

# Postgraduate Diploma

## Clinical Anesthetic Management of Large Animals





## Postgraduate Diploma Clinical Anesthetic Management of Large Animals

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Global University
- » Credits: 18 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/veterinaria/postgraduate-diploma/postgraduate-diploma-clinical-anesthetic-management-large-animals](http://www.techtute.com/us/veterinaria/postgraduate-diploma/postgraduate-diploma-clinical-anesthetic-management-large-animals)

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01

# Introduction

Frequently, anesthesia is included within disciplines such as internal medicine and/or surgery, so professional development and content on this area are limited. However, in this Postgraduate Diploma in Clinical Anesthetic Management of Large Animals, all aspects of general anesthesia are thoroughly explored. The practical slant of this program enables veterinary professionals to apply their knowledge in the clinical sector.





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*Become one of the most sought-after professionals: specialize in Clinical Anesthetic Management of Large Animals with this comprehensive online program”*

In the last 20 years, Veterinary Anesthesia in Large Animals has seen significant advances thanks to the introduction of new techniques and drugs, as well as the development of monitors and specialized anesthetic machines.

The introduction of novel surgical techniques has resulted in the need to develop new anesthetic protocols. There is a growing concern about the impact of anesthesia and analgesia on animal welfare and the final outcome of surgical procedures.

This Postgraduate Diploma in Clinical Anesthetic Management of Large Animals is designed in response to the need of clinical veterinarians to gain expertise on the protocols and techniques for this area of anesthesia and analgesia.

The topics covered in the Postgraduate Diploma in Clinical Anesthetic Management of Large Animals have been selected with the aim of offering a complete course in anesthesia, so that the student develops specialized knowledge to safely address any situation requiring general or locoregional anesthesia and analgesia in ruminants, swine, camelids and equids.

Thus, TECH offers this 100% online program for veterinary professionals who want to update their knowledge. In this way, and by analysing practical cases, they will be able to broaden their knowledge of anesthetic processes.

This **Postgraduate Diploma in Clinical Anesthetic Management of Large Animals** contains the most complete and up-to-date educational program on the market. The most important features include:

- ◆ The latest technology in online teaching software
- ◆ A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ◆ Practical cases presented by practising experts
- ◆ State-of-the-art interactive video systems
- ◆ Teaching supported by telepractice
- ◆ Continuous updating and recycling systems
- ◆ Autonomous learning: full compatibility with other occupations
- ◆ Practical exercises for self-assessment and learning verification
- ◆ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ◆ Communication with the teacher and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection
- ◆ Supplementary documentation databases are permanently available, even after the program



*Get a comprehensive and practical qualification in Clinical Anesthetic Management of Large Animals with this highly effective Postgraduate Diploma and open up new routes to professional advancement"*

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*A Postgraduate Diploma that will enable you to work in all fields of veterinary anesthesiology with the competence of a high-level professional"*

Our teaching staff is made up of professionals from different fields related to this specialty. In this way, we ensure that we provide you with an update in line with objectives. A multidisciplinary team of qualified and experienced professionals from different contexts, who will develop the theoretical knowledge in an efficient way, but above all, bring their practical knowledge from their own experience to the program: one of the factors that makes this educational program unique.

This mastery of the subject is complemented by the effectiveness of the methodological design of this Postgraduate Diploma in Clinical Anesthetic Management of Large Animals. Developed by a multidisciplinary team of e-Learning experts, it integrates the latest advances in educational technology. In this way, you will be able to study with a range of convenient and versatile multimedia tools that will give you the operability you need in your studies.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as a highly practical process. To achieve this remotely, we will use telepractice learning: with the help of an innovative interactive video system, and learning from an expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: Learning from an expert.*



# 02 Objectives

The objective of this Postgraduate Diploma is to train highly qualified professionals. An objective that is complemented, moreover, in a global manner, by promoting human development that lays the foundations for a better society. This objective is focused on helping professionals reach a much higher level of expertise and control. A goal that can be achieved in just a few months with a highly intensive and targeted program.





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*If your objective is to broaden your skills set to include new paths of success and development: this is the program for you: a training that aspires to excellence”*



## General Objectives

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- ♦ Examine the requirements of a pre-anesthetic assessment and develop expertise in interpreting anesthetic risk
- ♦ Establish the pre-anesthetic preparation required for large species
- ♦ Analyze the pharmacological properties of injectable drugs
- ♦ Determine available sedative and tranquilizing drugs
- ♦ Delve into the available protocols for deep sedation
- ♦ Identify, prevent and resolve complications during the perianesthetic period in the horse
- ♦ Establish the appropriate clinical approach to cardiorespiratory resuscitation in the adult horse and neonatal foal
- ♦ Identify, prevent and resolve complications during the perianesthesia period in small and large ruminants, swine and camelids
- ♦ Get to know the main characteristics of the most frequently performed procedures in the station under sedation
- ♦ Detail the most pertinent points on anesthetic management of the most common diagnostic and therapeutic procedures
- ♦ Generate specialized knowledge for the correct anesthetic management of animals destined for human consumption
- ♦ Become an expert on the legislation related animals for human consumption as well as experimental animals
- ♦ Detail the main logistical, pharmacological and clinical requirements for the correct anesthetic management of wild animals
- ♦ Specify the most characteristic peculiarities of the anesthetic management of the most frequent diagnostic and therapeutic procedures in foals
- ♦ Perform euthanasia protocols that respect the physical and mental well-being of the horse





## Specific Objectives

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### Module 1. Evaluation, Preanesthetic Preparation and Sedation for Large Animals

- ◆ Determine the physical examination and common findings in the equine pre-anesthetic assessment
- ◆ Strengthen the basics of pre-anesthesia laboratory assessment
- ◆ Analyze, identify and interpret the patient's anesthetic risk
- ◆ Establish the necessary actions in the preparation of the patient for anesthesia
- ◆ Detail the special pharmacological considerations for the main sedative drugs in ruminants, swine and camelids
- ◆ Know the pharmacological properties and clinical implications of sedative and tranquilizing drugs
- ◆ Establish the most common station procedures and protocols in the equine patient

### Module 2. Anesthetic Complications and Cardiopulmonary Resuscitation

- ◆ Know the published studies on mortality and perianesthetic morbidity in horses
- ◆ Know the risk factors and causes for perianesthetic mortality
- ◆ Identify, anticipate and resolve complications that occur in the premedication phase
- ◆ Identify, anticipate and resolve complications that occur in the induction phase
- ◆ Identify, anticipate and resolve complications that occur in the maintenance phase
- ◆ Identify, anticipate and resolve complications that occur in the recovery and postoperative phase
- ◆ Early recognition of life-threatening cardiorespiratory emergencies in horses
- ◆ Develop effective cardiorespiratory resuscitation protocols
- ◆ Be aware of the complications related to improper positioning of the ruminant, swine or camelid patient

- ♦ Recognize the main cardiovascular complications in ruminants, swine and camelids
- ♦ Study the complications associated with the gastrointestinal system in camelids
- ♦ Recognize complications associated with intravenous catheter placement in ruminants, swine and camelids
- ♦ Broaden knowledge of the pathophysiology of malignant hyperthermia
- ♦ Identify the complications that can occur during anesthetic recovery in ruminants, swine and camelids

### Module 3. Special Clinical Cases and Conditions for Large Animals

- ♦ Generate specialized knowledge on the most frequent surgical and imaging procedures
- ♦ Establish the most appropriate protocols according to the procedure to be performed
- ♦ Detail the main differences in the anesthesia of foals compared to adults
- ♦ Know the risk factors and complications for colic anesthesia in order to adapt the anesthetic protocol
- ♦ Detail the physiological aspects to be taken into account during anesthesia in geriatric horses
- ♦ Gain in-depth knowledge of the anesthetic management of the main diagnostic and therapeutic procedures in large and small ruminants
- ♦ Detail the anesthetic management of ruminant adnexal organs such as horns, hooves or tails
- ♦ Master the features of anesthesia in swine transplantation models, as well as for laparoscopy in experimental swine
- ♦ Establish basic characteristics of field anesthesia in pigs and castration of piglets





- ◆ Determine the basic principles of field anesthesia in camelids
- ◆ Define the main behavioral, physiological and anatomical characteristics of donkeys and mules
- ◆ Delve into the pharmacology of anesthetic and analgesic agents in donkeys and mules
- ◆ Broaden knowledge of the logistics and pharmacological methods most appropriate for the capture and handling of wild species
- ◆ Master sedation and field anesthesia protocols in wild ruminants
- ◆ Determine protocols for sedation and field anesthesia in wild swine
- ◆ Detailed protocols for sedation and field anesthesia in wild camelids
- ◆ Expand knowledge related to monitoring alternatives in these non-domestic species

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*A path to achieve education and professional growth that will propel you towards a greater level of competitiveness in the employment market”.*

03

# Course Management

In line with the program's concept of total quality, a highly qualified teaching staff, chosen for their proven experience, is at your disposal. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.





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*We have the best teaching staff with years of experience and who are determined to transmit all their knowledge about this sector”*

## Management



### Dr. Villalba Orero, María

- ♦ Scientific Advisor on cardiovascular and pulmonary ultrasound at the National Center for Cardiovascular Research
- ♦ Head and founder of CardiologíaEquina\_MVO
- ♦ Head of the Equine Anesthesia Service at Asurvet Equidos
- ♦ Doctor of Veterinary Medicine, Complutense University of Madrid
- ♦ Degree in Veterinary Medicine from the Complutense University Madrid
- ♦ Master's Degree in Veterinary Sciences from the Complutense University of Madrid
- ♦ Master's Degree in Veterinary Cardiology
- ♦ European Certificate in Veterinary Cardiology (ESVPS)

## Professors

### Dr. Santiago Llorente, Isabel

- ♦ Head of Equine Internal Medicine at the Complutense Veterinary Clinical Hospital
- ♦ Member of the Anesthesia Service at the Complutense Veterinary Clinic Hospital of the Complutense University of Madrid
- ♦ Practical teaching in the Department of Animal Medicine and Surgery of the Complutense University of Madrid
- ♦ Doctorate in Veterinary from the Complutense University of Madrid
- ♦ Degree in Veterinary Medicine from the Complutense University Madrid
- ♦ Teachers at Polytechnic University of Lisbon
- ♦ Member of the AVEE Association

### Dr. Troya Portillo, Lucas

- ♦ Veterinary doctor expert in Equine Clinic
- ♦ Internal Physician and Anesthesiologist Team at Hospital Clínico Veterinario de Barcelona
- ♦ Researcher at the Department of Animal Medicine and Surgery at the University Autonomous of Barcelona
- ♦ Researcher in Veterinary Medicine with the Institute of Applied Studies
- ♦ Master's Degree in Clinic at Complutense University Madrid
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid
- ♦ Member of the Association English of Equine Veterinary Specialists



**Dr. Montefiori, Filippo**

- ♦ Veterinary Anesthesiologist in the outpatient service at the Anesthesia and Veterinary Surgery
- ♦ Collaborator in practical teaching at the Faculty of Veterinary Medicine of Complutense University Madrid
- ♦ Lecturer in Small and Large Animal Anesthesia and Analgesia at the Veterinary School of the University of Edinburgh (UK)
- ♦ Resident in Anesthesia Veterinary Medicine from the Faculty of Veterinary Medicine of Glasgow
- ♦ Stay in the Anesthesia Service of the Veterinary Faculty of Ghent, Belgium
- ♦ Honorary Collaborator at the Faculty of Veterinary Medicine of the University Complutense of Madrid
- ♦ Degree in Veterinary Medicine from the University of Italy
- ♦ European College of Veterinary Anesthesia and Analgesia Residency in Anesthesia and Analgesia at the University of Glasgow School of Veterinary Medicine
- ♦ Member of; AVA, SEAAV

**Dr. Valero, Marta**

- ♦ Clinical Veterinary Assistant at Veterinaria Reina
- ♦ Veterinarian in the Department of Medicine and Large Animal Surgery at the University Clinical Hospital of the University of Extremadura
- ♦ Collaborator in practical teaching on the Large Animal Clinic course at the University of Extremadura
- ♦ Graduate in Veterinary Medicine from the University of Murcia
- ♦ Master's Degree in Medicine and Large Animal Surgery from the University of Extremadura

**Dr. Jiménez Tabasco, Alberto**

- ♦ Veterinarian Internal Veterinary Clinical Hospital of the University of Extremadura
- ♦ Supervisor of the Clinical Rotation of the Faculty of Veterinary Medicine of the University of Extremadura
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid

**Dr. Arenillas Baquero, Mario**

- ♦ Veterinary Anesthesiology
- ♦ Veterinarian in charge Getafe University Hospital(Madrid)
- ♦ Degree in Veterinary Medicine from the Complutense University of Madrid
- ♦ European Diploma in the specialty of anesthesia and analgesia by the ECVAA (European College of Veterinary Analgesia and Analgesia)
- ♦ Doctorate in Veterinary Medicine
- ♦ Associate Professor in the Veterinary Degree, Faculty of Veterinary Medicine, Complutense University of Madrid
- ♦ Member of: SEAAV (Spanish Society of Veterinary Anesthesia and Analgesia), Anesthesia and Analgesia Specialty Group of AVEPA and the AVA (Association of Veterinary Anesthetists)

**Dr. Villalba, Marta**

- ♦ Collaboration as an ambassador of the Complutense Clinical Veterinary Hospital (HCVC)
- ♦ Veterinarian at the Complutense Veterinary Clinical Hospital (HCVC)
- ♦ Stay at The Royal school of Veterinary Studies
- ♦ Degree in Veterinary Medicine, Complutense University Madrid
- ♦ Member of: Association of Equine Veterinary Specialists

**Dr. Pérez Jiménez - Arellano, Rocío**

- ♦ Veterinarian in the Equine Service of the Veterinary Clinical Hospital
- ♦ Veterinary Assistant at Los Cipreses Veterinary Clinic
- ♦ Mobile Clinic Jaime Goyoaga SLP
- ♦ Stay at the La Equina Reference Hospital
- ♦ Degree in Veterinary Medicine, Complutense University Madrid

# 04

# Structure and Content

The contents of this Postgraduate Diploma have been developed by different experts involved in the program, with a clear purpose: to ensure that our students acquire each and every one of the necessary skills to become true experts in this field. A complete and well-structured program will take you to the highest standards of quality and success.





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*We have the most complete and up-to-date educational program in the market. We strive for excellence and for you to achieve it too"*

**Module 1. Evaluation, Preanesthetic Preparation and Sedation for Large Animals**

- 1.1. Physical Examination and Blood Test
- 1.2. Anesthetic Risk and Preanesthetic Preparation in the Equine Patient
- 1.3. Pharmacology of Injectable Drugs in Horses
  - 1.3.1 Important Pharmacokinetic Concepts
  - 1.3.2 Important Pharmacodynamics Concepts
  - 1.3.3 Physiological and Pathological Factors that Modify Pharmacological Properties
  - 1.3.4 Pharmacological Interventions
  - 1.3.5 Routes of Administration
- 1.4. Phenothiazines
  - 1.4.1 Mechanism of Action
  - 1.4.2 Pharmacology
  - 1.4.3 Clinical Use and Antagonism
  - 1.4.4 Complications and adverse effects
- 1.5. Benzodiazepines
  - 1.5.1 Mechanism of Action
  - 1.5.2 Pharmacology
  - 1.5.3 Clinical Use and Antagonism
  - 1.5.4 Complications and adverse effects
- 1.6. Adrenergic Alpha-2 Receptor Agonists
  - 1.6.1 Mechanism of Action
  - 1.6.2 Pharmacology
  - 1.6.3 Clinical Use and Antagonism
  - 1.6.4 Complications and adverse effects
- 1.7. Opioids
  - 1.7.1 Mechanism of Action
  - 1.7.2 Pharmacology
  - 1.7.3 Clinical Use and Antagonism
  - 1.7.4 Complications and adverse effects
- 1.8. Sedation for On-Station Procedures
  - 1.8.1 Types of Procedures
  - 1.8.2 Clinical Objectives
  - 1.8.3 Methods of Administration
  - 1.8.4 Combinations Described





- 1.9. Assessment and Anesthetic Preparation in Ruminants, Swine and Camelids
- 1.10. Pharmacological Peculiarities of Ruminant, Swine and Camelid Patients
  - 1.10.1 Small Ruminants
  - 1.10.2 Large Ruminants
  - 1.10.3 Swine
  - 1.10.4 Camelids

## Module 2. Anesthetic Complications and Cardiopulmonary Resuscitation

- 2.1. Morbidity and Mortality
  - 2.1.1. Mortality
    - 2.1.1.1. General Considerations
    - 2.1.1.2. Mortality Studies
      - 2.1.1.2.1. Comparative Mortality
    - 2.1.1.3. Risk Factors
      - 2.1.1.3.1. Related to the Horse
      - 2.1.1.3.2. Related to the Surgical Procedure
      - 2.1.1.3.3. Related to Anesthesia
    - 2.1.1.4. Anesthesia-Related Causes of Death
      - 2.1.1.4.1. Cardiovascular
      - 2.1.1.4.2. Respiratory
      - 2.1.1.4.3. Others
  - 2.1.2. Morbidity
- 2.2. Complications in Premedication and Induction I
  - 2.2.1 Intra-arterial and Perivascular Injection
  - 2.2.2 Anaphylactic Reactions
  - 2.2.3 Drug-Induced Priapism
  - 2.2.4 Incomplete or Inadequate Sedation/Induction
- 2.3. Complications in Premedication and Induction II
  - 2.3.1 Hypoventilation
  - 2.3.2 Inability to Intubate/Laryngeal Trauma
  - 2.3.3 Hypotension

- 2.4. Complications in Maintenance I
    - 2.4.1 Hypoxemia
    - 2.4.2 Hypercapnia
    - 2.4.3 Inadequate Anesthetic Plan and Alternative Anesthetic Plans
    - 2.4.4 Malignant Hyperthermia
  - 2.5. Complications in Maintenance II
    - 2.5.1 Hypotension
    - 2.5.2 Hypertension
    - 2.5.3 Bleeding
      - 2.5.3.1. Alterations in Heart Rate and Rhythm
  - 2.6. Complications in Recovery I
    - 2.6.1 Hypoxemia/Hypercapnia
    - 2.6.2 Nasal Edema
    - 2.6.3 Airway Obstruction
    - 2.6.4 Pulmonary Edema
    - 2.6.5 Fractures and Soft Tissue Damage
    - 2.6.6 Neuropathologies
    - 2.6.7 Myopathies
  - 2.7. Complications in Recovery II
    - 2.7.1 Myelopathies
    - 2.7.2 Hyperkalemic Periodic Paralysis
    - 2.7.3 Delay/Excitation in Recovery
    - 2.7.4 Immediate Postoperative Complications
    - 2.7.5 Human Error
  - 2.8. Cardiopulmonary Resuscitation (CPR) I
    - 2.8.1 Causes of Cardiopulmonary Emergencies
    - 2.8.2 Diagnosis of Cardiopulmonary Emergencies
    - 2.8.3 Cardiac Massage
    - 2.8.4 CPR Maneuver
      - 2.8.4.1. Foal CPR Maneuver
      - 2.8.4.2. Adult CPR Maneuver
  - 2.9. Complications in Small and Large Ruminants
    - 2.9.1 Complications Associated with Poor Patient Positioning
    - 2.9.2 Cardiovascular Complications
    - 2.9.3 Tympanism, Regurgitation, Salivation
    - 2.9.4 Respiratory Complications
    - 2.9.5 Hypothermia
    - 2.9.6 Other Complications
  - 2.10. Complications in Ruminants, Swine and Camelids
    - 2.10.1 Complications Related to Improper Positioning of Ruminants, Swine and Camelids
    - 2.10.2 Cardiovascular Complications in Ruminants, Swine and Camelids
    - 2.10.3 Respiratory Complications in Ruminants, Swine and Camelids
    - 2.10.4 Digestive Complications in Ruminants and Camelids
      - 2.10.4.1. Anesthetic Recovery Complications in Ruminants, Swine and Camelids
      - 2.10.4.2. Complications Related to Intravenous Catheterization in Ruminants, Swine and Camelids
      - 2.10.4.3. Complications Related to Endotracheal Intubation in Swine
      - 2.10.4.4. Malignant Hyperthermia in Swine Patients
- Module 3. Special Clinical Cases and Conditions for Large Animals**
- 3.1. Special Cases in Station in Equines
    - 3.1.1 Diagnostic Procedures (CT, MRI)
    - 3.1.2 Laryngeal Surgery
    - 3.1.3 Laparoscopy
    - 3.1.4 Dental Procedures
    - 3.1.5 Ophthalmological Procedures
    - 3.1.6 Perineal Surgeries
    - 3.1.7 Obstetric Maneuvers
  - 3.2. Anesthesia in Special Cases in Equines (I)
    - 3.2.1 Geriatric Patient
    - 3.2.2 Patient with Acute Abdominal Syndrome
    - 3.2.3 Cesarean Section
  - 3.3. Anesthesia in Special Cases in Equines (II)
    - 3.3.1 Elective Anesthetic Management in Foals
    - 3.3.2 Emergency Anesthetic Management of Foal Emergencies

- 3.4. Anesthesia in Special Cases in Equines (III)
  - 3.4.1 Anesthetic Management of Respiratory Surgery
  - 3.4.2 Anesthetic Management of Diagnostic and Therapeutic Procedures for Nervous System Pathologies
- 3.5. Anesthesia in Special Cases in Ruminants
  - 3.5.1 Anesthetic Considerations and Perioperative Management in Orthopedic Procedures in Ruminants
  - 3.5.2 Anesthetic Considerations and Perioperative Management in for Wounds and abscesses Procedures in Ruminants
  - 3.5.3 Anesthetic Considerations and Perioperative Management in Ruminant Laparotomy
  - 3.5.4 Anesthetic Considerations and Perioperative Management in Obstetrics and Castration Procedures in Ruminants
  - 3.5.5 Anesthetic Considerations and Perioperative Management of Procedures for Distal Extremities, Hooves and Horns in Ruminants
  - 3.5.6 Anesthetic Considerations and Perioperative Management in Udder and Teat Procedures in Ruminants
  - 3.5.7 Anesthetic Considerations and Perioperative Management of Procedures for Eyes and Adjacent Areas in Ruminants
  - 3.5.8 Anesthetic Considerations and Perioperative Management in Surgical Procedures for the Resolution of Umbilical Hernias in Ruminants
  - 3.5.9 Anesthetic Considerations and Perioperative Management of Procedures for Perianal and Tail Areas in Ruminants
- 3.6. Anesthesia and Analgesia in Donkeys and Mules
  - 3.6.1 Anatomical, Physiological and Behavioral Variations
  - 3.6.2 Reference Values Required for Anesthesia
  - 3.6.3 Variations in Responses to Common Drugs Used in Anesthesia
  - 3.6.4 Premedication and Sedation for Foot Procedures in Donkeys and Mules
  - 3.6.5 Induction and Maintenance of Anesthesia: Injectable and Inhalation Techniques
  - 3.6.6 Anesthetic Monitoring
  - 3.6.7 Recovery of Anesthesia
  - 3.6.8 Preoperative, Intraoperative and Postoperative Analgesia
  - 3.6.9 Local Anesthetic Techniques in Donkeys and Mules
- 3.7. Anesthesia in Special Cases for Swine and Camelids
  - 3.7.1 Intraoperative and Perioperative Anesthetic Management in Field Anesthesia in Swine
  - 3.7.2 Castration in Piglets. Analgesic and Anesthetic Considerations
  - 3.7.3 The Vietnamese Pig. Intraoperative and Perioperative Anesthetic Management and Most Frequent Complications
  - 3.7.4 Anesthetic Considerations and Perioperative Management of the Pig as a Model for Transplantation and Cardiovascular Models
  - 3.7.5 Anesthetic Considerations and Perioperative Management of the Pig as a Model for Laparoscopy
  - 3.7.6 Intraoperative and Perioperative Anesthetic Management in Field Anesthesia in Camelids
  - 3.7.7 Castration for the Alpaca Analgesic and Anesthetic Considerations
- 3.8. Anesthesia in Ruminants, Swine and Wild Camelids
  - 3.8.1 Considerations for Chemical Immobilization and Anesthesia for the Bovidae and Antilocapridae Family
  - 3.8.2 Considerations for Chemical Immobilization and Anesthesia in the Subfamily Capridae
  - 3.8.3 Considerations for Chemical Immobilization and Anesthesia in the Family Cervidae, Tragulidae and Mochidae
  - 3.8.4 Considerations for Chemical Immobilization and Anesthesia in the Suidae and Tayassuidae Family
  - 3.8.5 Considerations for Chemical Immobilization and Anesthesia in the Family Camelidae
- 3.9. Special Considerations: Animals for Consumption/Experimental Animals (Ruminants and Swine)
  - 3.9.1 Legislation Applicable to the Anesthesia of Animals Intended for Human Consumption
  - 3.9.2 Anesthetic and Analgesic Considerations in Animals Intended for Human Consumption
  - 3.9.3 Legislation Applicable to the Anesthesia of Animals for Experimental Purposes
  - 3.9.4 Anesthetic and Analgesic Considerations in Experimental Ruminants and Swine
- 3.10. Euthanasia
  - 3.10.1 General Considerations
    - 3.10.1.1 Geriatric Horse
  - 3.10.2 Mechanisms of action for Hypothermia
  - 3.10.3 Chemical Euthanasia Methods
  - 3.10.4 Physical Euthanasia Methods
  - 3.10.5 Euthanasia Protocol
  - 3.10.6 Confirmation of Death

# 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

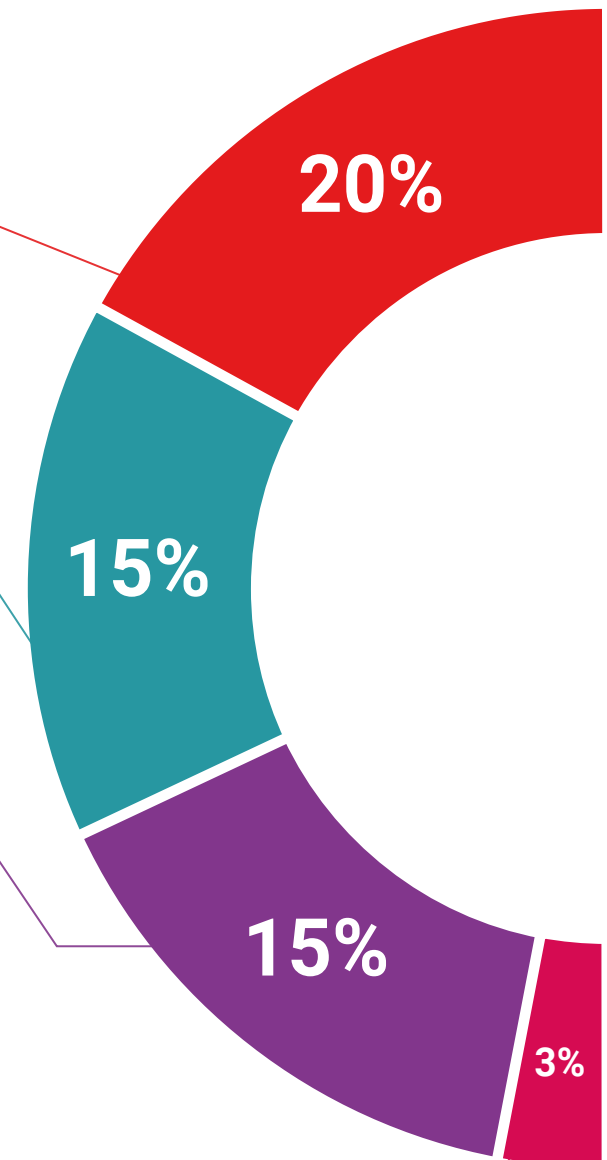
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

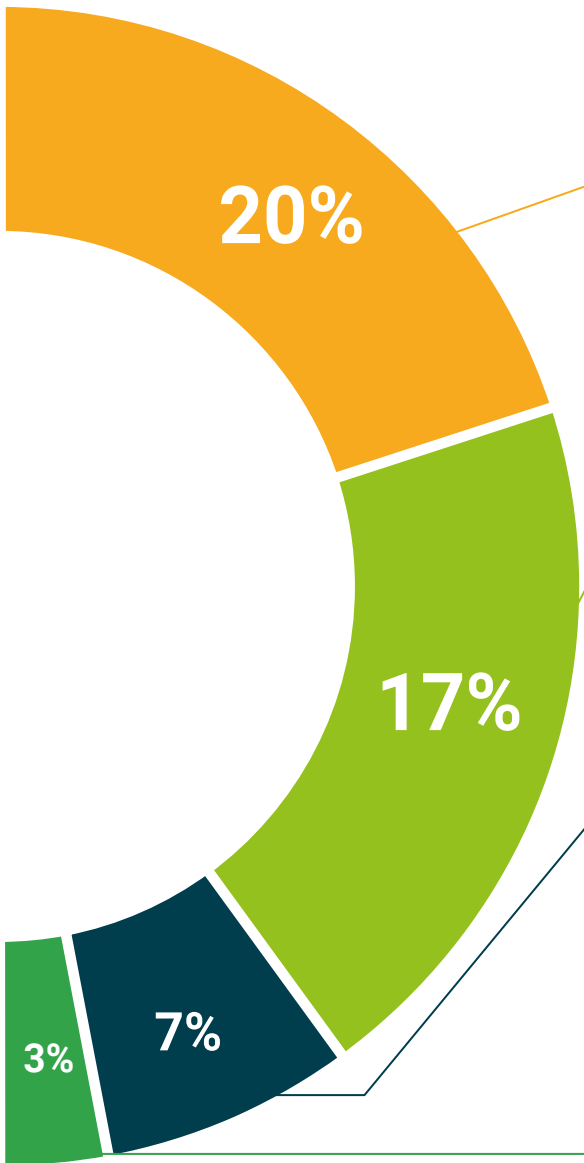
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



### 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 Diploma in Clinical Anesthetic Management of Large Animals guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 Diploma in Clinical Anesthetic Management of 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 Diploma in Clinical Anesthetic Management of Large Animals**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**



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



**Postgraduate Diploma**  
Clinical Anesthetic  
Management of Large Animals

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Global University**
- » Credits: **18 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

# Postgraduate Diploma

## Clinical Anesthetic Management of Large Animals

