

# Postgraduate Certificate Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals



## Postgraduate Certificate

### Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals

- » Modality: online
- » Duration: 12 weeks
- » Certificate: TECH Global University
- » Credits: 12 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/veterinary-medicine/postgraduate-certificate/preoperative-general-aspects-diagnosis-treatment-fractures-large-animals](http://www.techtute.com/us/veterinary-medicine/postgraduate-certificate/preoperative-general-aspects-diagnosis-treatment-fractures-large-animals)

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# 01

# Introduction

The surgical intervention of a patient must always be based on theoretical foundations and must be based on knowledge of the surgical and anesthetic risks involved in each of these interventions. The surgeon must know all these aspects, in addition to the surgical technique itself, in order to perform a good job with the best possible prognosis.

This program will provide a broad base of knowledge in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals, taught by professionals with extensive experience in the field.



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*Veterinarians must continue their education  
to adapt to new developments in this field”*

Veterinarians face new challenges every day in treating their patients. The Postgraduate Certificate in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals comprises a complete and up-to-date educational program including the latest advances in traumatology and orthopedic surgery in ruminants (cattle, sheep), camelids (camels, alpacas and llamas), swine (pigs, wild boars) and equidae (horses, donkeys and mules).

The theoretical and practical content has been chosen taking into account its potential practical application in daily clinical practice. Furthermore, the audiovisual material collects scientific and practical information on the essential disciplines for professional practice.

In each topic, practical cases presented by experts in Traumatology and Orthopedic Surgery in Large Animals have been developed, with the objective of the practically applying the knowledge acquired. In addition, students will participate in a self-evaluation process to improve their learning and knowledge during their practical activities.

The teaching team of the Postgraduate Certificate in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals has programmed a careful selection of techniques used in the diagnosis and treatment of ruminants (cattle, sheep), camelids (camels, alpacas, llamas), swine (pigs, wild boars) and equidae (horses, donkeys and mules), including the description of musculoskeletal surgery and rehabilitation in those species to which they are applied.

The teaching surgeons of this Postgraduate Certificate are graduates of the European or American College of Veterinary Surgeons and have extensive experience both in the university field and in private practice. In both areas, they are responsible for large animal surgery services in leading veterinary centers and most of them direct residency programs, Master's Degree programs and research projects.

As a result of the training that the teaching staff of this Postgraduate Certificate undertook in North America and Europe, the techniques have been extensively tested and are internationally recognized.

All of these elements mentioned above make this Postgraduate Certificate a unique specialization program, exclusive and different to all the courses offered in other universities.

This **Postgraduate Certificate in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals** contains the most complete and up-to-date educational program on the market. The most important features include:

- ◆ Practical cases presented by experts in Advanced Techniques for Cardiovascular Pathology in Large Animals: Equidae, Ruminants and Swine
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- ◆ Latest information on Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals
- ◆ Practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Special emphasis on innovative methodologies in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals
- ◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*Do not miss the opportunity to take this Postgraduate Certificate with TECH. It's the perfect opportunity to advance in your veterinary career"*

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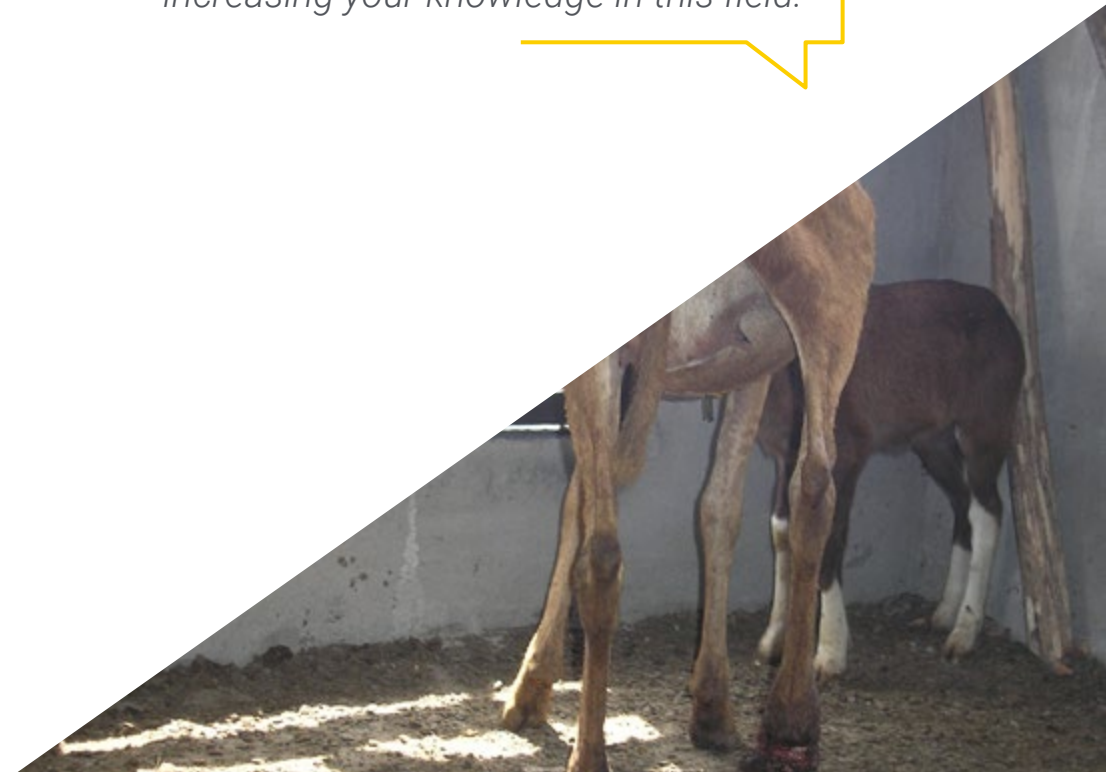
*This course is the best investment you can make when choosing a refresher program to update your existing knowledge of Large Animal Veterinary Medicine"*

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 learning programmed to study in real situations.

This program is designed around Problem-Based Learning, whereby the specialist must try to solve the different professional practice situations that arise throughout the program. For this, the professional will have the help of an innovative interactive video system made by renowned and experienced experts in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals.

*This training comes with the best didactic material, providing you with a contextual approach that will facilitate your learning.*

*This 100% online Postgraduate Certificate will allow you to combine your studies with your professional work while increasing your knowledge in this field.*



# 02 Objectives

The Postgraduate Certificate in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals is designed to facilitate the performance of the veterinary professional with the latest advances and most innovative treatments in the sector.







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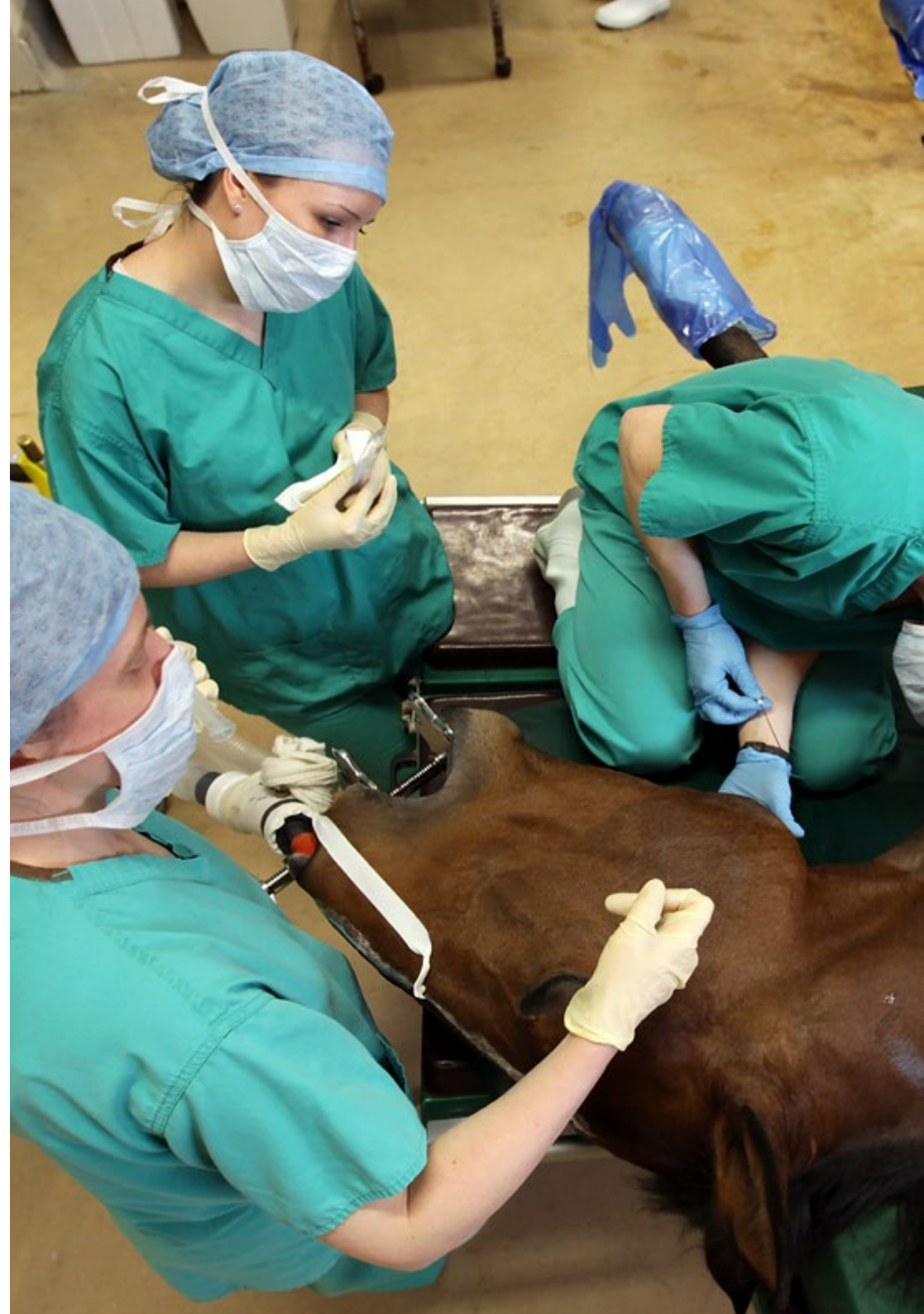
*This is the best option to learn about the latest advances in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals”*



## General Objectives

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- Develop specialized knowledge to correctly plan surgery
- Examine the necessary general pharmacological, anesthesia and material bases to surgically deal with the different pathologies in the rest of the modules
- Analyze the most frequent anesthetic complications in the Large Animals clinic, particularly those related to orthopedic surgery
- Examine the most frequent surgical complications in orthopedic surgery and provide useful protocols to solve or avoid them
- Develop the fundamentals of bone physiology and bone healing
- Systematically approach the care of an animal with a fracture
- Present the implants and materials used for fracture fixation
- Present the different fracture reduction and fixation techniques





## Specific Objectives

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- Analyze the importance of patient acceptance for surgery, operative risks and pre-surgical evaluation of the patient
- Fundamentals of the basic principles of general anesthesia and sedation for orthopedic surgical procedures
- Recognize the general material necessary for general orthopedic surgery in Large Animals
- Establish correct disinfection protocols for surgical material
- Differentiate between the diagnostic imaging techniques available as an intra-surgical aid
- Establish a scheme of work for the preparation of the patient, the surgeon and the surgical field
- Develop postoperative treatment protocols for major orthopedic surgeries in the Large Animals clinic
- Gather the necessary information in order to develop knowledge of the physiology of bone metabolism and its healing
- Analyze the biomechanics of the bone and classify the fractures
- Stabilize a patient with a fracture
- Generate specialized knowledge on how to reduce fractures
- Specify the most common materials for the manufacturing of implants
- Establish the instruments and implants used to fix fractures
- Determine the use of screws and the use of plates and screws
- Analyze the technical complications in the use of implants



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

03

# Course Management

The program's teaching staff includes leading experts in the Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals, who contribute the experience of their work to this program. They are world-renowned doctors from different countries with proven theoretical and practical professional experience.



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*Our teaching team, experts in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals, will help you to achieve success in your profession"*

## Management



### Dr. Muñoz Morán, Juan Alberto

- ♦ PhD in Veterinary Science
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid
- ♦ Graduate of the European College of Veterinary Surgeons
- ♦ Professor in Large Animal surgery at the Veterinary University of Pretoria, South Africa
- ♦ Head of the Equine Surgery Residency Program at the Veterinary University of Pretoria, South Africa
- ♦ Head of the Large Animal Surgery Department and professor at the Alfonso X El Sabio University, Madrid
- ♦ Surgeon at the Equine Hospital of Aznalcollar, Seville

## Professors

### Dr. Argüelles Capilla, David

- ♦ PhD in Veterinary Medicine from the Autonomous University of Barcelona (UAB)
- ♦ Degree in Veterinary Medicine from the Autonomous University of Barcelona
- ♦ Resident in Sports Medicine and Rehabilitation for the ACVSMR

### Dr. Iglesias García, Manuel

- ♦ PhD from University of Alfonso X El Sabio
- ♦ Degree in Veterinary Medicine from the Alfonso X El Sabio University in Madrid
- ♦ Surgeon at the Veterinary Hospital of the University of Extremadura, completing an official residency program at the ECVS (European College of Veterinary Surgery)

### Dr. Quinteros, Diego Daniel

- ♦ Diploma from the American College of Veterinary Surgeons
- ♦ Latin American Board on Equidae AOVET Foundation
- ♦ Veterinary Surgeon (2015-present) Integral Equine Veterinary Surgeons - Pincen, Cordoba, Argentina



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*Broaden your expertise with  
the best specialists in the field"*

# 04

# Structure and Content

The structure of the content has been designed by the best professionals in the field of Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied, and diagnosed, and with extensive knowledge of new technologies applied to veterinary medicine.





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*This Postgraduate Certificate in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals contains the most complete and up-to-date educational program on the market”*

## Module 1. Preoperative Aspects in Large Animals: Ruminants, Swine and Equidae

- 1.1. Preparation for Surgery: Decision Making, Operation Risks, Patient Considerations
  - 1.1.1. Surgical Risk
  - 1.1.2. Preoperative Patient Evaluation
- 1.2. Pharmacological Management for On-Site Procedures
  - 1.2.1. Sedation Drugs
  - 1.2.2. Continuous Infusions
  - 1.2.3. Local Anesthetics
  - 1.2.4. Containment Systems, Other Considerations
  - 1.2.5. Selection of Procedures to be Performed On Site
- 1.3. General Anesthesia
  - 1.3.1. Inhalation General Anesthesia
  - 1.3.2. Intravenous General Anesthesia
- 1.4. Recovery from General Anesthesia
  - 1.4.1. Management During Recovery
  - 1.4.2. Factors Affecting Recovery
  - 1.4.3. Different Techniques or Installations for Anesthetic Recovery
- 1.5. General Surgical Technique
  - 1.5.1. General Aspects
  - 1.5.2. Basic Manipulation of Surgical Instruments
  - 1.5.3. Tissue Incision, Blunt Dissection
  - 1.5.4. Tissue Retraction and Handling
  - 1.5.5. Surgical Irrigation and Suction
- 1.6. Preparation of the Surgery, Personnel, Patient and Surgical Area
  - 1.6.1. Preoperative Planning
  - 1.6.2. Surgical Attire, Preparation of Surgical Equipment: Gloves, Gowns etc
  - 1.6.3. Preparation of the Patient and Surgical Area
- 1.7. Use of Diagnostic Imaging in Orthopedic Surgery
  - 1.7.1. Diagnostic Imaging Techniques
  - 1.7.2. Diagnostic Imaging in Preparation for Surgery
  - 1.7.3. Use of the Intraoperation Image

- 1.8. Disinfection of Material, Sterilization
  - 1.8.1. Cold Disinfection
  - 1.8.2. Packaging the Material
  - 1.8.3. Different Autoclaves and Sterilizing Products
- 1.9. Orthopedic Surgical Instruments in Large Animals
  - 1.9.1. General Instruments in Orthopedics
  - 1.9.2. Arthroscopic Instruments
  - 1.9.3. Osteosynthesis Instruments
- 1.10. The Operating Room for Large Animals
  - 1.10.1. Basic Installations
  - 1.10.2. Importance of the Design of the Operating Room, Asepsis
  - 1.10.3. Technical Specifications of the Advanced Surgical Equipment

## Module 2. Reparation of Fractures in Large Animals Ruminants, Swine and Equidae

- 2.1. Bone Metabolism and Healing
  - 2.1.1. Anatomy
  - 2.1.2. Histological Structure
  - 2.1.3. Bone Healing
  - 2.1.4. Biomechanics of the Bone
  - 2.1.5. Classification of Fractures
- 2.2. Stabilization of Fractures in an Emergency, Decision Making and Transport
  - 2.2.1. Clinical Examination of a Patient With a Suspected Fracture
  - 2.2.2. Stabilization of a Patient With Fractures
  - 2.2.3. Transport of a Patient With a Fracture
  - 2.2.4. Stabilization of Fractures, Decision Making and Transport of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
- 2.3. External Coaptation
  - 2.3.1. Placement of Robert Jones Bandages
  - 2.3.2. Placement of Acrylic Casts
  - 2.3.3. Splints, Bandages With Casts and Combinations
  - 2.3.4. Complications of Acrylic Casts
  - 2.3.5. Removal of Acrylic Casts

- 2.4. Reducing Fractures, Management of Soft Tissue in the Approach
  - 2.4.1. Displacements of Fracture Strands
  - 2.4.2. Objectives of the Fracture Reduction
  - 2.4.3. Reduction Techniques
  - 2.4.4. Evaluation of Reduction
  - 2.4.5. Management of Soft Tissues
  - 2.4.6. Histology and Blood Supply of the Skin
  - 2.4.7. Physical Properties and Biomechanics of the Skin
  - 2.4.8. Planning the Approach
  - 2.4.9. Incisions
  - 2.4.10. Wound Closure
- 2.5. Materials for Implants in Large Animals
  - 2.5.1. Material Properties
  - 2.5.2. Stainless Steel
  - 2.5.3. Titanium
  - 2.5.4. Material Fatigue
- 2.6. External Fixators
  - 2.6.1. Transfixion Casts
  - 2.6.2. External Fixators
  - 2.6.3. External Fixators of Ruminants (Cattle, Sheep), Camelids (Camels, Alpacas and Llamas) and Swine (Pigs, Wild Boar)
- 2.7. Instruments for Inserting an Implant
  - 2.7.1. Plate Contouring Instruments
  - 2.7.2. Instruments for Inserting Screws
  - 2.7.3. Instruments for Inserting Plates
- 2.8. Implants
  - 2.8.1. Screws
  - 2.8.2. Plates
  - 2.8.3. Placement Techniques
  - 2.8.4. Functions of Each Implant
  - 2.8.5. Tension Band

- 2.9. Bone Grafts
  - 2.9.1. Indications
  - 2.9.2. Removal Sites
  - 2.9.3. Complications
  - 2.9.4. Synthetic Bone Grafts
- 2.10. Complications of Inserting an Implant
  - 2.10.1. Lack of Reduction
  - 2.10.2. Incorrect Number and Size of Implants
  - 2.10.3. Incorrect Position of the Implant
  - 2.10.4. Complications Related to the Compression Screw
  - 2.10.5. Complications Related to Plates



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

# 05 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.





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

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, in an attempt to recreate the actual conditions in a veterinarian's professional practice.

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the time dedicated to working on the course.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.



*Veterinarians will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



### Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



### Interactive Summaries

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

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



### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





### Expert-Led Case Studies and Case Analysis

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



### Testing & Retesting

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



### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



### Quick Action Guides

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



# 06 Certificate

The Postgraduate Certificate in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals 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 program and receive your university qualification without having to travel or fill out laborious paperwork"*

This program will allow you to obtain your **Postgraduate Certificate in Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals** 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** title 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 Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals**

Modality: **online**

Duration: **12 weeks**

Accreditation: **12 ECTS**





## Postgraduate Certificate

### Preoperative and General Aspects in the Diagnosis and Treatment of Fractures in Large Animals

- » Modality: online
- » Duration: 12 weeks
- » Certificate: TECH Global University
- » Credits: 12 ECTS
- » Schedule: at your own pace
- » Exams: online

**Postgraduate Certificate**  
Preoperative and General  
Aspects in the Diagnosis  
and Treatment of Fractures  
in Large Animals

