

# Postgraduate Certificate

Doppler Ultrasound Applied to the  
Abdominal Cavity in Small Animals



## Postgraduate Certificate

### Doppler Ultrasound Applied to the Abdominal Cavity in Small 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/doppler-ultrasound-applied-abdominal-cavity-small-animals](http://www.techtute.com/us/veterinary-medicine/postgraduate-certificate/doppler-ultrasound-applied-abdominal-cavity-small-animals)

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# 01

# Introduction

The introduction of Doppler in ultrasound equipment brought about a diagnostic revolution in ultrasound studies. Doppler makes it possible to evaluate moving structures, as well as to perform a detailed study of blood vessels, all in real time and using a painless, non-invasive method.

With this high-level specialization, the student will specialize in Doppler Ultrasound Applied to the Abdominal Cavity, under the guidance of professionals with extensive experience in the sector.



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*Don't miss the opportunity to study this Postgraduate Certificate in Doppler Ultrasound Applied to the Abdominal Cavity in Small Animals with us. It is the perfect opportunity to advance in your professional career”*

In many cases, Doppler ultrasound has replaced other imaging techniques such as radiological angiography in the study of vascularization, with more definition and greater diagnostic capacity. It opened new paths such as cardiac ultrasound and many applications in obstetrics with the introduction of fetal ultrasound.

Doppler provides a large amount of hemodynamic and morphological data of the vascular system. In this program we will focus on getting to know Doppler in depth and its uses in abdominal and great vessels exploration.

At the end of this course the student will acquire specialized knowledge about abdominal flow and its pathologies, as well as abnormal vascularizations in organs, masses and lymph nodes.

With this specialization you will develop confidence, assurance and greater knowledge of pathologies and differential diagnoses when it comes to providing relevant and necessary information in daily ultrasound practice.

As it is an online Postgraduate Certificate course, students are not restricted by set timetables, nor do they need to physically move to another location. All of the content can be accessed at any time of the day, so you can balance your working or personal life with your academic life.

This **Postgraduate Certificate in Doppler Ultrasound Applied to the Abdominal Cavity in Small Animals** offers you the advantages of a high-level scientific, teaching, and technological course. These are some of its most notable features:

- ♦ **The latest technology** in online teaching software.
- ♦ **Intensely visual** teaching system, supported by graphic and schematic content that is 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.
- ♦ **Self-regulating** learning: full compatibility with other occupations.
- ♦ Practical exercises for **self-evaluation** and learning verification.
- ♦ **Support groups** and educational synergies: questions to the expert, discussion forums and debates.
- ♦ **Communication with the teacher** and individual reflection work.
- ♦ Content **available** from any fixed or portable device with internet connection.
- ♦ **Supplementary documentation** databases are permanently available, even after the course.



*Learn from real cases with this highly effective educational program and open up new paths in your professional progress"*

“

*This training is the best investment you can make when choosing a refresher program in Doppler Ultrasound”*

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 the training update we are aiming for. A multidisciplinary team of professionals trained and experienced in different environments, who will cover the theoretical knowledge in an efficient way, but, above all, will bring the practical knowledge derived from their own experience to the course: one of the differential qualities of this course.

This mastery of the subject is complemented by the effectiveness of the methodological design of this **Postgraduate Certificate in Doppler Ultrasound Applied to the Abdominal Cavity in Small Animals**. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your training.

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: 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.

*Immerse yourself in this training of the highest educational quality, which will allow you to face future challenges that may arise during daily practice in the use of Doppler Ultrasound*

*As the course is online, you will be able to train wherever and whenever you want, balancing your personal and professional life*



# 02 Objectives

Our objective is to train highly qualified professionals for the working A goal that you will reach in just a few months and that will allow you to achieve professional excellence.







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*Open new doors in your professional development with this effective specialist program”*



## General Objectives

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- Acquire knowledge of Doppler operation.
- Determine the types of Doppler that exist and their uses.
- Study of abdominal pathologies detected by ultrasound Doppler.



*This program will help you to acquire the skills you need to excel in your daily work”*





## Specific Objectives

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- ◆ Study the physical principles of a Doppler.
- ◆ Obtain a correct ultrasound beam for accurate flow study.
- ◆ Differentiate between vein flow and artery flow.
- ◆ Use vascular indices of vascular resistance and pulsatility.
- ◆ Evaluate vascularization in organs and masses.
- ◆ Identify structures by absence or presence of flow.
- ◆ Detect vascular alterations.
- ◆ Assess thrombo-embolisms and infarctions.

# 03

# Course Management

Professionals from different areas and skill sets with extensive experience in animal ultrasound will be your tutors throughout this specialist course. A complete multidisciplinary team that stands out for its illustrious professional trajectory and teaching experience.





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*We have the best teaching team to help you to specialize in a highly-demanded field”*

## Management



### Conde Torrente, María Isabel

- ♦ Head of the Diagnostic Imaging and Cardiology Service at Hospital Veterinario Alcor. Currently
- ♦ Degree in Veterinary Medicine from the University of Santiago de Compostela in 2012 with a certified European degree
- ♦ Advanced Postgraduate Course in Diagnostic Imaging (Computerized Axial Tomography). General Practitioner Advanced Certificate TCESMD. 2019
- ♦ Postgraduate General Practitioner Certificate in Diagnostic Imaging (GPCert- DI) 2016
- ♦ Professor in Veterinary Practical Training in 2015 as a teacher for the official qualification of veterinary technical assistant
- ♦ Gives training courses on clinical and laboratory analysis for veterinarians at Hospital Veterinario Alberto Alcocer
- ♦ Medical Director and head of the Advanced Diagnostic Imaging Service at Grupo Peñagrande. Exclusive handling of TC General Electrics TriAc Revolution 16 cuts. (2017-2019)
- ♦ Head of the Diagnostic Imaging Service at Centro Veterinario Mejorada. (2016-2017)
- ♦ Responsible for diagnostic services at Hospital Veterinario Alberto Alcocer. (2013-2016)
- ♦ University of Santiago de Compostela. Department of Animal Pathology. Collaboration with the research group on Heavy Metal Accumulation in Bovine Meat in collaboration with Cornell University, New York; published in the Journal of Animal Science.



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*With this high level program, you will train with the best. A unique opportunity to achieve professional excellence”*

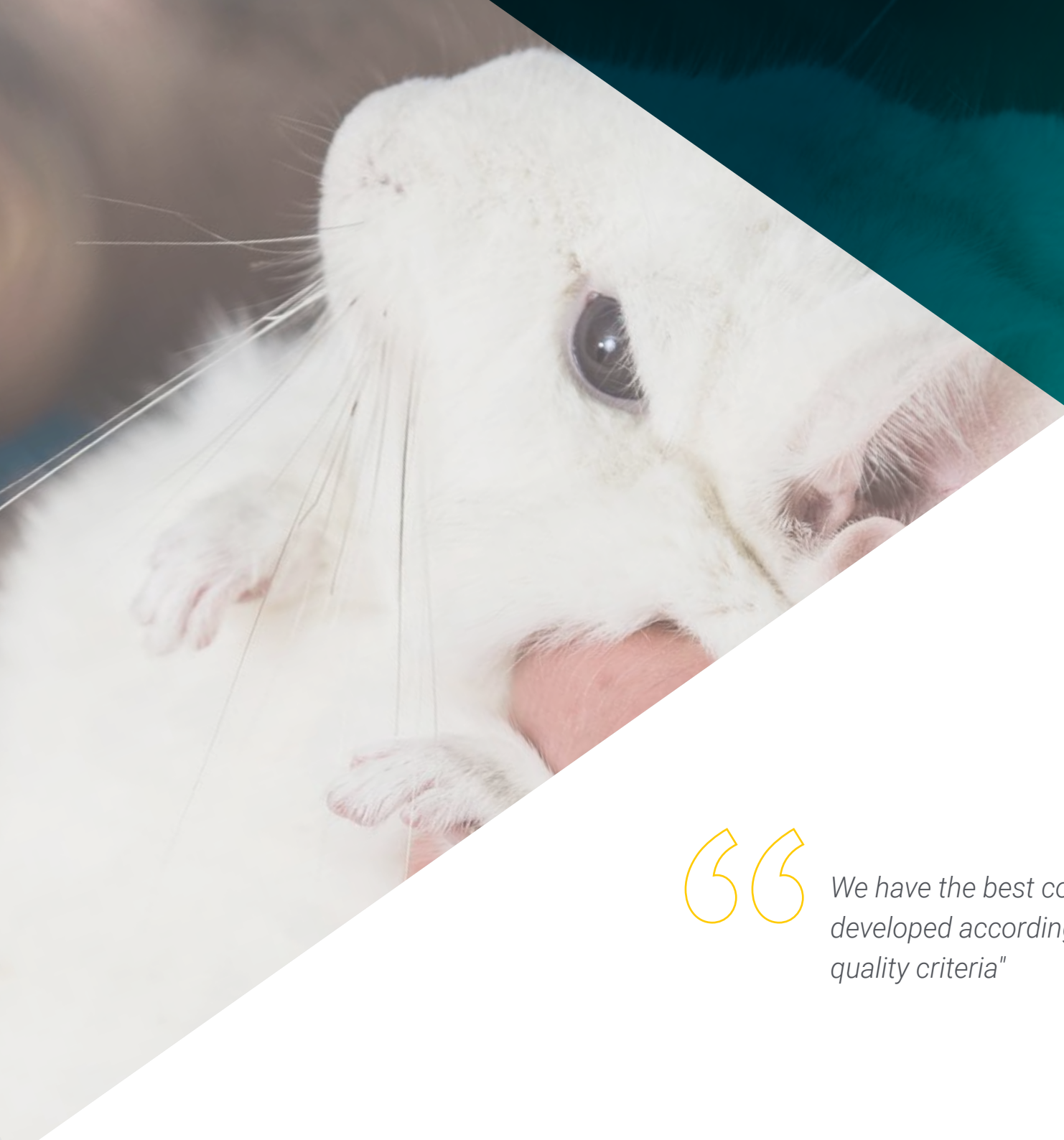
# 04

# Structure and Content

The contents of this program have been developed by the different professionals who make up the teaching staff of this course. A complete and well-structured program that will take you to the highest standards of quality and success.







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*We have the best content of the moment,  
developed according to the current teaching  
quality criteria”*

## Module 1. Doppler Ultrasound and its Abdominal Applications

- 1.1. Doppler Ultrasound
  - 1.1.1. Flow Characteristics
  - 1.1.2. The Doppler Effect
- 1.2. Types of Doppler
  - 1.2.1. Continuous Wave Doppler
  - 1.2.2. Pulsed Doppler
  - 1.2.3. Duplex Doppler
  - 1.2.4. Color Doppler
  - 1.2.5. Power Doppler
- 1.3. Abdominal Vascular System
  - 1.3.1. Single-vessel Doppler Study
  - 1.3.2. Types of Vascular Flow
  - 1.3.3. Abdominal Vascularization
- 1.4. Vascular System Applications
  - 1.4.1. Aortic Flow
  - 1.4.2. Vena Cava Flow Rate
  - 1.4.3. Hepatic Vessel Hypertension
- 1.5. Abdominal Cavity Applications
  - 1.5.1. Renal Vascularization
  - 1.5.2. Vascularization in Abdominal Masses
  - 1.5.3. Vascularization in Parenchymal Organs
- 1.6. Shunts
  - 1.6.1. Congenital Portosystemic Shunts
    - 1.6.1.1. Intrahepatic
    - 1.6.1.1. Extrahepatic
  - 1.6.2. Acquired Portosystemic Shunts
  - 1.6.3. Arteriovenous Fistulae





- 1.7. Heart Attacks
  - 1.7.1. Renal
  - 1.7.2. Intestinal
  - 1.7.3. Hepatic
  - 1.7.4. Others
- 1.8. Thrombosis
  - 1.8.1. Aortic Thromboembolism
  - 1.8.2. Aortic Mineralization
  - 1.8.3. Portal Vein Thrombosis
  - 1.8.4. Vena Cava Thromboembolism
- 1.9. Lymph Node Vascularization
  - 1.9.1. Exploration
  - 1.9.2. Pathological Abdominal Lymph Nodes
- 1.10. Intestinal Vovulus
  - 1.10.1. Intestinal Vascularization

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*This Postgraduate Certificate in Doppler Ultrasound Applied to the Abdominal Cavity in Small Animals will take you through different teaching approaches which will allow you to learn in a dynamic and efficient way”*

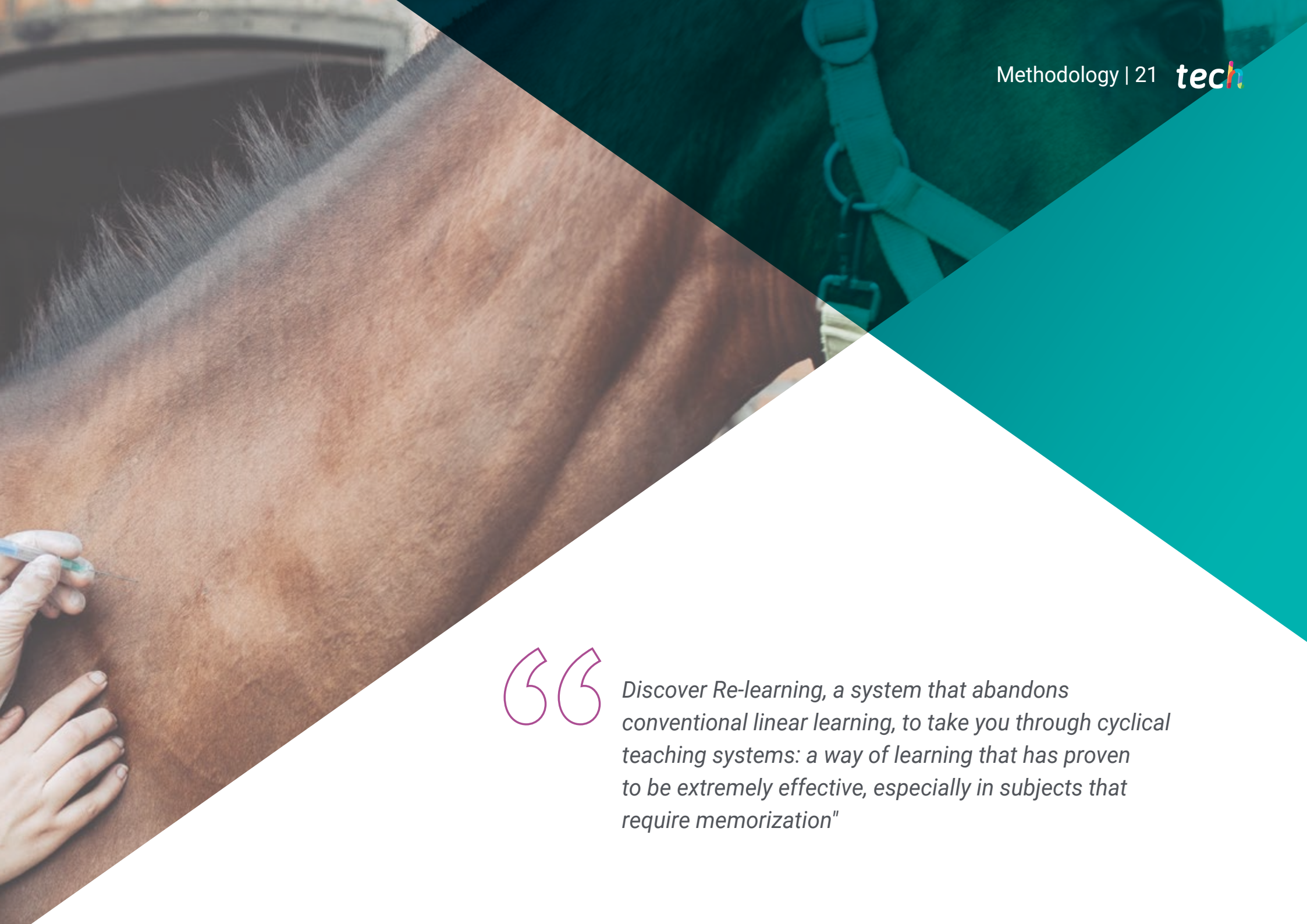
05

# Methodology

This training provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used 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 Re-learning, 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

In a given clinical situation, what would you do? 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 abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you can 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 potential or because of its uniqueness or rarity. It is essential that the case be based on current professional life, trying to recreate the real conditions in the 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 achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.
2. The learning process has a clear focus on 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.



## Re-learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

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.



*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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

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

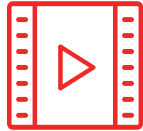
*Re-learning will allow you to learn with less effort  
and better performance, involving you more  
in your training, developing a critical mindset,  
defending arguments, and contrasting opinions: a  
direct equation to success*

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

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



In this program you will have access to the best educational material, prepared with you in mind:



### Study Material

All the teaching materials are specifically created for the course, by specialists who teach on the course, so that the teaching content is highly specific and precise.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.



### Latest Techniques and Procedures on Video

We bring you closer to the latest Techniques, to the latest Educational Advances, to the forefront of current Veterinary Techniques and Procedures. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.



### Interactive Summaries

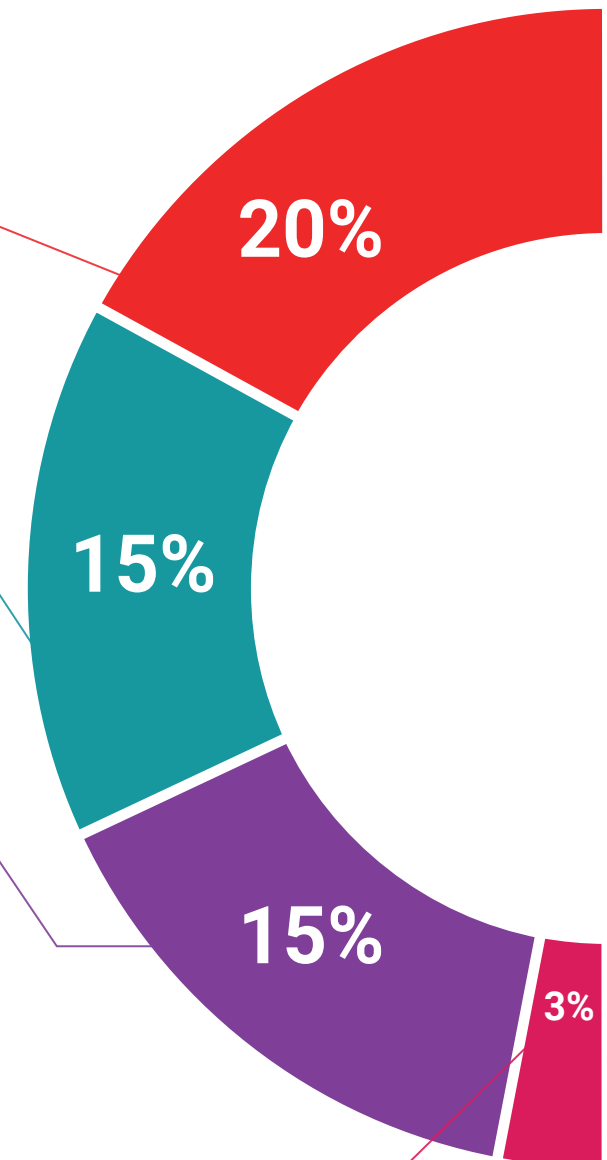
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

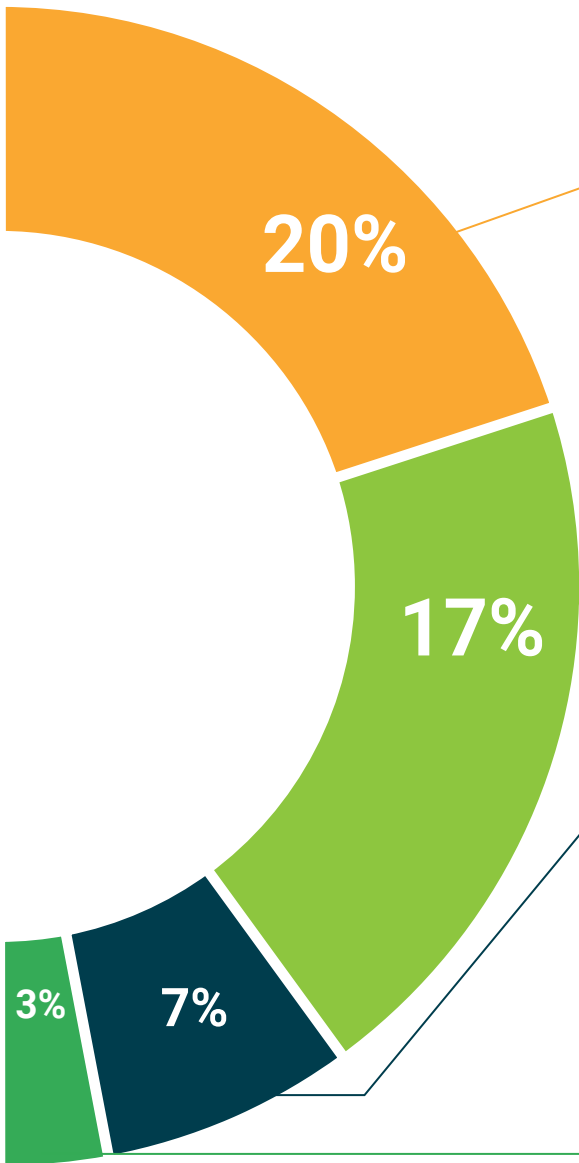
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



### Additional Reading

Recent articles, consensus documents, international guides. In our virtual library you will have access to everything you need to complete your training.





#### 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 & Re-Testing

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your 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 our future difficult decisions.



#### Quick Action Guides

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.



06

# Certificate

The Postgraduate Certificate in Doppler Ultrasound Applied to the Abdominal Cavity in Small Animals guarantees, in addition to the most rigorous and up-to-date training, access to a certificate issued by TECH Global University.



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*Include in your training a Postgraduate Certificate in Doppler Ultrasound Applied to the Abdominal Cavity in Small Animals: a highly qualified added value for any professional in this area"*

This program will allow you to obtain your **Postgraduate Certificate in Doppler Ultrasound Applied to the Abdominal Cavity in Small 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 Doppler Ultrasound Applied to the Abdominal Cavity in Small 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  
virtual classroom



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