

# Postgraduate Certificate

## Microbiology, Genetics and Immunology of Tropical Diseases





## Postgraduate Certificate Microbiology, Genetics And Immunology of Tropical Diseases

Course Modality: **Online**

Duration: **6 weeks**

Certificate: **TECH Technological University**

**6 ECTS Credits**

Teaching Hours: **150 hours.**

Website: [www.techtute.com/medicina/postgraduate-certificate/microbiology-genetics-immunology-tropical-diseases](http://www.techtute.com/medicina/postgraduate-certificate/microbiology-genetics-immunology-tropical-diseases)

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# 01

# Introduction

Today, tropical diseases continue to pose a challenge to the medical professional, who has become accustomed to treating them in his or her practice due to the increased mobility of the population to exotic destinations. Their particular microbiology, genetic and immunological development are aspects that require specific knowledge in order to be able to provide an adequate response, so that their incidence can be controlled, prevented, diagnosed and investigated. This Postgraduate Certificate is designed to provide professionals with the opportunity to update their knowledge in this growing area of intervention, with the best didactic material and prestigious teachers.



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*Develop yourself in the booming medical field: By specializing in Microbiology, Genetics and Immunology of Tropical Diseases you contribute to the future development of antibiotics and vaccines to curb them"*

Tropical diseases are infections that mainly affect regions with a warm and humid climate, and which are often economically, socially and healthily developing. Its diagnosis once it has been imported is key to prevent it from proliferating, as it can have fatal consequences at pandemic levels.

Similarly, global warming has allowed mosquitoes, ticks and other insects carrying viruses or bacteria to proliferate, adapt to different seasons and invade new territories across Europe over the last decade. Outbreaks of dengue fever have been reported in France and Croatia, malaria in Greece, West Nile fever in southeastern Europe, and Chikungunya virus in Italy and France.

Europe's climate is now well suited for the transmission of Lyme disease and tick-borne encephalitis (both contracted mainly through *Ixodes ricinus*), with an average of 65,000 cases of Lyme disease per year in the European Union, and a 400% increase in cases of encephalitis in European endemic areas over the past 30 years (partly due to improved surveillance and diagnosis). In addition, improved climatic conditions for sandflies (the main carrier of leishmaniasis) could extend their geographic spread to southern parts of the UK, France and Germany by the late 2060s.

Therefore, a specialization such as this Postgraduate Certificate in Microbiology, Genetics and Immunology of Tropical Diseases is necessary to focus on research and the development of responses to prevent contagion. Thus, the student who attends this program will acquire the knowledge, protocols and skills necessary for the detection, diagnosis and treatment of this type of diseases.

In addition, it is a 100% online program that provides the student with the ease of being able to study it comfortably, wherever and whenever he/she wants. You will only need a device with internet access to move one step further in your academic career. A modality according to the current times with all the guarantees to position the professional in a booming sector.

This **Postgraduate Certificate in Microbiology, Genetics and Immunology of Tropical Diseases** contains the most complete and up-to-date scientific program on the market.

The most important features of the program include:

- ◆ The latest technology in online teaching software
- ◆ A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ◆ Practical cases presented by practising experts
- ◆ State-of-the-art interactive video systems.
- ◆ Teaching supported by telepractice
- ◆ Continuous updating and recycling systems
- ◆ Autonomous learning: full compatibility with other occupations
- ◆ Practical exercises for self-evaluation and learning verification
- ◆ Support groups and educational synergies: questions to the expert, debate and knowledge forums.
- ◆ Communication with the teacher and individual reflection work
- ◆ Content that is accessible from any fixed or portable device with an Internet connection
- ◆ Supplementary documentation databases are permanently available, even after the course



*This program comprises the latest updates on the best scientific evidence for the prevention, diagnosis and treatment of tropical diseases and international health”*

“ *TECH Technological University offers you a Postgraduate Certificate with a multidisciplinary approach to facilitate the control of these pathologies in which numerous associated agents are involved*”

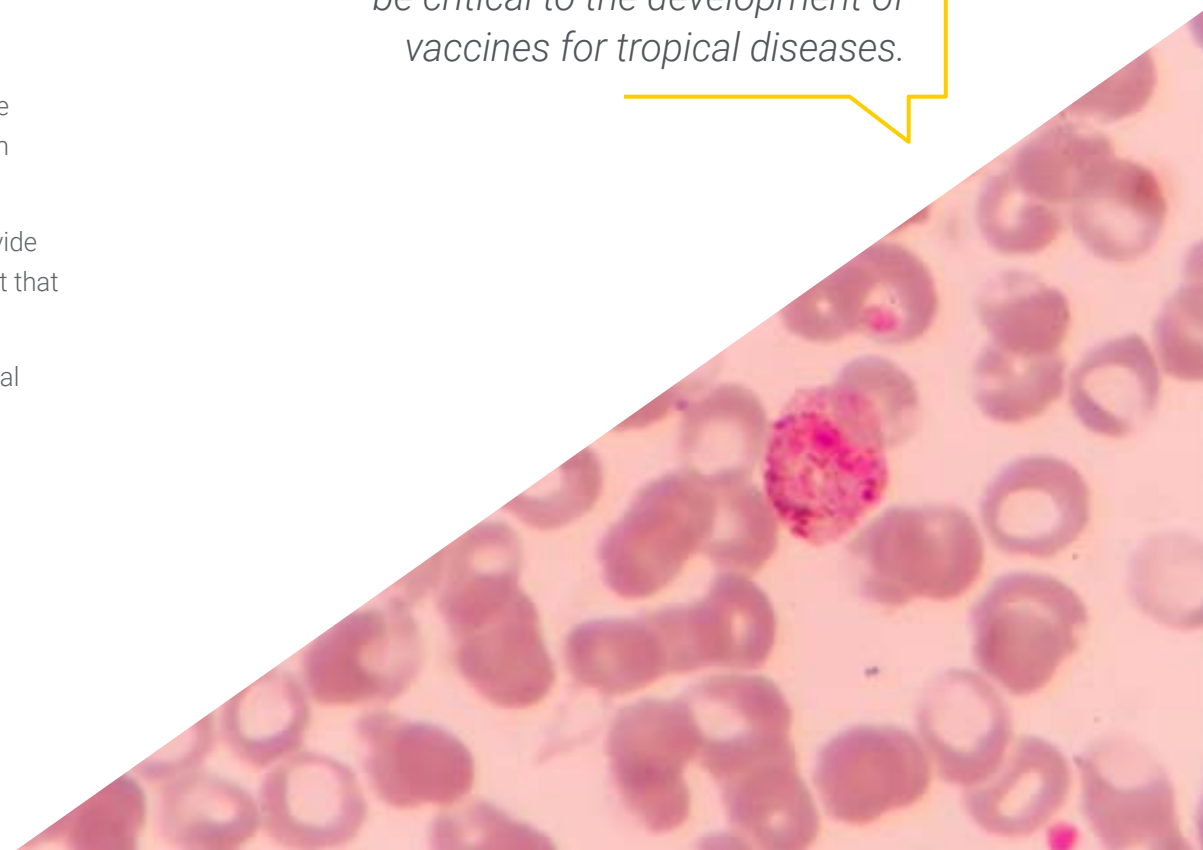
The program's teaching staff includes professionals from the sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

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 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 professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Deepen your knowledge of microbiology and genetic and immune responses to tropical diseases and become an expert in this field of study.*

*Follow this program. Your role will be critical to the development of vaccines for tropical diseases.*



# 02 Objectives

The design of this Postgraduate Certificate will allow the student to acquire the necessary skills to update and deepen in the field of tropical diseases and the development of their immunity. Thus, TECH Technological University provides the tools for the training of students in this medical sector, focusing comprehensively on the infectious process involved in tropical diseases, so that they can diagnose and address them. In this way, the development of the study plan elaborated by the best experts will allow students to achieve the proposed objectives, guiding them towards excellence in their profession.







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*You will be part of developing the antibiotics of the future against imported infectious diseases”*



## 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 tropical diseases and international health with a multidisciplinary and integrative approach that facilitates the control of these pathologies



*Move towards excellence: by achieving the objectives of this course, you achieve your own"*





## Specific Objectives

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- ◆ Highlight the development of vaccines for tropical diseases
- ◆ Emphasise the development of future antibiotics and other therapeutic modalities for infectious diseases.

# 03

# Course Management

This Postgraduate Certificate has prestigious teachers and renowned medical specialists whose extensive professional experience in the field of tropical diseases have contributed to the development of this curriculum, bringing quality and excellence to the degree. It is a multidisciplinary team of professors from various medical specialties, such as internal medicine, pediatrics, general surgery, gynecology and obstetrics, microbiology, pathological anatomy or pharmacology involved in the care of patients affected by viruses or bacteria of imported origin, resulting in a new and updated syllabus, which includes the essential knowledge of microbiology, genetics and immunology of these pathologies.



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*Medical professionals in the field of tropical diseases have come together to develop a quality curriculum that will equip you with the tools you need to thrive in your academic career"*

Management



**Dr. Díaz Menéndez, Marta**

- ♦ Coordinator of the Tropical and Travel Medicine Unit of the Carlos III-La Paz Hospital
- ♦ Specialty in Internal Medicine at La Paz University Hospital, Madrid. Teaching placements in Equatorial Guinea and Ethiopia as complementary training in tropical medicine
- ♦ Diploma in Nursing from the Autonomous University of Madrid.
- ♦ Doctorate in Medicine from the Autonomous University Madrid
- ♦ Member of the High-Level Isolation Unit, which has treated patients with highly contagious diseases (Ebola, Crimean-Congo hemorrhagic fever).
- ♦ Lecturer of the Master in Tropical Medicine and International Health of the Universidad Autónoma de Madrid, in the Master on HIV of the Universidad Rey Juan Carlos de Madrid and in the Expert Degree in Pathology due to emerging and high-risk viruses of the Universidad Autónoma de Madrid.
- ♦ Main researcher of RICET at Hospital La Paz-Carlos III and advisor to the Spanish Medicines Agency.
- ♦ Responsible for the international networks GeoSentinel and TropNet at Hospital La Paz-Carlos III.

## Professors

### **Dra. de Miguel Buckley, Rosa**

- ◆ F.E.A. Internal Medicine- Infectious Diseases Unit/ HIV Unit/Tropical and Travel Medicine Unit. La Paz University Hospital (Madrid)
- ◆ Degree in Medicine, University of Seville
- ◆ Medical Elective in the Digestive Service, Hepatology Section, at Cork University Hospital
- ◆ Professional Exchange of the International Federation of Medical Students' Associations, Cardiology Department, en The Medical University of Bialystok Clinical Hospital
- ◆ Collaborator in Health Research Fund (FIS) projects.
- ◆ Collaborating researcher in clinical trials TANGO, SALSA (multicenter, simplification of antiretroviral treatment), Hospital registry of patients affected by bacterial resistance (SEIMC)

### **Dr. Arsuaga Vicente, Marta**

- ◆ F.E.A. Tropical Medicine and Travel Medicine Unit at La Paz University Hospital
- ◆ Degree in Medicine and Surgery from the University of Alcalá de Henares.
- ◆ Doctorate in Medicine from the Autonomous University Madrid
- ◆ Specialist in Internal Medicine from the Autonomous University Madrid
- ◆ Master's Degree in Tropical Medicine and International Health from the AUM
- ◆ Expert in Emerging Viruses from UAN

### **Dr. Untoria Tabares, Yeray**

- ◆ Resident Intern, Internal Medicine La Paz University Hospital - Madrid
- ◆ Degree in Medicine from the Complutense University of Madrid.
- ◆ Master's Degree in Clinical Medicine from the Camilo José Cela University
- ◆ Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University.
- ◆ Specialist Diploma in Microbiological Diagnosis, Antimicrobial Treatment and Research in Infectious Pathology from CEU Cardenal Herrera University
- ◆ Specialist Diploma in Community and Nosocomial Infections from CEU Cardenal Herrera University
- ◆ Specialist Diploma in Chronic Infectious Diseases and Imported Infections from CEU Cardenal Herrera University

### **Dr. Trigo Esteban, Elena**

- ◆ Physician in the Department of Tropical and Traveler's Diseases at the Carlos III Hospital La Paz.
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Master's Degree in Tropical and Health Medicine from the Autonomous University of Madrid
- ◆ Degree in Emerging Viruses from the Autonomous University of Madrid.
- ◆ Course in Tropical and Infectious Diseases by the Oswaldo Cruz Foundation. Evandro Chagas Clinical Research Institute

**Falces Romero, Iker**

- ◆ Specialist in the Microbiology and Parasitology Department at La Paz University Hospital.
- ◆ Degree in Pharmacy from the University of Salamanca
- ◆ Master in Tropical Diseases from the University of Salamanca
- ◆ Professor of Special Microbiology on the Degree in Medicine at the Autonomous University of Madrid.

**De la Calle Prieto, Fernando**

- ◆ Physician in the Tropical and Travel Medicine Unit of the Carlos III-La Paz Hospital
- ◆ Collaborating physician in the Department of Internal Medicine, Faculty of Medicine, Complutense University of Madrid.
- ◆ Degree in Medicine and Surgery from the University of Alcalá de Henares
- ◆ Master's Degree in Tropical Medicine and International Health from the Autonomous University of Madrid

**Dr. Arribas López, José Ramón**

- ◆ Head of the Infectious Diseases Department at La Paz University Hospital.
- ◆ Coordinator of the High Level Isolation Unit La Paz - Carlos III Hospital
- ◆ Degree in Medicine and Surgery from the Complutense University of Madrid
- ◆ Doctorate in Medicine from the Autonomous University Madrid







**Dr. Marcelo Calvo, Cristina**

- ◆ F.E.A. of Internal Medicine at La Paz University Hospital
- ◆ Degree in Medicine and Surgery from the University of Alcalá.
- ◆ Master's Degree in Infectious Diseases and Microbiological Diagnosis from CEU Cardenal Herrera University.
- ◆ Master's Degree in Integration and Clinical Problem Solving in Medicine from the University of Alcalá, Spain.
- ◆ Expert in community and nosocomial infections from the CEU Cardenal Herrera University
- ◆ Specialist Diploma in chronic infectious pathologies and imported infections from CEU Cardenal Herrera University

**Dr. Díaz Pollán, Beatriz**

- ◆ Specialist in the area of Infectious Diseases at La Paz University Hospital.
- ◆ 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.
- ◆ Specialist Diploma in community and nosocomial infections from the CEU Cardenal Herrera University
- ◆ Specialist Diploma in Microbiological Diagnosis, Antimicrobial Treatment and Research in Infectious Pathology from CEU Cardenal Herrera University
- ◆ Specialist Diploma in chronic infectious pathologies and imported infections from CEU Cardenal Herrera University

# 04

## Structure and Content

The content of this Postgraduate Certificate has been designed with a focus on microbiology as a diagnostic of tropical pathology, with emphasis on molecular biology, genetic factors and immunity to tropical diseases, from immunosuppression to vaccination. Antimicrobial resistance in tropical pathology and the role of microbiology in countries without health resources are also studied in detail. Thus, a curriculum has been established that offers a broad perspective of tropical diseases from a medical and social point of view, incorporating all the fields of work involved in the development of the professional's functions in this field.





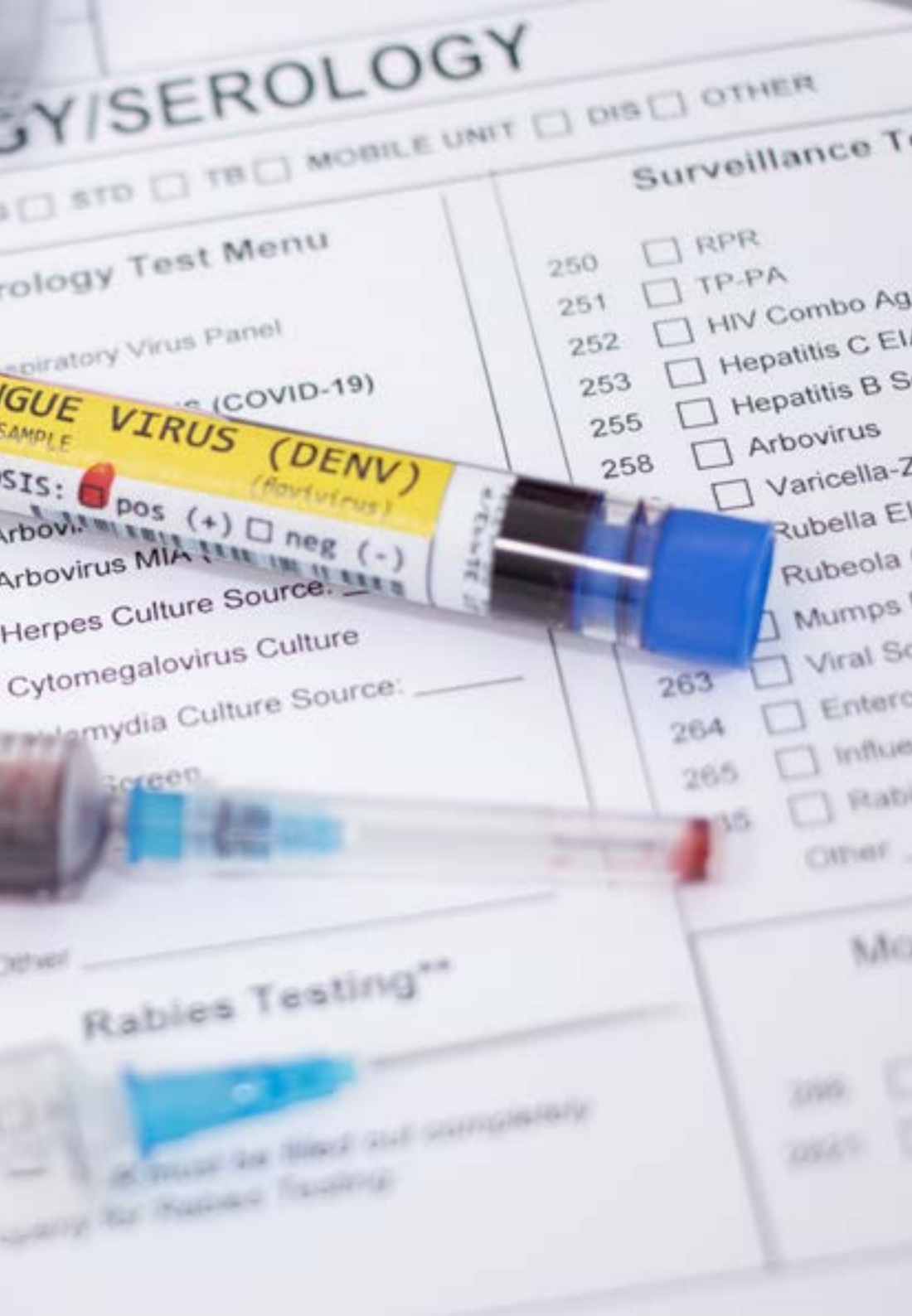
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*A program made for you, structured in complete and updated didactic units whose online learning adapts to your way of life"*

## Module 1. Microbiology, Genetics, and Immunology of Tropical Diseases

- 1.1. The Microbiology Laboratory in the Diagnosis of Tropical Diseases
- 1.2. Molecular Biology in the Diagnosis of Tropical Diseases
- 1.3. Rapid Diagnostic Methods in Tropical Diseases
- 1.4. Genomics in Tropical Diseases
- 1.5. Host Genetic Factors and Their Influence on the Severity of Imported Diseases
- 1.6. Immune Response to Tropical Diseases
- 1.7. Immunosuppression and its Implication in Tropical Diseases
- 1.8. Vaccines: Basic Concepts. Immunopreventable Diseases Impact of Vaccination Programs
- 1.9. The Study of Antimicrobial Resistance in Tropical Diseases
- 1.10. The Role of Microbiology in Countries With Low Health Resources





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*You will learn the different diagnostic methods of tropical pathology, from microbiology laboratory to rapid tests”*

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. 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, 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 Microbiology, Genetics and Immunology of Tropical Diseases** guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by **TECH Technological University**.



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*Successfully complete this Postgraduate Certificate and receive your university certificate without travel or laborious paperwork”*

This **Postgraduate Certificate in Microbiology, Genetics and Immunology of Tropical Diseases** contains the most complete and up-to-date scientific program on the market.

After the student has passed the evaluations, he/she will receive by mail with acknowledgment of receipt his/her corresponding Postgraduate Certificate issued by **TECH Technological University**.

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

Title: **Postgraduate Certificate in Microbiology, Genetics and Immunology of Tropical Diseases**

ECTS: **6**

Official Number of Hours: **150**



\*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 languages  
virtual classroom



**Postgraduate Certificate**  
Microbiology, Genetics  
And Immunology of  
Tropical Diseases

Course Modality: **Online**

Duration: **6 weeks**

Certificate: **TECH Technological University**

**6 ECTS Credits**

Teaching Hours: **150 hours.**

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## Microbiology, Genetics and Immunology of Tropical Diseases

