

# Postgraduate Certificate Cardiovascular Medicine in Large Animals





## Postgraduate Certificate Cardiovascular Medicine in Large Animals

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

Website: [www.techtute.com/us/veterinary-medicine/postgraduate-certificate/cardiovascular-medicine-large-animals](http://www.techtute.com/us/veterinary-medicine/postgraduate-certificate/cardiovascular-medicine-large-animals)

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# 01

# Introduction

This program lays the fundamental foundations for understanding the development and evolution of cardiac pathology in large animals in order to decide the optimal treatment in each case. To this end, this program covers in depth the anatomy and physiology of the heart and cardiovascular regulation in physiological and pathological situations, as well as pharmacology.

It also delves into the most common diseases, both those characterized for causing murmurs and those characterized for causing arrhythmias.





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*Large animals can have complex pathologies, so it is necessary to have specialized veterinarians who can treat them”*

The Postgraduate Diploma in Cardiovascular Medicine in Large Animals incorporates innovative knowledge, based on the latest scientific evidence, that allows veterinary professionals to stay up to date on the newest treatments and emerging diseases that affect large animals across the world as a consequence of globalization.

Specialized and advanced knowledge of these diseases is necessary since outbreaks of some diseases considered eradicated or new ones may occur in all countries of the world.

Clinical practice is a very dynamic activity, new treatments are constantly appearing in scientific publications and veterinarians must be aware of them in order to be able to offer these options to their clients. Each of the modules in this Postgraduate Certificate covers one of the organ systems, with emphasis on those systems that are most frequently affected in the large animals.

With respect to ruminants, although their handling and the diseases they suffer from are different from those of horses, they must also be understood with sufficient scientific expertise to be able to establish adequate treatments and accurate prognoses. Camelids of the new world or South America, which include mainly llamas and alpacas as domesticated animals, are animals bred for different purposes including fiber production, pack animals or meat production in South America. Horses are animals that are used both for leisure and as companion animals, as well as in different sports disciplines, which adds an important added economic value. It is essential to have a high level of knowledge in Internal Medicine to be able to work with these horses, since, due to their economic value, they are not readily accessible to clinicians with little training.

This Postgraduate Certificate is designed by professors with the highest recognized degree of specialization, thus guaranteeing its quality in all aspects, both clinical and scientific, of large animals.

This **Postgraduate Certificate in Cardiovascular Medicine in Large Animals** contains the most complete and up to date scientific program on the market. The most important features include:

- ◆ Development of practical cases presented by experts in Cardiovascular Medicine in Large Animals
- ◆ 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
- ◆ The latest developments in Cardiovascular Medicine in Large Animals
- ◆ Practical exercises where self assessment can be used to improve learning
- ◆ Special emphasis on innovative methodologies in Cardiovascular Medicine in Large Animals
- ◆ 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



*Get trained with us and learn how to diagnose and treat diseases in large animals, in order to improve their quality of life"*

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*This Postgraduate Certificate is the best investment you can make when selecting a refresher program to update your knowledge in Cardiovascular Medicine in Large Animals"*

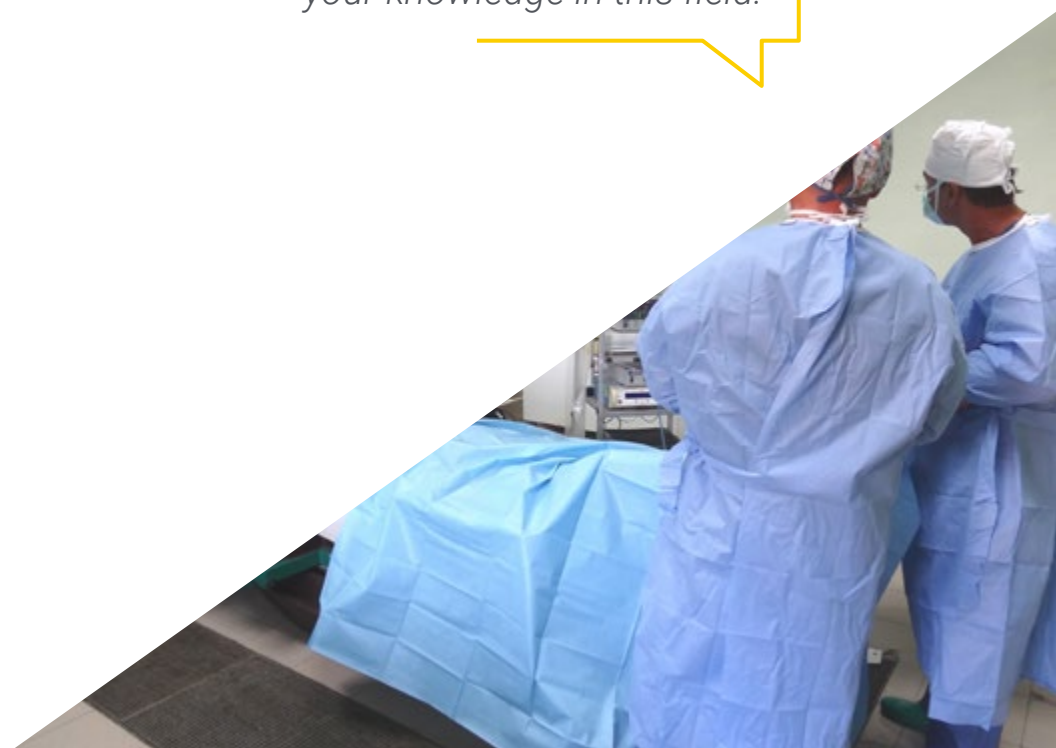
The teaching staff includes professionals from the field of veterinary medicine, who bring to this training the experience of their work, in addition to recognized specialists from reference societies and prestigious universities.

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 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 Internal Medicine in Large Animals.

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

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



# 02 Objectives

The Postgraduate Certificate in Cardiovascular Medicine in Large Animals is designed to facilitate the performance of veterinary professionals with the latest advances and the most innovative treatments in the sector.







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*It is the best option to learn about the latest advances  
in Cardiovascular Medicine in Large Animals”*



## General Objectives

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- Generate specialized knowledge on the cardiovascular pathophysiology in large animals
- Identify all clinical signs associated with cardiovascular disease
- Design diagnostic protocols with appropriate complementary tests
- Establish the specific clinical approach to horses with a cardiac or vascular disorder



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





## Specific Objectives

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- ◆ Recognize the specific anatomy, physiology and pathophysiology that underlies heart disease
- ◆ Gain in depth knowledge of the action mechanisms of the drugs used in diseases of the heart and blood vessels
- ◆ Specify the necessary information required in clinical examination of cardiopathy patients
- ◆ Establish a work methodology for patients with murmurs and for patients with arrhythmias
- ◆ Establish diagnostic and therapeutic protocols of horses with syncope
- ◆ Study heart failure in large animals in detail



03

# Course Management

The program's teaching staff includes leading experts in Cardiovascular Medicine in Large Animals, who bring their work experience to this training program. Professionals of recognized prestige have joined forces to offer you this high level training.



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*Our team of teachers, experts in Cardiovascular  
Medicine in Large Animals, will help you reach  
success in your profession"*

## Management



### Dr. Martín Cuervo, María

- ♦ Doctor of Veterinary Medicine from the University of Extremadura. Doctoral thesis on Inflammation Markers in Horses in a Critical Condition, 2017
- ♦ Degree in Veterinary Medicine from the University of Cordoba
- ♦ President of the Scientific Committee in the National Congress of the Spanish Association of Equine Veterinarians (AVEE), 2020
- ♦ Member of the Scientific Committee in the International Committee of the International Purebred Spanish Horse Show (SICAB), 2020
- ♦ Veterinarian, member of the European Board of Veterinary Specialization (EBVS) and the European College of Equine Internal Medicine (ECVIM)
- ♦ Member of the Spanish Association of Equine Veterinarians (AVEE)
- ♦ Head of the Equine Internal Medicine Services in the University of Extremadura (from 2015-present)



### Dr. Barba Recreo, Marta

- ♦ PhD in Biomedical Sciences, Auburn University, Alabama, USA, in 2016
- ♦ Diplomate of the American College of Internal Medicine, Large Animal in 2015
- ♦ Degree in Veterinary Medicine from the University of Zaragoza in 2009
- ♦ Head of the Equine Internal Medicine Service, Clinical Veterinary Hospital, CEU Cardenal Herrera University, Valencia

## Professors

### Dr. Diez de Castro, Elisa

- ♦ PhD Veterinary Medicine from the University of Cordoba Doctoral thesis in Equine Endocrinology in 2015
- ♦ Graduate of the European College of Equine Internal Medicine (ECEIM).
- ♦ Degree in Veterinary Medicine from the University of Cordoba
- ♦ Associate Professor of the Animal Medicine and Surgery Department at the University of Cordoba for the training and evaluation of the supervised internship (rotatory) of the fifth year students of the veterinary degree
- ♦ Equine Internal Medicine Service at Clinical Veterinary Hospital at the University of Cordoba

### Dr. Viu Mella, Judit

- ♦ Cum Laude PhD in Animal Medicine and Health from the Autonomous University of Barcelona in 2013
- ♦ Outstanding award for the thesis "Desequilibrios ácido-base en potros recién nacidos y caballos adultos evaluados por el enfoque cuantitativo." (Acid-base imbalances in newborn foals and adult horses evaluated by quantitative approach)
- ♦ Diplomate of the American College of Internal Equine Medicine in 2019
- ♦ Degree in Veterinary Medicine from the Autonomous University of Barcelona 2003
- ♦ Member of the Spanish Association of Specialist Veterinarians (AVEDE)
- ♦ Equine Internal Medicine and Anesthesia Services in the Sierra de Madrid Veterinary Hospital
- ♦ Anesthetist in the equine unit of the UAB Veterinary Clinical Hospital (May 2007 to August 2018)

### Dr. Villalba Orero, María

- ♦ Doctor in Veterinary Medicine, Madrid Complutense University. Doctoral thesis in Equine Anesthesia
- ♦ Degree in Veterinary Medicine from the Complutense University Madrid
- ♦ Associate Professor in the Department of Animal Medicine and Surgery at the Complutense University Madrid, with teaching experience in equine internal medicine, specializing in cardiology
- ♦ Professor of Pathophysiology at the Alfonso X el Sabio University
- ♦ Scientific advisor of cardiovascular and pulmonary ultrasound in the Nation Center of Cardiovascular Research
- ♦ Private Equine Cardiology Service, field of work in Spain

### Dr. Medina Torres, Carlos E.

- ♦ PhD in Veterinary Sciences from the University of Guelph, Ontario, Canada, 2009
- ♦ Diploma from the American College of Internal Medicine, specializing in Large Animals and from the European College of Equine Internal Medicine
- ♦ PhD from the University of Queensland, Australia, 2015
- ♦ 2017- Senior Lecturer and Clinical Specialist in Internal Medicine at the University of Queensland, Australia

# 04

# Structure and Content

The structure of the content has been designed by the best professionals in the field of Cardiovascular Medicine 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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*We have the most complete and up to date academic program in the market. We strive for excellence and for you to achieve it too"*

## Module 1. Alterations of the Cardiovascular System in Large Animals

- 1.1. Cardiovascular Anatomy and Clinical Pathophysiology
  - 1.1.1. Embryonic Development and Anatomy of the Heart
  - 1.1.2. Fetal Circulation
  - 1.1.3. Cardiac Cycle
  - 1.1.4. Ion Channels and Action Potentials
  - 1.1.5. Neurohormonal Control of the Heart
  - 1.1.6. Arrhythmogenic Mechanisms
- 1.2. Cardiovascular Examination
  - 1.2.1. Medical History
  - 1.2.2. Cardiovascular Examination
- 1.3. Diagnostic Tests
  - 1.3.2. Tensiometry
  - 1.3.3. Electrocardiography
  - 1.3.4. Echocardiography
  - 1.3.5. Vascular Ultrasound
- 1.4. Congenital and Valvular Heart Disease in Horses
  - 1.4.1. Ventricular Septal Defect
  - 1.4.2. Tetralogy of Fallot
  - 1.4.3. Patent Ductus Arteriosus
  - 1.4.4. Aortic Insufficiency
  - 1.4.5. Mitral Insufficiency
  - 1.4.6. Tricuspid Regurgitation
- 1.5. Arrhythmias in Horses
  - 1.5.1. Supraventricular Arrhythmias
  - 1.5.2. Ventricular Arrhythmias
  - 1.5.3. Conduction Disturbances
- 1.6. Pericarditis, Myocarditis, Endocarditis and Vascular Alterations in Horses
  - 1.6.1. Pericardial Disorders
  - 1.6.2. Myocardial Disorders
    - 1.6.2.1. Endocardial Disorders
    - 1.6.2.2. Aorto-Cardiac and Aorto-Pulmonary Fistulas
- 1.7. Cardiovascular Diseases in Cattle
  - 1.7.1. Examination of the Cardiovascular System in Cattle
  - 1.7.2. Congenital Cardiovascular Pathologies
  - 1.7.3. Arrhythmias
  - 1.7.4. Heart Failure and Cor Pulmonale
  - 1.7.5. Valvular and Endocardial Diseases
  - 1.7.6. Myocardial Diseases and Cardiomyopathies
  - 1.7.7. Pericardial Diseases
  - 1.7.8. Thrombosis and Embolism
  - 1.7.9. Neoplasty
- 1.8. Cardiovascular Diseases in Small Ruminants
  - 1.8.1. Examination of the Cardiovascular System in Small Ruminants
  - 1.8.2. Congenital Cardiovascular Pathologies
  - 1.8.3. Acquired Cardiovascular Pathologies
  - 1.8.4. Toxic Cardiopathies or Due to Nutritional Deficiencies
  - 1.8.5. Vascular Diseases
- 1.9. Cardiovascular Diseases in Camelids
  - 1.9.1. Examination of the Cardiovascular System in Camelids
  - 1.9.2. Congenital Cardiovascular Pathologies
  - 1.9.3. Acquired Cardiovascular Pathologies
  - 1.9.4. Toxic Cardiopathies or Due to Nutritional Deficiencies
  - 1.9.5. Anemia, Polycythemia and Erythrocytosis
  - 1.9.6. Neoplasty
- 1.10. Cardiovascular Pharmacology
  - 1.10.1. Vasodilators
  - 1.10.2. Positive Inotropes
  - 1.10.3. Diuretics
  - 1.10.4. Antiarrhythmics
  - 1.10.5. Treatment of Heart Failure



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*This training 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 Cardiovascular Medicine 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 Cardiovascular Medicine 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 Cardiovascular Medicine in Large Animals**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 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.

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



## Postgraduate Certificate Cardiovascular Medicine in Large Animals

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