

# Postgraduate Certificate

## Rational Use of Antibiotics



## Postgraduate Certificate Rational Use of Antibiotics

- » Modality: online
- » Duration: 12 weeks
- » Certificate: TECH Global University
- » Credits: 12 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/medicine/postgraduate-certificate/rational-use-antibiotics](http://www.techtute.com/us/medicine/postgraduate-certificate/rational-use-antibiotics)

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# 01

# Introduction

With the discovery of penicillin and its application in the treatment of diseases caused by sensitive bacteria, the world of medicine was revolutionized, as it was a giant leap forward in the effective treatment of patients and led to a considerable decrease in mortality rates. However, the viruses that cause these infections mutate and become stronger when antibiotics are used irrationally. For this reason, TECH's team of experts in infectious diseases have decided to put together an intensive program in which the latest developments related to these treatments and their controlled application are addressed. Para ello, el egresado contará con 300 horas del mejor material, las herramientas académicas más innovadoras y la posibilidad de cursarlo desde donde quiera y a cualquier hora gracias a su cómodo formato 100% online.



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*Would you like to get up to date on advances in Antibiotic Therapy in a comprehensive and 100% online way? Enroll in this TECH Postgraduate Certificate and get it!”*

The resistance that different viruses can generate, as in the case of influenza or the common cold, to antibiotics is quite frequent. However, history has proved right thousands of scientists who argued that the irrational use of these drugs could have serious consequences for patients, since they develop a defense that, sooner or later, could end up causing an infection that could kill the patient.

For this reason, and so that the specialist can know in detail the latest recommendations related to the proper use of these drugs, TECH has designed a Postgraduate Certificate specifically for this purpose. It is a 6-week program that includes 300 hours of syllabus, clinical cases and additional material. Thanks to this, the physician will be able to delve into the novelties of Antibiotic Therapy, as well as the use of antimicrobials in special situations of the host, among other aspects. It will also deepen in the correct application of the different types of antibiotics and in the situations in which they should be avoided for the good of the patient.

Thanks to this, the physician will be able to delve into the novelties of Antibiotic Therapy, as well as the use of antimicrobials in special situations of the host, among other aspects. In addition, all the content will be available from the beginning of the course, not only for download, but also so that you can organize the academic experience in a totally personalized way, making the most of it in a guaranteed way.

This **Postgraduate Certificate in Rational Use of Antibiotics** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ Clinical cases presented by experts in Infectious Diseases
- ◆ The graphic, schematic, and 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
- ◆ Content that is accessible from any fixed or portable device with an Internet connection



*A perfect opportunity to delve into the novelties related to the basic principles in the selection and use of antimicrobial from wherever you want and with a schedule 100% adapted to your availability"*



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*You will be able to get up to date on the different clinical applications of PK/PD parameters thanks to the thoroughness with which each section of the syllabus has been developed”*

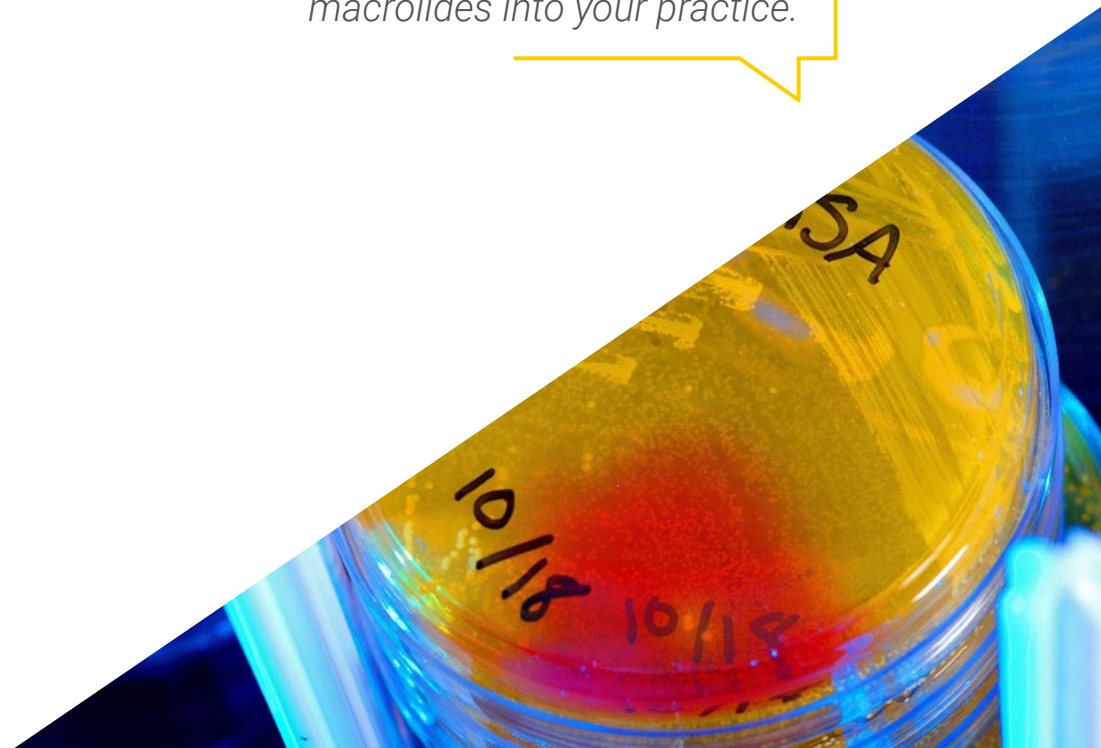
The program's teaching staff includes professionals from sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

Its 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 an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

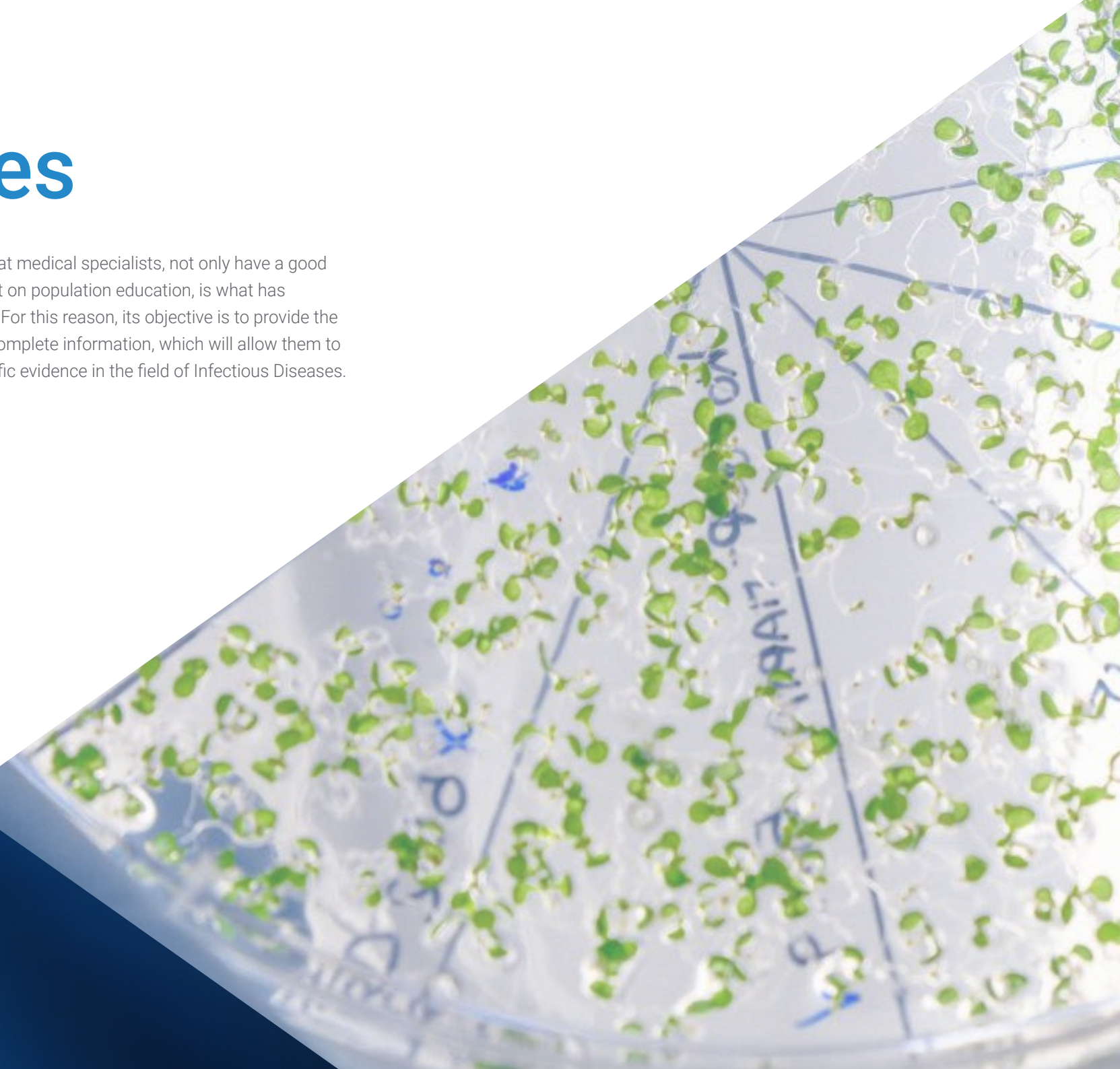
*In the virtual classroom you will find hours of additional high-quality material to delve deeper into each aspect of the syllabus that you consider most relevant for your medical performance.*

*A dynamic and austere way to implement the most updated knowledge related to quinolones and macrolides into your practice.*

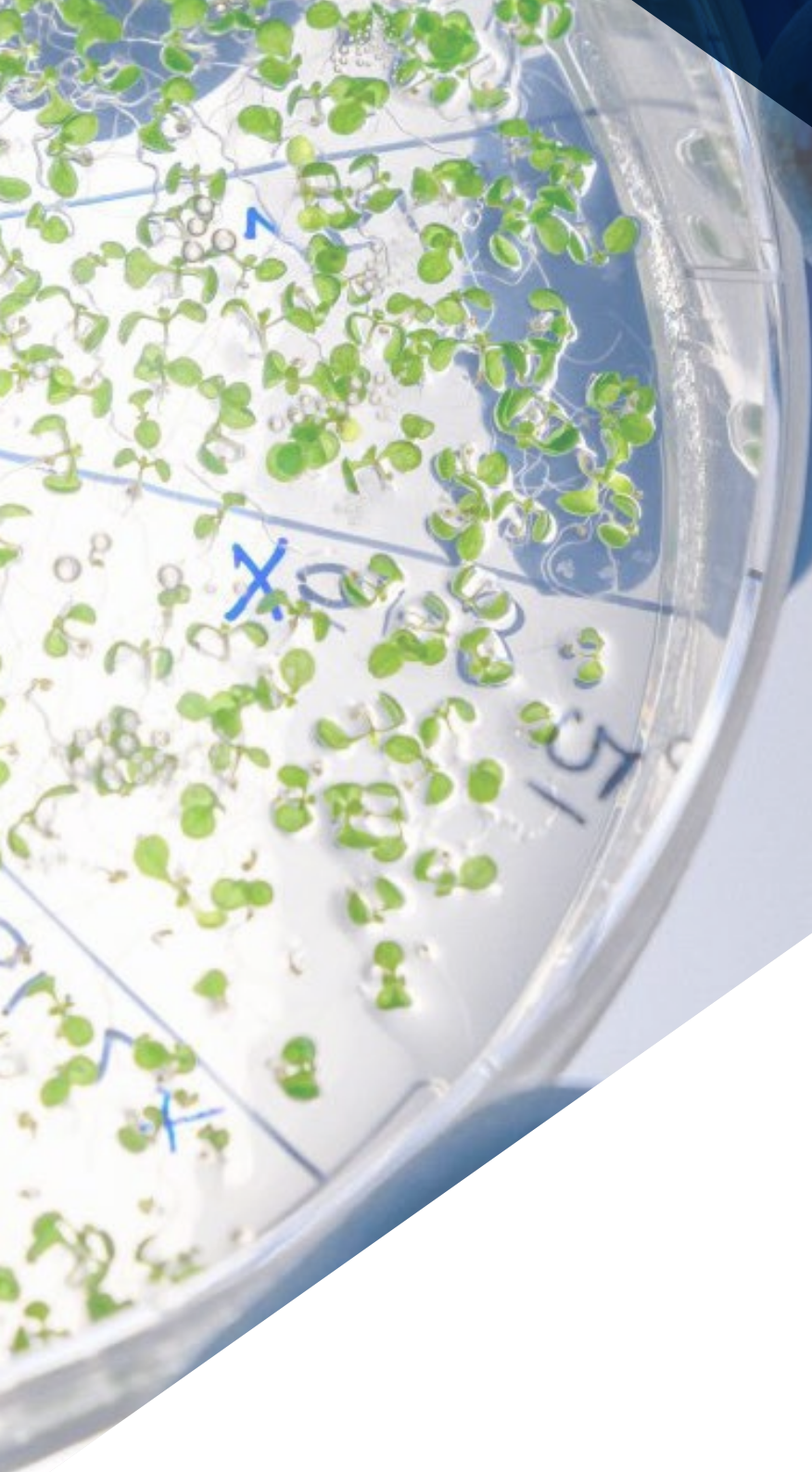


# 02 Objectives

The importance that resides in the fact that medical specialists, not only have a good use of antibiotics, but also have an impact on population education, is what has motivated TECH to develop this program. For this reason, its objective is to provide the graduates with the most innovative and complete information, which will allow them to practice based on the most recent scientific evidence in the field of Infectious Diseases.







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*If your priorities include a detailed understanding of the latest scientific evidence related to beta-lactams and their regulated use, this program will exceed your expectations”*



## General Objectives

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- ◆ Provide the specialist with the most up-to-date information on the correct and adequate use of antibiotics according to the case
- ◆ Develop the most avant-garde professional strategies of modern antibiotic therapy that are currently obtaining the best results

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*Reaching your academic goals has never been as easy as it is now with TECH. Don't you believe us? Enroll now and see for yourself”*







## Specific Objectives

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- ◆ Identify new developments in the management of new antibiotics
- ◆ Define and describe diagnostic and therapeutic methods in infectious pathology
- ◆ Identify and classify the different types of infections that commonly occur in the community
- ◆ Differentiate between the management of viral and bacterial infections in light of the latest advances in treatment of choice
- ◆ Convey the responsibility of the clinician in prescribing antibiotic treatment and its consequences
- ◆ Sensitize the physician to the rational use of medication and its long-term consequences for the patient and the community



# 03

## Course Management

The teaching team of this Postgraduate Certificate has been selected by TECH taking into account not only their academic and professional curriculum, but also their human qualities, which can be demonstrated through several letters of recommendation.

Thanks to this, it was possible to form a faculty composed of specialists in Infectious Diseases with a wide and long career in the sector. In addition, they are currently active, so they know in detail the latest scientific developments related to the field, something that will undoubtedly be reflected in the syllabus.



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*You will have the support of a teaching team versed in the field of Infectious Diseases so that you can get the most out of this academic experience”*



## International Guest Director

A pioneer in the use of **CD8+ T Cells** as a therapeutic tool for various **Viral Infections**, Dr. Otto Yang is a prestigious **Physician** highly specialized in **Cellular Immunology**. In addition, he has led multiple **scientific research** projects that have laid the groundwork for the development of innovative therapies and even vaccines.

In this sense, he has worked in health institutions of international reference such as **UCLA Health** in California. In this way, his work has been focused on the creation and implementation of modern treatments to manage conditions related to **HIV, AIDS or cancer**. Thanks to this, he has driven advances in the design of personalized immunological treatments adapted to the specific needs of each patient. As a result, he has managed to optimize the **overall well-being** of numerous patients in the long term.

Moreover, he has been a key figure in the conduct of **clinical trials** related to **COVID-19**. As such, he has conducted a variety of comprehensive analyses to evaluate the effects of therapies such as **Remdesivir, Baricitinib** and even **Monoclonal Antibodies**. Such work has been essential to identify the most effective therapeutic options and improve informed clinical decision making on a global scale in the face of the SARS-CoV-2 outbreak.

Throughout its 40-year history, its clinical excellence has been rewarded on several occasions in the form of **awards**. An example of this is the award he received from the American Association of Immunologists for his **CAR-T therapies** for the treatment of **leukemias**. In his strong commitment to advancing healthcare, he has led a wide range of projects that have received more than 30 million dollars in funding. These achievements reflect his strategic leadership in generating cutting-edge solutions that bring tangible value to society.



## Dr. Yang, Otto

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- Chief of the Division of Infectious Diseases at UCLA Health in California, United States
- Founder and Chief Medical Officer of CDR3 Therapeutics, California
- Director of Scientific Research at AIDS Healthcare Foundation, Los Angeles, Los Angeles
- Research Scientist with over 170 published papers
- Scientific Director of Ozymia, Los Angeles
- HIV Physician at MCI-Cedar Junction, Massachusetts
- Infectious Diseases Internship at Harvard Medical School
- Internal Medicine Residency at Bellevue Hospital, New York
- M.D. from Brown University
- Member of: Board of Directors at California Applied Medicine and Frontida Electronic Health Records Software



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

## Management



### Dr. Díaz Pollán, Beatriz

- ◆ Faculty Specialist La Paz University Hospital
- ◆ Faculty Specialist at Hospital Clínico San Carlos
- ◆ Resident Physician in San Carlos Clinical Hospital
- ◆ Master's Degree in Clinical Medicine from the Rey Juan Carlos University
- ◆ Degree in Medicine and Surgery from the Autonomous University of Madrid
- ◆ Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU - Cardenal Herrera University
- ◆ Postgraduate Diploma in Community and Nosocomial Infections from CEU - Cardenal Herrera University
- ◆ Postgraduate Diploma in Chronic Infectious Diseases and Imported Infections from CEU - Cardenal Herrera University
- ◆ Postgraduate Diploma in Microbiological Diagnosis, Antimicrobial Treatment and Research in Infectious Pathology from CEU - Cardenal Herrera University

## Professors

### Dr. Arribas López, José Ramón

- ◆ Head of the Infectious Diseases and Clinical Microbiology Unit  
La Paz University Hospital
- ◆ Coordinator of the High-Level Isolation Unit. La Paz University Hospital– Carlos III
- ◆ Member Interministerial Committee for the management of the Ebola crisis
- ◆ Head of the AIDS and Infectious Diseases research group at IdiPAZ
- ◆ Doctor of Medicine. Autonomous University of Madrid
- ◆ Degree in Medicine and Surgery. Complutense University of Madrid

### Dr. Ramos Ramos, Juan Carlos

- ◆ Doctor at La Paz University Hospital. Madrid
- ◆ Official Doctoral Programme in Medicine. University of Alcalá
- ◆ Degree in Medicine and Surgery. Complutense University of Madrid
- ◆ Master's Degree in Infectious Diseases in Intensive Care. University-Company Foundation Valencia
- ◆ Author of Several Scientific Publications

**Dr. Rico Nieto, Alicia**

- ◆ Specialist in the Microbiology and Parasitology Department at La Paz University Hospital
- ◆ Assistant and co-founder of the Infectious Diseases and Clinical Microbiology Unit at La Paz University Hospital
- ◆ Team Member of PROA (Programs of reinforcement, Orientation and Support)
- ◆ Teaching Collaborator of the Department of Medicine at UAM
- ◆ Member of the Infection and Policy Committee of La Paz University Hospital
- ◆ Member of SEIMC (the Spanish Society of Infectious Diseases and Clinical Microbiology)
- ◆ Participation in several research projects
- ◆ Degree in Medicine from the Complutense University of Madrid
- ◆ Doctorate Courses at the Complutense University of Madrid

**Dr. Loeches Yagüe, María Belén**

- ◆ Specialist in the area of Infectious Diseases at La Paz General University Hospital
- ◆ Professor of Infectious Diseases at the Infanta Sofía University Hospital in Madrid. European University of Madrid
- ◆ Doctor of Medicine. Autonomous University of Madrid
- ◆ Degree in Medicine. Complutense University of Madrid
- ◆ Master in Theoretical and Practical Learning in Infectious Diseases. Complutense University of Madrid
- ◆ Specialised Training in Microbiology and Infectious Diseases. Gregorio Marañón General University Hospital

**Dr. Mora Rillo, Marta**

- ◆ Specialist in the area of Infectious Diseases at La Paz University
- ◆ Clinical Teaching Collaborator in the Department of Medicine. Autonomous University of Madrid
- ◆ Doctor of Medicine. Autonomous University of Madrid
- ◆ Degree in Medicine and Surgery. University of Zaragoza
- ◆ Master's Degree in Infectious Diseases in Intensive Care. University of Valencia
- ◆ Online Masters in Infectious Diseases and Antimicrobial Treatment CEU Cardenal Herrera University. 2017
- ◆ Master's Degree in Tropical Medicine and International Health. Autonomous University of Madrid
- ◆ Expert in Emerging and High-Risk Virus Pathology. Autonomous University of Madrid
- ◆ Expert in Tropical Medicine. Autonomous University of Madrid

# 04

## Structure and Content

TECH employs bases all of its degrees on 3 fundamental pillars: the most exhaustive and innovative information in the sector, in this case Infectious Diseases, the development of the same for the constitution of the syllabus through the Relearning methodology, in whose use this university is a pioneer, and the most varied and dynamic additional material possible. In this way, it guarantees an immersive and multidisciplinary academic experience, in which the specialist will be able to catch up in a guaranteed way and without having to invest extra hours in memorizing.







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*Thanks to the comprehensiveness with which the program has been designed, you will be able to get up to speed on antimicrobial combinations, as well as their pros and cons”*

### Module 1. Advances in Antibiotic Therapy

- 1.1. Basic Principles in the Selection and Use of Antimicrobials
- 1.2. Resistance Bases and Their Clinical Implications
- 1.3. Clinical Application of the PK/PD Parameters
- 1.4. Use of Antimicrobials in Special Situations in the Host

### Module 2. Responsible Antibiotic Use

- 2.1. Beta-Lactams I: Penicillins, Aminopenicillins and Beta-Lactamase Inhibitors
- 2.2. Beta-Lactams II: Cephalosporins, Monobactams and Carbapenems
- 2.3. Aminoglycosides, Tetracyclines and, Lincosamides, Rifamycins and Antifolates
- 2.4. Quinolones and Macrolides
- 2.5. Glycopeptides. New Antibiotics for Gram-Positive Infections (Lipopeptides and Oxazolidinones)
- 2.6. Anti-Fungal Agents
- 2.7. Anti-Viral Agents (Excluding Antiretrovirals and Direct Antivirals for Hepatitis C)
- 2.8. Combinations of Antimicrobials Pros and Cons





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*Enroll now and join the world's largest online medical university community: TECH”*



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 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.

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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. 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 Rational Use of Antibiotics guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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*Successfully complete this program  
and receive your university qualification  
without having to travel or fill out  
laborious paperwork”*

This program will allow you to obtain your **Postgraduate Certificate in Rational Use of Antibiotics** 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 Rational Use of Antibiotics**

Modality: **online**

Duration: **12 weeks**

Accreditation: **12 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.





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