

# Postgraduate Certificate

## Microbiota and Microbiome



## Postgraduate Certificate Microbiota and Microbiome

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Accreditation: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/physiotherapy/postgraduate-certificate/microbiota-microbiome](http://www.techtitute.com/us/physiotherapy/postgraduate-certificate/microbiota-microbiome)

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# 01

# Introduction

The gut microbiota is a diverse community of microorganisms inhabiting the gastrointestinal tract that is emerging as a key player in human health. In recent years, several scientific investigations have revealed that it plays a crucial role in matters such as immune system regulation, food digestion, vitamin synthesis and protection against pathogens. In this context, it is essential that physiotherapists have a high understanding of this area to provide holistic treatment to their patients, in addition to keeping abreast of advances in therapeutic techniques. For this reason, TECH is launching an innovative 100% online university program that will analyze how different microbiota influence health.



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*With this 100% online Postgraduate Certificate, you will design the most effective and safe therapeutic interventions taking into account the intestinal health of your patients”*

From inflammation control to pain modulation, the gut microbiota is a relevant aspect in the pathophysiology of various musculoskeletal pathologies (including sports injuries, low back pain and scoliosis). In the physiotherapeutic field, specialists need to have a solid understanding of how the microbial flora impacts both the progression of conditions and the response to treatment of these conditions. In this way, professionals will adopt a holistic approach in their routine clinical practice that will contribute to a more optimal recovery process and, therefore, improve the overall well-being of their patients.

Within this framework, TECH presents a pioneering and revolutionary Postgraduate Certificate in Microbiota and Microbiome. Its main objective is for specialists to understand how the composition and function of these biological systems affect recovery from injuries and other physical conditions. To this end, the academic itinerary will delve into the groups of microorganisms that interact with the human species (such as bacteria, fungi or viruses), as well as the different Human Microbiotas and their respective generalities in terms of their Eubiosis and Dysbiosis. This will allow graduates to adequately manage injuries or wounds, taking preventive measures to reduce risks to the health of individuals. In addition, the program will include the participation of a renowned International Guest Director, who will offer a rigorous Masterclass where he will delve into issues such as Epigenetics-Microbiota interaction or the latest advances in Fecal Transplants.

Moreover, this university program is based on the innovative Relearning system. Thanks to this, students will reduce the number of hours of study and will solidly consolidate the concepts addressed throughout this academic itinerary. All physiotherapists will need is a device with an Internet connection (smartphone, computer or tablet) to access the virtual platform and access the most dynamic didactic resources in the academic market.

This **Postgraduate Certificate in Microbiota and Microbiome** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of practical cases presented by experts in Microbiota and Microbiome
- ◆ The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable for professional practice
- ◆ Practical exercises where the self-assessment process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ 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



*Get an effective update thanks to the best didactic material, together with a rigorous Masterclass given by an International Guest Director with an extensive professional background in Microbiota and Microbiome”*

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*You will analyze the factors that influence the imbalance of the microbiota to effectively address the physical conditions of your patients and promote optimal gut health”*

The program's teaching staff includes professionals from the field who contribute their work experience to this educational 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 education programmed to learn 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 course. For this purpose, students will be assisted by an innovative interactive video system created by renowned experts.

*Do you want to delve into the latest advances in the field of Fecal Transplantation? Master the most innovative techniques through this program in only 180 hours.*

*A curriculum based on the revolutionary Relearning methodology, which will help you assimilate complex concepts efficiently.*



# 02 Objectives

Upon completion of this Postgraduate Certificate, Physiotherapy professionals will have a comprehensive view of how the composition and function of the Human Microbiota can affect recovery from injuries and other physical conditions such as chronic pain. As such, graduates will gain advanced skills to design and tailor physiotherapy treatment programs that take into account the gut health of clients. In addition, specialists will develop strategies to make their patients aware of the importance of the gut microbiota and how they can improve their health through diet, exercise and other lifestyle changes.







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*You will integrate the principles of the Microbiota and Microbiome into your clinical practice effectively to tailor therapeutic interventions based on the gut health of individuals”*



## General Objectives

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- ◆ Offer a complete and wide vision of the current situation in the area of the Human Microbiota, in its widest sense, the importance of the balance of this Microbiota as a direct effect on health, with the multiple factors that influence it positively and negatively
- ◆ Argue with scientific evidences how nowadays a privileged position to the Microbiota and to its interaction with many non-digestive pathologies, of autoimmune nature or to its relation with the deregulation of the immune system, the prevention of diseases and as a support to other treatments in the daily practice of the professional
- ◆ Promote work strategies based on the integral approach of the patient as a reference model, not only focusing on the symptomatology of the specific pathology, but also looking at its interaction with the microbiota and how it may be influencing it
- ◆ Encourage professional stimulation through continuous learning and research





## Specific Objectives

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- ◆ Update and clarify general and key terms for a full understanding of the subject such (as Microbiome, Metagenomics, Microbiota, Symbiosis, Dysbiosis)
- ◆ Enhance knowledge of how drugs designed for humans can have a negative impact on the gut Microbiota, in addition to the known impact of antibiotics
- ◆ Know the relationship between the Microbiota and the Microbiome and their most accurate definitions
- ◆ Understand in depth the concepts of symbiosis, commensalism, mutualism, and parasitism
- ◆ Delve into the different types of Human Microbiota and know their generalities
- ◆ Delve into the aspects that trigger the balance and imbalance of the Microbiota

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*You will achieve your most ambitious professional goals thanks to the distinctive approach of this program, which includes multiple multimedia resources with which you will enjoy dynamic learning”*

# 03

# Course Management

TECH's philosophy is to provide anyone with the most complete and up-to-date university programs with the greatest applicability to the demands of the job market. Therefore, it makes a careful selection to constitute their respective teaching staff. In this Postgraduate Certificate, it brings together true specialists in the field of Human Microbiota and related areas. In this way, they have elaborated a myriad of teaching materials that are defined by their high quality, in addition to bringing together the latest advances in subjects such as Fecal Transplantation. Thanks to this, students will have access to an academic experience with an interdisciplinary and holistic perspective.





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*The teaching team of this program is made up of highly qualified specialists in Microbiota and Microbiome, who will transfer to you the knowledge with the greatest professional applicability in this field”*

## International Guest Director

Harry Sokol, M.D. is internationally recognized in the field of **Gastroenterology** for his research on **Intestinal Microbiota**. With more than 2 decades of experience, he has established himself as a **true scientific authority** thanks to his numerous studies on the role of **microorganisms in the human body** and their impact on **chronic inflammatory bowel diseases**. In particular, his work has revolutionized medical understanding of this organ, often referred to as the **“second brain.”**

Among Dr. Sokol's contributions, he and his team have opened a new line of advances on the bacterium *Faecalibacterium prausnitzii*. In turn, these studies have led to crucial discoveries about its **anti-inflammatory effects**, opening the door to **revolutionary treatments**.

In addition, the expert is distinguished by his **commitment to the dissemination of knowledge**, whether by teaching academic programs at the Sorbonne University or by publishing works such as the **comic book** *The Extraordinary Powers of the Belly*. His scientific publications appear continuously in **world-renowned journals** and he is invited to **specialized congresses**. At the same time, he carries out his clinical work at the **Saint-Antoine Hospital** (AP-HP/ University Hospital Federation IMPEC/Sorbonne University), one of the most renowned hospitals in Europe.

In addition, Dr. Sokol began his **medical studies** at the Paris Cité University, showing early on a strong interest in **health research**. A chance meeting with the eminent Professor Philippe Marteau led him to **Gastroenterology** and the enigmas of the **Intestinal Microbiota**. Throughout his career, he has also broadened his horizons by specializing in the United States, at Harvard University, where he shared experiences with **leading scientists**. Upon his return to France, he founded his **own team** where he investigates **Fecal Transplantation**, offering state-of-the-art therapeutic innovations.



## Dr. Sokol, Harry

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- Director of Microbiota, Gut and Inflammation at Sorbonne University, Paris, France
- Specialist Physician at the Gastroenterology Department of the Saint-Antoine Hospital (AP-HP), Paris, France
- Group Leader at the Institut Micalis (INRA)
- Coordinator of the Center of Microbiome Medicine of Paris FHU
- Founder of the pharmaceutical company Exeliom Biosciences (Nextbiotix)
- President of the Fecal Microbiota Transplantation Group
- Medical Specialist in different hospitals in Paris
- PhD in Microbiology at the Université Paris-Sud
- Postdoctoral stay at the Massachusetts General Hospital, Harvard University Medical School
- Degree in Medicine, Hepatology and Gastroenterology at Université Paris Cité



*Thanks to TECH, you will be able to learn with the best professionals in the world"*

## Management



### Dr. Sánchez Romero, María Isabel

- ♦ Area Specialist in the Microbiology Service at the Puerta de Hierro Majadahonda University Hospital
- ♦ Doctor in Medicine and Surgery from the University of Salamanca
- ♦ Medical Specialist in Microbiology and Clinical Parasitology
- ♦ Member of the Spanish Society of Infectious Diseases and Clinical Microbiology
- ♦ Technical Secretary of the Madrid Society of Clinical Microbiology



### Ms. Fernández Montalvo, María Ángeles

- ♦ Head of Naintmed - Nutrition and Integrative Medicine
- ♦ Director of the Master's Degree in Human Microbiota at CEU University
- ♦ Parapharmacy Manager, Nutrition and Natural Medicine professional at Parafarmacia Natural Life
- ♦ Bachelor's Degree in Biochemistry from the University of Valencia
- ♦ Certified in Natural and Orthomolecular Medicine
- ♦ Postgraduate in Food, Nutrition and Cancer: Prevention and Treatment
- ♦ Master's Degree in Integrative Medicine from CEU University
- ♦ University Expert in Nutrition, Dietetics and Diet Therapy
- ♦ Expert in Vegetarian, Clinical, and Sports Nutrition
- ♦ Expert in the current use of Nutricosmetics and Nutraceuticals in general





### **Dr. Alarcón Cavero, Teresa**

- Biologist Specialist in Microbiology at La Princesa University Hospital
- Head of Group 52 of the Research Institute of the La Princesa Hospital
- Bachelor's Degree in Biological Sciences, specializing in Fundamental Biology from the Complutense University of Madrid
- Master's Degree in Medical Microbiology from the Complutense University of Madrid



### **Dr. Muñoz Algarra, María**

- Head of Patient Safety at the Microbiology Department at Puerta de Hierro Majadahonda University Hospital
- Area Specialist in the Microbiology Unit of Puerta de Hierro Majadahonda University Hospital, Madrid
- Collaborator in the Department of Preventive Medicine and Public Health and Microbiology at the Autonomous University of Madrid
- Doctor in Pharmacy from the Complutense University of Madrid



### Dr. López Dosil, Marcos

- ♦ Specialist in Microbiology and Parasitology at San Carlos Clinical University Hospital
- ♦ Specialist in Microbiology and Parasitology at the Móstoles Hospital
- ♦ Master's Degree in Infectious Diseases and Antimicrobial Treatment from the CEU Cardenal Herrera University
- ♦ Master's Degree in Tropical and Health Medicine from the Autonomous University of Madrid
- ♦ Expert in Tropical Medicine by the Autonomous University Madrid



### Mr. Anel Pedroche, Jorge

- ♦ Specialist in Microbiology Department of the Puerta de Hierro Majadahonda University Hospital
- ♦ Bachelor's Degree in Pharmacy from the Complutense University of Madrid
- ♦ Course in Interactive Sessions on Hospital Antibiotherapy by MSD
- ♦ Course on Infection Update in the Hematologic Patient by the Puerta de Hierro Hospital
- ♦ Attendance at the XXII Congress of the Spanish Society of Infectious Diseases and Clinical Microbiology



### **Dr. Portero Azorín, María Francisca**

- ♦ Acting Head of the Microbiology Department at the Puerta de Hierro Majadahonda University Hospital
- ♦ Specialist in Microbiology and Clinical Parasitology by the Puerta de Hierro University Hospital
- ♦ Doctorate in Medicine from the Autonomous University Madrid
- ♦ Postgraduate degree in Clinical Management from the Gaspar Casal Foundation
- ♦ Research stay at the Presbyterian Hospital of Pittsburgh through a FISS grant

## **Professors**

### **Dr. Méndez García, Celia**

- ♦ Biomedical Researcher at Novartis Laboratories in Boston, USA
- ♦ Doctor in Microbiology from the University of Oviedo
- ♦ Member of the North American Society for Microbiology

# 04

## Structure and Content

Through this university program, physiotherapists will have a thorough understanding of the Human Microbiome and its relationship to health. The curriculum will analyze aspects such as Symbiosis, Commensalism and Mutualism. In this line, the syllabus will delve into the different Microbiota and their generalities, which will provide graduates with a more complete perspective on the condition of their patients to tailor their treatment approaches in a personalized way. The program will also delve into the generalities of Probiotics, Prebiotics and Symbiotics in order for specialists to use these tools to optimize the rehabilitation processes of their clients.





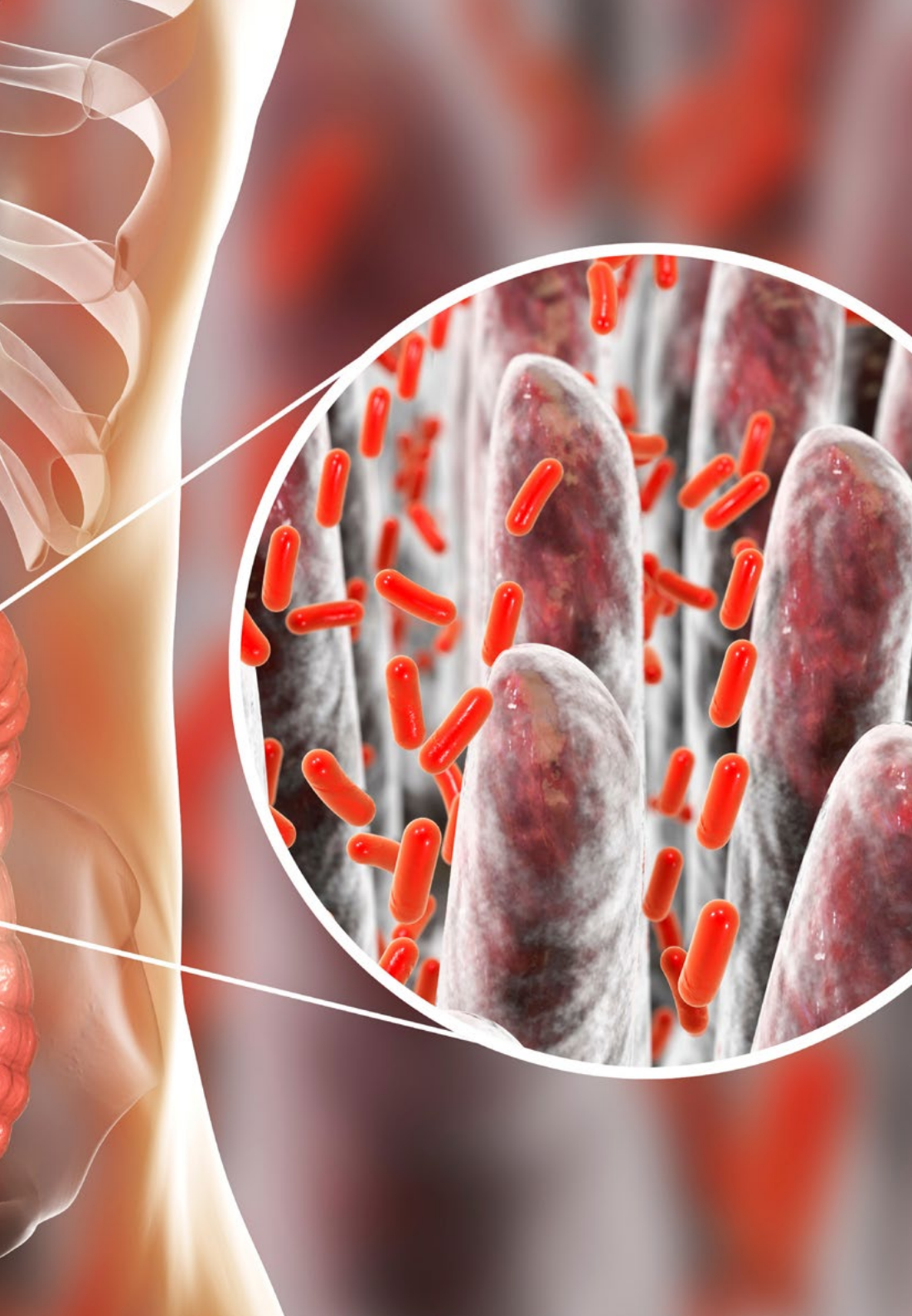
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*You will critically evaluate the scientific evidence related to the Microbiota and Microbiome, applying it to your clinical decision making to optimize the treatment of clients with conditions such as musculoskeletal injuries”*

## Module 1. Microbiota. Microbiome. Metagenomics

- 1.1. Definition and Relationship Between Them
- 1.2. Composition of the Microbiota: Types, Species and Strains
  - 1.2.1. Groups of Microorganisms that Interact with Humans: Bacteria, Fungi, Viruses, and Protozoa
  - 1.2.2. Key Concepts: Symbiosis, Commensalism, Mutualism, Parasitism
  - 1.2.3. Autochthonous Microbiota
- 1.3. Different Human Microbiota. General Overview of Eubiosis and Dysbiosis
  - 1.3.1. Gastrointestinal Microbiota
  - 1.3.2. Oral Microbiota
  - 1.3.3. Skin Microbiota
  - 1.3.4. Respiratory Tract Microbiota
  - 1.3.5. Urinary Tract Microbiota
  - 1.3.6. Reproductive System Microbiota
- 1.4. Factors that Influence Microbiota Balance and Imbalance
  - 1.4.1. Diet and Lifestyle. Gut-Brain Axis
  - 1.4.2. Antibiotic Therapy
  - 1.4.3. Epigenetic-Microbiota Interaction. Endocrine Disruptors
  - 1.4.4. Probiotics, Prebiotics, Symbiotics. Concepts and Overviews
  - 1.4.5. Fecal Transplant, Latest Advances





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*You will have unrestricted access to all the contents of the Virtual Campus and you will be able to download them to consult them whenever you want. Enroll now!”*

# 05

# Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.





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*TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”*

## The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

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*At TECH you will NOT have live classes  
(which you might not be able to attend)”*



### The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“*TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want*”

## Case Studies and Case Method

The case method has been the learning system most used by the world's best business schools. Developed in 1912 so that law students would not only learn the law based on theoretical content, its function was also to present them with real complex situations. In this way, they could make informed decisions and value judgments about how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

With this teaching model, it is students themselves who build their professional competence through strategies such as Learning by Doing or Design Thinking, used by other renowned institutions such as Yale or Stanford.

This action-oriented method will be applied throughout the entire academic itinerary that the student undertakes with TECH. Students will be confronted with multiple real-life situations and will have to integrate knowledge, research, discuss and defend their ideas and decisions. All this with the premise of answering the question of how they would act when facing specific events of complexity in their daily work.



## Relearning Methodology

At TECH, case studies are enhanced with the best 100% online teaching method: Relearning.

This method breaks with traditional teaching techniques to put the student at the center of the equation, providing the best content in different formats. In this way, it manages to review and reiterate the key concepts of each subject and learn to apply them in a real context.

In the same line, and according to multiple scientific researches, reiteration is the best way to learn. For this reason, TECH offers between 8 and 16 repetitions of each key concept within the same lesson, presented in a different way, with the objective of ensuring that the knowledge is completely consolidated during the study process.

*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.*



As such, the best educational materials, thoroughly prepared, will be available in this program:



#### 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.



#### Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



#### Interactive Summaries

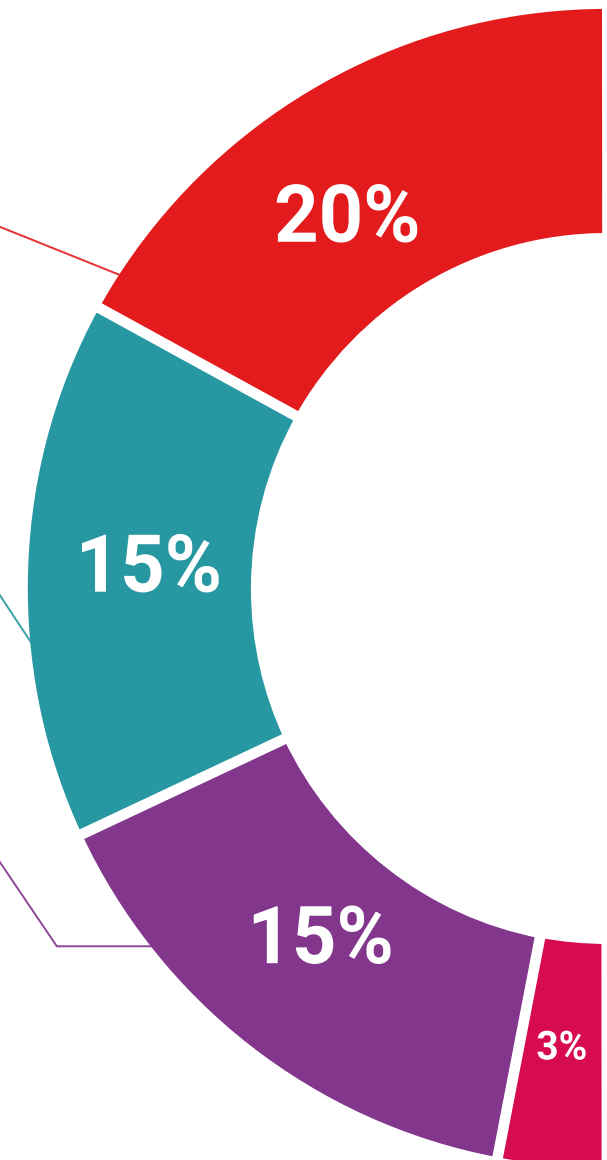
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

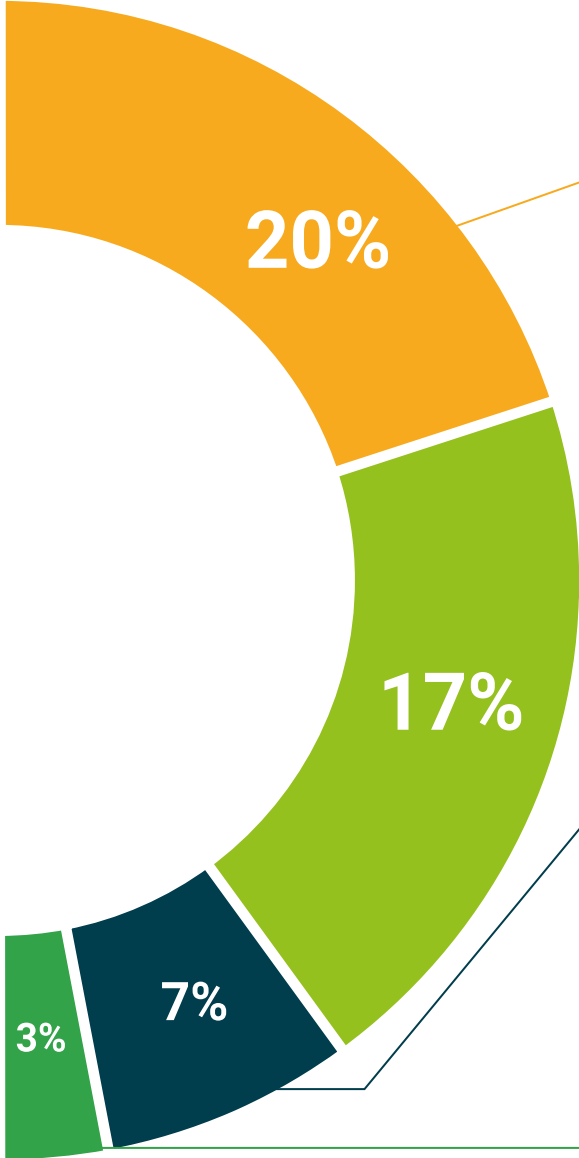
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents, international guides... In our virtual library you will have access to everything you need to complete your education.





**Case Studies**

Students will complete a selection of the best case studies in the field. Cases that are presented, analyzed, and supervised by the best specialists in the world.



**Testing & Retesting**

We periodically assess and re-assess your knowledge throughout the program. We do this on 3 of the 4 levels of Miller's Pyramid.



**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 for 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 Microbiota and Microbiome guarantees, in addition to the most accurate and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.





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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

This private qualification will allow you to obtain a **Postgraduate Certificate in Microbiota and Microbiome** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University**, is an official European University publicly recognized by the Government of Andorra (*official bulletin*). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** private qualification, is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Microbiota and Microbiome**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



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



## Postgraduate Certificate Microbiota and Microbiome

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