

# Postgraduate Certificate Intestinal Microbiota and Dysbiosis in Pharmacy





## Postgraduate Certificate Intestinal Microbiota and Dysbiosis in Pharmacy

Course Modality: Online

Duration: 2 months.

Certificate: TECH Technological University

6 ECTS Credits

Teaching Hours: 150 hours.

Website: [www.techtitute.com/pharmacy/postgraduate-certificate/intestinal-microbiota-dysbiosis-pharmacy](http://www.techtitute.com/pharmacy/postgraduate-certificate/intestinal-microbiota-dysbiosis-pharmacy)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

# 01

# Introduction

Scientific research in the field of Microbiota has been booming in recent decades, aimed both at the study of its characteristics and its impact on our health. In each of the different locations of our body we can find complex microbial ecosystems adapted to the particularities of each niche. Of all of them, the most complex and numerous is the one associated with the digestive system, as these communities have a symbiotic and mutualistic behavior with human eukaryotic cells and are essential for the proper functioning of our body. Aware of this, TECH professionals have designed this educational program to focus on providing pharmacists with the necessary skills to understand the functioning of the intestinal microbiota, delving deeper especially in cases where Dysbiosis is produced.





“

*This Postgraduate Certificate in Intestinal Microbiota and Dysbiosis will provide you with the necessary skills to successfully practice your profession both in pharmacies and in research”*

Numerous pieces of scientific evidence have implicated the intestinal microbiome and its metabolic potential in various pathological conditions in recent years, giving rise to new therapeutic strategies to control and regulate this ecosystem. The study of this ecosystem is a field that is rapidly advancing scientifically, and it is universally accepted that to achieve an adequate state of health it is also necessary to have a "healthy" Microbiota.

Human Microbiota undergoes changes as a consequence of the influence of multiple factors, diet, lifestyle and pharmacological treatments generating, among others, which alter the bacterial ecosystem and may cause abnormal interaction with the organism, and it is related to certain processes: allergies, acute and chronic intestinal diseases, obesity and metabolic syndrome, neurological diseases, dermatitis and other alterations in the dermis, and even some types of cancer.

This Postgraduate Certificate in Intestinal Microbiota and Dysbiosis focuses on providing Pharmacists with the necessary information on issues related to Intestinal Microbiota, paying special attention to cases in which Dysbiosis is produced and the problems associated with them.

Likewise, the use of Probiotics and Prebiotics, and the growing market launch of new products with very specific strains for problems and diseases of the intestinal tract, will also be addressed. All this content will make it possible for Pharmacy professionals to be prepared to offer effective solutions to patients with this type of pathology, knowing how to guide them so that they can recover and maintain their intestinal microbiota and, consequently, promote a good state of health.

This **Postgraduate Certificate in Intestinal Microbiota and Dysbiosis in Pharmacy** comprises the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ Practical cases presented by intestinal microbiota and dysbiosis experts.
- ♦ 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.
- ♦ Latest developments in intestinal microbiota and dysbiosis.
- ♦ It contains practical exercises where the self-evaluation process can be carried out to improve learning.
- ♦ Special focus on innovative methodologies in intestinal microbiota and dysbiosis.
- ♦ All of this will be complemented by 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



*TECH provides you with the latest knowledge on Intestinal Microbiota so that you can become a successful Pharmacist"*

“

*This Postgraduate Certificate is the best investment you can make in the selection of a refresher program because it will allow you to learn from simulated environments that will prepare you for the practice in real situations”*

The program includes in its teaching staff professionals belonging to the field of Medicine and Pharmacy, who bring to this program the experience of their work, in addition to recognized specialists from prestigious reference societies and 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 an immersive education 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, developed by renowned and extensively experienced experts in Microbiota.

*The Postgraduate Certificate will open the doors to a horizon of knowledge on Intestinal Microbiota and Dysbiosis, and will allow you to position yourself as a successful Pharmacist.*

*This 100% online course will allow you to combine your studies with your professional work while increasing your knowledge in this field.*



# 02

# Objectives

The main objective of the program is the development of theoretical and practical learning, so that the professional can practically and rigorously master the study of Microbiotics in daily professional practice. Consequently, the Postgraduate Certificate in Intestinal Microbiota and Dysbiosis in Pharmacy responds to the continuous professional demand for quality specialization in this area, which serves as a vehicle to use microbiotic therapy as a means of healing digestive tract diseases and as a tool to detect cases where Dysbiosis is produced. All this will make it easier for Pharmacists to deal with patients and will provide them with the skills to promote good health maintenance through the use of the correct pharmacology.





“

*This Postgraduate Certificate, designed with the latest educational technology, will allow you to learn all the advances in Intestinal Microbiotics and Dysbiosis, making you a first level Pharmacist”*



## General Objectives

---

- ♦ This Postgraduate Certificate fulfills a need in today's society, a quality and updated training program that allows for the use of microbiological therapy as a preventive or therapeutic tool for health maintenance.
- ♦ It offers a complete and global picture of the current situation in the area of Intestinal Microbiota, in its broadest sense, and the importance of the balance of this microbiota as a direct effect on our health, including the multiple factors that influence it positively and negatively.
- ♦ Arguments based in scientific evidence show how Microbiota and its interaction with many non-digestive pathologies of autoimmune nature, or its relation with the dysregulation of the of the immune system, its capacity for disease prevention and as a support to other medical treatments, are all currently being given a privileged position.
- ♦ The program will promote work strategies based on the integral approach of the user as a reference model, not only focusing on the symptomatology of the specific pathology, but also looking at its interaction with Microbiota and how the latter may be influencing it.
- ♦ Encourage professional stimulation through continuous education and research.





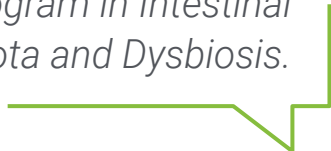
## Specific Objectives

---

### Module 1 Intestinal Microbiota II Intestinal Dysbiosis

- ◆ Gain an in-depth understanding of intestinal dysbiosis.
- ◆ Analyze the consequences of intestinal dysbiosis.
- ◆ Learn the connection between intestinal dysbiosis and other types of immunological, metabolic, neurological and gastric disorders.
- ◆ Understand the consequences of the alteration of the intestinal ecosystem and its relationship with Functional Digestive Disorders.
- ◆ Learn the composition of Intestinal Microbiota in different life stages.
- ◆ Learn how to apply quantitative analysis techniques for microorganisms in feces.
- ◆ Delve into current studies on intestinal microbiota.

*Update your knowledge through  
this program in Intestinal  
Microbiota and Dysbiosis.*

A green bracket graphic consisting of a horizontal line on the left, a vertical line on the right, and a diagonal line connecting them at the bottom, forming a shape that points towards the text above.

# 03

## Course Management

The program's teaching staff includes leading specialists in Human Microbiota and other related areas, who bring their years of work experience to this program. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner. All of which is carried out with the aim of providing Pharmacists with the most complete educational information and contents so that they can practice their profession with greater guarantees of success and treat problems with and pediatric patients with a deeper knowledge of the functioning of their microbiota.





“

*Learn from leading professionals the latest advances in procedures in the field of Intestinal Microbiota and its relevance to allergies”*

## Management



### Fernández Montalvo, Mª Ángeles

- Degree in Biochemistry from the University of Valencia
- Specialist Degree in Nutrition, Dietetics and Diet Therapy
- Expert in Microbiological Food Analysis
- Specialist Degree in Nutrition, Food, and Cancer. Prevention and Treatment.
- Expert in Vegetarian, Clinical, and Sports Nutrition
- Specialist in food intolerances and the study of the intestinal microbiota.
- Numerous courses on Intestinal microbiota, methods of analysis, and applications
- Diploma in Natural and Orthomolecular Medicine
- Expert in the current use of Nutricosmetics and Nutraceuticals in general.
- Expert in point-of-sale management in Pharmacies and Parapharmacies.
- Member of the Spanish Society of Probiotics and Prebiotics (SEPyP).
- Member of the Spanish Society of Dietetics (SEDCA)
- Member of the Spanish Society of Nutrition (SEÑ).

## Professors

### Dr. Álvarez García, Verónica

- ◆ Degree in Medicine
- ◆ Digestive system specialist at the Central Hospital of Asturias (HUCA).

### Dr. Díaz Martín, Juan José

- ◆ Pediatric gastroenterologist at the Central Hospital of Asturias (HUCA)
- ◆ Member of the Spanish Society of Pediatric Gastroenterology, Hepatology, and Nutrition
- ◆ Associate Professor of Pediatrics at the University of Oviedo

### Dr. Fernández Madera, Juan José

- ◆ Degree in Medicine
- ◆ Specialist in Clinical Allergology and Immunology
- ◆ Specialist in Sports Medicine

### Dr. Gonzalez Rodríguez, Silvia P.

- ◆ PhD in Medicine and Surgery from the University of Alcalá de Henares, specialty in Gynecology
- ◆ Deputy Medical Research Coordinator and Clinical Chief of the Menopause and Osteoporosis Unit at the Velázquez Medical Cabinet (Madrid)

### Dr. Lombó Burgos, Felipe

- ◆ Doctor in Biology from the University of Oviedo
- ◆ Full professor at the University of Oviedo

### Dr. López López, Aranzazu

- ◆ Ph.D. in Biological Sciences
- ◆ Researcher in oral microbiology at FISABIO foundation
- ◆ Public Health Research Center of Valencia

### Dr. Méndez García, Celia

- ◆ Doctorate in Microbiology from the University of Oviedo.
- ◆ Research at Novartis Laboratories (Boston).

### Dr. Solís Sánchez, Gonzalo

- ◆ Neonatologist at the Hospital Universitario Central de Asturias (HUCA)
- ◆ Researcher, Associate Professor of the University of Oviedo

### Dr. Suárez Rodríguez, Marta

- ◆ Neonatologist of the Central University Hospital of Asturias (HUCA)
- ◆ Researcher and Professor of the Professional Master's Degree in Early Care and the Professional Master's Degree in Critical Care Nursing at the University of Oviedo and other training courses.

04

# Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospital centers and universities in the country, who are aware of the relevance of up-to-date Educational to be able to prevent, detect, and treat pathologies related to alterations in intestinal microbiota, and are committed to quality teaching through new educational technologies. All of which aimed at training pharmacists to be much more competent and prepared to offer treatments that help and favor the intestinal microbiome of patients.







“

*The best contents are at the best University.  
Don't miss the opportunity to learn Intestinal  
Microbiota with greater guarantees of success”*

## Module 1 Intestinal Microbiota II. Intestinal Dysbiosis

- 1.1. What is Intestinal Dysbiosis? Consequences
- 1.2. Intestinal Barrier. Physiology. Function. Intestinal Permeability and Hyperpermeability. Relationship between Intestinal Dysbiosis and Intestinal Hyperpermeability
- 1.3. Relationship of Intestinal Dysbiosis and Other Types of Disorders: Immunological, Metabolic, Neurological and Gastric (*Helicobacter Pylori*)
- 1.4. Consequences of the Alteration of the Intestinal Ecosystem and its Relationship to Functional Digestive Disorders
  - 1.4.1. Inflammatory Bowel Disease IBD
  - 1.4.2. Chronic Inflammatory Bowel Diseases: Crohn's Disease Ulcerative Colitis
  - 1.4.3. Irritable Bowel Syndrome (IBS) and Diverticulitis
  - 1.4.4. Intestinal Motility Disorders Diarrhea Diarrhea Caused by *Clostridium Difficile* Constipation
  - 1.4.5. Digestive Disorders and Nutrient Malabsorption Problems: Carbohydrates, Proteins, and Fats
  - 1.4.6. Markers of Intestinal Inflammation: Calprotectin Eosinophil Cationic Protein (ECP) Lactoferrin Lysozyme
  - 1.4.7. Leaky Gut Syndrome Permeability Markers: Alpha-1 Antitrypsin Zonulin Tight Junctions and their Main Function
- 1.5. Alteration of the Intestinal Ecosystem and its Relationship with Intestinal Infections
  - 1.5.1. Viral Intestinal Infections
  - 1.5.2. Bacterial Intestinal Infections
  - 1.5.3. Intestinal Infections due to Parasites
  - 1.5.4. Fungal Intestinal Infections Intestinal Candidiasis.
- 1.6. Composition of the Intestinal Microbiota in the Different Stages of Life
  - 1.6.1. Variation in Intestinal Microbiota Composition from the Neonatal-Early Childhood Stage to Adolescence "Unstable Period"
  - 1.6.2. Composition of the Intestinal Microbiota in Adulthood "Stable Period"
  - 1.6.3. Gut Microbiota Composition in the Elderly "Unstable Stage" Aging and Microbiota
- 1.7. Nutritional Modulation of Intestinal Dysbiosis and Hyperpermeability: Glutamine, Zinc, Vitamins, Probiotics, Prebiotics
- 1.8. Techniques for Quantitative Analysis of Microorganisms in Feces
- 1.9. Current Lines of Research





“

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

05

# Methodology

This training 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.





“

*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 clinical 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. Pharmacists 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 the pharmacist's professional practice.

“

*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 achieve the assimilation of concepts, but also develop their mental capacity through exercises to evaluate real situations and apply 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 pharmacist will learn through real cases and resolution of 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 115,000 pharmacists with unprecedented success, in all clinical specialties. Our 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 old.

*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 didactic contents are created by the specialist pharmacists who will be teaching the course, specifically for it, so that the didactic development is well targeted and concrete.

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.



### Video techniques and procedures

We bring you closer to the latest techniques, to the newest educational advances, to the forefront of current pharmaceutical care procedures. All this, first hand, 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

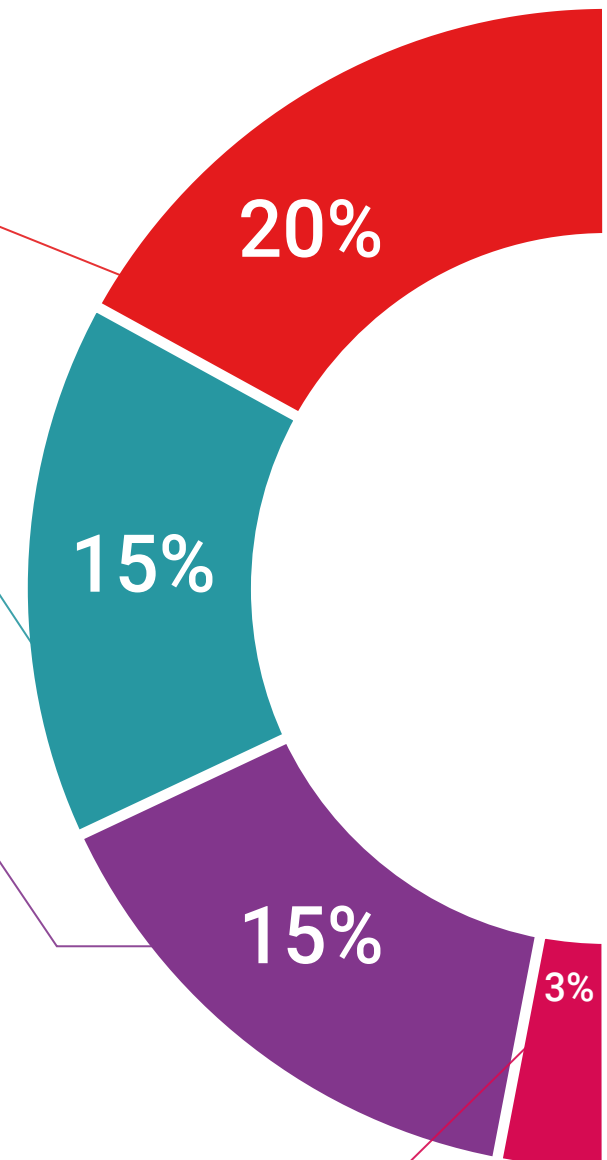
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

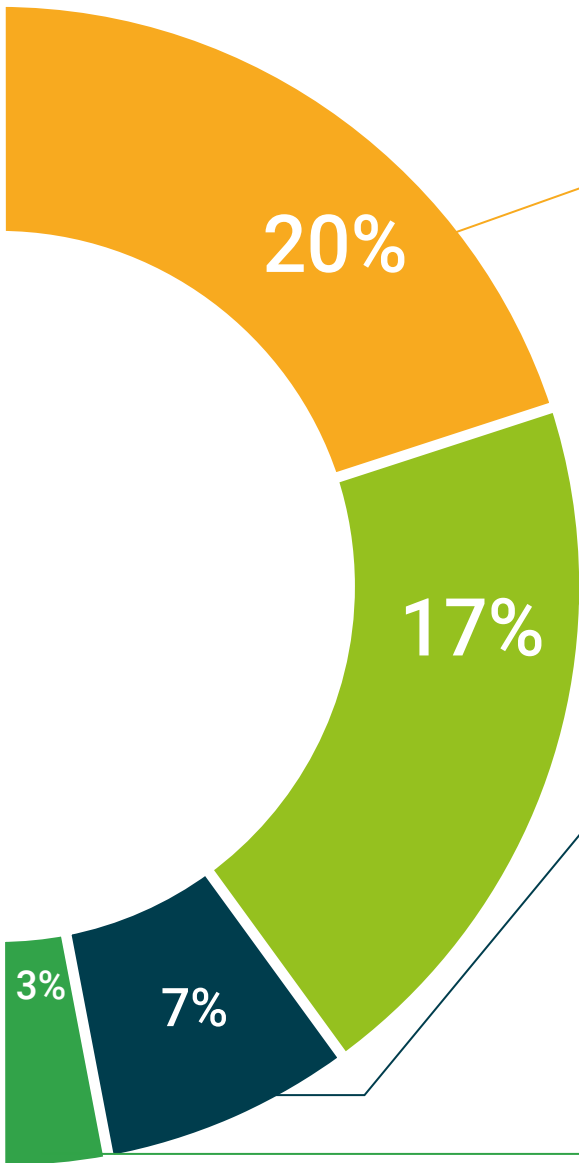
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".



### 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 Intestinal Microbiota and Dysbiosis in Pharmacy** guarantees, in addition to the most rigorous and up-to-date education, access to a certificate issued by **TECH Technological University**.



“

*Successfully complete this program and receive your diploma without travel or laborious paperwork”*

This **Postgraduate Certificate in Intestinal Microbiota and Dysbiosis in Pharmacy** comprises the most complete and up-to-date scientific program on the market.

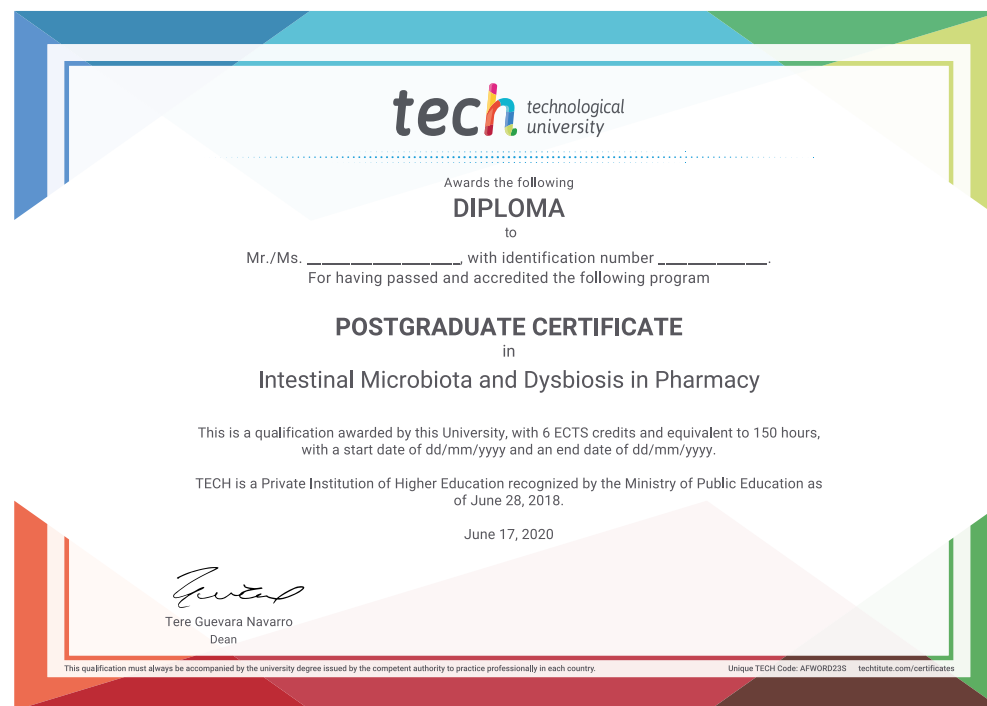
After the student has passed the evaluations, they will receive their corresponding certificate issued by **TECH Technological University via tracked delivery**.

The diploma issued by **TECH Technological University** will specify 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 Intestinal Microbiota and Dysbiosis in Pharmacy**

**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 quality  
development languages  
virtual classroom



## Postgraduate Certificate

Intestinal Microbiota and  
Dysbiosis in Pharmacy

Course Modality: Online

Duration: 2 months.

Certificate: TECH Technological University

6 ECTS Credits

Teaching Hours: 150 hours.

# Postgraduate Certificate

## Intestinal Microbiota and Dysbiosis in Pharmacy

