

Postgraduate Diploma

Nutrigenomics, Metabolomics and Epigenetics for Nursing



Postgraduate Diploma Nutrigenomics, Metabolomics and Epigenetics for Nursing

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Global University
- » Credits: 18 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtute.com/us/nursing/postgraduate-diploma/postgraduate-diploma-nutrigenomics-metabolomics-epigenetics-nursing

Index

01

Introduction

p. 4

02

Objectives

p. 8

03

Course Management

p. 12

04

Structure and Content

p. 18

05

Methodology

p. 24

06

Certificate

p. 32

01

Introduction

Nutrition, as a therapeutic support, has recently benefited from advances in genetic research. Become an expert in nutrigenomics, metabolomics and epigenetics just like the leading specialists in the field and with the best teaching methodology. Don't hesitate any longer and join our community of students. It is the ideal way to learn how to perform specialized nutrition consultations for your patients.

Incorporate the latest advances in Nutrigenomics, Metabolomics and Epigenetics into your work and act as one of the most advanced healthcare practitioners in nursing.



“

Learn the main differences between nutrigenetics and nutrigenomics thanks to this highly didactic training”

This Postgraduate Diploma details everything a healthcare practitioner needs to know about genomic and precision nutrition, taking into account aspects related to nutrigenomics, metabolomics and epigenetics. Thus, the material is organized in such a way as to advance knowledge without leaving doubts or gaps in information. It is the best training on the market, because it offers the opportunity to know and learn online all the new developments in the field of genomic nutrition.

In this Postgraduate Diploma, the differences between nutrigenetics and nutrigenomics are explained in depth. Thus, the similarities and differences are explained, as well as the main nutrition-related gene expression studies in humans. In addition, the example of the Mediterranean diet as a dietary pattern is analyzed, and the studies of patterns and nutrients and their influence on the change of gene expression are explained.

On the other hand, the completion of this Postgraduate Diploma will help students to understand and deepen their understanding of the principles of metabolomics and proteomics. As such, the key techniques and main applications that metabolomics and proteomics could have in the field of nutrition are explained. In this sense, this Postgraduate Diploma presents state-of-the-art data on the microbiota for its application and use in clinical practice towards a more precise and individualized patient treatment.

Finally, it also explores the basis of the relationship between epigenetics and food, describing the differences between epigenetics and epigenomics, and presenting the scientific advances in these fields that are aligned with food, as well as how it can influence health and how it interacts with nutritional habits.

As it is an online Postgraduate Diploma, the student is not conditioned by fixed schedules or the need to move to another physical location, but can access the contents at any time of the day, balancing their work or personal life with their academic life.

This **Postgraduate Diploma in Nutrigenomics, Metabolomics and Epigenetics for Nursing** contains the most complete and up to date scientific program on the market.

The most important features of the program include:

- » The development of case studies presented by experts in Genomic and Precision Nutrition.
- » The graphic, schematic, and eminently practical contents with which they are created contain information that is indispensable for professional practice.
- » Practical exercises where the self-assessment process can be carried out to improve learning.
- » Special emphasis on innovative methodologies in nutrigenomics, metabolomics and epigenetics.
- » Theoretical lessons, questions to for the experts, debate forums on controversial topics, and individual reflection assignments.
- » Content that is accessible from any fixed or portable device with an Internet connection.



Get trained in the broad field of nutrigenomics, metabolomics and Epigenetics , and offer specialized care to your patients"

“

This Postgraduate Diploma is the best investment you can make in selecting a refresher program to get up to date with your knowledge in Nutrigenomics and Precision Nutrition.

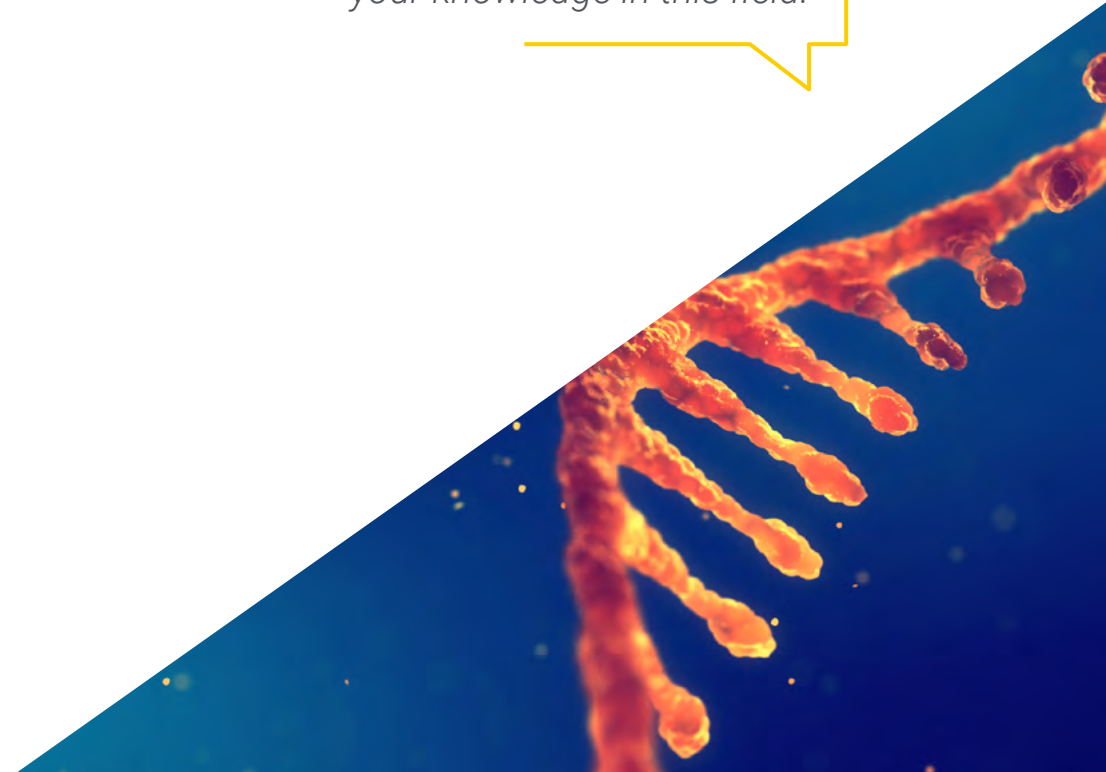
Its Teaching Staff includes Professionals belonging to the field of Nutrition, who contribute their work experience to this training, as well as renowned Specialists from Reference Societies and Prestigious Universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the professional must try to solve the different professional practice situations that arise during the academic year. For this purpose, the healthcare practitioner will be assisted by an innovative Interactive Video System, developed by Renowned, and Experienced Experts in nutrigenomics, metabolomics and Epigenetics.

The Postgraduate Diploma allows training in simulated environments, which provide immersive learning programmed to train in real situations.

This 100% online Postgraduate Diploma 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 nursing practitioner can master the study of nutrigenomics, metabolomics and precision nutrition in a practical and rigorous way.



A hand holding a red-tipped wooden stick against a grey background. The image is partially obscured by a large green and white geometric overlay on the right side.

“

This refresher program will generate a sense of security in the performance of your daily practice, which will help you grow personally and professionally.”



General Objectives

- » Acquire theoretical knowledge of human population genetics..
- » Acquire knowledge of genomic and precision nutrition to be able to apply it in practice.
- » Learn the development of this novel field and the key findings that contributed to its development.
- » Know in which pathologies and conditions of human life Genomic and Precision Nutrition can be applied..
- » To evaluate individual response to nutrition and dietary patterns in order to promote health and disease prevention.
- » Learn how nutrition influences gene expression in humans.
- » Learn about new concepts and future trends in the field of Genomic and Precision Nutrition..
- » Adapt personalized dietary and lifestyle habits according to genetic polymorphisms.
- » Provide health professionals with all the updated knowledge in the field of Genomic and Precision Nutrition in order to know how to apply it in their professional activity..
- » Put all the up to date knowledge in perspective. Where we are now and where we are headed so that the student can appreciate the ethical, economic and scientific implications in the field.





Specific Objectives

Module 1. Nutrigenomics.

- » Understand in depth the differences between Nutrigenetics and Nutrigenomics
- » Present and Analyze Genes related to Metabolic Processes affected by Nutrition..

Module 2. Metabolomics-Proteomics

- » Know the Principles of Metabolomics and Proteomics
- » Go in depth into the microbiota as a tool for preventive and personalized nutrition.

Module 3. Epigenetics

- » Exploring the Basis of the Relationship between Epigenetics and Nutrition.
- » Present and Analyze how MicroRNAs are Involved in Genomic Nutrition.



Take the step and join one of the largest online universities in the world"

03

Course Management

The program's teaching staff includes leading Postgraduate Diplomas in Nutrigenomics and Precision Nutrition, who bring the experience of their work to this training. Additionally, other recognized experts participate in its design and preparation, completing the program in an interdisciplinary manner.



“

The best professionals are qualified at the best university to help you progress your career.”

International Guest Director

Dr. Caroline Stokes is a specialist in **Psychology** and **Nutrition**, with a doctorate and a habilitation in **Medical Nutrition**. After a distinguished career in this field, she leads the **Food and Health Research** group at the Humboldt University of Berlin. This team collaborates with the Department of Molecular Toxicology at the German Institute of Human Nutrition Potsdam-Rehbrücke. Previously, he has worked at the Medical School of Saarland University in Germany, the Cambridge Medical Research Council and the UK National Health Service.

One of her goals is to discover more about the fundamental role that **Nutrition** plays in improving the overall health of the population. To this end, he has focused on elucidating the effects of fat-soluble vitamins such as **A, D, E and K**, the **amino acid methionine**, lipids such as **omega-3 fatty acids** and **probiotics** for both the prevention and treatment of diseases, particularly those related to hepatology, neuropsychiatry and aging.

Her other lines of research have focused on plant-based diets for the prevention and treatment of diseases, including liver and psychiatric diseases. He has also studied the spectrum of **vitamin D** metabolites in health and disease. She has also participated in projects to analyze new sources of vitamin D in plants and to compare the **luminal** and **mucosal microbiome**.

In addition, Dr. Caroline Stokes has published a long list of scientific papers. Some of her areas of expertise are **Weight Loss**, **Microbiota** and **Probiotics**, among others. The outstanding results of her research and her constant commitment to her work have led her to win the **National Health Service Journal Award for the Nutrition and Mental Health Program** in the UK.



Dr. Stokes, Caroline

- Head of the Food and Health Research Group at the Humboldt University of Berlin, Germany
- Researcher at the German Institute of Human Nutrition Potsdam-Rehbruecke
- Professor of Food and Health at the Humboldt University of Berlin
- Scientist in Clinical Nutrition at the University of Saarland
- Nutrition Consultant at Pfizer
- PhD in Nutrition at the University of Saarland
- Postgraduate Diploma in Dietetics at King's College London, University of London
- Master's Degree in Human Nutrition from the University of Sheffield

“

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

Management



Dr. Konstantinidou, Valentini

- ♦ D. in Biomedicine.
- ♦ Lecturer in Nutrigenetics.
- ♦ Founder of DNANUTRICOACH®.
- ♦ Dietitian-Nutritionist.
- ♦ Food Technologist.

Professors

Dr. García Santamarina, Sarela

- » D. in Biomedical Research Pompeu Fabra University, Barcelona, Spain. 2008-2013.
- » Master's in Molecular Biology of Infectious Diseases. London School of Hygiene & Tropical Medicine, London, United Kingdom. 2006-2007.
- » Master's in Biochemistry and Molecular Biology. Autonomous University of Barcelona, Spain. 2003-2004.
- » Degree in Chemistry. Specialty in Organic Chemistry. University of Santiago de Compostela, Spain. 1996-2001.
- » Postdoctoral Researcher EIPOD Marie Curie. Mentoring: Dr. Athanasios Typas, Dr. Peer Bork, and Dr. Kiran Patil. Project: "Effects of drugs on intestinal flora". European Molecular Biology Laboratory (EMBL), Heidelberg, Germany. Since 2018.



04

Structure and Content

The structure of the contents has been designed by a team of professionals who are familiar with the implications of training in daily practice, and who are aware of the relevance of training in Nutritional Genomics and Precision Nutrition. They are committed to quality teaching through new educational technologies.

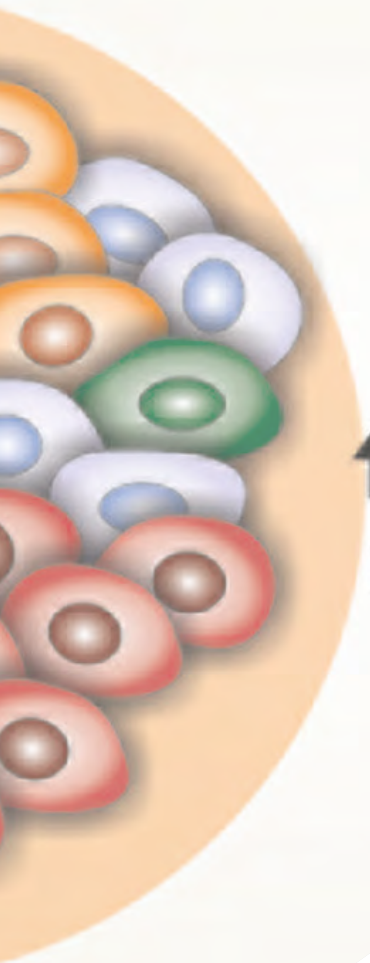


origen

↓ DNA damage signaling

↑ Genomic instability

nesis



↑ DNA repair competence

Tumor Progression Therapy Resistance

Structure and Content | 19 

“

We have the most complete and updated scientific program on the market. We strive for the excellence that we want you to achieve too"

stabil

Module 1. Nutrigenomics.

- 1.1. Differences and Similarities with Nutrigenetics
- 1.2. Bioactive Components of Diet on Gene Expression
- 1.3. The Effect of Micro and Macro Nutrients on Gene Expression.
- 1.4. The Effect of Dietary Patterns on Gene Expression
 - 1.4.1. The Mediterranean Diet Example.
- 1.5. Main Studies in Gene Expression
- 1.6. Genes related to Inflammation
- 1.7. Genes related to Insulin Sensitivity.
- 1.8. Genes related to Lipid Metabolism and Adipose Tissue Differentiation
- 1.9. Genes related to Arteriosclerosis.
- 1.10. Genes related to the Myoskeletal System

Module 2. Metabolomics-Proteomics

- 2.1. Proteomics
 - 2.1.1. Principles of Proteomics
 - 2.1.2. The Flow of Proteomics Analysis
- 2.2. Metabolomics
 - 2.2.1. Principles of Metabolomics
 - 2.2.2. Targeted Metabolomics
 - 2.2.3. Non-Targeted Metabolomics
- 2.3. The Microbiome/Microbiota
 - 2.3.1. Microbiome Data
 - 2.3.2. Human Microbiota Composition
 - 2.3.3. Enterotypes and Diet

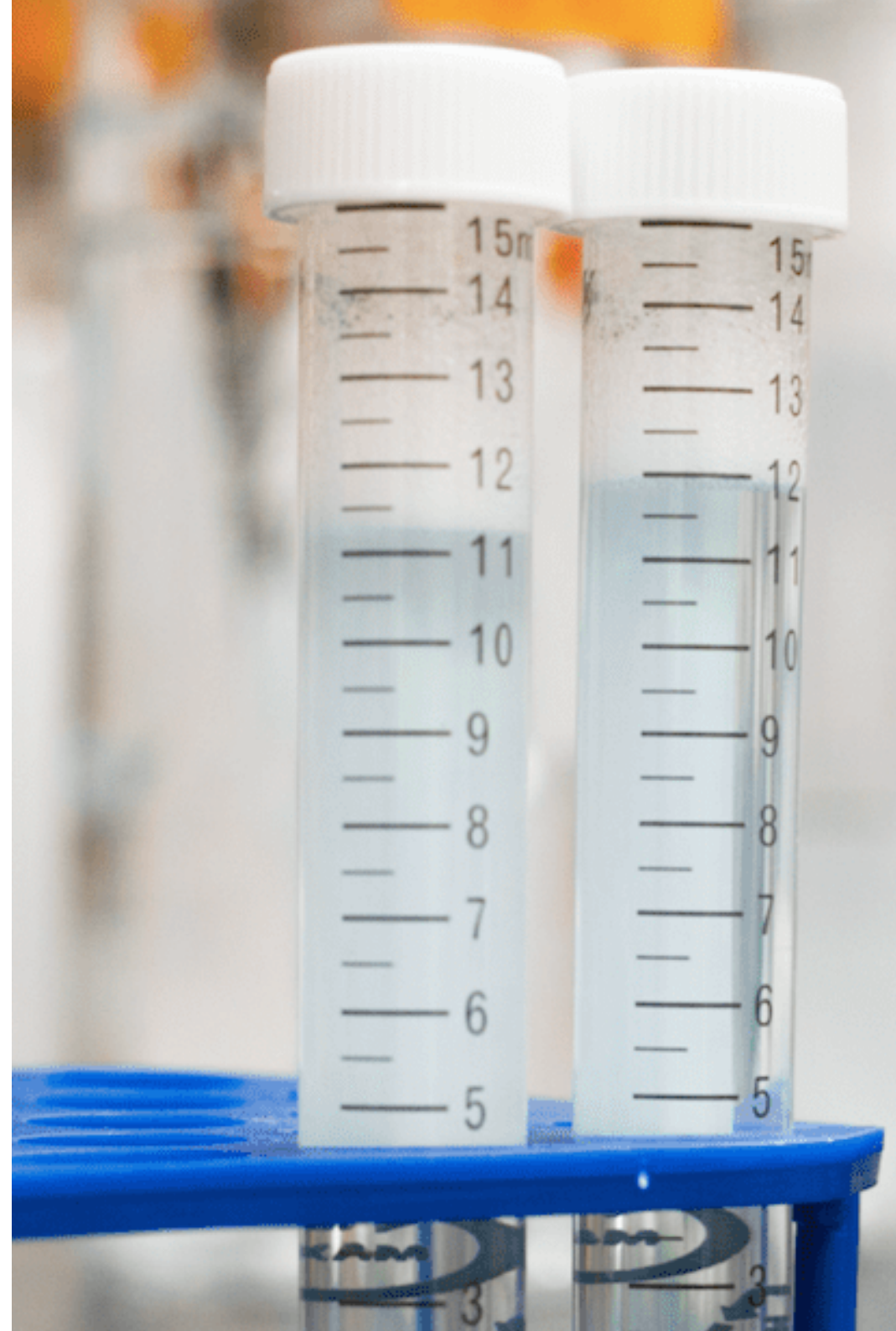


- 2.4. Main Metabolomic Profiles
 - 2.4.1 Application to Disease Diagnosis
 - 2.4.2 Microbiota and Metabolic Syndrome
 - 2.4.3 Microbiota and Cardiovascular Diseases Effect of the Oral and Intestinal Microbiota
- 2.5. Microbiota and Neurodegenerative Diseases
 - 2.5.1. Alzheimer's Disease
 - 2.5.2. Parkinson's Disease
 - 2.5.3. ALS
- 2.6. Microbiota and Neuropsychiatric Diseases.
 - 2.6.1. Schizophrenia.
 - 2.6.2. Anxiety, Depression, Autism,
- 2.7. Microbiota and Obesity
 - 2.7.1. Enterotypes
 - 2.7.2. Current Studies and State of Knowledge.

Module 3. Epigenetics

- 3.1. History of Epigenetics - The way I feed my Grandchildren's Inheritance
- 3.2. Epigenetics vs Epigenomics
- 3.3. Methylation
 - 3.3.1. Examples of Folate and Choline, Genistein
 - 3.3.2. Examples of Zinc, Selenium, Vitamin A, Protein Restriction.
- 3.4. Histone Modification
 - 3.4.1. Examples of Butyrate, Isothiocyanates, Folate and Choline,
 - 3.4.2. Examples of Retinoic Acid, Protein Restriction

- 3.5. MicroRNA
 - 3.5.1. Biogenesis of MicroRNAs in Humans.
 - 3.5.2. Mechanisms of Action-Regulating Processes
- 3.6. Nutrimiomics
 - 3.6.1. Diet-Modulated MicroRNAs
 - 3.6.2. MicroRNAs involved in Metabolism
- 3.7. Role of MicroRNAs in Diseases
 - 3.7.1. MicroRNA in Tumorigenesis
 - 3.7.2. MicroRNAs in Obesity, Diabetes and Cardiovascular Diseases.
- 3.8. Gene Variants that Generate or Destroy Binding Sites for MicroRNAs
 - 3.8.1. Main Studies
 - 3.8.2. Results in Human Diseases
- 3.9. MicroRNA Detection and Purification Methods.
 - 3.9.1. Circulating MicroRNAs
 - 3.9.2. Basic Methods Used



“

*A unique, key, and decisive
Training 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.



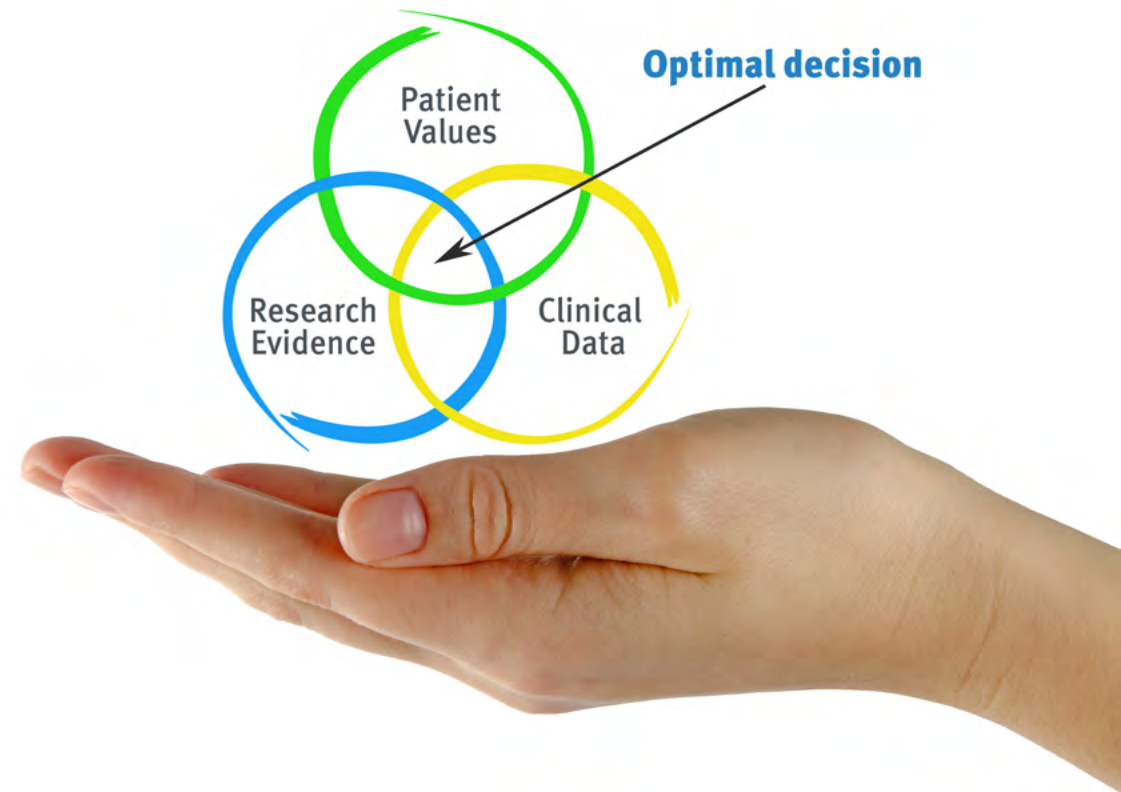
“

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 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. 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 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.

“

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 Nutrigenomics, Metabolomics and Epigenetics for Nursing guarantees you, in addition to the most accurate and up-to-date training, access to a Postgraduate Diploma issued by TECH Global University.



“

Successfully complete this training and receive your university qualification without the hassle of travel or paperwork”

This program will allow you to obtain your **Postgraduate Diploma in Nutrigenomics, Metabolomics and Epigenetics for Nursing** 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.

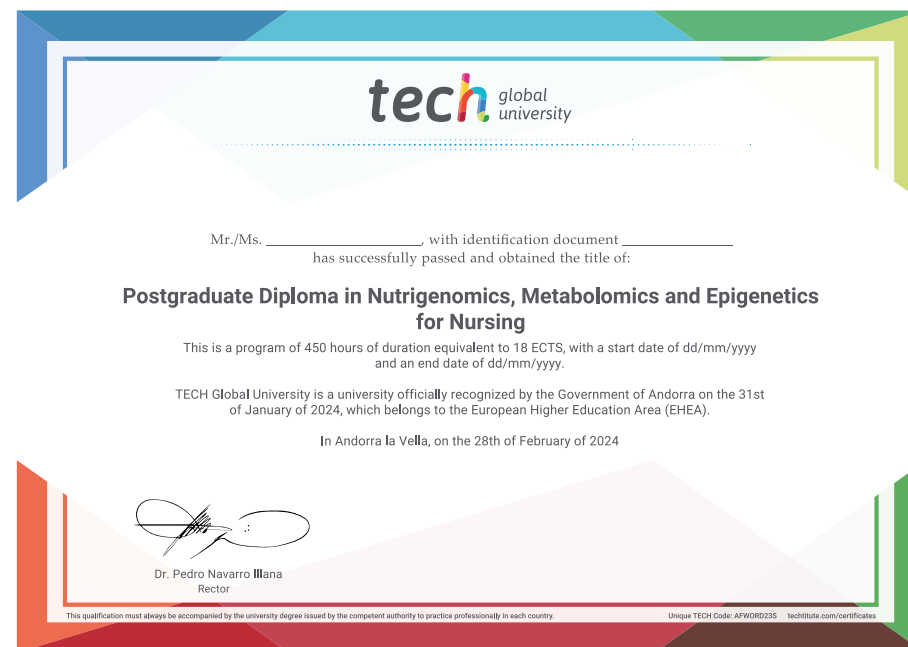
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Nutrigenomics, Metabolomics and Epigenetics for Nursing**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**



future
health confidence people
education information tutors
guarantee accreditation teaching
institutions technology learning
community commitment
personalized service innovation
knowledge present
development languages
classroom



Postgraduate Diploma
Nutrigenomics, Metabolomics
and Epigenetics for Nursing

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Global University
- » Credits: 18 ECTS
- » Schedule: at your own pace
- » Exams: online

Postgraduate Diploma

Nutrigenomics, Metabolomics
and Epigenetics for Nursing

