Antiseptics and Disinfectants for Clinical Use
    - 2.1.6.1. Alcohol
    - 2.1.6.2. Biguanides
    - 2.1.6.3. Halogenated Products
    - 2.1.6.4. Peroxygens
    - 2.1.6.5. Other Antiseptics
- 2.2. Introduction to Antimicrobial Therapy. Types of Antibiotics. Rational Use
  - 2.2.1. Introduction
  - 2.2.2. Historical Review of Antimicrobial Therapy
  - 2.2.3. Side effects:
  - 2.2.4. Principles of Antibiotherapy
  - 2.2.5. Resistance: Types and Mechanisms of Occurrence
  - 2.2.6. Waiting Times
  - 2.2.7. Requirements for an Antimicrobial
  - 2.2.8. Classification of Antimicrobials
    - 2.2.8.1. According to its Spectrum
    - 2.2.8.2. According to its Effect
    - 2.2.8.3. According to its Mechanism of Action
    - 2.2.8.4. According to its Chemical Group
    - 2.2.8.5. Depending on the Microorganism Affected
  - 2.2.9. Criteria to be Followed in the Selection of a Drug

- 2.3. Antimicrobials that Act Against the Bacterial Wall. Antibiotics that Inhibit Protein Synthesis
  - 2.3.1. Antibiotics Acting Against the Bacterial Wall
    - 2.3.1.1. General aspects
    - 2.3.1.2. Beta-Lactamics (b-lactamics)
      - 2.3.1.2.1. Penicillins
      - 2.3.1.2.2. Cephalosporins
      - 2.3.1.2.3. Vancomycin and Bacitracin
    - 2.3.1.3. Glycopeptides
  - 2.3.2. Antibiotics that Inhibit Protein Synthesis
    - 2.3.2.1. Aminoglycosides
    - 2.3.2.2. Tetracyclines
    - 2.3.2.3. Chloramphenicol and Derivatives
    - 2.3.2.4. Macrolides and Lincosamides
  - 2.3.3.  $\beta$ -Lactamase Inhibitors
- 2.4. Antibiotics that Act on the Synthesis of Nucleic Acids. Antibiotics Acting on the Bacterial Membrane
  - 2.4.1. Fluroquinolones
  - 2.4.2. Nitrofurans
  - 2.4.3. Nitroimidazoles
  - 2.4.4. Sulfamides
  - 2.4.5. Polymyxins and Thyrotricsins
- 2.5. Antifungal
  - 2.5.1. General Description of the Mycotic Structure
  - 2.5.2. Classification of Antifungal Agents by Chemical Structure
  - 2.5.3. Systemic Antifungals
  - 2.5.4. Topical Antifungals
- 2.6. Antivirals
  - 2.6.1. Objective of Antiviral Chemotherapy
  - 2.6.2. Groups of Antivirals According to their Origin, Chemistry, Pharmacological Action, Pharmacokinetics, Pharmacodynamics, Posology, Therapeutic Uses, Adverse Reactions, Contraindications, Interactions and Pharmaceutical Forms

- 2.6.2.1. Inhibitors of RNA and DNA Synthesis
- 2.6.2.2. Purine Analogs
- 2.6.2.3. Pyrimidine Analogs
- 2.6.2.4. Reverse Transcriptase Inhibitors
- 2.6.2.5. Interferons.
- 2.7. Antiparasitics II
  - 2.7.1. Introduction to Antiparasitic Therapy
  - 2.7.2. Importance of Antiparasitic Drugs in Veterinary Medicine
  - 2.7.3. General Concepts: Antinematodic, Anticestodic, Antitrematodic, Antiprotozoal, Ectoparasiticide and Endectocide.
- 2.8. Antiparasitics for Internal or Endoparasitic Use
  - 2.8.1. Antinematodes
  - 2.8.2. Antistatics
  - 2.8.3. Antitrematodic
  - 2.8.4. Antiprotozoals
- 2.9. Antiparasitics for External or Ectoparasitic Use
  - 2.9.1. Introduction to External Parasites
  - 2.9.2. Antiparasitics II
- 2.10. Antiparasitics for Internal and External Use or Endectocides
  - 2.10.1. Introduction
  - 2.10.2. Macrocyclic Lactones
  - 2.10.3. Main Combinations of Endectocide Use

## Module 3. Chemotherapy II: Antineoplastic Drugs

- 3.1. Introduction to Antineoplastic Therapy
  - 3.1.1. Cancer in Veterinary Medicine: Pathophysiology and Etiology of Cancer
  - 3.1.2. Antineoplastic Treatment Approach: Drug Posology
  - 3.1.3. Administration of Chemotherapy Drugs
    - 3.1.3.1. Care in the Application of Chemotherapeutic Agents
    - 3.1.3.2. Standards and Instructions for Chemotherapy Application: Preparation During Preparation/Administration of Cytotoxic Drugs

- 3.2. Palliative Antineoplastic Pharmacology. Introduction to Special Antineoplastic Pharmacology
  - 3.2.1. Introduction to Palliative Antineoplastic Pharmacology: Oncologic Pain Control/ Assessment. Pharmacological Principles for Palliative Pain Management. Nutritional Management of the Oncology Patient
  - 3.2.2. Non-Steroidal Analgesics
  - 3.2.3. Opioids
  - 3.2.4. Others: NMDA Antagonists, Bisphosphonates, Tricyclic Antidepressants, Anticonvulsants, Nutraceuticals, Cannabidiol
  - 3.2.5. Introduction to Special Antineoplastic Pharmacology. Main Antineoplastic Drug Families
- 3.3. Family I: Alkylating Agents
  - 3.3.1. Introduction
  - 3.3.2. Nitrogen Mustards: Cyclophosphamide, Chlorambucil and Melphalan
  - 3.3.3. Nitrosoureas: Lomustine/Procarbazine
  - 3.3.4. Others: Hydroxyurea
  - 3.3.5. Main Uses in Veterinary Medicine
- 3.4. Family II: Antimetabolites
  - 3.4.1. Introduction
  - 3.4.2. Folic Acid Analogs (antifolates): Methotrexate
  - 3.4.3. Purine Analogues: Azathioprine
  - 3.4.4. Pyrimidine Analogues: Cytosine Arabinoside, 5-Fluorouracil
  - 3.4.5. Main Uses in Veterinary Medicine
- 3.5. Family III: Antibiotics
  - 3.5.1. Introduction
  - 3.5.2. Anthracycline-Derived Antibiotics (doxorubicin/other anthracyclines) and Non-Anthracycline-Derived Antibiotics (actinomycin-d, mitoxantrone, bleomycin)
  - 3.5.3. Main Uses in Veterinary Medicine
- 3.6. Family IV: Antineoplastics of Plant Origin
  - 3.6.1. Introduction
  - 3.6.2. Alkaloids: History/Antitumor Activity. Vinca Alkaloids
  - 3.6.3. Epipododiphyllotoxin-Derived Ligands
  - 3.6.4. Camptothecin Alkaloid Analogs
  - 3.6.5. Main Uses in Veterinary Medicine
- 3.7. Family V: Tyrosine Kinase Inhibitors
  - 3.7.1. Introduction
  - 3.7.2. Protein Kinases: Non-Receptor Tyrosine Kinase Proteins (NRTK; Receptor Tyrosine Kinase RTK)
  - 3.7.3. Toceranib
  - 3.7.4. Masitinib
  - 3.7.5. Main Uses in Veterinary Medicine
- 3.8. Platinum Derivatives
  - 3.8.1. Introduction
  - 3.8.2. Carboplatin
  - 3.8.3. Cisplatin
  - 3.8.4. Main Uses in Veterinary Medicine
- 3.9. Miscellaneous. Monoclonal Antibodies. Nanotherapy. L-asparaginase
  - 3.9.1. Introduction
  - 3.9.2. L-asparaginase
  - 3.9.3. Monoclonal Antibodies
  - 3.9.4. Tigylanol Toglata (stelfonta)
  - 3.9.5. Immunotherapy
  - 3.9.6. Metronomic Therapy
- 3.10. Toxicity of Antineoplastic Drugs
  - 3.10.1. Introduction
  - 3.10.2. Hematological Toxicity
  - 3.10.3. Gastrointestinal Toxicity
  - 3.10.4. Cardiotoxicity
  - 3.10.5. Urinary Toxicity
  - 3.10.6. Specific Toxicities: Hepatic, Neurological, Cutaneous, Hypersensitivity, Breed/ Species Associated.
  - 3.10.7. Pharmacological Intervention

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.



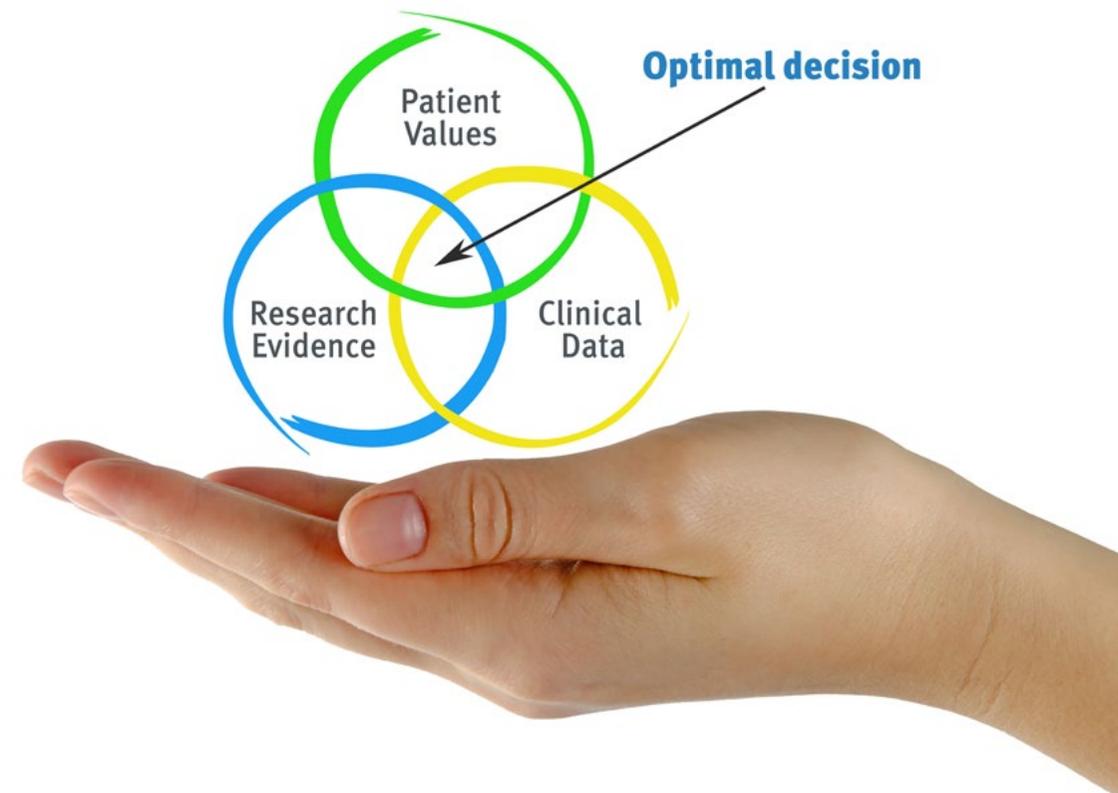


*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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.*



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, attempting to recreate the actual conditions in a pharmacist'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. 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 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

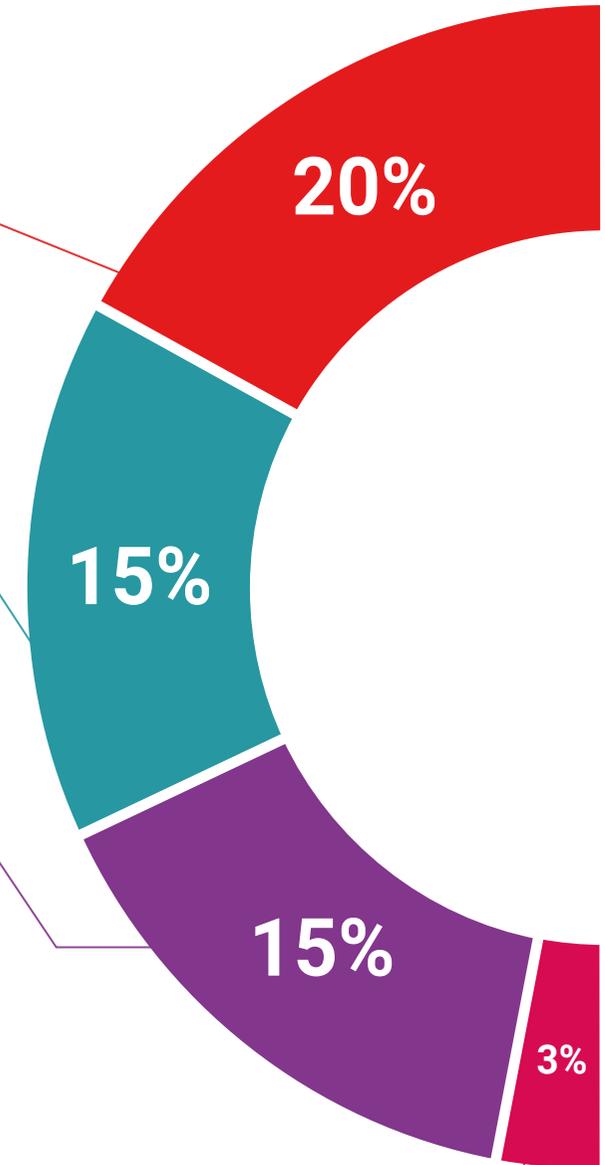
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

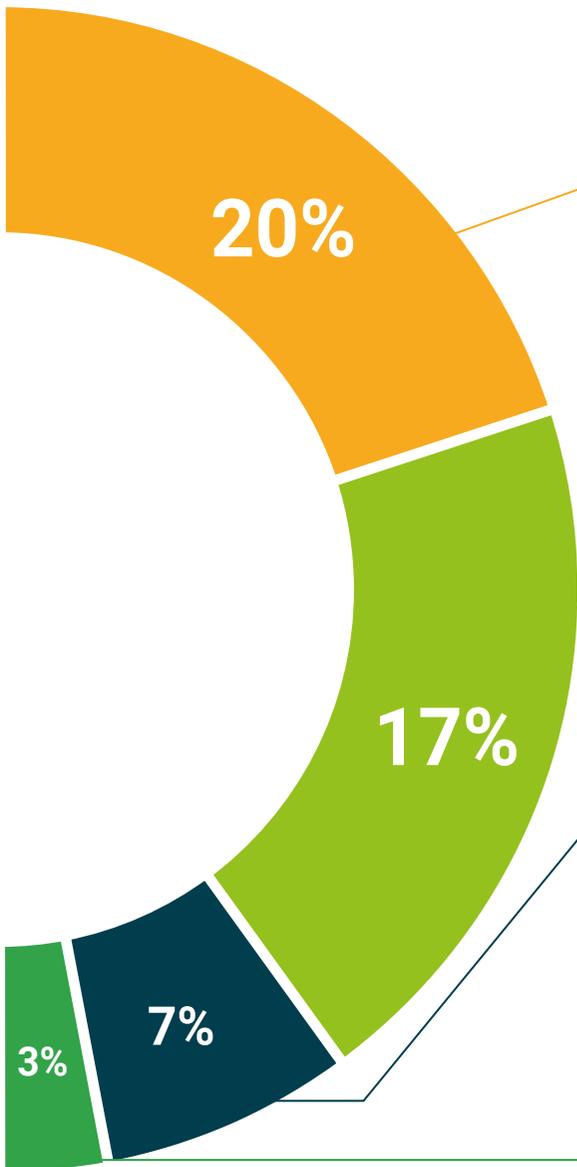
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



### 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.





### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through 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 on the usefulness of learning by observing experts. The system known as 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 Veterinary Oncologic and Reproductive Pharmacology guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Diploma issued by TECH Technological University.



“

*Successfully complete this training and receive your university degree without travel or laborious paperwork”.*

This **Postgraduate Certificate in Veterinary Oncologic and Reproductive Pharmacology** 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 certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Postgraduate Certificate in Veterinary Oncologic and Reproductive Pharmacology**

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



**Postgraduate Diploma**  
Veterinary Oncologic and  
Reproductive  
Pharmacology

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

Official N° of Hours: 450 h.

# Postgraduate Diploma

## Veterinary Oncologic and Reproductive Pharmacology

