

# Postgraduate Certificate

## Epidemiology and Microbiology of Infectious Diseases



## Postgraduate Certificate Epidemiology and Microbiology of Infectious Diseases

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

Website: [www.techtitute.com/pk/pharmacy/postgraduate-certificate/epidemiology-microbiology-infectious-diseases](http://www.techtitute.com/pk/pharmacy/postgraduate-certificate/epidemiology-microbiology-infectious-diseases)

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01

# Introduction

The threat of epidemics and pandemics in our world is growing and is of great concern to health professionals. For this reason, it is necessary that pharmacists work to advance in this field, achieving improvements that slow down the progress of this type of disease. But, at the same time, it is also important for pharmacists to be aware of the latest findings. Thus, programs such as this one are intended to provide doctors with the most up-to-date and rigorous information on the Epidemiology and Microbiology of Infectious Diseases for Pharmacists to improve their knowledge and to favor their treatments.



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*Pharmacists must update themselves to incorporate the latest knowledge in infectious disease microbiology into their daily practice”*

Infectious diseases are re-emerging as a top priority worldwide, and to meet the needs of the 21st century, health care professionals must have a solid understanding of clinical infectious diseases. This makes it vitally important that pharmacists continue their preparation with programs such as this one, in which they can learn first-hand about the advances in different types of infections.

The development and spread of bacterial resistance to antibiotics is one of the main problems of infection control in most countries, which has been alarming experts about a possible worldwide antibiotic crisis.

Another challenge in relation to infectious diseases is the emergence in recent years of several new diseases with high morbidity. of several new diseases with high morbidity in recent years, which requires an important level of updating in order to prevent new infections and reduce the morbidity figures for infections.

Therefore, pharmacy professionals, regardless of where they work, can see in this Postgraduate Certificate the opportunity to take a teaching program that brings together the most advanced and in-depth knowledge of the most important health problems in the field of infectious diseases and microbiology, where a group of professors of high scientific rigor and extensive international experience provides the most complete and up-to-date information on prevention, diagnosis, treatment and care of individual patients and population groups, suffering from the most prevalent and deadly infectious diseases.

In this case, the program focuses on the Epidemiology and Microbiology of Infectious Diseases, emphasizing the conditions that lead certain continents to be prone to the development of some pathologies.

This **Postgraduate Certificate in Epidemiology and Microbiology of Infectious Diseases** has a syllabus that positions it as an educational product of the highest scientific rigor at an 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
- ◆ 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



*Pharmacy professionals need to be constantly updating their knowledge of infectious diseases"*

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*This Postgraduate Certificate 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 Epidemiology and Microbiology of Infectious Diseases, you will obtain a degree from TECH Technological University"*

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 program.

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 that in this Postgraduate Certificate 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.

*Become an expert in the treatment of infectious diseases and give the best care in your daily practice.*

*Don't miss the opportunity to study with us and you will be trained in different areas of infectious diseases, improving your skills as a pharmacist.*





# 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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*This Postgraduate Certificate gives pharmacy professionals the necessary information to develop their work in the field of 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 infectious diseases with a multidisciplinary and integrative approach that facilitates the control of these pathologies



*This Postgraduate Certificate integrates the latest advances in educational technology with the most rigorous information on the market"*





## 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
- ◆ Assess and interpret the epidemiological characteristics and conditions in the continents where the appearance and development of infectious diseases often occur
- ◆ Address the important role of microbiology and the infectologist in the control of infectious diseases



03

# Course Management

Renowned and recognized pharmacists 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 Formation of a multidisciplinary team from various medical specialities, such as internal medicine, paediatrics, general surgery, gynaecology and obstetrics, microbiology, pathological anatomy, pharmacology, among others.





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*Learn from the world's leading experts in infectious diseases and you will notice how you advance in your profession”*

## Management



### Dr. Díaz Pollán, Beatriz

- ◆ Faculty Specialist Déu Hospital La Paz University Hospital
- ◆ Official Doctoral Programme in Clinical Medicine Clinical symptoms, University Rey Juan Carlos
- ◆ Degree in Medicine and Surgery, Universidad Autónoma de 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 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 of healthcare professionals with the necessary tools for their daily practice in the treatment of infectious diseases. Thus, 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 international level, with the aim of making specialists more accurate in the diagnosis and treatment of this type of infections.



**COVID-19 Test**

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*This is the most comprehensive educational program you will find to specialize in Epidemiology and Microbiology of Infectious Diseases”*

## Module 1. The Epidemiology and Microbiology of Infectious Diseases

- 1.1. Epidemiological, Economic, Social and Political Conditions in Continents Which Favor the Development of Infectious Diseases
  - 1.1.1. Africa
  - 1.1.2. America
  - 1.1.3. Europe and Asia
- 1.2. New and Emerging Diseases By Continent
  - 1.2.1. Morbidity and Mortality From Infectious Diseases in Africa
  - 1.2.2. Morbidity and Mortality From Infectious Diseases in the Americas
  - 1.2.3. Infectious Disease Morbidity and Mortality in Asia
  - 1.2.4. Morbidity and Mortality From Infectious Diseases in Europe
- 1.3. The Taxonomy Of Infectious Agents
  - 1.3.1. Viruses
  - 1.3.2. Bacteria
  - 1.3.3. Fungus
  - 1.3.4. Parasites
- 1.4. Disease-producing Properties of Micro-organisms
  - 1.4.1. Mechanisms of Pathogenicity
  - 1.4.2. Mechanisms of Adhesion and Multiplication
  - 1.4.3. Mechanisms Enabling the Acquisition of Nutrients From The Host
  - 1.4.4. Mechanisms Inhibiting The Phagocytic Process
  - 1.4.5. Mechanisms For Evading The Immune Response
- 1.5. Microscopy and Staining
  - 1.5.1. Microscopes and Types of Microscopes
  - 1.5.2. Composite Stains
  - 1.5.3. Acid-resistant Micro-organism Staining
  - 1.5.4. Staining to Demonstrate Cellular Structures







- 1.6. Cultures and Growth of Micro-organisms
  - 1.6.1. General Culture Mediums
  - 1.6.2. Specific Culture Methods
- 1.7. Effect of Chemical and Physical Agents on Micro-organisms
  - 1.7.1. Sterilisation and Disinfection
  - 1.7.2. Disinfectants and Antiseptics Used in Practice
- 1.8. Molecular Biology and its Importance for the Infectologist
  - 1.8.1. Bacterial Genetics
  - 1.8.2. Polymerase Chain Reaction Tests
- 1.9. Indication and Interpretation of Microbiological Studies
  - 1.9.1. Indication of Microbiological Studies
  - 1.9.2. Interpretation of Microbiological Studies

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

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.





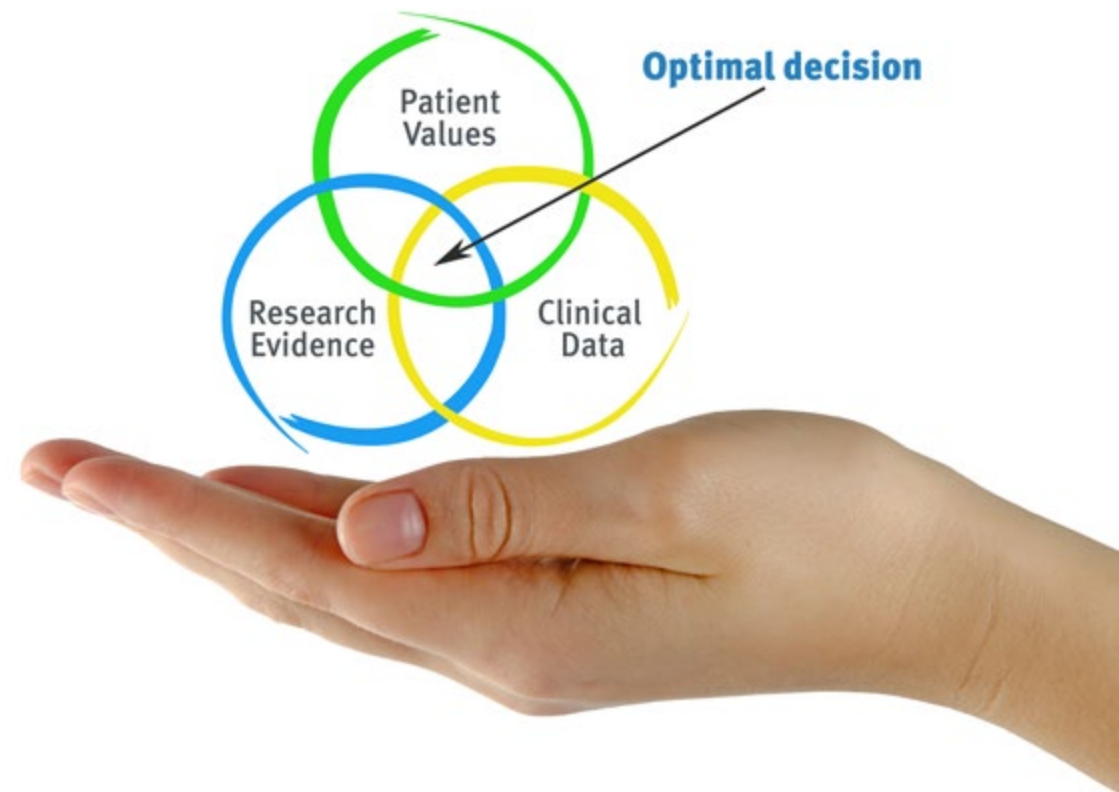


*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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. 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, 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.

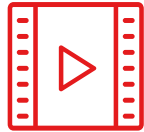
*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

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

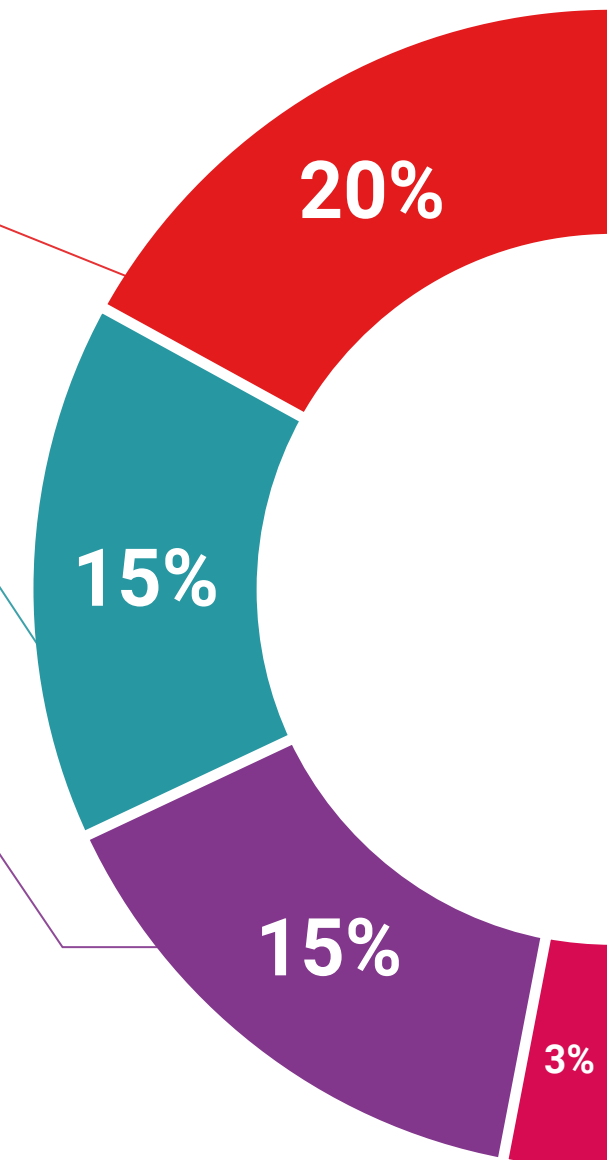
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

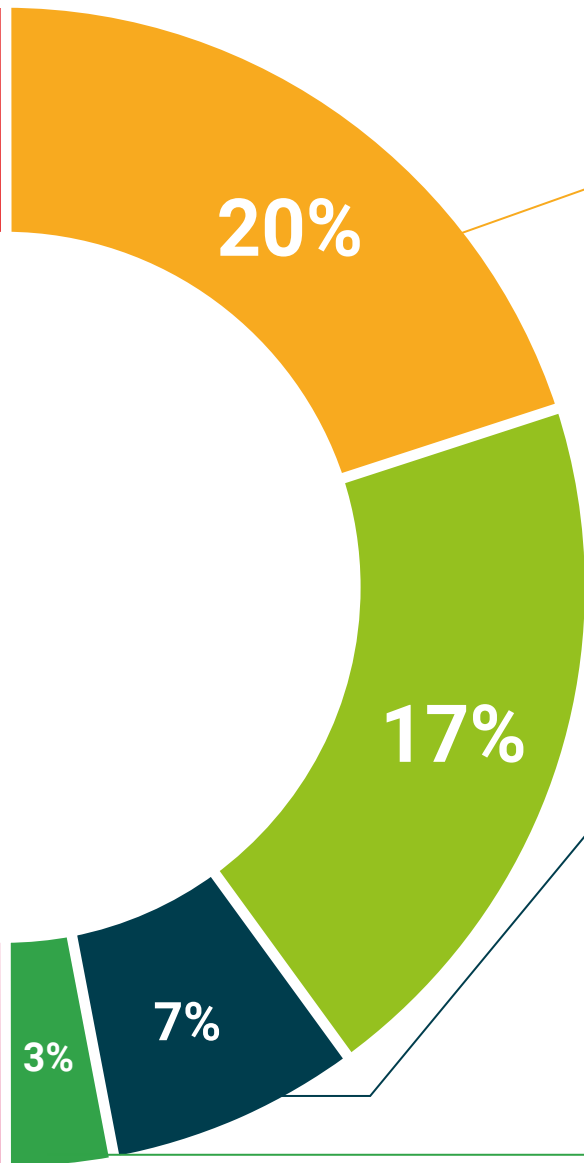


### Additional Reading

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 Epidemiology and Microbiology of Infectious Diseases guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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*Successfully complete this program  
and receive your university qualification  
without the hassle of travel or paperwork"*

This **Postgraduate Certificate in Epidemiology and Microbiology of Infectious Diseases** 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 Epidemiology and Microbiology of Infectious Diseases**

Official N° of Hours: **100 h.**



\*Apostille Convention. In the event that the student wishes to have their paper certificate 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

**tech** technological  
university

**Postgraduate Certificate**  
Epidemiology and Microbiology  
of Infectious Diseases

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