Postgraduate Certificate

Multidrug-Resistant Bacteria in the Food Chain

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Postgraduate Certificate

Multidrug-Resistant Bacteria in the Food Chain

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

Website: www.techtitute.com/us/medicine/postgraduate-certificate/multidrug-resistant-bacteria-food-chain

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01

Introduction

Concern about multidrug-resistant bacteria in the food chain has increased considerably in recent years due to their potential impact on public health. These microorganisms represent an emerging challenge in food production and consumption. The spread of antimicrobial resistance through the food chain poses serious implications for human and animal health, as well as for the efficacy of medical treatments. In this context, it is crucial that practitioners have a comprehensive understanding of transmission mechanisms, risk factors and prevention strategies to mitigate this growing problem. For this reason, TECH is launching a revolutionary 100% online university program focused on this subject.

Thanks to this 100% Online Course, you will design and implement the most effective strategies to control the spread of microbial resistance in food environments"

According to data from the World Health Organization, infections by antibiotic-resistant bacteria are associated with approximately 700,000 deaths per year worldwide. This entity foresees that this figure will increase in the coming years if effective measures are not taken. Faced with this reality, physicians have an active role to play in this area, as they are responsible for diagnosing and treating these infectious diseases caused by Multidrug-Resistant Bacteria.
For this reason, it is essential that these specialists remain at the forefront of the most innovative techniques to reduce the risk of contagion.

In this context, TECH presents a pioneering and cutting-edge Postgraduate Certificate on Multidrug-Resistant Bacteria in the Food Chain. The academic itinerary will delve into the different antimicrobial resistances in food (among which ESBL, MRSA or colistin stand out). In addition, during the course of the program, graduates will acquire the innovative One Health approach, which will allow them to address antimicrobial resistance from a holistic perspective. Along the same lines, the study plan will provide physicians with the most effective strategies to prevent and control the spread of microbial resistance in the food chain.

On the other hand, this university program is based on the revolutionary Relearning method. This learning system involves the repetition of the key concepts of the syllabus to ensure a deep understanding of the contents. Accessibility is also a key factor, as doctors will only need an electronic device connected to the Internet (such as a cell phone, tablet or computer) to access the Virtual Campus and enjoy the most dynamic academic resources on the market. Undoubtedly, an ideal opportunity for doctors to effectively update their knowledge in the highly demanded field of Multi-drug Resistant Bacteria in the Food Chain.

This **Postgraduate Certificate in Multidrug-Resistant Bacteria in the Food Chain** 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 eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable 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

This program gives you the opportunity to update your knowledge in a real scenario, with the maximum scientific rigor of an institution at the forefront of technology"

You will deepen your understanding of the One Health approach, which will allow you to significantly reduce the risk of antimicrobial resistance"

Do you want to incorporate state-of-the-art methods for managing crisis situations related to outbreaks of Multidrug-resistant Bacteria into your daily practice? Achieve it with this program.

You will update your knowledge at your own pace and without time constraints thanks to the Relearning system that TECH offers you.

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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.

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Objectives

Upon completion of this Postgraduate Certificate, doctors will have a holistic understanding of how Multidrug-Resistant Bacteria spread in the Food Chain and their impact on Public Health. Similarly, graduates will be highly qualified to apply innovative techniques to prevent and control the spread of microbial resistance in food environments. Along the same lines, professionals will promote policies that encourage the responsible use of antimicrobials in both food production and health care.

You will acquire the skills to identify bacteria and their resistance profiles using the most advanced diagnostic methods"

General Objectives

- Understand how bacterial resistance evolves as new antibiotics are introduced into clinical practice
- Understand the colonization and infection of patients in Intensive Care Units (ICUs), the different types and risk factors associated with infection
- Evaluate the impact of Nosocomial Infections on the critically ill patient, including the importance of risk factors and their impact on length of stay in the ICU
- Analyze the effectiveness of infection prevention strategies, including the use of quality indicators, evaluation tools and continuous improvement tools
- Understand the pathogenesis of Gram-negative Infections, including the factors related to these bacteria and patients themselves
- Examine the main infections by Gram Positive Bacteria, including their natural habitat, Nosocomial Infections and community-acquired infections
- Determine the clinical significance, resistance mechanisms and treatment options for different Gram-positive Bacteria
- Substantiate the importance of Proteomics and Genomics in the Microbiology laboratory including recent advances and technical and bioinformatics challenges
- Acquire knowledge on the dissemination of resistant bacteria in food production
- Study the presence of multidrug-resistant bacteria in the environment and wildlife, as well as to understand their potential impact on public health
- Acquire expertise on innovative antimicrobial molecules, including antimicrobial peptides and bacteriocins, bacteriophage enzymes and nanoparticles
- Develop expertise in the discovery methods for new antimicrobial molecules

Specific Objectives

- Analyze the role of the food chain in the spread of bacterial resistance to antibiotics through food of animal and plant origin, as well as through water
- Gain specialized knowledge on Artificial Intelligence (AI) in Microbiology, including current expectations, emerging areas and its cross-cutting nature

TECH will rely on the most innovative study materials and multimedia resources for this academic pathway"

03

Course Management

For the design and delivery of this Postgraduate Certificate, TECH has managed to bring together the best specialists in the area of Multi-drug Resistant Bacteria in the Food Chain. These experts have an extensive professional background, where they have been part of prestigious health institutions. They have created numerous teaching materials that stand out both for their high quality and for meeting the requirements of today's labour market. In this way, doctors have the guarantees they demand to access an immersive experience that will significantly optimize their daily practice and increase their job prospects.

You will have the support of a teaching team made up of renowned professionals in the field of Multidrug-Resistant Bacteria in the Food Chain"

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, Member of the Spanish Network of Research in Infectious Pathology

Professors

Dr. Alegría González, Ángel

- Researcher and Academician in Food Microbiology and Molecular Genetics of the University of León
- Researcher in 9 projects funded by public competitive calls
- Principal Investigator as beneficiary of an Intra-European Marie Curie Fellowship (IEF-FP7) in a project associated with the University of Groningen (The Netherlands)
- PhD in Food Biotechnology from the University of Oviedo - CSIC
- Degree in Biology from the University of Oviedo
- Master's Degree in Food Biotechnology from the University of Oviedo.

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Structure and Content

Through this undergraduate program, clinicians will acquire a solid understanding of the epidemiology of Multi-drug Resistant Bacteria in the Food Chain. The syllabus will focus on the role of food in the spread of antimicrobial resistance, specifically exploring the One Health approach. This strategy will enable graduates to detect antimicrobial resistance early, which will facilitate the most timely treatments. Along the same lines, the program will provide doctors with the most advanced strategies to effectively prevent and control the spread of microbial resistance in the food chain.

You will be highly qualified to select the most effective antibiotic treatments based on the specific resistance profiles of each pathogen"

Module 1. Multi-drug Resistant Bacteria in the Food Chain

1.1. Multi-drug Resistant Bacteria in the Food Chain
- 1.1.1. The Role of the Food Chain in the Spread of Antimicrobial Resistance
- 1.1.2. Antimicrobial Resistances in Food (ESBL, MRSA, and Colistin)
- 1.1.3. The Food Chain within the One Health Approach

1.2. Dissemination of Antimicrobial Resistance through Food
- 1.2.1. Food of Animal Origin
- 1.2.2. Food of Plant Origin
- 1.2.3. Dissemination of Resistant Bacteria through Water

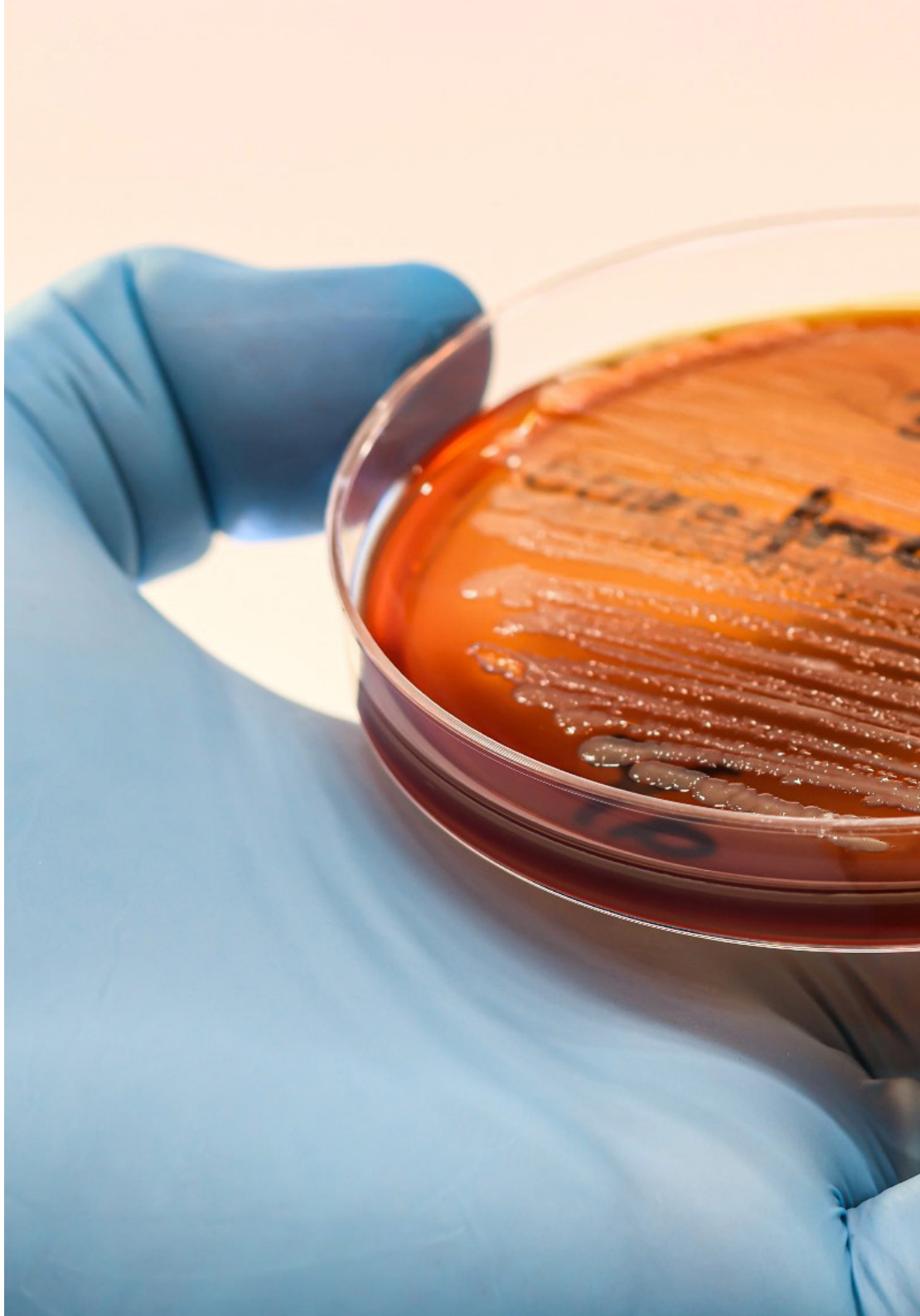
1.3. Spread of Resistant Bacteria in Food Production
- 1.3.1. Spread of Resistant Bacteria in Food Production Environments
- 1.3.2. Spread of Resistant Bacteria through Food Handlers
- 1.3.3. Cross-Resistance between Biocides and Antibiotics

1.4. Antimicrobial Resistance in Salmonella Spp
- 1.4.1. AmpC, ESBL and Carbapenemase Producing Salmonella Spp
- 1.4.2. Resistant Salmonella Spp in Humans
- 1.4.3. Antimicrobial Resistant Salmonella Spp in Farm and Meat Animals
- 1.4.4. Multidrug-Resistant Salmonella Spp in Humans

1.5. Antimicrobial Resistance in Campylobacter Spp
- 1.5.1. Antimicrobial Resistance in Campylobacter Spp
- 1.5.2. Antimicrobial Resistant Campylobacter Spp in Foods
- 1.5.3. Multi-Drug Resistant Campylobacter Spp

1.6. Antimicrobial Resistances in Escherichia Coli
- 1.6.1. AmpC, ESBL and Carbapenemase Producing E. Coli
- 1.6.2. Antimicrobial Resistant E. Coli in Farm Animals
- 1.6.3. Antimicrobial Resistant E. Coli in Food
- 1.6.4. Multidrug-Resistant E. Coli

1.7. Antimicrobial Resistance in Staphylococci
- 1.7.1. Methicillin-Resistant S. Aureus (MRSA)
- 1.7.2. MRSA in Food and Farm Animals
- 1.7.3. Methicillin-Resistant Staphylococcuys Epidermidis (MRSE)
- 1.7.4. Multidrug-Resistant Staphylococcus Spp



1.8. Antimicrobial Resistance in Enterobacteria
- 1.8.1. Shigella Spp
- 1.8.2. *Enterobacter Spp*
- 1.8.3. Other Environmental Enterobacteriaceae

1.9. Antimicrobial Resistance in Other Food-Borne Pathogens
- 1.9.1. Listeria Monocytogenes
- 1.9.2. *Enterococcus Spp*
- 1.9.3. Pseudomona Spp
- 1.9.4. Aeromonas Spp and Plesiomonas Spp

1.10. Strategies to Prevent and Control the Spread of Microbial Resistance in the Food Chain
- 1.10.1. Preventive and Control Measures in Primary Production
- 1.10.2. Preventive and Control Measures in Slaughterhouses
- 1.10.3. Preventive and Control Measures in Food Industries

A contextual and realistic educational experience that will immerse you in the reality of a profession full of challenges. Enroll now!"

05

Methodology

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

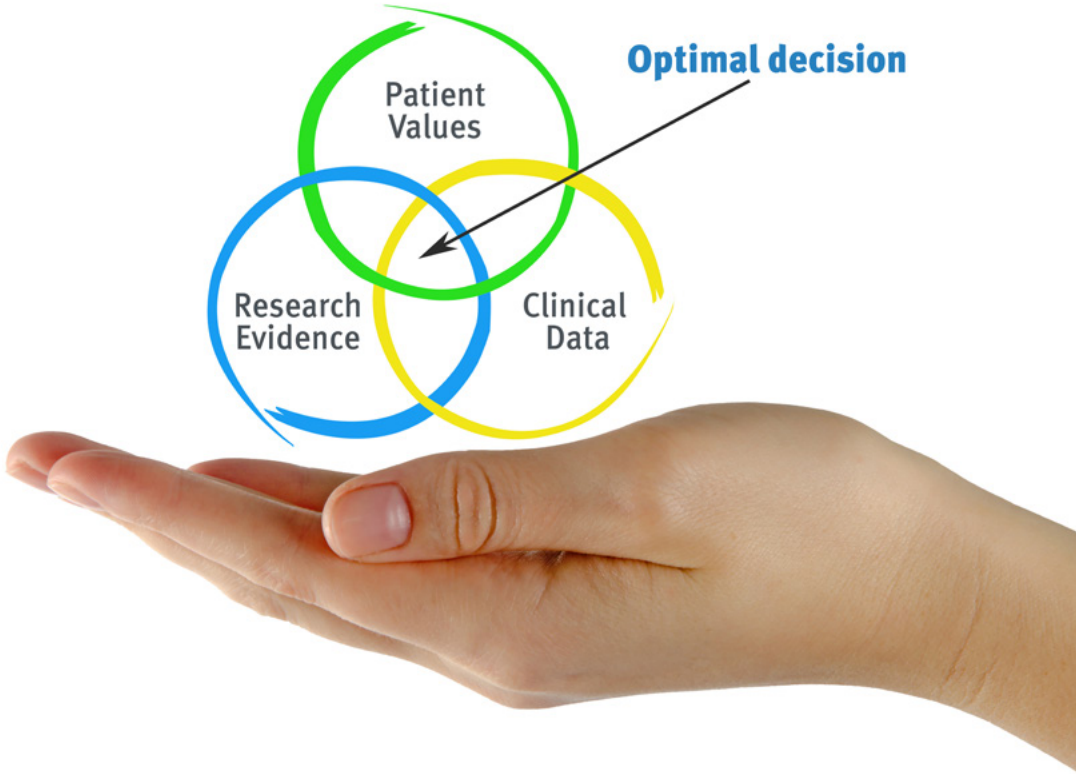
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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 face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately 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, trying to recreate the real conditions in the physician's professional practice.

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:

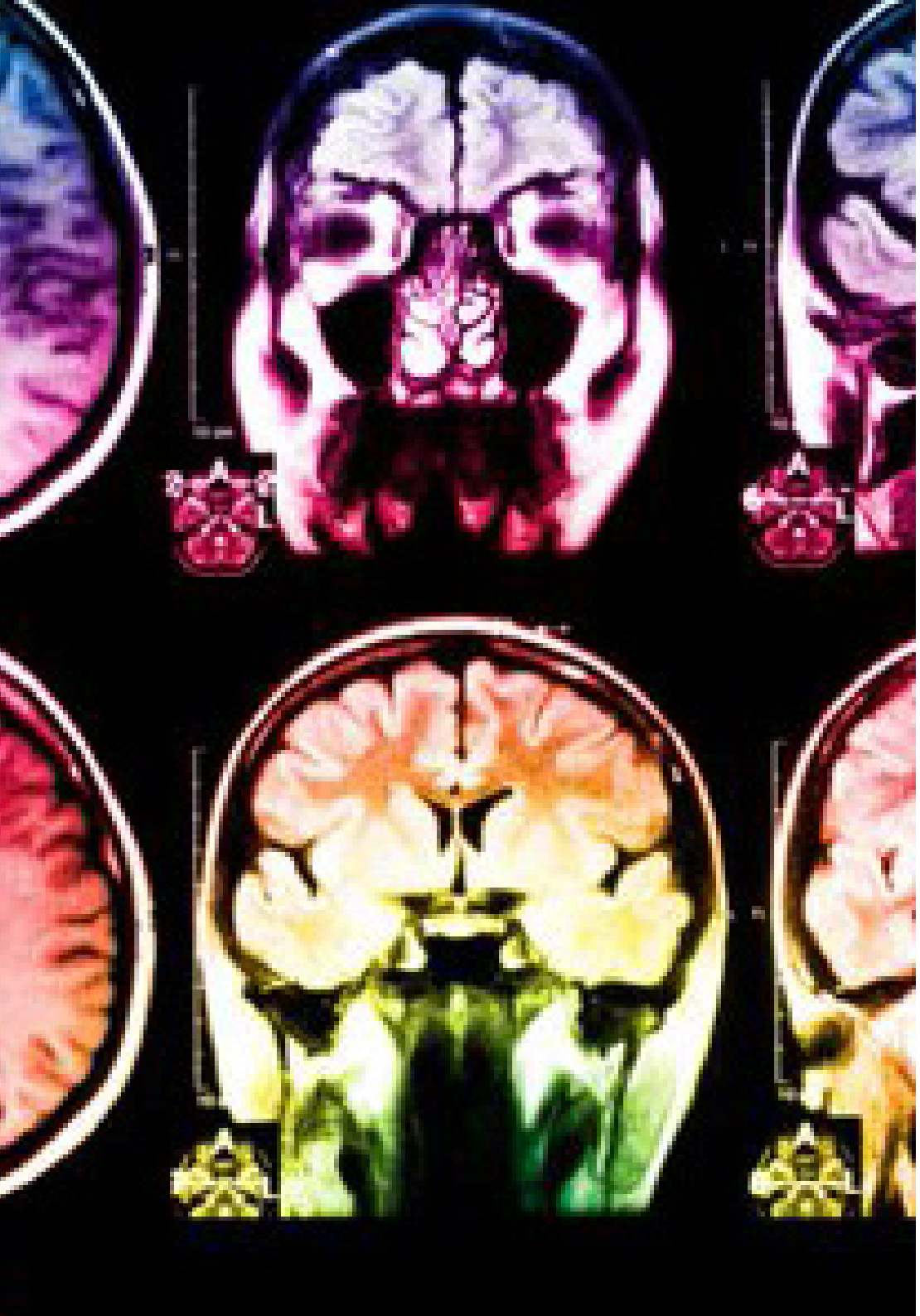
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better 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.

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.

Professionals 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 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

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 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.

Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical 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.

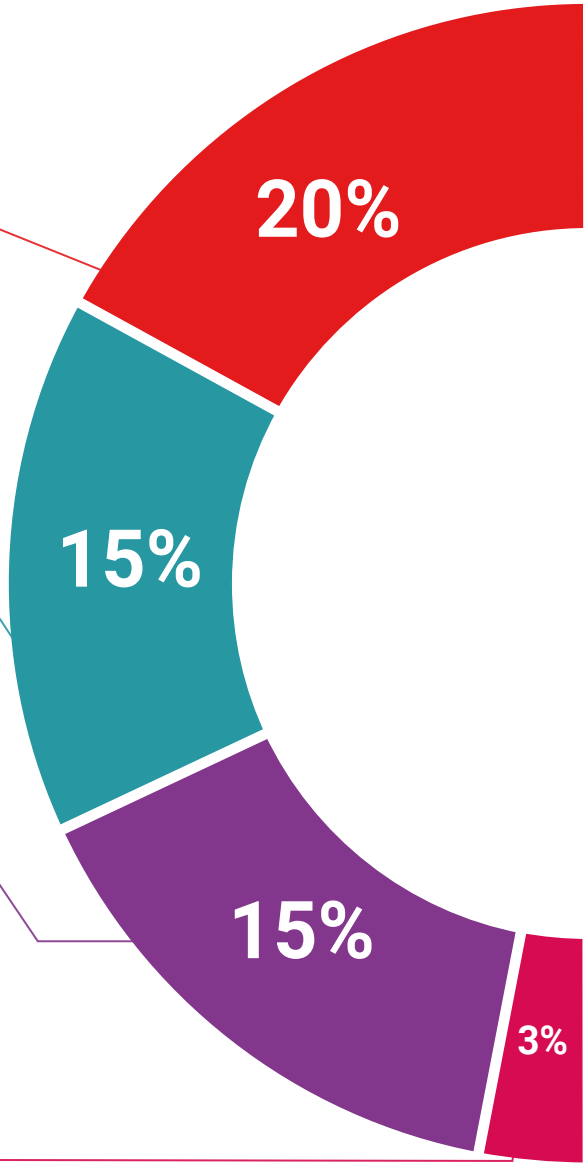
Interactive Summaries

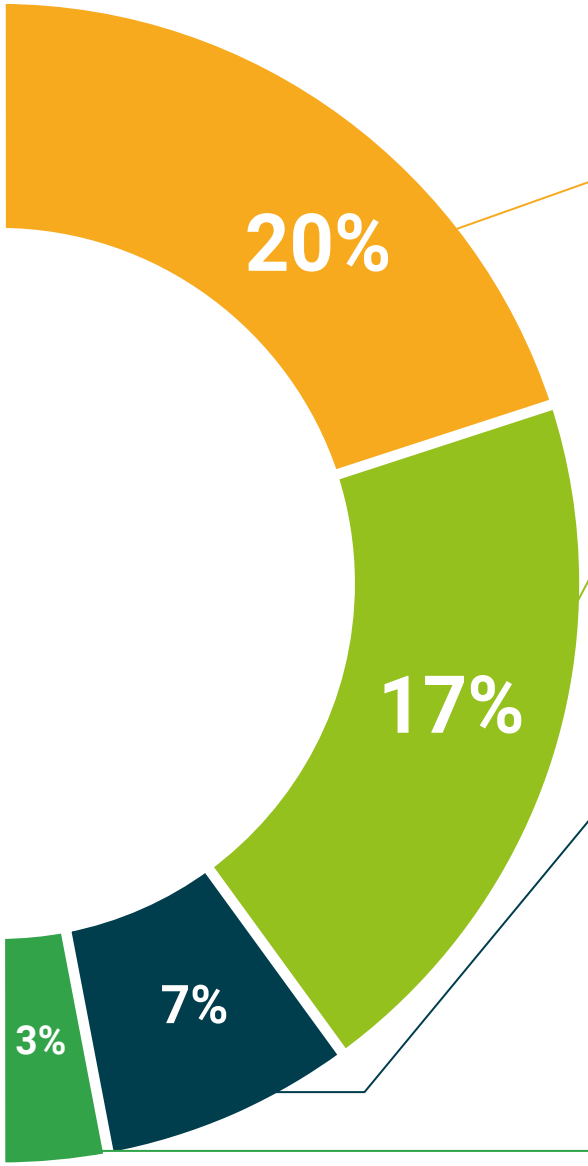
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 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 Multidrug-Resistant Bacteria in the Food Chain guarantees, in addition to the most accurate and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

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 Multidrug-Resistant Bacteria in the Food Chain** 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 Multidrug-Resistant Bacteria in the Food Chain**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Multidrug-Resistant Bacteria in the Food Chain

This is a private qualification of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

*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 Certificate

Multidrug-Resistant Bacteria in the Food Chain

- Modality: **online**
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Postgraduate Certificate

Multidrug-Resistant Bacteria in the Food Chain

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