

# Postgraduate Diploma Intestinal Microbiota in Nursing





## Postgraduate Diploma Intestinal Microbiota in Nursing

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

Website: [www.techtitute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-intestinal-microbiota-nursing](http://www.techtitute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-intestinal-microbiota-nursing)

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# 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. Complex microbial ecosystems adapted to the particularities of each niche can be found in each of the different locations of the body, such as the skin, mucous membranes, respiratory tract, vagina or digestive tract. 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.







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*The study of Intestinal Microbiotics for Nursing opens the door to knowledge of multiple illnesses, giving your resume a great boost”*

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.

The human microbiota undergoes changes as a consequence of the influence of multiple factors, diet, lifestyle, pharmacological treatments, etc., generating alterations in this bacterial ecosystem and the anomalous interaction that the organism could have with 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 Diploma in Intestinal Microbiota in Nursing focuses on equipping nurses with the necessary information on the units related to Intestinal Microbiota, its Eubiosis and Dysbiosis and related problems.

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 nursing 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, a good state of health.

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

- ◆ Development of practical cases presented by experts in Intestinal Microbiota in Nursing
- ◆ The graphic, schematic, and practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ What's new in Intestinal Microbiota in Nursing
- ◆ Contains practical exercises where the self-evaluation process can be carried out to improve learning
- ◆ With special emphasis on innovative methodologies in Intestinal Microbiota in Nursing
- ◆ All of this will be complemented by theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ◆ Availability of content from any fixed or portable device with internet connection



*This Postgraduate Diploma in Intestinal Microbiota in Nursing will give you a sense of confidence in the performance of your profession. This will help you grow personally and professionally"*

“

*This Postgraduate Diploma is the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in Intestinal Microbiotics, you will obtain a degree from TECH Technological University"*

Its teaching staff includes professionals belonging to the field of Human Microbiota, who bring to this education the experience of their work, in addition to recognized specialists belonging to leading scientific societies.

Thanks to its multimedia content, developed with the latest educational technology, it will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning, programmed to train in real situations.

This program is designed around Problem-Based Learning, whereby the physician must try to solve the different professional practice situations that arise throughout the program. For this purpose, the physician will be assisted by an innovative interactive video system created by renowned and experienced experts in the field of Human Microbiota with extensive teaching experience.

*The Postgraduate Diploma allows education through simulated environments, which provide immersive learning programmed to train for real situations"*

*This 100% online Postgraduate Diploma will allow you to combine your studies with your professional work while expanding 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 master in a practical way, the study of Microbiotics in the daily practice of their profession. In this sense, the Postgraduate Diploma in Intestinal Microbiota in Nursing responds to the continuous demand of professionals for a quality education in this area, which serves as a vehicle to use microbiotic therapy as a means of healing digestive tract diseases and as a preventive tool in maintaining the health of patients of all ages.







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*This program, designed with the latest educational technology, will allow you to learn about all the advances in gut microbotics, making you a top-notch nurse"*



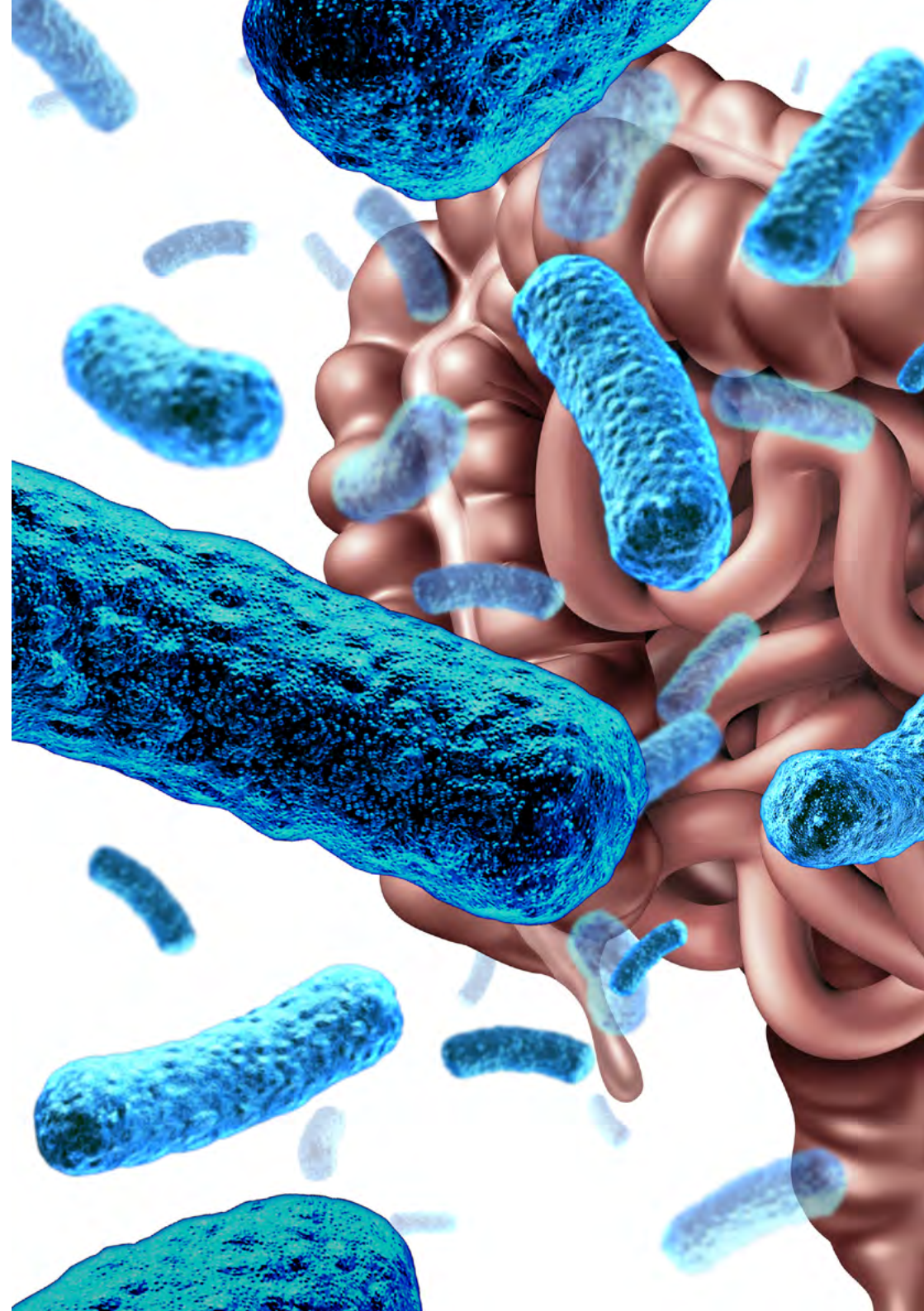
## General Objectives

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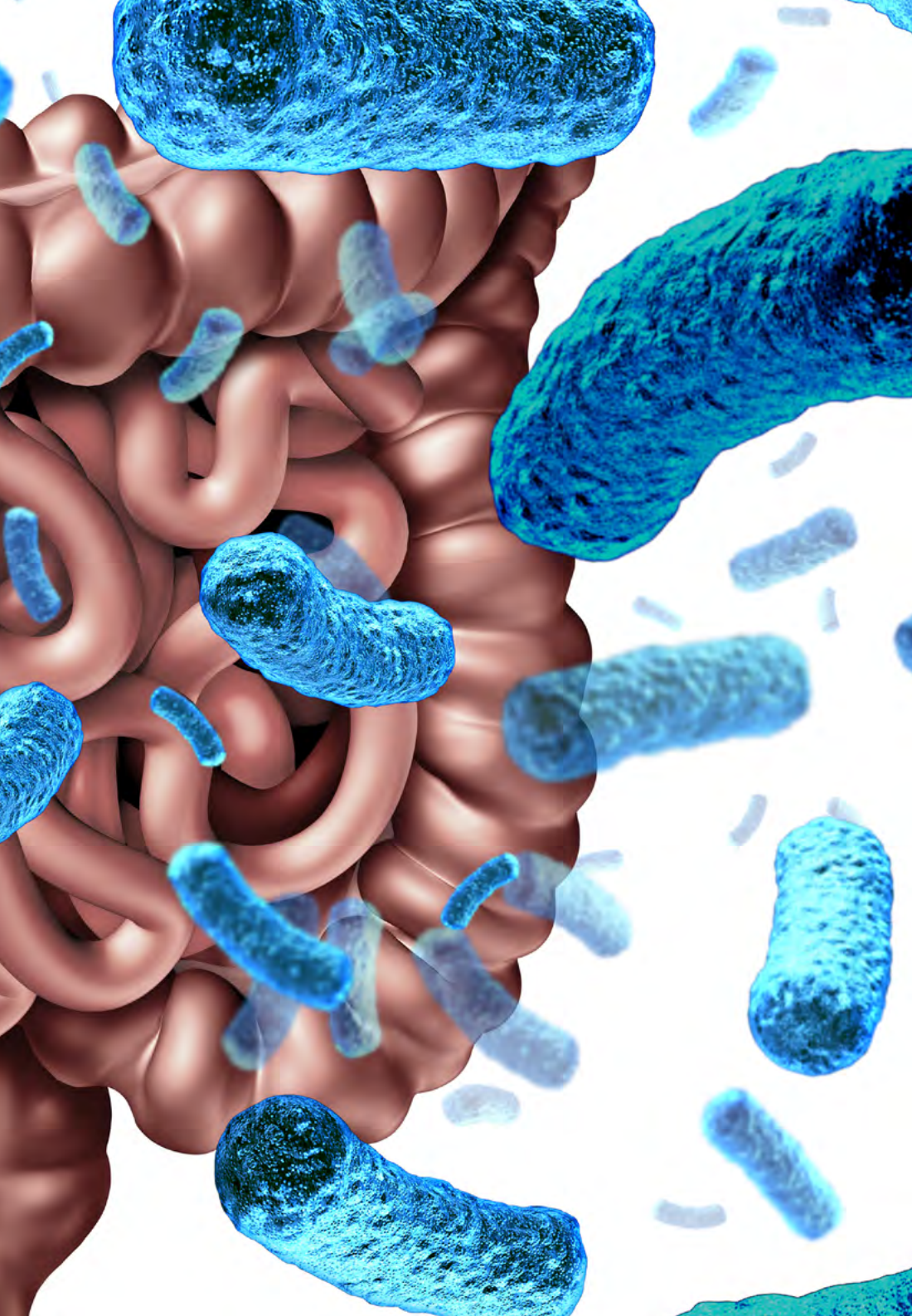
- ♦ To fulfill a need of today's society, a quality and up-to-date education that allows the use of microbiological therapy as a preventive or therapeutic tool for the maintenance of health
- ♦ Offer a complete and wide vision of the current situation in the field of the Intestinal Microbiota, in its widest sense, the importance of the balance of this Microbiota as a direct effect on our health, with the multiple factors that influence it positively and negatively
- ♦ Argue with the backing of scientific evidence how a high degree of importance is currently being given to the Microbiota and its interaction with many non-digestive, autoimmune pathologies or its relationship with the dysregulation of the immune system, the prevention of diseases, and as a support to other medical treatments
- ♦ 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 education and research



*Acquire the most up-to-date knowledge in this field of work and apply advanced protocols in this intervention in your day-to-day work"*







## Specific Objectives

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### Module 1. Microbiota. Microbiome. Metagenomics

- ◆ Know the relationship between the Microbiota and the Microbiome and its 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.

### Module 2. Gut Microbiota I. Intestinal homeostasis

- ◆ Study in depth the advances in intestinal microbiota studies.
- ◆ Understand the composition of the Intestinal Microbiota
- ◆ Delve into the physiology of the digestive tract.
- ◆ Know the composition of the Microbiota in the different parts of the digestive tract. Resident Flora and Transient or Colonizing Flora
- ◆ Understand the functions of the Intestinal Microbiota at the metabolic, nutritional and trophic levels.

### Module 3. Gut Microbiota II. Intestinal Dysbiosis

- ◆ Know in depth what Intestinal Dysbiosis is
- ◆ Analyze the consequences of Intestinal Dysbiosis
- ◆ Know the relationship of Intestinal Dysbiosis with 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
- ◆ Know the composition of the Intestinal Microbiota in the different stages of life
- ◆ Know how to apply the techniques of quantitative analysis of microorganisms in feces
- ◆ Study in depth the advances in intestinal microbiota studies.



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 training program. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner. All this, with the aim of providing nurses with the most complete information and contents of the educational panorama so that they can practice their profession with greater guarantees of success and care for patients with Intestinal problems having a deeper knowledge of the functioning of their microbiota.





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*Learn from reference professionals, the latest advances in procedures in the field of Intestinal Microbiotics and its implication with other pathologies"*



## International Guest Director

Dr. Harry Sokol is internationally recognized in the field of **Gastroenterology** for his research on the **gut 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.

On the other hand, Dr. Sokol began his **medical studies** at 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 also broadened his horizons by training 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 researches on **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
- Doctorate in Microbiology at the Université Paris-Sud
- Postdoctoral Fellowship 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"*

## Guest Directors



### Dr Sánchez Romero, María Isabel

- Area Specialist in the Microbiology Department of the Puerta de Hierro University Hospital, Madrid.
- Doctor in Medicine and Surgery from the University of Salamanca (2003) with the qualification of outstanding cum laude
- Degree in Medicine and Surgery from the University of Salamanca.
- Medical Specialist in Clinical Microbiology and Parasitology
- Member of the Spanish Society of Infectious Diseases and Clinical Microbiology.
- Technical Secretary of the Madrid Society of Clinical Microbiology



### Dr Portero, María Francisca

- Acting Head of the Microbiology Department of the Puerta de Hierro University Hospital, Madrid.
- Doctorate in Medicine from the Autonomous University Madrid
- Degree in Medicine and Surgery from the Autonomous University of Madrid.
- Specialist in Clinical Microbiology and Parasitology, Puerta de Hierro University Hospital, Madrid.
- Postgraduate in Clinical Management by Gaspar Casal Foundation.

**Co-Direction****Ms. Fernández Montalvo, María Ángeles**

- Degree in Biochemistry from the University of Valencia
- Specialist Degree in Nutrition, Dietetics, and Diet Therapy
- Expert in Microbiological Food Analysis
- Expert 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

### Ms. Alarcón Cavero, Teresa

- ◆ Specialist in the Microbiology Department at the La Princesa University Hospital.
- ◆ Degree in Biological Sciences with a major in Fundamental Biology from the Complutense University of Madrid.
- ◆ Master's Degree in Medical Microbiology from the Complutense University of Madrid.
- ◆ Head of Group 52 of the Research Institute of the La Princesa Hospital.

### Dr Muñoz Algarra, María

- ◆ Area Specialist in the Microbiology Department of the Puerta de Hierro Majadahonda University Hospital, Madrid.
- ◆ Head of Patient Safety of the Microbiology Service in the H.U. Puerto de Hierro Hospital Majadahonda
- ◆ Doctorate in Pharmacy from the Complutense University of Madrid.
- ◆ Degree in Pharmacy from the University of Valencia
- ◆ Teaching collaborator at the School of Medicine in the subject of Microbiology at the Autonomous University of Madrid

### Dr. López Dosil, Marcos

- ◆ Specialist Physician of the Microbiology and Parasitology Department of the Hospital de Móstoles
- ◆ Degree in Medicine from the University of Santiago de Compostela
- ◆ Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University
- ◆ Master's Degree in Tropical and Health Medicine from the Autonomous University of Madrid
- ◆ Expert in Tropical Medicine from the Autonomous University Madrid



**Anel Pedroche, Jorge**

- ◆ Facultative Area Specialist. Microbiology Department. Puerta de Hierro University Hospital.
- ◆ Degree in Pharmacy from the Complutense University of Madrid.
- ◆ Course in Interactive Sessions on Hospital Antibiotherapy by MSD
- ◆ Updating course on infection in hematologic patients by Puerta del Hierro Hospital.
- ◆ Attendance at the XXII Congress of the Spanish Society of Infectious Diseases and Clinical Microbiology.

**Dr Méndez García, Celia**

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

**Narbona López, Eduardo**

- ◆ Professor of Pediatrics, University of Granada, Spain.
- ◆ Neonatal Unit, San Cecilio University Hospital, Madrid.

**Dr Rioseras de Bustos, Beatriz**

- ◆ Degree in Biology Medicine, University of Oviedo
- ◆ Professional Master's Degree in Neuroscience Research. University of Oviedo
- ◆ Doctorate from the University of Oviedo. "Streptomyces development: regulation and industrial applications."
- ◆ Publications in the field of microbiology
- ◆ Participation in various conferences in the field of microbiology.
- ◆ Immunology Resident at HUCA

**Ms. Rodríguez Fernández, Carolina**

- ◆ Degree in Biology from the University of Oviedo

**Uberos Fernández, José**

- ◆ Associate Professor of Pediatrics, University of Granada
- ◆ Assistant Professor. Faculty of Medicine. University of Granada
- ◆ Neonatal Intensive Care Unit Clinical Assistant. San Cecilio Clinical Hospital, Granada (Spain)
- ◆ Vocal Bioethics Research Committee of the Province of Granada (Spain)
- ◆ Coeditor of the Signs and Symptoms Journal
- ◆ Professor Antonio Galdo Award. Society of Pediatrics of Eastern Andalusia. For the article entitled: analysis of nutritional intake in very low birth weight infants and its impact on the severity of bronchopulmonary dysplasia and other comorbidities.
- ◆ Editor of the Journal of the Pediatric Society of Eastern Andalusia (Bol. SPAO)
- ◆ President of the Scientific Committee of the XVIII Congress of Pediatric Societies of Eastern Andalusia, Extremadura, and Western Spain. Granada
- ◆ Member of the Organizing Committee of the XIV Congress of the Spanish Society of Adolescent Medicine, Granada
- ◆ Member of the Organizing Committee of the XIV Congress of the Spanish Society of Adolescent Medicine.
- ◆ Spanish Secretary of the XX Congress of Social Pediatrics, Granada

**Ms. Álvarez García, Verónica**

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

**Dr Alonso Arias, Rebeca**

- ♦ Degree in Biology from the University of Oviedo
- ♦ Doctorate in Biological Sciences from the Complutense University of Madrid.
- ♦ Specialist Immunology Physician at the Central University Hospital of Asturias.
- ♦ Heads the Immunosenescence research group of the Central University Hospital of Asturias Immunology Service.
- ♦ Numerous publications in international scientific journals
- ♦ Research work on the association between the microbiota and the immune system
- ♦ 1st National Award for Research in Sports Medicine (2 occasions)

**Ms. Bueno García, Eva**

- ♦ Researcher at the Immunology Department of the Central University Hospital of Asturias.

**Fernández Madera, Juan**

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

**Dr. Gabaldon Estevani, Toni**

- ♦ Dr. in Biology, researcher at Centre for Genomic Regulation | CRG - Bioinformatics and Genomics
- ♦ ICREA Research Professor and Group Leader of the Comparative Genomics Laboratory
- ♦ Co-Founder and Scientific Advisor (CSO) Microomics SL

**Dr. Solís Sánchez, Gonzalo**

- ♦ Neonatologist of the Central University Hospital of Asturias (HUCA). Researcher, Associate Professor of the University of Oviedo

**Dr López López, Aranzazu**

- ♦ PhD in Biological Sciences. Researcher in IA oral microbiology at FISABIO foundation
- ♦ Public Health Research Center of Valencia

**Ms. 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.

**Ms. Verdú López, Patricia**

- ♦ 2015 - 2016: Professional Master's Degree in Aesthetic and Anti-Aging Medicine at the Complutense University of Madrid
- ♦ 2007-2009: acquisition of research proficiency, PhD courses in "Advances in Traumatology, Sports Medicine, and Wound Care", "Advances in Asthma and Allergies" at the University of Las Palmas of Gran Canaria
- ♦ 2005 - 2009: Specialty of Allergology at the University Hospital Dr. Negrín in Las Palmas of Gran Canaria
- ♦ 1998 - 2004: Degree in Medicine from the University of Oviedo

**Dr Gonzalez Rodríguez, Silvia Pilar**

- ♦ Doctor of Medicine and Surgery, specialized in Gynecology
- ♦ Medical Subdirector
- ♦ Research Coordinator and Clinical Chief of the Menopause and Osteoporosis Unit at the Velázquez Medical Cabinet (Madrid).





**Dr. Lombó Burgos, Felipe**

- ◆ Doctorate in Biology from the University of Oviedo and full professor at the University of Oviedo.
- ◆ Research Unit “Biotechnology in Nutraceuticals and Bioactive Compounds-BIONUC”
- ◆ Area of Microbiology, Department of Functional Biology. Faculty of Medicine, University of Oviedo.

**López Vázquez, Antonio**

- ◆ Specialist in Immunology
- ◆ Central University Hospital of Asturias

**Dr Lopez Martinez, Rocio**

- ◆ Degree in Biochemistry from the University of Murcia
- ◆ Professional Master's Degree in Bioinformatics and Biostatistics from the Catalan Open University (UOC) and the University of Barcelona
- ◆ Resident Internal Biologist of Clinical Immunology at the Central University Hospital of Asturias

**Losa Domínguez, Fernando**

- ◆ Obstetrician- Gynecologist and Maternologist
- ◆ Expert in Menopause certified by the AEEM (Spanish Association for the Study of Menopause).
- ◆ Expert in Gynecoesthetics from the University of Barcelona.

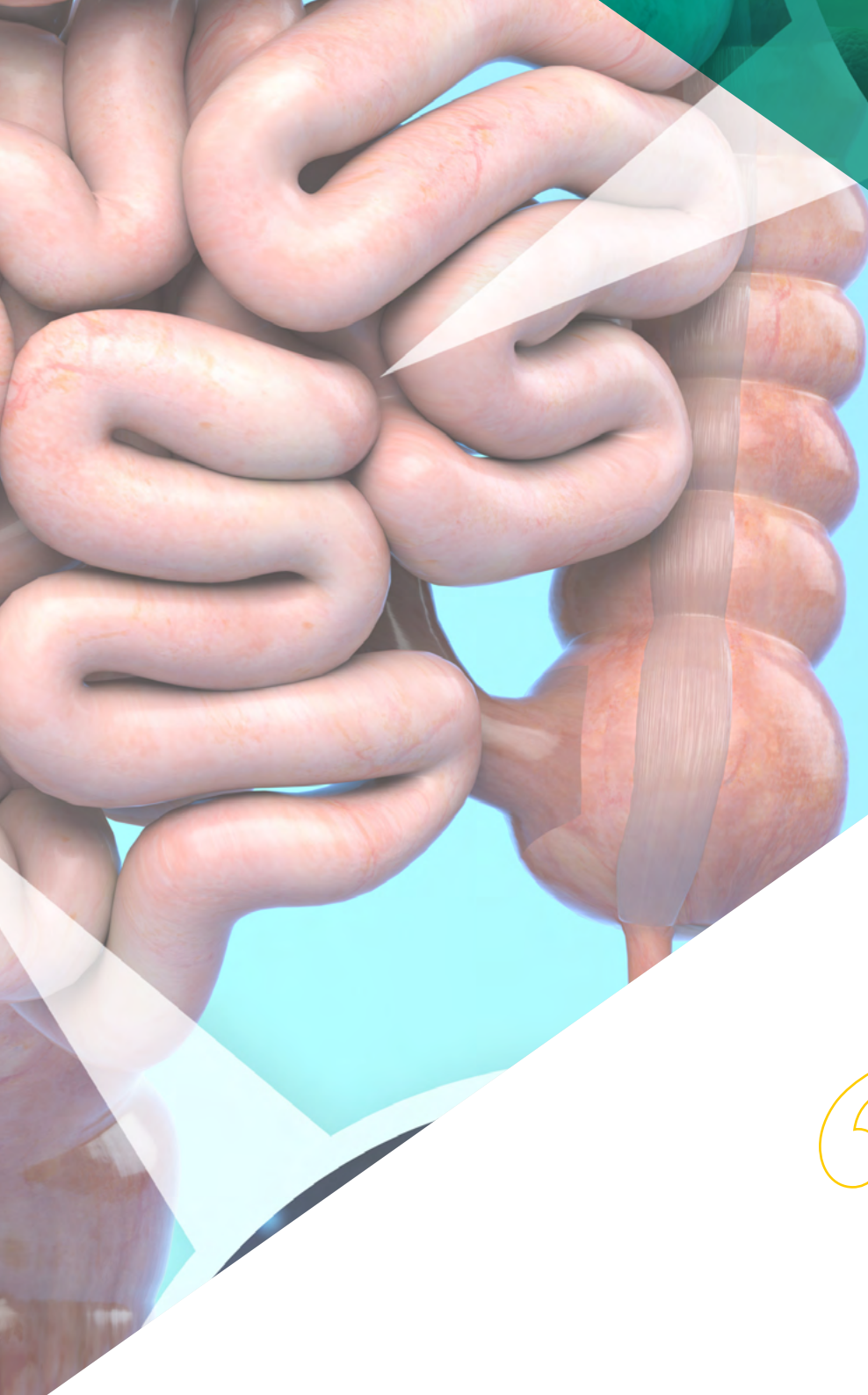
# 04

## Structure and Content

The structure of the contents has been designed by a team of professionals from the best hospitals and universities in the country, aware of the relevance of current training to prevent, detect and intervene in those pathologies related to alterations of the Intestinal Microbiota, and committed to quality teaching through new educational technologies. All of this, with the objective of training nurses who are much more competent and prepared to administer treatments that help and favor the Intestinal microbiome of patients.







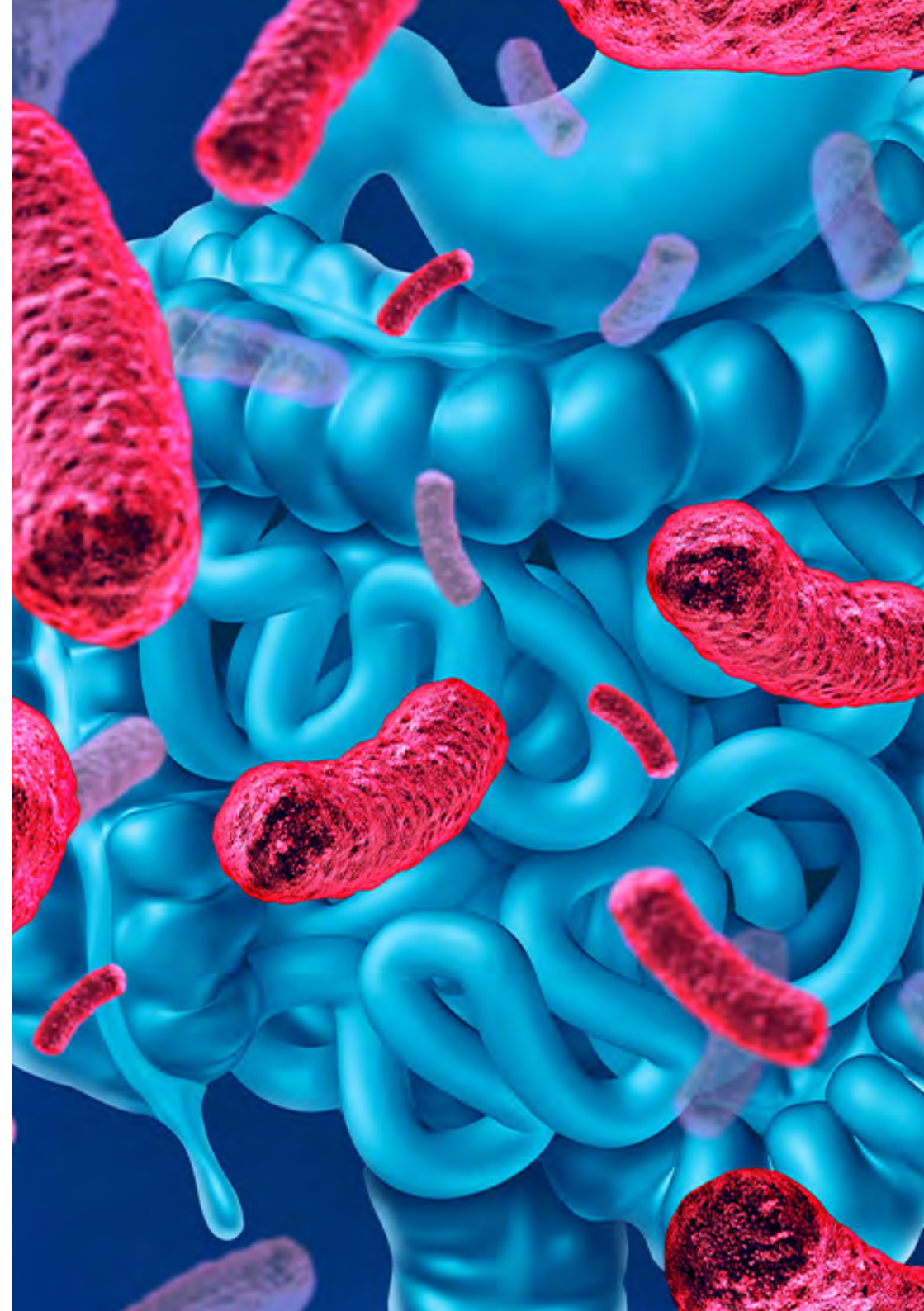
*This Postgraduate Diploma in Intestinal Microbiota in Nursing contains the most complete and up-to-date scientific program on the market”*

## Module 1. Microbiota. Microbiome. Metagenomics

- 1.1. Definition and Relationship Between Them
- 1.2. Composition of the Microbiota: Types, Species and Strains
- 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. Intestine-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

## Module 2. Gut Microbiota I. Intestinal homeostasis

- 2.1. Studies of the Intestinal Microbiota
  - 2.1.1. Projects MetaHIT, Meta-Biomed, MyNewGut, Human Microbiome Project
- 2.2. Composition of the Microbiota
  - 2.2.1. Protective Microbiota (Lactobacillus, Bifidobacterium, Bacteroides)
  - 2.2.2. Immunomodulatory Microbiota (Enterococcus faecalis and Escherichia coli)
  - 2.2.3. Mucoprotective or Muconutritive Microbiota (Faecalibacterium prausnitzii and Akkermansia muciniphila)
  - 2.2.4. Microbiota with Proteolytic or Proinflammatory Activities (E. coli Biovare, Clostridium, Proteus, Pseudomonas, Enterobacter, Citrobacter, Klebsiella, Desulfovibrio, Bilophila)





- 2.2.5. Fungal Microbiota (Candida, Geotrichum)
- 2.3. Digestive System Physiology. Composition of the Microbiota in the different parts of the digestive tract. Resident Flora and Transient or Colonizing Flora. Sterile Areas in the Digestive Tract
  - 2.3.1. Esophageal Microbiota
    - 2.3.1.1. Healthy Individuals
    - 2.3.1.2. Patients (Gastric Reflux, Barrett's Esophagus, etc.)
  - 2.3.2. Gastric Microbiota
    - 2.3.2.1. Healthy Individuals
    - 2.3.2.2. Patients (Gastric Ulcer, Gastric Cancer, MALT, etc)
  - 2.3.3. Gallbladder Microbiota
    - 2.3.3.1. Healthy Individuals
    - 2.3.3.2. Patients (Cholecystitis, Cholelithiasis, etc.)
  - 2.3.4. Small Intestine Microbiota
    - 2.3.4.1. Healthy Individuals
    - 2.3.4.2. Patients (Inflammatory Bowel Disease, Irritable Bowel Syndrome, etc.)
  - 2.3.5. Colon Microbiota
    - 2.3.5.1. Healthy Individuals. Enterotypes
    - 2.3.5.2. Patients (Inflammatory Bowel Disease, Crohn's Disease, Colon Carcinoma, Appendicitis, etc..)
- 2.4 Functions of the Intestinal Microbiota: Metabolic. Nutritional and Trophic. Protective and Barrier. Immunological
  - 2.4.1. Interrelationships Between the Intestinal Microbiota and Distant Organs (Brain, Lung, Heart, Liver, Pancreas, etc.)
- 2.5. Intestinal Mucosa and Mucosal Immune System
  - 2.5.1. Anatomy, Characteristics, and Functions (MALT, GALT, and BALT System)
- 2.6. What is Intestinal Homeostasis? Role of Bacteria in Intestinal Homeostasis
  - 2.6.1. Effects on Digestion and Nutrition
  - 2.6.2. Defence Stimulation, Hindering Colonization by Pathogenic Microorganisms
  - 2.6.3. Production of Vitamin B and K
  - 2.6.4. Production of Short Chain Fatty Acids (Butyric, Propionic, Acetic, etc.)
  - 2.6.5. Production of Gases (Methane, Carbon Dioxide, Molecular Hydrogen). Properties and Functions
  - 2.6.6. Lactic Acid

### Module 3. Intestinal Microbiota II. Intestinal Dysbiosis

- 3.1. What is Intestinal Dysbiosis? Consequences
- 3.2. Intestinal Barrier. Physiology. Function. Intestinal Permeability and Hyperpermeability. Relationship between Intestinal Dysbiosis and Intestinal Hyperpermeability
- 3.3. Relationship of Intestinal Dysbiosis and Other Types of Disorders: Immunological, Metabolic, Neurological and Gastric (*Helicobacter Pylori*)
- 3.4. Consequences of the Alteration of the Intestinal Ecosystem and its Relationship to Functional Digestive Disorders
  - 3.4.1. Inflammatory Bowel Disease IBD
  - 3.4.2. Chronic Inflammatory Bowel Diseases: Crohn's Disease. Ulcerative Colitis
  - 3.4.3. Irritable Bowel Syndrome (IBS) and Diverticulitis
  - 3.4.4. Intestinal Motility Disorders. Diarrhea. Diarrhea Caused by *Clostridium Difficile*. Constipation
  - 3.4.5. Digestive Disorders and Nutrient Malabsorption Problems: Carbohydrates, Proteins and Fats
  - 3.4.6. Markers of Intestinal Inflammation: Calprotectin. Eosinophil Cationic Protein (ECP). Lactoferrin. Lysozyme.
  - 3.4.7. Leaky Gut Syndrome. Permeability Markers: Alpha-1 Antitrypsin. Zonulin. *Tight Junctions* and their Main Function.
- 3.5. Alteration of the Intestinal Ecosystem and its Relationship with Intestinal Infections
  - 3.5.1. Viral Intestinal Infections
  - 3.5.2. Bacterial Intestinal Infections
  - 3.5.3. Intestinal Infections due to Parasites
  - 3.5.4. Fungal Intestinal Infections. Intestinal Candidiasis.
- 3.6. Composition of the Intestinal Microbiota in the Different Stages of Life
  - 3.6.1. Variation in Gut Microbiota Composition from the Neonatal-Early Childhood Stage to Adolescence. "Unstable Period"
  - 3.6.2. Composition of the Intestinal Microbiota in Adulthood. "Stable Period"
  - 3.6.3. Gut Microbiota Composition in the Elderly "Unstable Stage". Aging and Microbiota
- 3.7. Nutritional Modulation of Intestinal Dysbiosis and Hyperpermeability: Glutamine, Zinc, Vitamins, Probiotics, Prebiotics
- 3.8. Techniques for Quantitative Analysis of Microorganisms in Feces
- 3.9. Current Lines of Research

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.



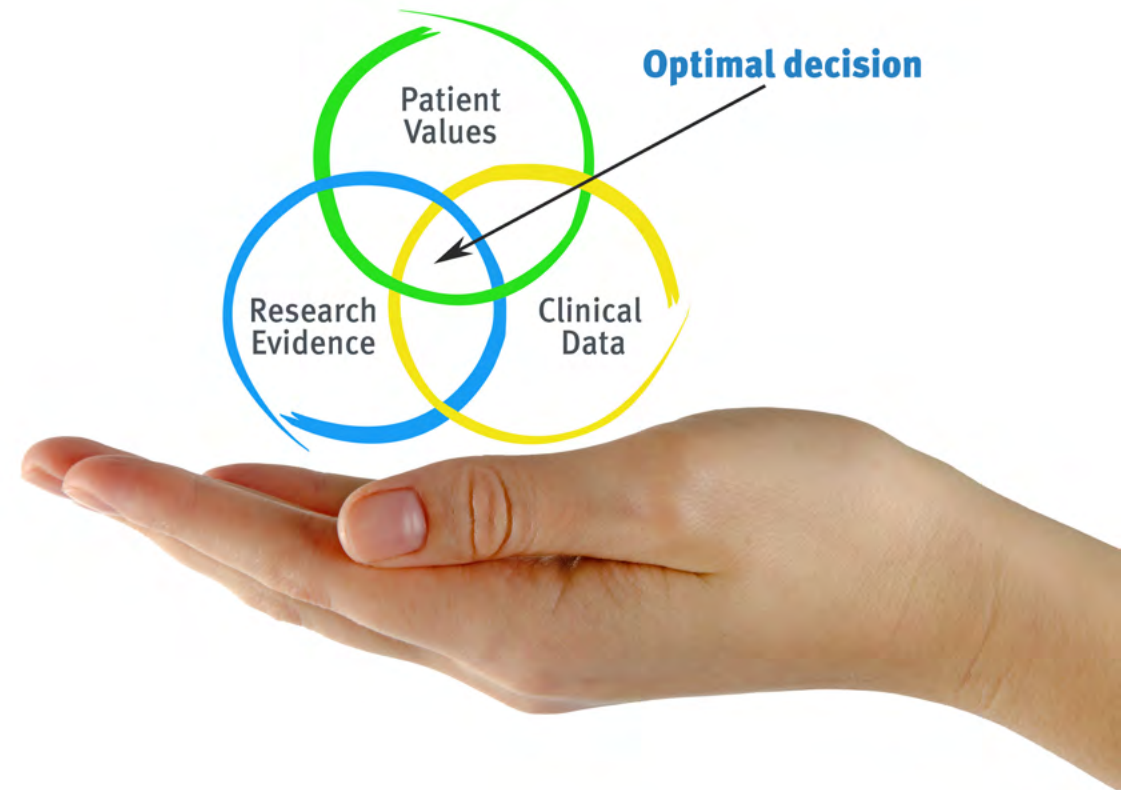
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH Nursing School we use the Case Method

In a given situation, what should a professional do? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Nurses learn better, faster, and more sustainably over time.

*With TECH, nurses can experience a learning methodology 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, in an attempt to recreate the real conditions in professional nursing 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. Nurses 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 nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
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.

This university is the first in the world to combine case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of cases.



*The nurse 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 we have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical workload. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*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 produced by the specialists who teach the course, specifically for the course, so that the teaching content is really specific and precise.

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.



### Nursing 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 of this in direct contact with students and explained in detail so as to aid their assimilation and 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.

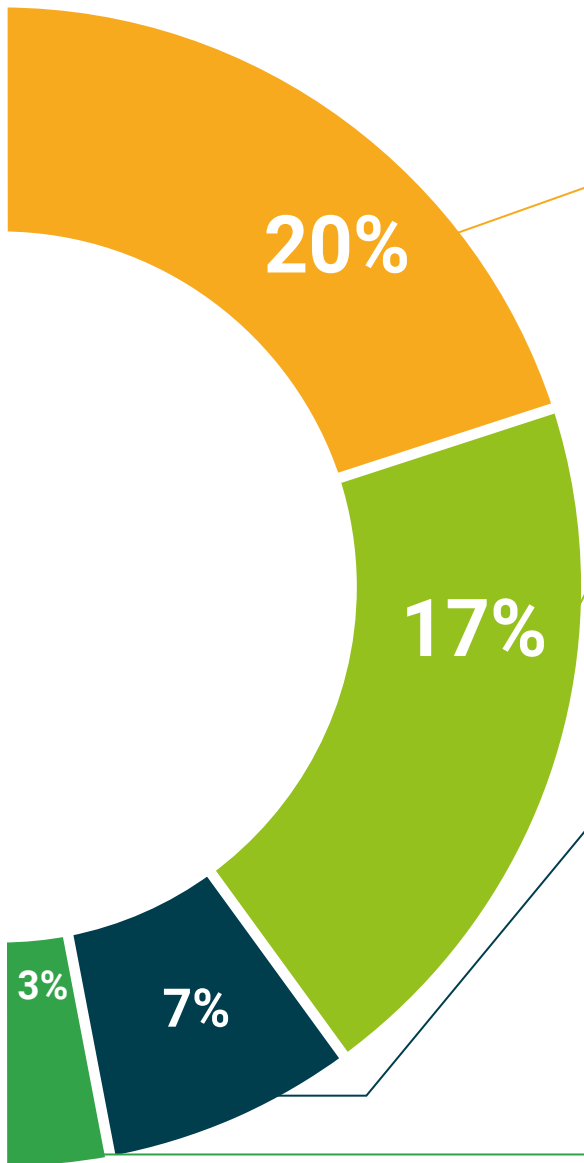
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



### 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, TECH presents real cases in which the expert will guide students, 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 suggesting that observing third-party experts can be useful.  
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 Diploma in Intestinal Microbiota in Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.





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

This **Postgraduate Diploma in Intestinal Microbiota in Nursing** 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 Diploma** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Diploma in Intestinal Microbiota in Nursing**

Official N° of Hours: **450 h.**



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

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present quality

online technologies

development languages

virtual classroom

**tech** technological  
university

## Postgraduate Diploma

### Intestinal Microbiota in Nursing

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



# Postgraduate Diploma

## Intestinal Microbiota in Nursing

