

# Postgraduate Certificate

## Advances in Antibiotic Therapy





## Postgraduate Certificate Advances in Antibiotic Therapy

Course Modality: **Online**

Duration: **3 months.**

Certificate: **TECH Technological University**

**15 ECTS Credits**

Teaching Hours: **375 hours.**

Website: [www.techtitute.com/medicine/postgraduate-certificate/postgraduate-certificate-advances-antibiotics-therapy](http://www.techtitute.com/medicine/postgraduate-certificate/postgraduate-certificate-advances-antibiotics-therapy)

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01

# Introduction

Hence the importance for the medical professional to be constantly prepared to know the main scientific advances in antibiotics, which are the main weapon to fight these infections, when they are caused by bacteria. Through this course, physicians will be able to learn about the most current treatments in the field. Hence the importance for the medical professional to be constantly prepared to know the main scientific advances in antibiotics, which are the main weapon to fight these infections, when they are caused by bacteria. Through this course, physicians will be able to learn about the most current treatments in the field.



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*This Postgraduate Certificate in Advances in Antibiotic Therapy will generate a sense of security in the performance of your profession, which will help you to grow personally and professionally"*

Although thanks to the discovery of antibiotics it was possible to combat bacterial infections, the abusive use of antibiotics has caused certain bacteria to become resistant to these drugs, so scientific research is constantly working to find increasingly effective methods to solve the problems that bacteria can cause in the population.

The World Health Organization (WHO) cites *Escherichia coli*, *Klebsiella pneumoniae*, *Staphylococcus aureus* and *Streptococcus pneumoniae*, followed by *Salmonella* spp, as the most antibiotic-resistant bacteria.

According to the latest WHO data, antibiotic resistance is now one of the greatest threats to global health, food security and development. However, antibiotic resistance also generates other types of problems, such as economic problems due to the lengthening of treatment and hospital stays for patients.

It should be borne in mind that bacterial infections affect a large number of the population and the death toll due to antibiotic resistance will reach exorbitant figures every year. In fact, 700,000 people currently die each year from this cause, but the World Health Organization (WHO) warns that by 2050 the number of deaths will rise to millions.

All this makes the health professional continue his training with a course like this, in which he will learn about the latest knowledge in the field of antibiotics, with emphasis on new advances and drugs that will make him perform his work more effectively.

This **Postgraduate Certificate in Advances in Antibiotic Therapy** includes the most complete and up-to-date scientific program on the market. The most important features of the course are:

- ♦ More than 75 practical cases presented by experts in Advances in Antibiotic Therapy.
- ♦ 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.
- ♦ The latest news on Advances in Antibiotic Therapy.
- ♦ The content of practical exercises where the self-evaluation process can be carried out to improve learning.
- ♦ Special emphasis is placed on innovative methodologies in Advances in Antibiotic Therapy.
- ♦ 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.



*Update your knowledge through the program of the Postgraduate Certificate in Advances in Antibiotic Therapy"*

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*This course may be the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in advances in antibiotic therapy, you will obtain a course title from TECH Technological University"*

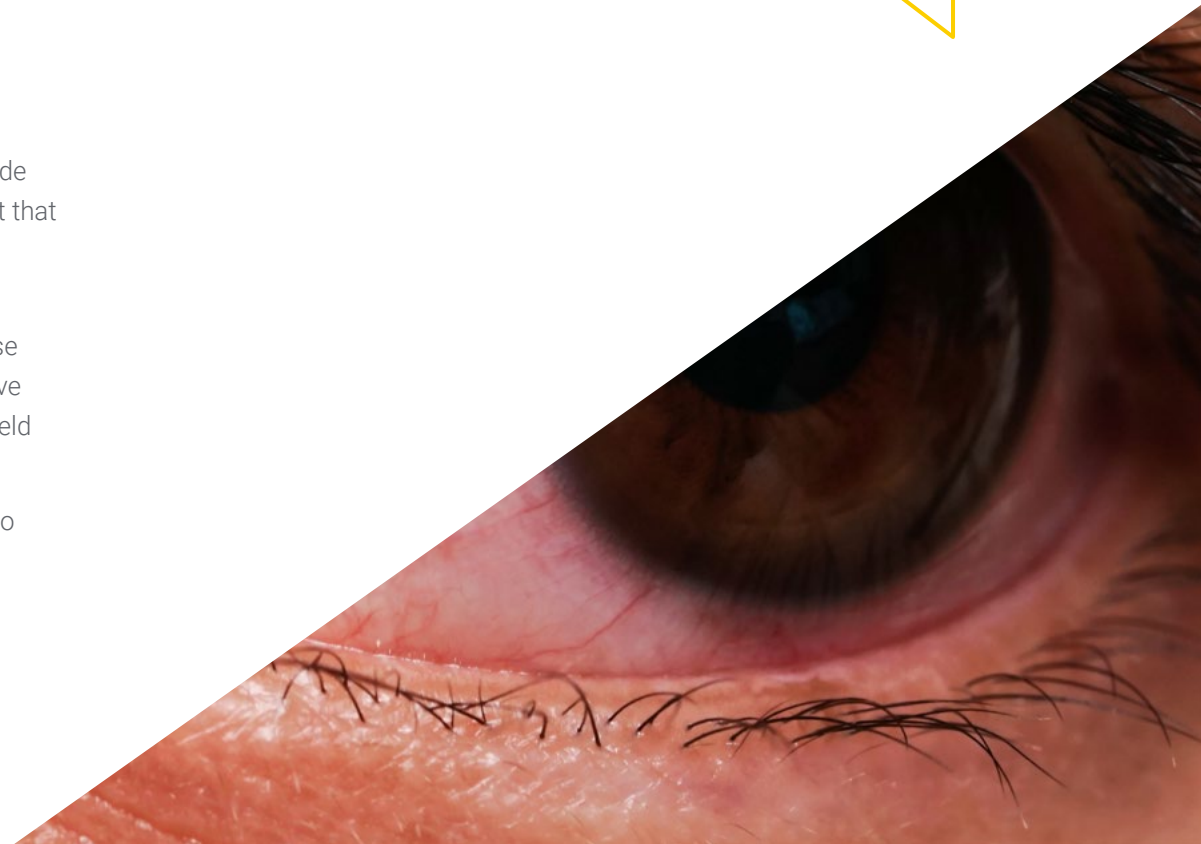
*Increase your decision-making confidence by updating your knowledge through this program.*

*Take the opportunity to learn about the latest advances in antibiotic therapy and improve the training of your students.*

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 training program to train in real situations.

This program's design is based on problem-based learning, by means of which the professional must try to solve the different professional practice situations that arise during the course. For this purpose, the professional will be assisted by an innovative interactive video system developed by recognized and experienced experts in the field of Advances in Antibiotic Therapy

Its teaching staff includes professionals belonging to the field of anti-parasitics, who contribute their work experience to this training, in addition to renowned specialists belonging to prestigious reference societies and universities.



# 02 Objectives

The main objective of the course is the improvement of health professionals, based on the acquisition of the most updated and innovative scientific knowledge on Advances in Antibiotic Therapy, which will allow them to develop skills for the correct and rational use of these drugs, making their daily clinical practice a bastion of the standards of the best scientific evidence available, with a critical, innovative, multidisciplinary and integrative sense.





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*This course is designed to update your knowledge in Advances in Antibiotic Therapy, with the use of the latest educational technology, to contribute with quality and safety to the decision making process with your patients"*



## General Objective

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- Guarantee professional improvement, through up-to-date and in-depth knowledge of the best scientific evidence in Antibiotic Therapy and for proper use of medication and appropriate treatment of infectious diseases with a multidisciplinary and integrative approach that facilitates the control of these pathologies.

*Update your knowledge through  
the Advances in Antibiotic  
Therapy program.*





## Specific Objectives

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- ♦ Provide students with advanced, in-depth, up-to-date, and multidisciplinary information that allows them to comprehensively approach the health-infectious disease process, the use of antibiotics, and antibiotic resistance.
- ♦ Provide training and practical/theoretical improvement that will enable a reliable clinical diagnosis supported by the efficient use of diagnostic methods to indicate an effective antimicrobial treatment.
- ♦ Develop skills to implement prophylactic plans for the prevention of these pathologies.
- ♦ Assess and interpret the epidemiological sanitary characteristics and conditions of countries that are conducive to the emergence and development of antibiotic resistance.
- ♦ Explain the complex interrelationships between the host, the microorganism, and the antibiotic to be used.
- ♦ Describe the main mechanisms of antimicrobial resistance.
- ♦ Highlight the importance of rational therapeutics in the rational use of antimicrobials.
- ♦ Address the most important elements among the resistance mechanisms of superbugs and other germs in a general sense.
- ♦ Describe the most important elements of the absorption, transportation, distribution, metabolism, and excretion of antibiotics.
- ♦ Address, in detail and depth, the most up-to-date scientific evidence on the mechanisms of action, adverse effects, dosage, and use of antimicrobials.
- ♦ Justify the importance of controlling the use of antimicrobials as a means of reducing antibiotic resistance.
- ♦ Explain the production process of new antibiotics.
- ♦ Emphasize the development of future antibiotics and other therapeutic modalities for infectious diseases.

03

# Course Management

Renowned and recognized medical specialists with numerous publications, teaching experience, and professional experience in many countries, where many of the diseases studied have a high morbimortality, participate in the teaching program. The teaching staff is made up of a multidisciplinary team from various medical specialties, as internal medicine, pediatrics, general surgery, gynecology and obstetrics, microbiology, pathological anatomy and pharmacology, among others.



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*Learn about , the latest advances in Antibiotic Therapy and Antibiotic Resistance from leading professionals"*

## 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 Kuri Institute, Havana. Cuba.
- ♦ Head of the Department of Infectious Diseases of the Héroes del Baire Hospital.
- ♦ Member of the Cuban Society of Internal Medicine.
- ♦ Member of the Cuban Society of Teachers.
- ♦ Medical specialist in Africa (Chad) and Venezuela in (2009, 2013-15).
- ♦ Professor on the Medicine Degree and Internal Medicine Specialty at the Faculty of Medical Sciences of Isla de la Juventud.
- ♦ Professor in the Master's Degree in Infectious Diseases Professional Master's Degree at the Faculty of Medical Sciences of Isla de la Juventud.
- ♦ Member of state examining boards for the medicine degree and internal medicine.
- ♦ National Research Award in Cuba, 2002.
- ♦ Medical Science Teaching Award. Cuba.

## Professors

### **Dr. Valle Vargas, Mariano**

- ♦ 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.
- ♦ 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 Teachers.
- ♦ Medical specialist in Venezuela in 2009, 2007-10.
- ♦ Professor on the Medicine Degree and Internal Medicine Specialty 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
- ♦ Medical Science Teaching Award. Cuba.

### **Dr. Dranguet Bouly, José Ismael**

- ♦ 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.
- ♦ 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 Teachers.
- ♦ Medical specialist in Mozambique, 2008-10.
- ♦ Professor on the Medicine Degree and Internal Medicine Specialty 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
- ♦ Medical Science Teaching Award. Cuba.
- ♦ Professor at the Catholic University of Santiago de Guayaquil Ecuador, 2018.

**Dr. Cantalapedra Torres, Alejandro**

- ♦ Degree in Medicine and Surgery from the University of Havana. Cuba.
- ♦ Pediatrician. "Héroes del Baire" Hospital.
- ♦ Master's Degree in Infectious Diseases.
- ♦ Diploma in Medical Teaching.
- ♦ Diploma in Health Management.
- ♦ 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 in 2000-01
- ♦ Medical Specialist in Antigua and Barbuda in 2008.

**Dr. Lawrence Carmenate, Araelis**

- ♦ Lic. In Microbiology from the University of Havana.
- ♦ Master's Degree in Infectious Diseases.
- ♦ 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 Associations of Teachers.
- ♦ Worked in Caracas, Venezuela from 2012 to 2014
- ♦ Participated in national and international Microbiology events in Cuba and Venezuela.

**Dr. Luís Dávila, Heenry**

- ♦ Degree in Medicine and Surgery from the University of Havana. Cuba.
- ♦ Specialist in Gynecology and Obstetrics at Héroes del Baire Hospital. Cuba.
- ♦ Professional Master's Degree in Comprehensive Care for Women.
- ♦ Head of the Neck Pathology Service at Héroes del Baire Hospital.
- ♦ Member of the Cuban Society of Gynecology and Obstetrics.
- ♦ Member of the Cuban Society of Teachers.
- ♦ Medical specialist in Guatemala, 2010-12.
- ♦ Professor on the Medicine Degree in the Faculty of Medical Sciences in Isla de la Juventud.
- ♦ Member of state examining boards medicine.
- ♦ Member of tribunals for national scientific events. Cuba
- ♦ National research award. Cuba
- ♦ Medical Science Teaching Award. Cuba.

**Dr. Jiménez Valdés, Erlivan**

- ♦ Degree in Medicine and Surgery from the University of Havana. Cuba.
- ♦ Pediatrician. "Héroes del Baire" Hospital.
- ♦ Master's Degree in comprehensive childcare.
- ♦ 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 in 2017.



**Dr. Batista Valladares, Adrián**

- ◆ Degree in Medicine and Surgery from the University of Havana. Cuba.
- ◆ Specialist in Family and Community Medicine.
- ◆ Master's Degree in Clinical Infectology.
- ◆ Diploma in Diagnostic Ultrasound.
- ◆ Diploma in Healthcare Management.
- ◆ Head of Senior Citizen Services in Isla de la Juventud. Cuba.
- ◆ Member of the Cuban Society of Family Medicine.
- ◆ Professor of medicine and family medicine specialty at the School of Medical Sciences of the Isle of Youth.
- ◆ 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 family medicine.
- ◆ Member of tribunals for national scientific events. Cuba

**Dr. González Fiallo, Sayli**

- ◆ Degree in Hygiene and Epidemiology
- ◆ Master's Degree in Epidemiology
- ◆ 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. Isla de la Juventud.



04

# Structure and Content

The program has been created by a group of professors and medical professionals from various medical specialties, with extensive medical, research and teaching experience in several countries in Europe, Africa, Central and South America, interested in integrating the latest and most current scientific knowledge of antibiotic therapy to ensure training and professional development to improve the daily clinical practice of professionals who care for patients or populations with infectious diseases.





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*This Postgraduate Certificate in Advances in Antibiotic Therapy includes the most complete and up-to-date scientific program on the market”*

## Module 1. Antibiotics I

- 1.1. Advances in the Knowledge of the Synthesis and Structure the Beta-Lactam Ring.
  - 1.1.1. Structure of the Beta-Lactam Ring.
  - 1.1.2. Drugs that Act on the Synthesis of the Beta-Lactam Ring.
- 1.2. Penicillins: New Drugs and their Future Role in Anti-Infection Treatments.
  - 1.2.1. Classification.
  - 1.2.2. Mechanism of Action.
  - 1.2.3. Antimicrobial Spectrum.
  - 1.2.4. Pharmacokinetics and Pharmacodynamics.
  - 1.2.5. Therapeutic Uses.
  - 1.2.6. Adverse Effects.
  - 1.2.7. Presentation and Dosage.
- 1.3. Antistaphylococcal Penicillins: From Old to New and their Practical Implications.
  - 1.3.1. Classification.
  - 1.3.2. Mechanism of Action.
  - 1.3.3. Antimicrobial Spectrum.
  - 1.3.4. Pharmacokinetics and Pharmacodynamics.
  - 1.3.5. Therapeutic Uses.
  - 1.3.6. Adverse Effects.
  - 1.3.7. Presentation and Dosage.
- 1.4. Antipseudomonal Penicillins: Current Resistance Challenge.
  - 1.4.1. Classification.
  - 1.4.2. Mechanism of Action.
  - 1.4.3. Antimicrobial Spectrum.
  - 1.4.4. Pharmacokinetics and Pharmacodynamics.
  - 1.4.5. Therapeutic Uses.
  - 1.4.6. Adverse Effects.
  - 1.4.7. Presentation and Dosage.
- 1.5. Cephalosporins: Present and Future.
  - 1.5.1. Classification.
  - 1.5.2. Mechanism of Action.
  - 1.5.3. Antimicrobial Spectrum.
  - 1.5.4. Pharmacokinetics and Pharmacodynamics.
  - 1.5.5. Therapeutic Uses.
  - 1.5.6. Adverse Effects.
  - 1.5.7. Presentation and Dosage.
- 1.6. Oral Cephalosporins: New Developments in their Outpatient Use.
  - 1.6.1. Classification.
  - 1.6.2. Mechanism of Action.
  - 1.6.3. Antimicrobial Spectrum.
  - 1.6.4. Pharmacokinetics and Pharmacodynamics.
  - 1.6.5. Therapeutic Uses.
  - 1.6.6. Adverse Effects.
  - 1.6.7. Presentation and Dosage.
- 1.7. Monobactams.
  - 1.7.1. Classification.
  - 1.7.2. Mechanism of Action.
  - 1.7.3. Antimicrobial Spectrum.
  - 1.7.4. Pharmacokinetics and Pharmacodynamics.
  - 1.7.5. Therapeutic Uses.
  - 1.7.6. Adverse Effects.
  - 1.7.7. Presentation and Dosage.
- 1.8. Carbapenems.
  - 1.8.1. Classification.
  - 1.8.2. Mechanism of Action.
  - 1.8.3. Antimicrobial Spectrum.
  - 1.8.4. Pharmacokinetics and Pharmacodynamics.
  - 1.8.5. Therapeutic Uses.
  - 1.8.6. Adverse Effects.
  - 1.8.7. Presentation and Dosage.

- 1.9. Bataclatamases: Recent Discovery of Strains and their Role in Resistance.
  - 1.9.1. Classification.
  - 1.9.2. Action on Beta-Lactams.
- 1.10. Beta-Lactamase Inhibitors.
  - 1.10.1. Classification.
  - 1.10.2. Mechanism of Action.
  - 1.10.3. Antimicrobial Spectrum.
  - 1.10.4. Pharmacokinetics and Pharmacodynamics.
  - 1.10.5. Therapeutic Uses.
  - 1.10.6. Adverse Effects.
  - 1.10.7. Presentation and Dosage.

## Module 2. Antibiotics II

- 2.1. Glycopeptides: The New Drugs for Gram-Positive Germs.
  - 2.1.1. Classification.
  - 2.1.2. Mechanism of Action.
  - 2.1.3. Antimicrobial Spectrum.
  - 2.1.4. Pharmacokinetics and Pharmacodynamics.
  - 2.1.5. Therapeutic Uses.
  - 2.1.6. Adverse Effects.
  - 2.1.7. Presentation and Dosage.
- 2.2. Cyclic Lipopeptides: Recent Advances and Future Role.
  - 2.2.1. Classification.
  - 2.2.2. Mechanism of Action.
  - 2.2.3. Antimicrobial Spectrum.
  - 2.2.4. Pharmacokinetics and Pharmacodynamics.
  - 2.2.5. Therapeutic Uses.
  - 2.2.6. Adverse Effects.
  - 2.2.7. Presentation and Dosage.
- 2.3. Macrolides: Their Immunomodulator Role in the Respiratory System.
  - 2.3.1. Classification.
  - 2.3.2. Mechanism of Action.
  - 2.3.3. Antimicrobial Spectrum.
  - 2.3.4. Pharmacokinetics and Pharmacodynamics.
  - 2.3.5. Therapeutic Uses.
  - 2.3.6. Adverse Effects.
  - 2.3.7. Presentation and Dosage.
- 2.4. Ketolides.
  - 2.4.1. Classification.
  - 2.4.2. Mechanism of Action.
  - 2.4.3. Antimicrobial Spectrum.
  - 2.4.4. Pharmacokinetics and Pharmacodynamics.
  - 2.4.5. Therapeutic Uses.
  - 2.4.6. Adverse Effects.
  - 2.4.7. Presentation and Dosage.
- 2.5. Tetracyclines: Old and New Indications According to the Most Recent Advances in Emerging Diseases.
  - 2.5.1. Classification.
  - 2.5.2. Mechanism of Action.
  - 2.5.3. Antimicrobial Spectrum.
  - 2.5.4. Pharmacokinetics and Pharmacodynamics.
  - 2.5.5. Therapeutic Uses.
  - 2.5.6. Adverse Effects.
  - 2.5.7. Presentation and Dosage.
- 2.6. Aminoglycosides: Facts and Realities of their Current and Future Utilization.
  - 2.6.1. Classification.
  - 2.6.2. Mechanism of Action.
  - 2.6.3. Antimicrobial Spectrum.
  - 2.6.4. Pharmacokinetics and Pharmacodynamics.
  - 2.6.5. Current Therapeutic Uses and Future Trends.
  - 2.6.6. Adverse Effects.
  - 2.6.7. Presentation and Dosage.
- 2.7. Quinolones: All Generations and Practical Use.

- 2.7.1. Classification.
- 2.7.2. Mechanism of Action.
- 2.7.3. Antimicrobial Spectrum.
- 2.7.4. Pharmacokinetics and Pharmacodynamics.
- 2.7.5. Therapeutic Uses.
- 2.7.6. Adverse Effects.
- 2.7.7. Presentation and Dosage.
- 2.8. Respiratory Quinolones: Latest Recommendations on their Use.
  - 2.8.1. Classification.
  - 2.8.2. Mechanism of Action.
  - 2.8.3. Antimicrobial Spectrum.
  - 2.8.4. Pharmacokinetics and Pharmacodynamics.
  - 2.8.5. Therapeutic Uses.
  - 2.8.6. Adverse Effects.
  - 2.8.7. Presentation and Dosage.
- 2.9. Streptogramins.
  - 2.9.1. Classification.
  - 2.9.2. Mechanism of Action.
  - 2.9.3. Antimicrobial Spectrum.
  - 2.9.4. Pharmacokinetics and Pharmacodynamics.
  - 2.9.5. Therapeutic Uses.
  - 2.9.6. Adverse Effects.
  - 2.9.7. Presentation and Dosage.

### Module 3. Antibiotics III

- 3.1. Oxazolinones.
  - 3.1.1. Classification.
  - 3.1.2. Mechanism of Action.
  - 3.1.3. Antimicrobial Spectrum.
  - 3.1.4. Pharmacokinetics and Pharmacodynamics.
  - 3.1.5. Therapeutic Uses.
  - 3.1.6. Adverse Effects.
  - 3.1.7. Presentation and Dosage.
- 3.2. Sulfas.

- 3.2.1. Classification.
- 3.2.2. Mechanism of Action.
- 3.2.3. Antimicrobial Spectrum.
- 3.2.4. Pharmacokinetics and Pharmacodynamics.
- 3.2.5. Therapeutic Uses.
- 3.2.6. Adverse Effects.
- 3.2.7. Presentation and Dosage.
- 3.3. Lincosamides.
  - 3.3.1. Classification.
  - 3.3.2. Mechanism of Action.
  - 3.3.3. Antimicrobial Spectrum.
  - 3.3.4. Pharmacokinetics and Pharmacodynamics.
  - 3.3.5. Therapeutic Uses.
  - 3.3.6. Adverse Effects.
  - 3.3.7. Presentation and Dosage.
- 3.4. Rifamycins: Practical Use in TB and Other Infections Today.
  - 3.4.1. Classification.
  - 3.4.2. Mechanism of Action.
  - 3.4.3. Antimicrobial Spectrum.
  - 3.4.4. Pharmacokinetics and Pharmacodynamics.
  - 3.4.5. Therapeutic Uses.
  - 3.4.6. Adverse Effects.
  - 3.4.7. Presentation and Dosage.
- 3.5. Antifolates.
  - 3.5.1. Classification.
  - 3.5.2. Mechanism of Action.
  - 3.5.3. Antimicrobial Spectrum.
  - 3.5.4. Pharmacokinetics and Pharmacodynamics.
  - 3.5.5. Therapeutic Uses.
  - 3.5.6. Adverse Effects.
  - 3.5.7. Presentation and Dosage.
- 3.6. Antibiotics for Leprosy: Recent Advances.

- 3.6.1. Classification.
- 3.6.2. Mechanism of Action.
- 3.6.3. Antimicrobial Spectrum.
- 3.6.4. Pharmacokinetics and Pharmacodynamics.
- 3.6.5. Therapeutic Uses.
- 3.6.6. Adverse Effects.
- 3.6.7. Presentation and Dosage.
- 3.7. Antituberculosis Drugs: Latest Recommendations for their Use.
  - 3.7.1. Classification.
  - 3.7.2. Mechanism of Action.
  - 3.7.3. Antimicrobial Spectrum.
  - 3.7.4. Pharmacokinetics and Pharmacodynamics.
  - 3.7.5. Therapeutic Uses.
  - 3.7.6. Adverse Effects.
  - 3.7.7. Presentation and Dosage.
- 3.8. Parenteral Antibiotic Use in Outpatients: Latest Recommendations.
  - 3.8.1. Main Indications for Parenteral Antibiotics in Outpatients.
  - 3.8.2. Monitoring Outpatients Receiving Parenteral Antibiotic Treatment.
- 3.9. The Latest on Antibiotics for Multidrug-Resistant Bacteria:
  - 3.9.1. Antibiotics for Multidrug-Resistant Gram-Positive Bacteria.
  - 3.9.2. Antibiotics for Multidrug-Resistant Gram-Negative Bacteria.



*A unique, key, and decisive training experience to boost your professional development”*



05

# Methodology

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

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





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*Discover Re-learning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

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



According to Dr. 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 potential 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 professional medical 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 grasp concepts, but also develop their mental capacity by evaluating real situations and applying 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.



*The physician 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 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Re-learning will allow you to learn with less effort and better performance, involving you more in your 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 produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

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



#### Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. 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

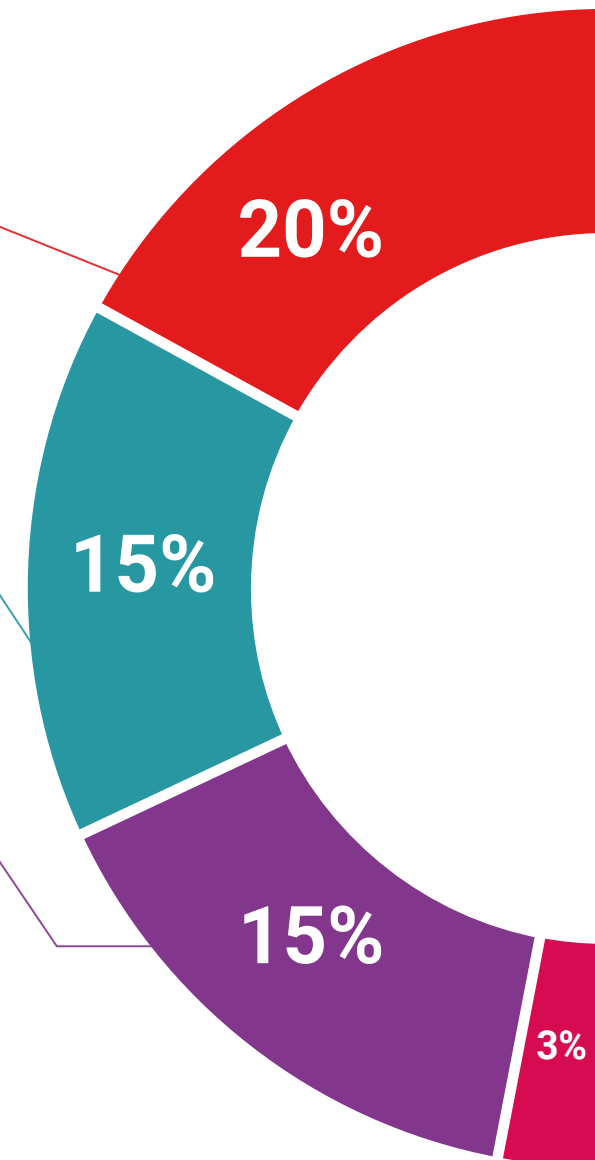
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Advances in Antibiotic Therapy** guarantees you, in addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by **TECH Technological University**.





“

*Successfully complete this training and receive your certificate without the hassle of travel or paperwork”*

This Postgraduate Certificate in Advances in Antibiotic Therapy includes the most complete and up-to-date scientific program on the market”

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University via tracked delivery.**

The diploma issued by La TECH Technological University will express the qualification obtained in the course, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Advances in Antibiotic Therapy**

ECTS: 15

Official Number of Hours: **375**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

health confidence people future  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
online training  
development languages  
virtual classroom

**tech** technological  
university

**Postgraduate Certificate**  
Advances in Antibiotic  
Therapy

Course Modality: Online

Duration: 3 months.

Certificate: **TECH** Technological University

**15 ECTS Credits**

Teaching Hours: 375 hours.

# Postgraduate Certificate

## Advances in Antibiotic Therapy

