Postgraduate Certificate

Microbiology in Antibiotic Therapy

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Postgraduate Certificate
Microbiology in Antibiotic Therapy

- Modality: **online**
- Duration: **6 weeks**
- Certificate: **TECH Global University**
- Credits: **5 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/pharmacy/postgraduate-certificate/microbiology-antibiotic-therapy

Index

01

Introduction

There is a wide diversity of antimicrobial families and groups in the world. Microbiology, a very important science that analyzes the behavior of numerous diseases in humans, is responsible for their study. Constant updating in this area has enabled experts to develop new drugs that help the body fight and resist dangerous infection. In this sense, the following program will focus on the basic aspects of microbiology applied to antibiotic therapy, providing new techniques to help conduct new research.

Learn about the role of microbiology in the study of infectious diseases and develop new research."

In today's world it is essential to have professionals prepared to deal with investigations of bacteria and pathogens that put people's lives at risk. Therefore, this Postgraduate Certificate focused on microbiology will help pharmacists to specialize in this field, allowing them to access new professional opportunities.

In this sense, the program will begin with a detailed approach to the role of microbiology in the study of infectious diseases, taking into account the structure and function of a laboratory in this area. Then, we will proceed to learn about the characteristics and studies of virology, bacteriology, mycology and parasitology; all of them dealing with a particular pathogenic agent.

On the other hand, the program places special emphasis on the technical aspects of this discipline. Therefore, the student will learn how to perform the process and requirements of sampling for the main microbiological studies. They will also develop a working knowledge of antibiograms, a sensitivity test used to determine the resistance of bacteria.

The entire content of this program is focused on helping pharmacists understand the research line being maintained in microbiology. Thus, they will be able to specialize in this area and start experimenting in an international laboratory or on their own.

This **Postgraduate Certificate in Microbiology in Antibiotic Therapy** contains the most complete and up-to-date educational program on the market. The most important features include:

- The development of case studies presented by experts focused on advances in antibiotic therapy and antibiotic resistance.
- The graphic, schematic, and eminently practical contents 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
- Access to content from any fixed or portable device with an Internet connection.

Specialize as a pharmacist in microbiology and develop drugs for different pathogens".

By conducting research in microbiology as pharmacists you will be able to conduct research that changes the scientific landscape."

It is time to learn about the future challenges of microbiology and bet on this booming sector.

This program is what you need to give an international twist to your professional career.

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.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is, a simulated environment that will provide an immersive training programmed to train 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 academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

02

Objectives

The main objective of this program focuses on helping students to specialize in Microbiology in Antibiotic Therapy. To this end, new knowledge in the area will be made available to assist them in the development of drugs to combat viruses, bacteria and parasites. Likewise, they will know how to take samples for different clinical tests and develop the antimicrobial map of a pathological agent. Thanks to the theoretical and practical nature of the degree, they will be able to apply what they have learned immediately.

The professional future you envision starts here. Enroll Now".

General Objectives

- Guarantee professional improvement by constantly delving deeper and updating what we know.
- Know the scientific evidence on antibiotic therapy and antimicrobial resistance.
- Establish the correct use of drugs and the proper treatment of infectious diseases.
- Use a multidisciplinary and integrative approach to facilitate the control of these pathologies.

Specific Objectives

- Know the general elements of microbiology, from the study of infectious diseases to the functions of the laboratory
- Classify the main viruses that affect human beings, as well as those under investigation
- Classify the main types of parasites and mycoses affecting humans
- Determine diagnostic methods for viruses, bacteria, fungi and parasites.

Knowing the latest advances in microbiology will help you build the career path that will lead to success."

03

Course Management

The student who participates in the program will not be alone, but will have a team of prestigious national and international experts who have specialized in medicine and other fields of research. Their extensive experience in microbiology was acquired by practicing in countries where the incidence and cases of infections are high. For all this, they have been able to be part of several international infectious disease centers.

It relies on the multidisciplinary expertise of this excellent teaching staff".

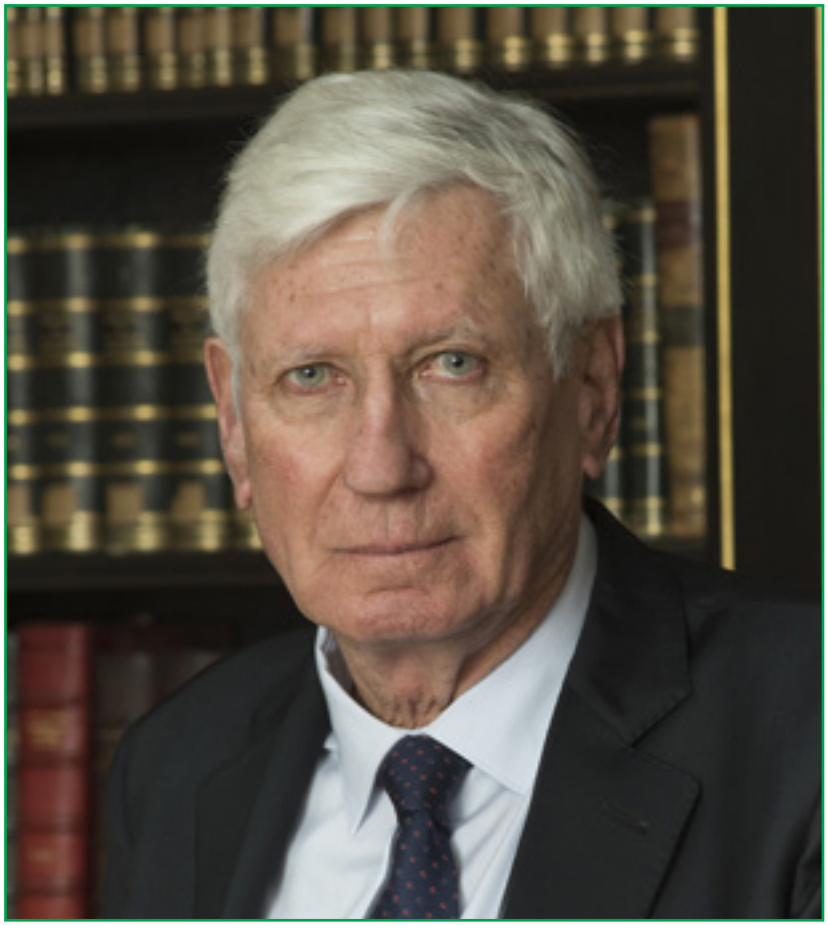
International Guest Director

Dr. Dominique Franco is a specialist in **liver surgery** and **treatment of hepatocellular carcinoma**, with an extensive background in the field of **regenerative medicine**. Throughout his career, he has focused his research on **cell therapy** for **liver diseases** and **organ bioconstruction**, areas in which he has made innovative contributions. His work focuses on developing new treatment techniques that not only seek to improve the effectiveness of surgical interventions, but also to optimize the quality of life of patients.

He has held leadership roles in several prestigious institutions. **He was Head of the Department of Liver Surgery and Transplantation at the Hôpital Antoine-Béclère**, where he participated in medical milestones such as the first liver transplant performed in Europe. His extensive experience in advanced surgery and transplantation has allowed him to acquire a deep knowledge in the management of complex liver pathologies, becoming a reference in the medical field both nationally and internationally. In addition, he has been **Director Emeritus of Digestive Surgery at the University Paris-Sud,** where he has contributed to the training of new generations of surgeons.

Internationally, he is recognized for his contributions to the development of Regenerative Medicine. In 2014, he founded CellSpace, an association dedicated to promoting **tissue and organ bioengineering** in France, with the aim of bringing together researchers from different disciplines to advance this field.

He has published more than 280 scientific articles in international journals, addressing topics such as Liver Surgery, **hepatocellular carcinoma** and Regenerative Medicine. In addition, he is a member of the U-1193 research unit at Inserm and a consultant at the Institut Pasteur, where he continues his work as a consultant on cutting-edge projects, contributing to expand the **boundaries of medical knowledge in his area of expertise**.



Dr. Franco, Dominique

- Academic Director of the Institut Pasteur, Paris, France
- Vice President Health Cluster for Physician Competitiveness
- Head of the Digestive Surgery Department at Antoine-Béclère Hospital (APHP)
- Director Emeritus of Digestive Surgery at the University Paris-Sud
- Founder of CellSpace
- Member of the research unit U-1193 of Inserm
- President of the French National Academy of Surgery

Thanks to TECH, you will be able to learn with the best professionals in the world"

Management

Dr. Quintero Casanova, Jesús

- Degree in Medicine and Surgery from the Medical University of Havana. Cuba
- Specialist in Internal Medicine. "Héroes del Baire" Hospital
- Professional Master's Degree in Tropical Diseases and Clinical Infectious Diseases from the Pedro Kuori Institute, Havana. Cuba
- Head of the Infectious Diseases Department of the Héroes del Baire Hospital
- Member of the Cuban Society of Internal Medicine
- Member of the Cuban Society of Paediatricians
- Medical specialist in Africa (TChad) and Venezuela
- Professor on the Medicine Degree and Internal Medicine Speciality at the Faculty of Medical Sciences of Isla de la Juventud
- Main professor of the Professional Master's Degree in infectious diseases of the Faculty of Medical Sciences of the Isle of Youth.
- Member of state examining boards for the medicine degree and internal medicine
- National Research Award in Cuba
- Medical Science Teaching Award. Cuba

Professors

Dr. Valle Vargas, Mariano

- Head of the Internal Medicine Department of the Héroes del Baire Hospital
- Member of the Cuban Society of Internal Medicine
- Member of the Cuban Society of Paediatricians
- Medical specialist in Venezuela
- Professor on the Medicine Degree and Internal Medicine Speciality at the Faculty of Medical Sciences of Isla de la Juventud
- Professor of the Professional Master's Degree in Infectious Diseases in the Faculty of Medical Sciences in Isla de la Juventud
- Member of state examining boards for the medicine degree and internal medicine
- Member of tribunals for national scientific events. Cuba
- Degree in Medicine and Surgery from the University of Havana. Cuba
- Specialist in Internal Medicine. "Héroes del Baire" Hospital
- Master's Degree in Health Biostatistics
- Diploma in Epidemiology
- Medical Science Teaching Award. Cuba

Dr. Cantalapiedra Torres, Alejandro

- Member of the Cuban Society of Pediatrics
- Professor in the Medicine Degree and Pediatrics Specialty in the Faculty of Medical Sciences in Isla de la Juventud
- Member of tribunals for national scientific events. Cuba
- Medical specialist in Haiti
- Medical specialist in Antigua and Barbuda year 2008
- Degree in Medicine and Surgery from the University of Havana. Cuba
- Pediatrician. "Héroes del Baire" Hospital
- Master's Degree in infectious diseases
- Certificate in Medical Teaching
- Certificate in Health Management

Dr. Laurence Carmenaty, Araelis

- Professor on the Medicine Degree in the Faculty of Medical Sciences in Isla de la Juventud
- Member of the Cuban Society of Microbiology
- Member of the Association of Pedagogues
- Degree in Microbiology University of Havana
- Master's Degree in infectious diseases
- She has participated in national and international microbiology events in Cuba and Venezuela.

Dr. Dranguet Bouly, José Ismael

- Head of the Internal Medicine Department of the Héroes del Baire Hospital
- Member of the Cuban Society of Internal medicine and the Cuban Society of Intensive Therapy
- Member of the Cuban Society of Paediatricians
- Medical specialist in Mozambique
- Professor on the Medicine Degree and Internal Medicine Speciality at the Faculty of Medical Sciences of Isla de la Juventud
- Professor of the Professional Master's Degree in Infectious Diseases in the Faculty of Medical Sciences in Isla de la Juventud
- Member of state examining boards for the medicine degree and internal medicine
- Member of tribunals for national scientific events. Cuba
- Professor at the Catholic University of Santiago de Guayaquil, Ecuador.
- Degree in Medicine and Surgery from the University of Havana. Cuba
- Specialist in Internal Medicine and Intensive Therapy. "Héroes del Baire" Hospital
- Master's Degree in Infectious Diseases from the Pedro Kouri Institute of Cuba
- Medical Science Teaching Award. Cuba

Dr. González Fiallo, Sayli

- Professor of the Faculty of Medical Sciences in Isla de la Juventud
- Director of the Health Analysis, Biostatistics, and Surveillance Unit of the Municipal Health Directorate. Isle of Youth
- Degree in Hygiene and Epidemiology
- Master's Degree in Epidemiology

Dr. Dávila, Henry Luis

- Member of the Cuban Society of Gynecology and Obstetrics
- Member of the Cuban Society of Paediatricians
- Medical specialist in Guatemala
- Professor on the Medicine Degree in the Faculty of Medical Sciences in Isla de la Juventud
- Member of state examination boards in the field of medicine
- Member of tribunals for national scientific events. Cuba
- National research award. Cuba
- Degree in Medicine and Surgery from the University of Havana. Cuba
- Specialist in Gynecology and Obstetrics at Héroes del Baire Hospital. Cuba
- Master's Degree in comprehensive care for women
- Head of the Neck Pathology Service at Héroes del Baire Hospital
- Medical Science Teaching Award. Cuba

Dr. Jiménez Valdés, Erlivan

- Member of the Cuban Society of Pediatrics
- Professor in the Medicine Degree and Pediatrics Specialty in the Faculty of Medical Sciences in Isla de la Juventud
- Member of tribunals for national scientific events. Cuba
- Medical specialist in Venezuela
- Degree in Medicine and Surgery from the University of Havana. Cuba
- Pediatrician. "Héroes del Baire" Hospital
- Master's Degree in comprehensive childcare

Dr. Batista Valladares, Adrián

- Head of Senior Citizen Services in Isla de la Juventud. Cuba
- Member of the Cuban Society of Family Medicine
- Professor of the career of medicine and specialty of family medicine at the Isle of Youth Faculty of Medical Sciences.
- Professor of the Professional Master's Degree in Infectious Diseases in the Faculty of Medical Sciences in Isla de la Juventud
- Member of state examining boards for the medicine degree and speciality of family medicine
- Member of tribunals for national scientific events. Cuba
- Degree in Medicine and Surgery from the University of Havana. Cuba
- Specialist in Family and Community Medicine
- Master's Degree in Clinical Infectology
- Certificate in Diagnostic Ultrasound
- Diploma in healthcare management

04

Structure and Content

This program is structured in a way that will allow the assimilation of theoretical and practical knowledge in microbiology. Therefore, students will be trained to know the current and future role of the study of infectious diseases, with emphasis on virology, bacteriology, mycology and parasitology. Then, they will be able to move on to learn about technical aspects, such as sample collection and the preparation of an antibiogram. Therefore, upon completion of the program, the pharmacist will have added valuable knowledge to his or her professional profile, allowing access to new opportunities in the sector.

You can find the content you need to grow professionally here".

Module 1. Overview of Microbiology

1.1. General elements of microbiology
- 1.1.1. The role of microbiology in the study of infectious diseases
- 1.1.2. Structure and function of the microbiology laboratory
- 1.1.3. Indication and interpretation of microbiological studies

1.2. Virology
- 1.2.1. General Characteristics of Viruses
- 1.2.2. Classification and Main Viruses Affecting Humans
- 1.2.3. Emerging Viruses
- 1.2.4. Virological Studies

1.3. Bacteriology: Current Concepts for Antibiotic Therapeutics
- 1.3.1. General Characteristics of Bacteria
- 1.3.2. Classification and Main Bacteria Affecting Humans
- 1.3.3. Microbiological Studies.

1.4. Mycology
- 1.4.1. General Characteristics of Fungi
- 1.4.2. Classification and Main Fungi Affecting Humans
- 1.4.3. Mycological Studies

1.5. Parasitology
- 1.5.1. General Characteristics of Parasites
- 1.5.2. Classification and Main Parasites Affecting Humans
- 1.5.3. Parasitological Studies

1.6. The Microbiological Sample: Collection, Storage and Transport
- 1.6.1. The Microbiological Sampling Process: Preanalytical, Analytical, and Postanalytical Stages
- 1.6.2. Sampling Requirements for the Main Microbiological Studies used in Daily Clinical Practice: Blood, Urine, Stool, Sputum

1.7. Antibiogram: New Concepts for Interpretation and Utilization

1.7.1. Traditional Antibiogram Reading
1.7.2. Interpreted Antibiogram Reading and the Mechanisms of New Antimicrobial Resistance Phenotypes
1.7.3. Antimicrobial Mapping and Resistance Patterns
1.8. Rapid Diagnostic Methods: News about their Application
1.8.1. Rapid Diagnostic Methods for Viruses
1.8.2. Rapid Diagnostic Methods for Bacteria
1.8.3. Rapid Diagnostic Methods for Fungi
1.8.4. Rapid Diagnostic Methods for Parasites
1.9. Molecular Biology in Microbiological Diagnostics: Its Role in the Future
1.9.1. Development and Application of Molecular Biology in Microbiological Methods
1.10. Microbiology: Challenges to Improve Antibiotic Usage and Control Antibiotic Resistance.
1.10.1. Challenges and Obstacles for Microbiological Diagnostics
1.10.2. Future Challenges of Microbiology Laboratory Management in the Correct and Rational Use of Antibiotics
1.10.3. Future Microbiological Techniques to Study Antibiotic Resistance

It advances towards excellence with the help of the best professionals and teaching resources of the moment".

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.

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. Pharmacists learn better, more quickly 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 is based on current professional life, attempting to recreate the actual conditions in a pharmacist'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:

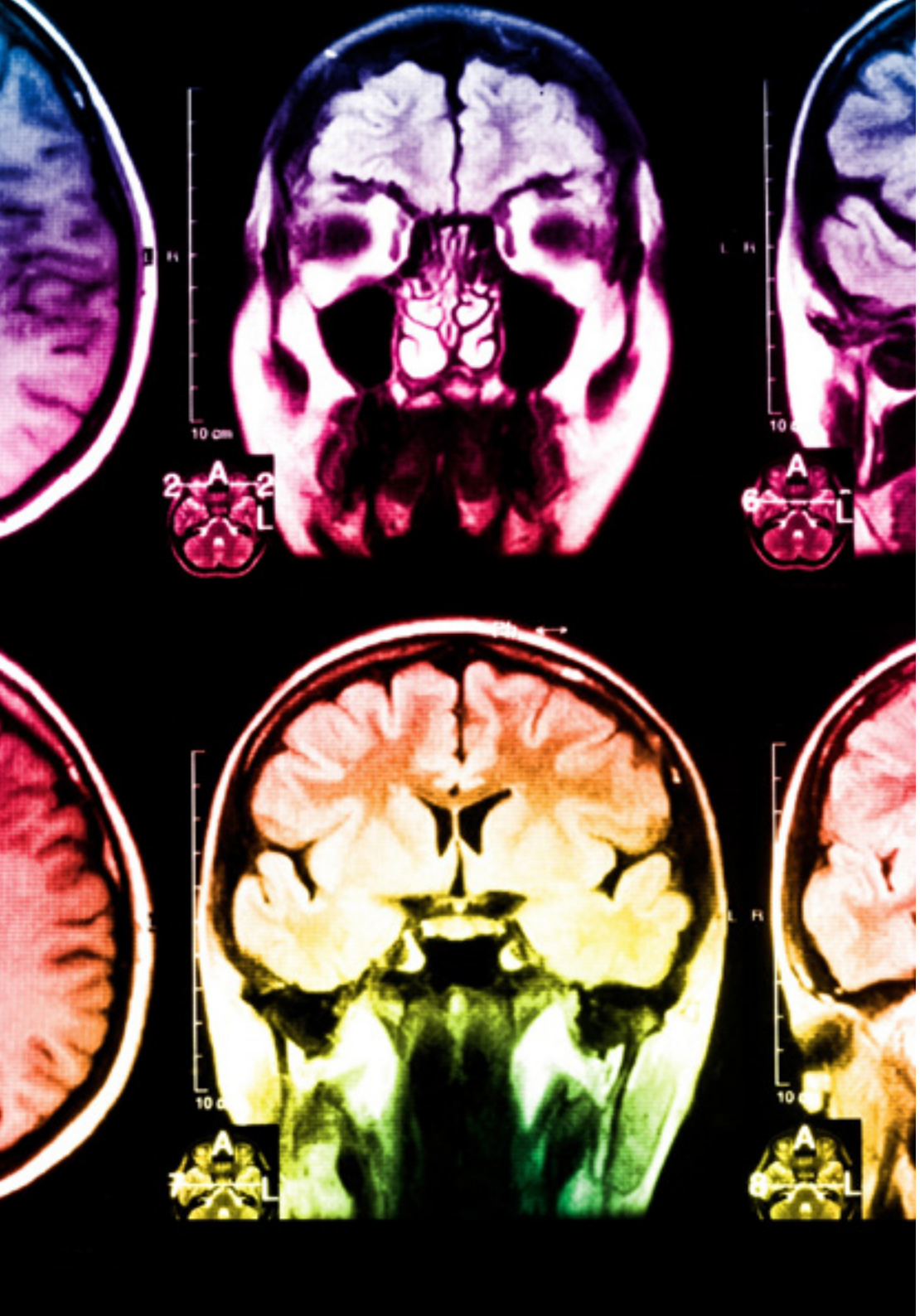
1. Pharmacists who follow this method not only achieve the assimilation of concepts, but also develop their mental capacity through exercises to evaluate real situations and apply their knowledge.
2. The learning process has a clear focus on practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. 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.

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.

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 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 115,000 pharmacists with unprecedented success, in all clinical specialties. Our 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 old.

Re-learning 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 (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 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.

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.

Video Techniques and Procedures

We bring you closer to the latest techniques, to the newest educational advances, to the forefront of current pharmaceutical care 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.

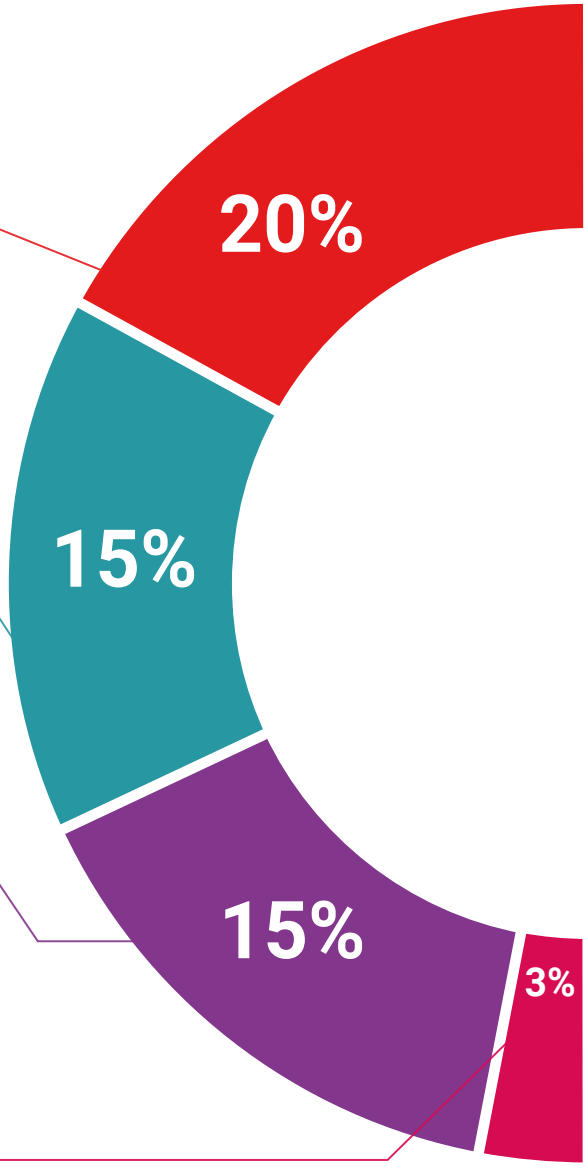
Interactive Summaries

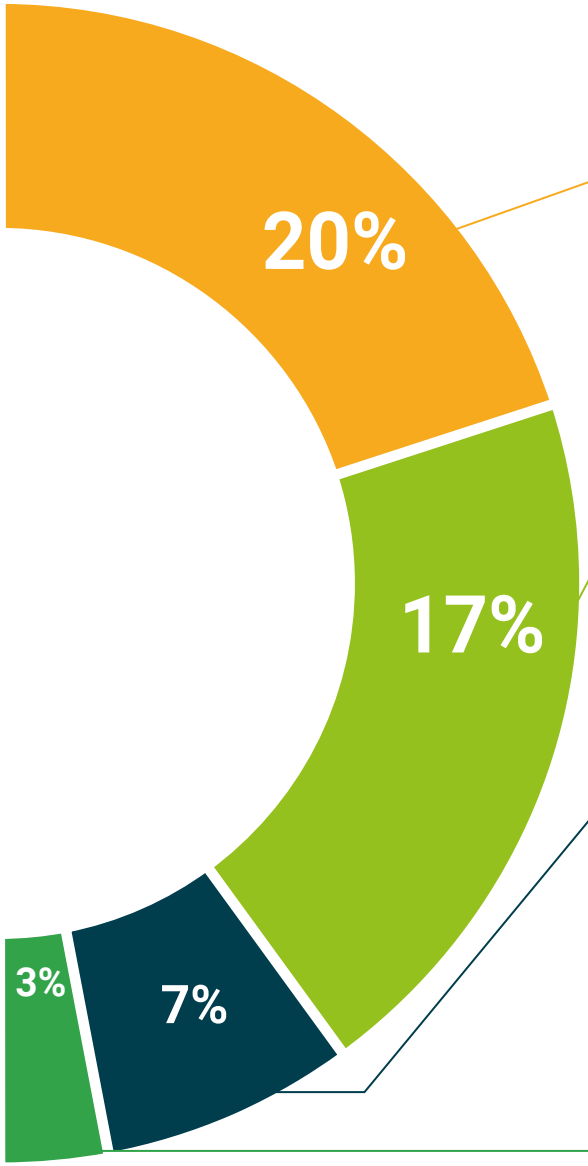
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Microbiology in Antibiotic Therapy guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Global University.

Successfully complete this training and receive your university degree without travel or laborious paperwork".

This program will allow you to obtain your **Postgraduate Certificate in Microbiology in Antibiotic Therapy** 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 Microbiology in Antibiotic Therapy**

Modality: **online**

Duration: **6 weeks**

Accreditation: **5 ECTS**


tech global university

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

Postgraduate Certificate in Microbiology in Antibiotic Therapy

This is a program of 150 hours of duration equivalent to 5 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
Rector

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.

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Postgraduate Certificate

Microbiology in Antibiotic Therapy

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- Credits: **5 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Postgraduate Certificate

Microbiology in Antibiotic Therapy

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