

Postgraduate Certificate

Antimicrobial Resistance in Animal Health





Postgraduate Certificate Antimicrobial Resistance in Animal Health

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

Website: www.techtute.com/us/pharmacy/postgraduate-certificate/antimicrobial-resistance-animal-health

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01

Introduction

The excessive use of antibiotics in production and companion animals has led to increased resistance to antibiotics in different species. As a result, updated alternatives have been developed to address bacterial diseases more effectively. Therefore, pharmacists must be aware of them in order to position themselves at the forefront of health. That is why TECH has created this program, with which professionals will delve into the latest treatments for this type of infections or control strategies and monitoring of the use of critical antibiotics. Thanks to this, they will guarantee their update in the sector, accessing a 100% online program that will avoid uncomfortable trips to study centers.





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Learn about the latest control and surveillance strategies for the use of critical antibiotics and be at the forefront of Animal Health”

The indiscriminate use of antimicrobials to treat infections caused by bacteria, viruses, fungi and parasites in animals has led to a significant decrease in the beneficial effects that the drugs had on the species. This negative impact has led to greater awareness within the scientific community. Therefore, leading techniques have been developed to monitor the use of antibiotics and new alternatives to antibiotics have been found to improve animal health. Consequently, the pharmacist is obliged to know all these advances in order to incorporate them in his daily practice.

That is why TECH has designed this Postgraduate Certificate, with which the professional will deepen in the most relevant and updated aspects to combat Antimicrobial Resistance in Animal Health. Throughout this academic itinerary, they will identify the most avant-garde treatments for microbial diseases or the existing alternatives to the use of antibiotics to address them. Likewise, they will detect the recent strategic plans used to reduce the risk of selection and dissemination of resistance to these drugs. Likewise, they will delve into the application of the One Health strategy for the control of multidrug-resistant bacteria or learn how climate change has impacted antibiotic resistance.

Since this program is taught by means of a 100% online methodology, students will be able to perfectly combine their personal and professional life with their studies. In addition, they will have at their disposal teaching materials in formats such as supplementary readings, videos, interactive summaries and simulations of real cases. As a result, they will be able to choose those that best suit their needs in order to achieve fully effective learning.

This **Postgraduate Certificate in Antimicrobial Resistance in Animal Health** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in Microbiology, Medicine and Parasitology
- ♦ The graphic, schematic, and practical content with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



The 100% online format of this program will allow you to combine your studies with your personal and professional obligations"

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In just 6 weeks, delve into the up-to-date strategic plans employed to reduce the risk of selection and dissemination of antibiotic resistance in animals”

The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the course. For this purpose, students will be assisted by an innovative interactive video system created by renowned and experienced experts.

Access the teaching materials 24 hours a day and study from anywhere you want.

Study through videos or simulations of real cases and achieve an enjoyable and focused learning on professional practice.



02

Objectives

This program has been developed with the intention of offering the pharmacist a comprehensive understanding in the field of Antimicrobial Resistance in Animal Health. Therefore, professionals will identify the updated protocols to detect bacterial infections or will deepen in the application of alternatives to antibiotics in various species. Therefore, they will be at the scientific forefront in only 6 weeks of intensive study.





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Learn about the latest alternatives to antibiotics to treat different diseases in different animal species”



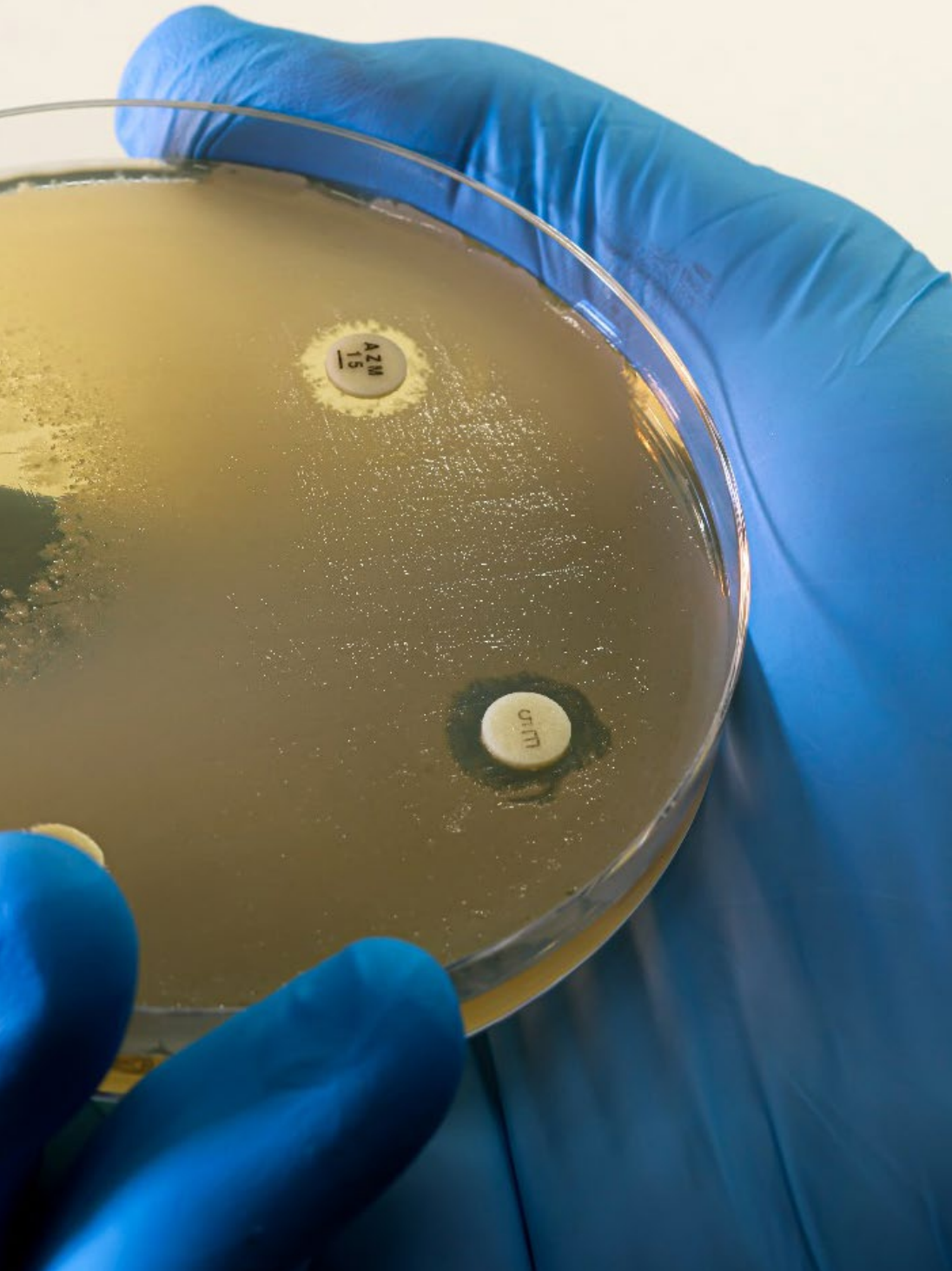
General Objective

- Study the presence of Multidrug-Resistant Bacteria in the environment and wildlife, as well as to understand their potential impact on public health

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Study with interactive didactic materials to strengthen your knowledge and enjoy effective learning”





Specific Objectives

- ♦ Analyze the causes and mechanisms of bacterial resistance in the veterinary field, including the dissemination of antibiotic resistance genes
- ♦ Identify multi-resistant bacterial species of major veterinary importance, and understand their impact on animal health
- ♦ Establish preventive and control measures against bacterial resistance in animals, including systems and processes for the appropriate use of antibiotics, and alternatives to antibiotics in livestock and aquaculture
- ♦ Determine the objectives of the One Health strategy and its implementation in the study and control of multi-resistant bacteria

03

Course Management

With the premise of providing courses with the highest academic quality, TECH has selected the best specialists in Antimicrobial Resistance in Animal Health to teach this program. These experts, who have extensive experience in prestigious research centers related to this area, will design the teaching materials that students will access during the study.



A close-up, macro photograph of a porous, fibrous material, possibly a sponge or a specialized fabric. The material is light-colored, with a mix of beige and off-white tones. It is covered in numerous small, clear water droplets of varying sizes, which are reflecting light and creating a shimmering effect. The background is a solid, vibrant green, which is part of a larger graphic design element consisting of diagonal stripes.

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Get up to date in the field of Antimicrobial Resistance in Animal Health from researchers with extensive professional experience in this field”

Management



Dr. Ramos Vivas, José

- Director of the Banco Santander-Universidad Europea del Atlántico Chair in Innovation
- Researcher at the Center for Innovation and Technology of Cantabria (CITICAN)
- Academic of Microbiology and Parasitology at the European University of the Atlantic
- Founder and former director of the Cellular Microbiology Laboratory of the Valdecilla Research Institute (IDIVAL)
- PhD in Biology from the University of León
- Doctor in Sciences from the University of Las Palmas de Gran Canaria
- Degree in Biology from the University of Santiago de Compostela
- Master's Degree in Molecular Biology and Biomedicine from the University of Cantabria
- Member of: CIBERINFEC (MICINN-ISCIII), Member of the Spanish Society of Microbiology and Member of the Spanish Network of Research in Infectious Pathology

Professors

Dr. Acosta Arbelo, Félix

- ◆ Researcher at the University Institute IU-ECOQUA of the ULPGC
- ◆ Academician in the Area of Animal Health, Infectious Diseases in the Faculty of Veterinary Medicine, ULPGC
- ◆ European Specialist in Aquatic Animal Health by the European Committee of Veterinary Specialization
- ◆ Specialist in Microbiology and Immunology, Marqués de Valdecilla University Hospital, Cantabria
- ◆ Doctor in Veterinary Medicine, University of Las Palmas de Gran Canaria (ULPGC)
- ◆ Degree in Veterinary Medicine, University of Las Palmas de Gran Canaria (ULPGC)



A unique, crucial and decisive learning experience to boost your professional development"

04

Structure and Content

The syllabus of this Postgraduate Certificate has been developed with the premise of providing the pharmacist with a complete update on the subject of Antimicrobial Resistance in Animal Health. Through this academic itinerary, they will delve into the state-of-the-art prevention measures against bacterial resistance in various species or the application of the One Health strategy in the control of multiresistant bacteria. All this, in a 100% online and through study formats such as lectures, video or interactive summary.



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Delve into the updated prevention measures against bacterial resistance in different animal species through this academic program”

Module 1. Antimicrobial Resistance in Animal Health

- 1.1. Antibiotics in the Veterinary Field
 - 1.1.1. Prescription
 - 1.1.2. Acquisition
 - 1.1.3. Misuse of Antibiotics
- 1.2. Multidrug-Resistant Bacteria in the Veterinary Field
 - 1.2.1. Causes of Bacterial Resistance in the Veterinary Field
 - 1.2.2. Dissemination of Antibiotic Resistance Genes (ARGs), Especially through Horizontal Transmission Mediated by Plasmids
 - 1.2.3. Mobile Colistin Resistance Gene (*mcr*)
- 1.3. Multidrug-Resistant Bacterial Species of Veterinary Importance
 - 1.3.1. Pet Pathogens
 - 1.3.2. Cattle Pathogens
 - 1.3.3. Pig Pathogens
 - 1.3.4. Poultry Pathogens
 - 1.3.5. Goat and Sheep Pathogens
 - 1.3.6. Fish and Aquatic Animal Pathogens
- 1.4. Impact of Multi-Resistant Bacteria in Animal Health
 - 1.4.1. Animal Suffering and Losses
 - 1.4.2. Impact on Household Livelihoods
 - 1.4.3. Generation of "Superbugs"
- 1.5. Multidrug-Resistant Bacteria in the Environment and Wildlife
 - 1.5.1. Antibiotic Resistant Bacteria in the Environment
 - 1.5.2. Antibiotic Resistant Bacteria in Wildlife
 - 1.5.3. Antimicrobial Resistant Bacteria in Marine and Inland Waters
- 1.6. Impact of Resistances Detected in Animals and in the Environment on Public Health
 - 1.6.1. Shared Antibiotics in Veterinary Medicine and Human Medicine
 - 1.6.2. Transmission of Resistance from Animals to Humans
 - 1.6.3. Transmission of Resistance from the Environment to Humans



- 1.7. Prevention and Control
 - 1.7.1. Preventive Measures Against Bacterial Resistance in Animals
 - 1.7.2. Systems and Processes for the Effective Use of Antibiotics
 - 1.7.3. Role of Veterinarians and Pet Owners in the Prevention of Bacterial Resistance
 - 1.7.4. Treatments and Alternatives to Antibiotics in Animals
 - 1.7.5. Tools for Limiting the Emergence of Antimicrobial Resistance and its and Spread in the Environment
- 1.8. Strategic Plans to Reduce the Risk of Selection and Spread of Antimicrobial Resistance
 - 1.8.1. Monitoring and Surveillance of the Use of Critical Antibiotics
 - 1.8.2. Training and Research
 - 1.8.3. Communication and Prevention
- 1.9. One Health Strategy
 - 1.9.1. Definition and Objectives of the One Health Strategy
 - 1.9.2. Application of the One Health Strategy in the Control of Multidrug-Resistant Bacteria
 - 1.9.3. Success Stories Using the One Health Strategy
- 1.10. Climate Change and Antibiotic Resistance
 - 1.10.1. Increase in Infectious Diseases
 - 1.10.2. Extreme Climatic Conditions
 - 1.10.3. Displacement of Populations



Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"

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, students will be confronted with multiple simulated clinical cases based on real patients, in which they will have to investigate, establish hypotheses and ultimately, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Pharmacists learn better, more quickly and more sustainably over time.

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



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

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

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

1. Pharmacists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



Relearning Methodology

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

Our University is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, which represent a real revolution with respect to simply studying and analyzing cases.



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

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

With this methodology, more than 115,000 pharmacists have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. This pedagogical methodology is developed in a highly demanding environment, with a university student body with a high socioeconomic profile and an average age of 43.5 years.

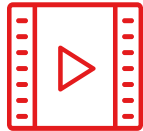
Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

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

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



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



Study Material

All teaching material is created specifically for the course by specialist pharmacists who will be teaching the course, so that the didactic development is highly specific and accurate.

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



Video Techniques and Procedures

TECH introduces students to the latest techniques, to the latest educational advances, to the forefront of current pharmaceutical care procedures. All of this, first hand, and explained and detailed with precision to contribute to assimilation and a better understanding. And best of all, you can watch them as many times as you want.



Interactive Summaries

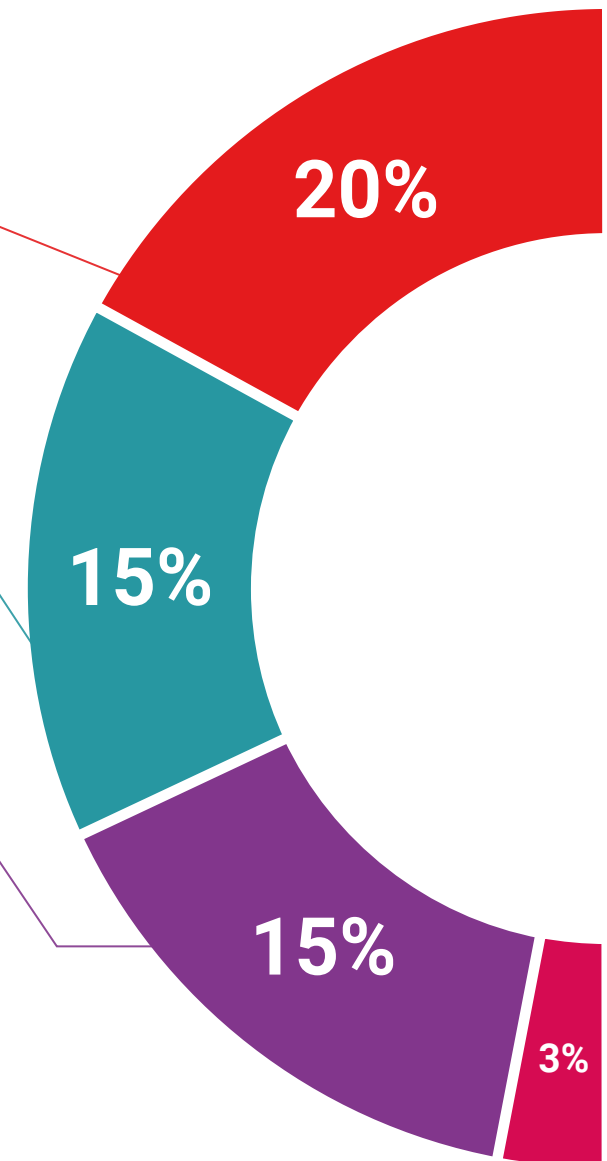
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

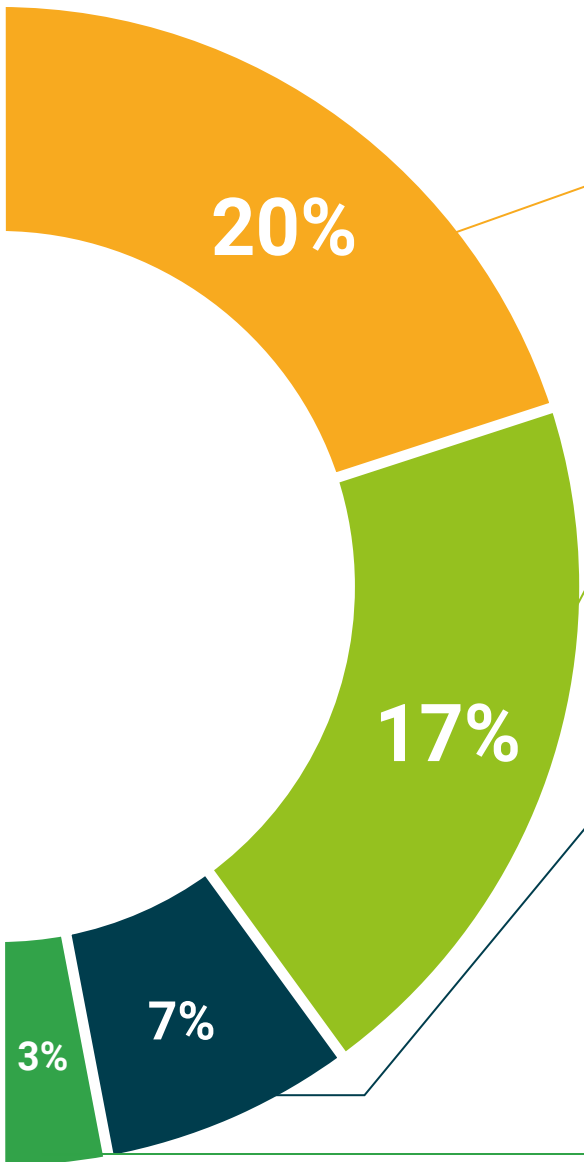
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



Additional Reading

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





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



Testing & Retesting

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



Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



Quick Action Guides

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



06

Certificate

The Postgraduate Certificate in Antimicrobial Resistance in Animal Health 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 private qualification will allow you to obtain a **Postgraduate Certificate in Antimicrobial Resistance in Animal Health** 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** private qualification, 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 Antimicrobial Resistance in Animal Health**

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
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community commitment
personalized service innovation
knowledge present
development languages
virtual classroom



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