

# Postgraduate Certificate Multi-Resistance and Vaccines





## Postgraduate Certificate Multi-Resistance and Vaccines

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/pharmacy/postgraduate-certificate/multi-resistance-vaccines](http://www.techtute.com/us/pharmacy/postgraduate-certificate/multi-resistance-vaccines)

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# 01

# Introduction

Resistance to antibiotics and other antimicrobials is a major global health problem, which makes it essential for pharmacy professionals to continue researching to find other more effective treatments. This program in Multi-Resistance and Vaccines gives pharmacists the keys to be able to develop their work in the most accurate way possible. All this, with the aim of generating new, more effective treatments that achieve better results in people suffering from some type of infectious pathology.



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*Antimicrobial resistance is one of the major global health problems. That's why it's vital for pharmacists to keep their knowledge up-to-date"*

Antimicrobial resistance is one of the world's major health problems, since the misuse of certain drugs causes microorganisms to become resistant to them, making certain diseases more difficult to cure. In fact, the World Health Organization (WHO) warns that this resistance poses a growing threat to global public health and requires action by all sectors of government and society.

Thus, according to WHO figures, every year 480,000 people develop multidrug-resistant tuberculosis, and drug resistance is also beginning to complicate the fight against HIV and malaria. These are just some of the data that can serve as an example to show how problematic this issue is.

In this sense, in order to meet the healthcare needs of the 21st century, it is important that pharmacists keep abreast of advances in this area. All this means that pharmacists should continue their training with educational programs such as the one we are presenting on this occasion, which covers multi-resistance to treatments and the main vaccines.

In this way, with a training course like this one, which is 100% online, you can help specialists to continue with their professional work while not neglecting training, which will make them stand out in their day-to-day work.

This **Postgraduate Certificate in Multiresistance and Vaccines** endorses the latest advances in infectious diseases with an academic teaching program that positions it as an educational product of the highest scientific rigor at international level. Additionally, this program provides training and professional development in different areas:

- ♦ Clinical symptoms development medicine to be able to address the infectious health-disease process in a particular person through the study of the most prevalent and deadly infectious diseases, and, in epidemiology, to study the behaviour of the same phenomenon in a population
- ♦ The indication, performance and interpretation of the main state-of-the-art diagnostic tests to complement clinical skills in the diagnostic process. Emphasizing the most up-to-date microbiological tests used to rapidly diagnose germs and study antimicrobial
- ♦ The complex and determining pathophysiological relationships between the immune response and infectious agents
- ♦ Germs related to neoplasms and chronic non-communicable diseases
- ♦ Development and production of vaccines for the control of morbidity and mortality due to infectious diseases
- ♦ The important field of antimicrobial therapeutics, providing the best available information on the development and production of new antibiotics



*Take this training with TECH and you will obtain a qualification, which you can highlight on your resume"*

“

*Study with us and you will be able to diagnose in the most accurate way the cases of animal or parasite infections”*

Its teaching staff is made up of prestigious and renowned professionals with a long career in health care, teaching and research, who have worked in many countries on several continents, developing professional and teaching experience that they deliver in an extraordinary way in this Postgraduate Certificate.

The methodological design of this Postgraduate Certificate, developed by a multidisciplinary team of e-learning experts, integrates the latest advances in educational technology for the creation of numerous educational multimedia tools that allow the professional, based primarily around the Problem-Based Learning method, to address real problems in their daily clinical practice, which will allow them to advance by acquiring knowledge and developing skills that will impact their future professional work.

It should be noted in this Postgraduate Certificate that each of the contents generated, as well as the videos, self-evaluations, clinical cases and exams, have been thoroughly reviewed, updated, and integrated by the teachers and the team of experts that make up the working group, to facilitate the learning process with a step-by-step approach in order to achieve the teaching program objectives.

*Here, we present the best Postgraduate Certificate program you can take in mycobacteriosis and anaerobic infections.*

*It is essential for healthcare professionals to continue their training throughout their professional careers.*



02

# Objectives

The main objective of the Postgraduate Certificate is the improvement of pharmacy professionals, by helping them acquire the most up-to-date and innovative scientific knowledge in the field of infectious diseases and how they are treated, allowing them to develop the skills that will turn their daily pharmaceutical practice into a benchmark of the standards of the best scientific evidence available, with a critical, innovative, multidisciplinary and integrative sense.







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*Continue your specialization with this Postgraduate Certificate and learn about new advances in multi-resistance and vaccines that will help you perform your profession in a more effective way, giving the best treatment to your patients”*



### General Objective

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- ♦ Guarantee professional improvement, through up-to-date and in-depth knowledge of the best scientific evidence, for the prevention, diagnosis, and treatment of infectious diseases with a multidisciplinary and integrative approach that facilitates the control of these pathologies

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*The student will learn through real cases and the resolution of complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning”*





## Specific Objectives

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- ♦ Provide students with advanced, in-depth, updated, and multidisciplinary information that allows them to comprehensively approach the process of health-infectious diseases
- ♦ 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 integral treatment
- ♦ Develop skills to implement prophylactic plans for the prevention of these diseases.
- ♦ Raise the crucial issue of super-resistant microbes and their relationship to the use of antimicrobials
- ♦ Highlighting the development of vaccines for new diseases
- ♦ Emphasise the development of future antibiotics and other therapeutic modalities for infectious diseases

03

# Course Management

Within our aim to provide high-quality programs, we are proud to work with a teaching faculty of the highest level, all of whom have been chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.





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*Make the most of this opportunity and train with the best teaching staff that you could find, who bring their vast experience to this Postgraduate Certificate, allowing you to complete your training in the field of multi-resistance and vaccines”*

## Management



### Dr. Díaz Pollán, Beatriz

- ◆ Faculty Specialist Déu Hospital La Paz University Hospital. Since
- ◆ Official Doctoral Programme in Clinical Medicine Clinical symptoms, University Rey Juan Carlos.
- ◆ Degree in Medicine and Surgery, Autonomous University of Madrid.
- ◆ Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University.
- ◆ Postgraduate Certificate in Community and Nosocomial Infections from CEU Cardenal Herrera University.
- ◆ Postgraduate Certificate in Chronic Infectious Diseases and Imported Infections from CEU Cardenal Herrera University.
- ◆ Postgraduate Certificate in Microbiological Diagnosis, Antimicrobial Treatment and Research in Infectious Pathology from CEU Cardenal Herrera University.
- ◆ Faculty Specialist Déu Hospital San Carlos Clinical Hospital.
- ◆ Resident doctor, San Carlos Clinical Hospital.

## Professors

### Dr. Rico, Alicia

- ◆ Specialist in the Microbiology and Parasitology Department at La Paz University Hospital, Madrid
- ◆ Degree in Medicine from the Complutense University of Madrid.
- ◆ Doctorate Courses at the Complutense University of Madrid
- ◆ Assistant and co-founder of the Infectious Diseases and Clinical Microbiology Unit, La Paz University Hospital, Madrid
- ◆ Clinical teaching collaborator Department of Medicine of the UAM

### Dr. Ramos, Juan Carlos

- ◆ Doctor at La Paz University Hospital, Madrid
- ◆ Official Doctoral Programme in Clinical Medicine. University of Alcalá
- ◆ Degree in Medicine and Surgery from the Complutense , University of Madrid
- ◆ Master's Degree in Infectious Diseases in Intensive Care, Fundación Universidad-Empresa Valencia
- ◆ Author of several community publications

**Dr. Loeches Yagüe, María Belén**

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

**Dr. Arribas López, José Ramón**

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

**Dr. Mora Rillo, Marta**

- ♦ Specialist in the area of Infectious Diseases at La Paz University Hospital
- ♦ Doctor in Medicine, Autonomous University, Madrid
- ♦ Degree in Medicine and Surgery, University of Zaragoza
- ♦ Master's Degree in Infectious Diseases in Intensive Care, University of Valencia
- ♦ Online Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University
- ♦ 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

The teaching program has been created to provide pharmacy professionals with the tools they require in their daily practice in multi-resistance and vaccines. Therefore, the content of this Postgraduate Certificate is composed of the most up-to-date syllabus on the market, which has been developed by leading experts in the field at an international level, with the aim of making specialists more accurate in the diagnosis and treatment of this type of infection.





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*Immerse yourself in the study  
of the most specialized and  
complete syllabus on the market"*

## Module 1. Multi-Resistance and Vaccines

- 1.1. The Silent Epidemic of Antibiotic Resistance
  - 1.1.1. Globalisation and Resistance
  - 1.1.2. Change from Susceptible to Resistant of the Microorganisms
- 1.2. The Main Genetic Mechanisms of Antimicrobial Resistance
  - 1.2.1. Describe the Main Mechanisms of Antimicrobial Resistance
  - 1.2.2. Selective Antimicrobial Pressure on Antimicrobial Resistance
- 1.3. Superbugs
  - 1.3.1. Pneumococcus Resistant to Penicillin and Macrolides
  - 1.3.2. Multidrug-Resistant Staphylococci
  - 1.3.3. Resistant Infections in Intensive Care Units (ICUs)
  - 1.3.4. Resistant Urinary Tract Infections
  - 1.3.5. Other Multi-Resistant Microorganisms
- 1.4. Resistant Viruses
  - 1.4.1. HIV
  - 1.4.2. Influenza
  - 1.4.3. Hepatitis Viruses
- 1.5. Multidrug-resistant Malaria
  - 1.5.1. Chloroquine Resistance
  - 1.5.2. Resistance to Other Antimalarials
- 1.6. The Main Genetic Studies of Antimicrobial Resistance
  - 1.6.1. Interpretation of Resistance Studies



- 1.7. Global Strategies for Reducing Antimicrobial Resistance
  - 1.7.1. The Control of Prescribing Antibiotics
  - 1.7.2. Microbiological Mapping and Clinical Practice Guidelines
- 1.8. General Overview of Vaccines
  - 1.8.1. Immunological Basis of Vaccination
  - 1.8.2. The Process of Vaccination Production
  - 1.8.3. Quality Control of Vaccines
  - 1.8.4. Vaccine Safety and Major Adverse Events
  - 1.8.5. Clinical and Epidemiological Studies for Vaccine Approval
- 1.9. The Use of Vaccines
  - 1.9.1. Vaccine-Preventable Diseases and Vaccination Programmes
  - 1.9.2. Global Experiences of the Effectiveness of Vaccination Programmes
  - 1.9.3. Vaccine Candidates for New Diseases

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*Focus your studies on infections of the central nervous system thanks to this Diploma, the highest quality on the market"*

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.



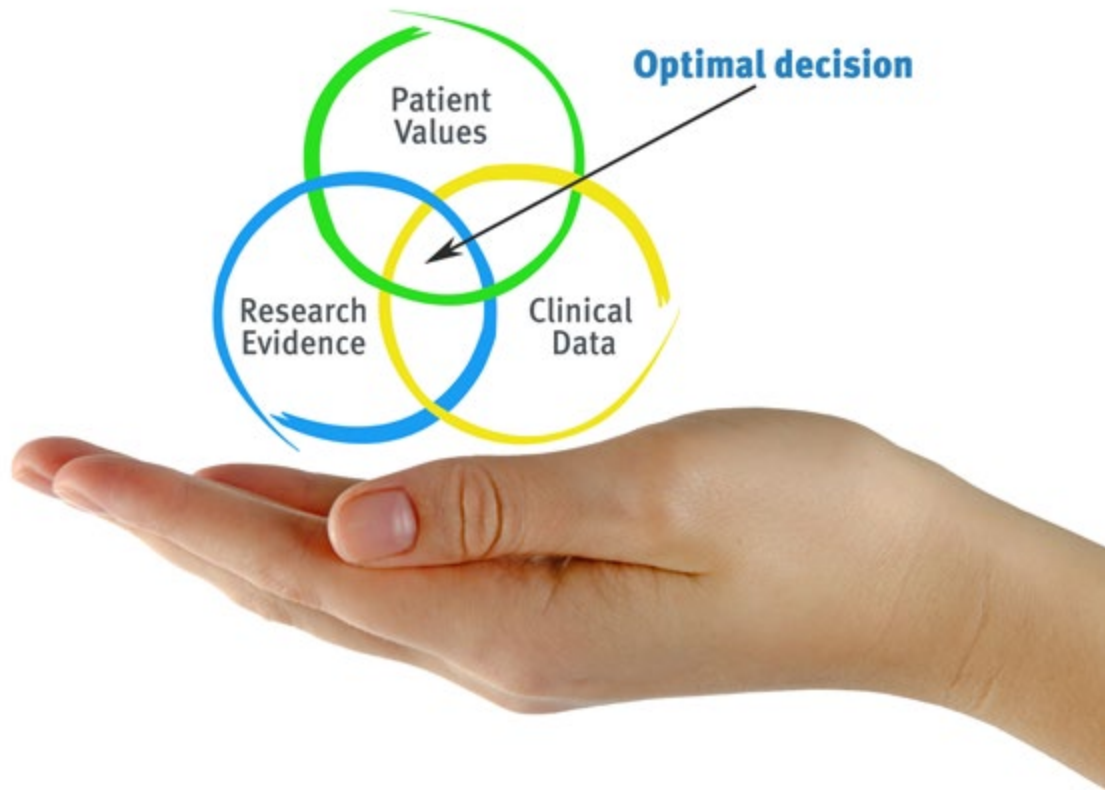


*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

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

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



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

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

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

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



## Relearning Methodology

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

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

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





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

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

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

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

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



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



### Study Material

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

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



### Video Techniques and Procedures

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



### Interactive Summaries

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

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



### Additional Reading

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





#### Expert-Led Case Studies and Case Analysis

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



#### Testing & Retesting

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



#### Classes

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



#### Quick Action Guides

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



06

# Certificate

The Postgraduate Certificate in Multi-Resistance and Vaccines guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





*Successfully complete this program and receive your university qualification without travel or laborious paperwork"*

This **Postgraduate Certificate in Multi-Resistance and Vaccines** contains 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 certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Multi-Resistance and Vaccines**

Official N° of hours: **100 h.**



\*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..

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



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# Postgraduate Certificate

## Multi-Resistance and Vaccines

