

# Postgraduate Certificate

Pharmacology of Reproduction  
and the Endocrine System.  
Breeding Animals





## Postgraduate Certificate

### Pharmacology of Reproduction and the Endocrine System. Breeding Animals

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

Official N° of hours: 150 h.

Website: [www.techtitute.com/pharmacy/postgraduate-certificate/pharmacology-reproduction-endocrine-system](http://www.techtitute.com/pharmacy/postgraduate-certificate/pharmacology-reproduction-endocrine-system)

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# 01

# Introduction

This program is a great tool available to the pharmaceutical professional that allows him/her to specialize in Pharmacology of Reproduction and the Endocrine System, since there are more and more domestic and exotic animals that require specific medication for certain pathologies. 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. The content of each topic 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.





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*Succeed with the best and acquire the knowledge and skills you need to embark on the veterinary pharmacology industry”*

Given the importance of Pharmacology of Reproduction and the Endocrine System in animal health, livestock production, and veterinary law, this very complete Postgraduate Certificate 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 high-quality training, offering the most advanced resources in online training, to guarantee the student an effective, real and practical learning that boosts their competencies to the highest level in this area of work.

This Postgraduate Certificate in Pharmacology of Reproduction and the Endocrine System. Breeding Animals, contains the most complete and up-to-date program, designed by experts in Pharmacology and Veterinary Clinicians, constituting a great tool for veterinarians who wish to specialize in Veterinary Pharmacology, indispensable for the profession in the veterinary clinic.

The student will identify the therapeutic groups and their mechanisms of action and will discuss, throughout the program, hormones and their therapeutic, regulatory, diagnostic and even fraudulent use. We will deal with the pharmacology of reproduction, gestation and parturition in different species, both production and domestic.

This **Postgraduate Certificate in Pharmacology of Reproduction and the Endocrine System. Breeding Animals** 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



*The skills you will acquire after completing this Postgraduate Certificate will position you as an expert in veterinary pharmacology"*

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*The skills you will acquire after completing this Postgraduate Certificate will position you as an expert in veterinary pharmacology”*

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.

*Expert curriculum and quality content are the key to your learning success.*

*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 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 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 comprehensive and up-to-date review of the veterinary pharmacology available to address reproductive and metabolic problems in animals”*



## 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

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





## Specific Objectives

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- ♦ 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

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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*Safely acquire the most advanced skills of a professional veterinary pharmacology specialist and give your practice a boost to the highest level"*

## 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
- ♦ Lecturer in the Postgraduate Certificate "Introduction to Pharmacology: Principles for the Rational Use of Drugs" Basic Program of the University of Experience of Zaragoza
- ♦ 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. 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 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).

### Ms. Arribas Blázquez, Marina

- ♦ Degree in Biology. Specialty in Fundamental Biology and Biotechnology by the University of Salamanca
- ♦ Bill & Melinda Gates Foundation: Post-doctoral teaching and research labor contract
- ♦ 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
- ♦ Category B qualification in Protection of animals used for experimental and other scientific purposes
- ♦ Master in Neurosciences
- ♦ Doctorate in Neuroscience from the Complutense University of Madrid
- ♦ Postgraduate Certificate in Culture Room Standards for the use of viral and other pathogenic biological agents at Instituto de Investigaciones Biomédicas de Madrid

# 04

# Structure and Content

The structure of this Postgraduate Certificate 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 program offers the student a realistic learning opportunity in the context of Veterinary Pharmacology, which makes it an extremely useful tool for the professional pharmacist. 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.





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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



*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.



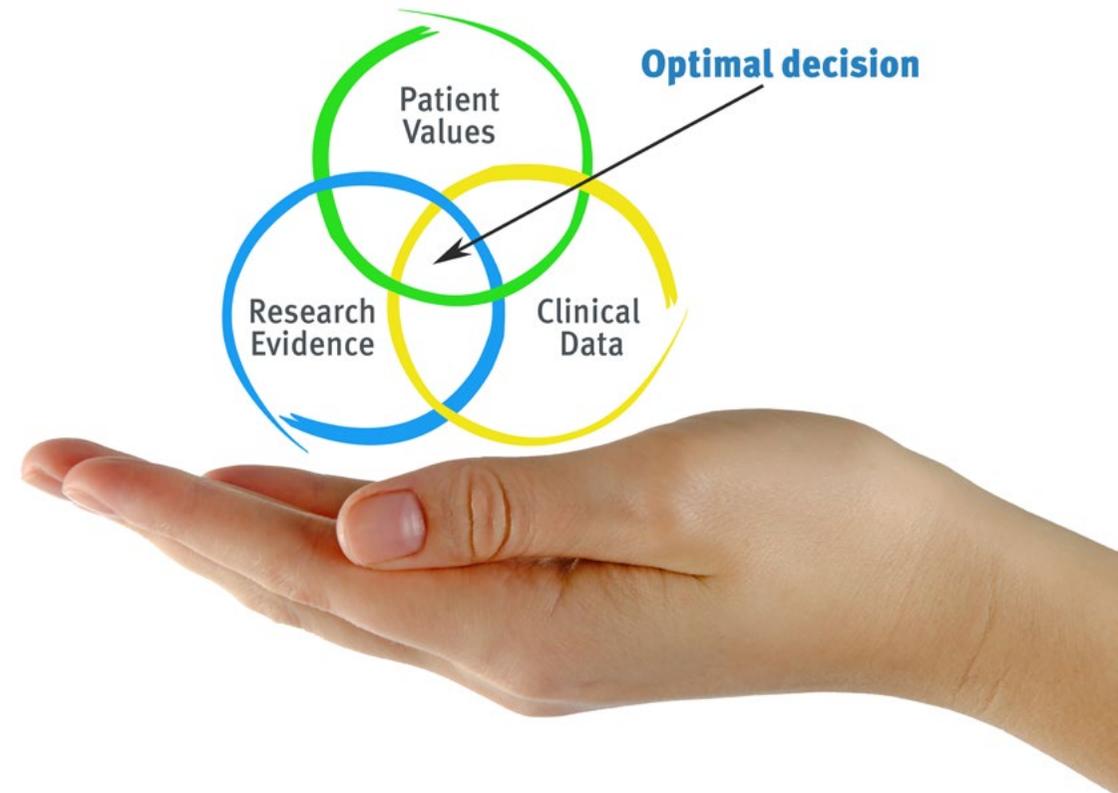


*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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. Gervas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, 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 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

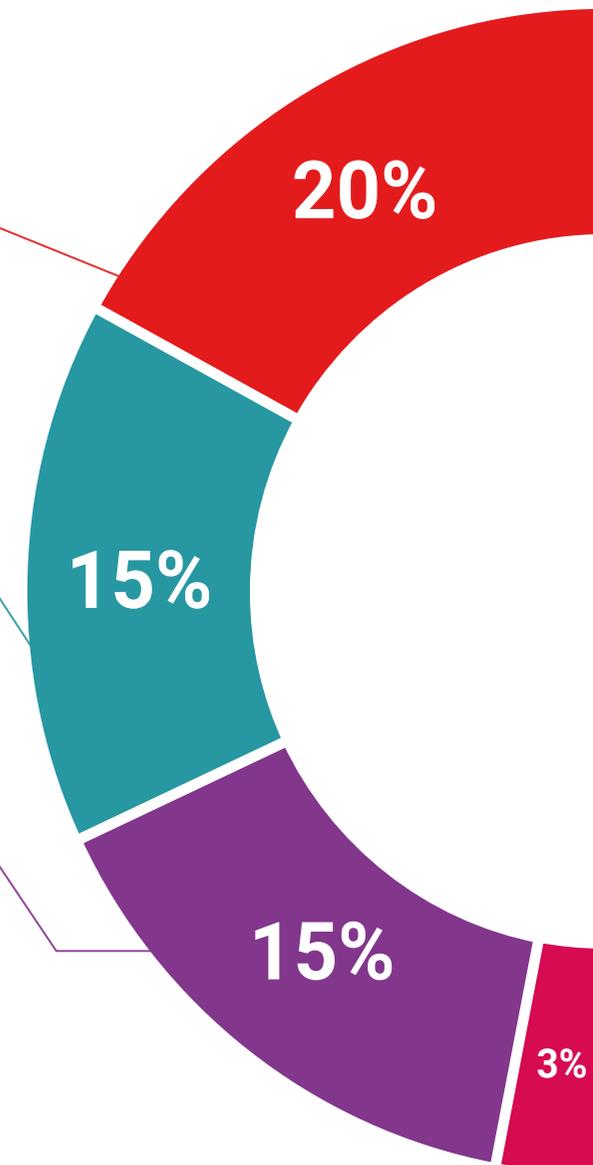
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

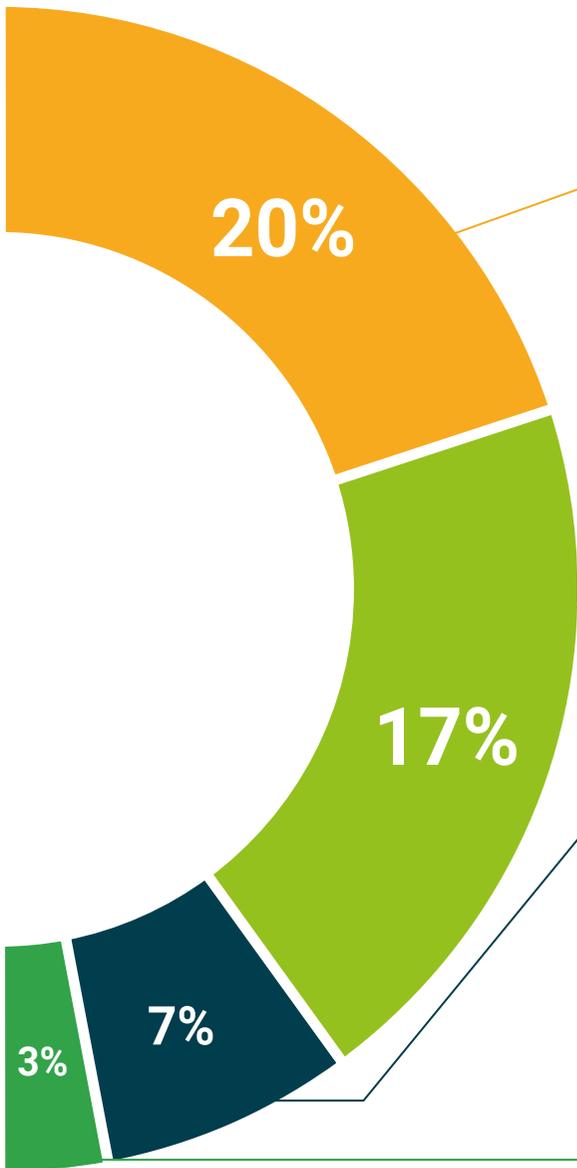
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



### 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.





### 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

This Postgraduate Certificate in Pharmacology of Reproduction and the Endocrine System. Breeding Animals guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Technological University.





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

This **Postgraduate Certificate in Pharmacology of Reproduction and the Endocrine System. Breeding Animals** 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** diploma issued by **TECH Technological University** via tracked delivery\*.

The diploma 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 Pharmacology of Reproduction and Endocrine System. Breeding Animals**

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  
personalized service innovation  
knowledge present  
development languages  
virtual classroom

**tech** technological  
university

**Postgraduate Certificate**  
Pharmacology of  
Reproduction  
and the Endocrine System.  
Breeding Animals

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

Official N° of hours: 150 h.

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Pharmacology of Reproduction  
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Breeding Animals

