

Postgraduate Diploma

Nutrigenomics, Metabolomics and Epigenetics





Postgraduate Diploma Nutrigenomics, Metabolomics and Epigenetics

Course Modality: **Online**

Duration: **6 months**.

Certificate: **TECH Technological University**

18 ECTS Credits

Teaching Hours: **450 hours**.

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

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01

Introduction

Become an expert in Nutrigenomics, Metabolomics and Epigenetics from the hand of 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.





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*Learn the main differences between
Nutrigenetics and Nutrigenomics thanks
to this highly educational training”*

This Postgraduate Diploma details everything a health professional needs to know about Nutritional Genomics 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 learn online all the innovation in the field of Nutritional Genomics.

In this Postgraduate Diploma, the differences between Nutrigenetics and Nutrigenomics are discussed in depth. Thus, the similarities and differences are explained, and the main nutrition-related gene expression studies in humans are presented. 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 delve into the principles of Metabolomics and Proteomics. Thus, the key techniques and the main applications that Metabolomics and Proteomics could have in the field of nutrition are explained. In this sense, this Postgraduate Diploma presents the state-of-the-art data on the microbiota for its application and use in clinical practice towards a precise and more 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** 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 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 trained in the broad field of Nutrigenomics, Metabolomics and Epigenetics and offer specialized treatments to your patients"

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This Postgraduate Diploma is the best investment you can make in selecting a refresher program to update your knowledge in Nutrigenomics, Metabolomics and Epigenetics”

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. To do so, the professional will be assisted by a innovative interactive video system created 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 for 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 nutrition professional can master in a practical and rigorous way the study of Nutrigenomics, Metabolomics and Epigenetics.



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



General Objectives

- ♦ Acquire theoretical knowledge on human population genetics.
- ♦ Acquire knowledge of Nutritional Genomics and Precision Nutrition to be able to apply it in clinical practice.
- ♦ Learn about the trajectory of this innovative field and the key studies that contributed to its development.
- ♦ Know in which pathologies and conditions of human life Nutritional Genomics and Precision Nutrition can be applied.
- ♦ Be able to assess individual response to nutrition and dietary patterns in order to promote health and disease prevention.
- ♦ Understand how nutrition influences gene expression in humans.
- ♦ Learn about new concepts and future trends in the field of Nutritional Genomics and Precision Nutrition.
- ♦ Adapt personalized dietary and lifestyle habits according to genetic polymorphisms.
- ♦ Provide health professionals with all the up-to-date knowledge in the field of Nutritional Genomics 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.

- ◆ Delve into 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
- ◆ Delve into the microbiota as a tool for preventive and personalized nutrition.

Module 3. Epigenetics

- ◆ Explore the basis of the relationship between Epigenetics and nutrition.
- ◆ Present and analyze how MicroRNAs are involved in nutritional genomics.



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

03

Course Management

The program's faculty includes leading experts in Nutritional Genomics and Precision Nutrition, who bring their work experience to this training. Additionally, other recognized experts participate in its design and preparation, completing the program in an interdisciplinary manner.



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Leading professionals in the field have come together to teach you the latest advances in Nutrigenomics, Metabolomics and Epigenetics”

Management



Dr. Konstantinidou, Valentini

- ♦ D. in Biomedicine.
- ♦ Lecturer Professor of Nutrigenomics, Metabolomics and Epigenetics.
- ♦ 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 Degree in Molecular Biology of Infectious Diseases. London School of Hygiene & Tropical Medicine, London, United Kingdom. 2006-2007.
- ♦ Master's Degree 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.



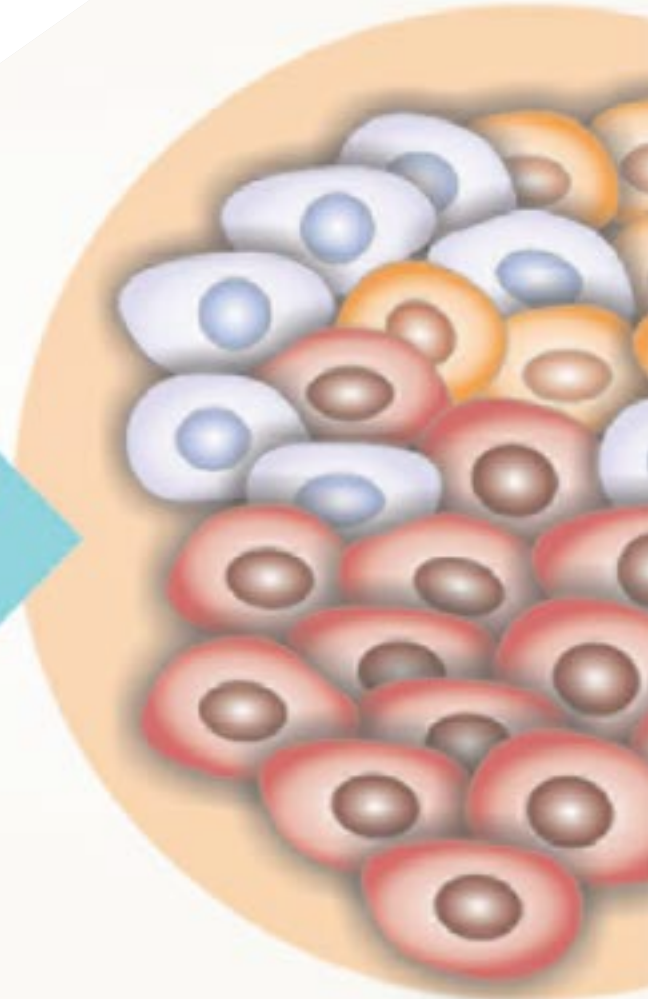
04

Structure and Content

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



↓ DNA damage signaling



↑ Genomic instability

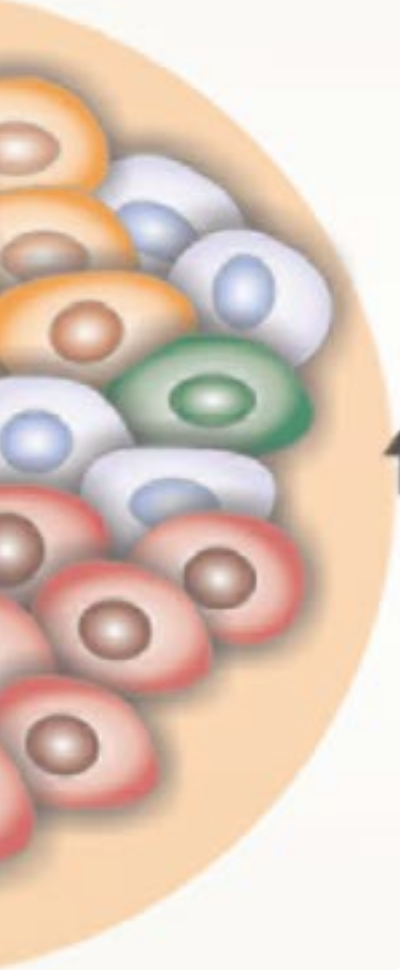
↑ Replicative

origine

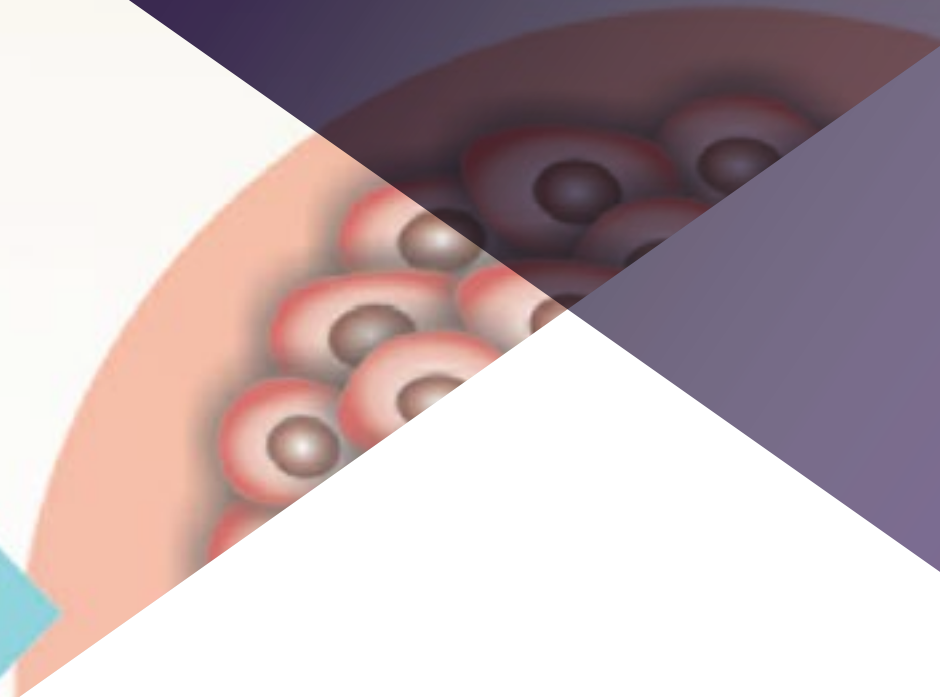
nesis

Tumor Progression Therapy Resistance

Structure and Content | 17 **tech**



**↑ DNA repair
competence**



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We have the most complete and up-to-date scientific program on the market. We strive for excellence and for you to achieve it too"

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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





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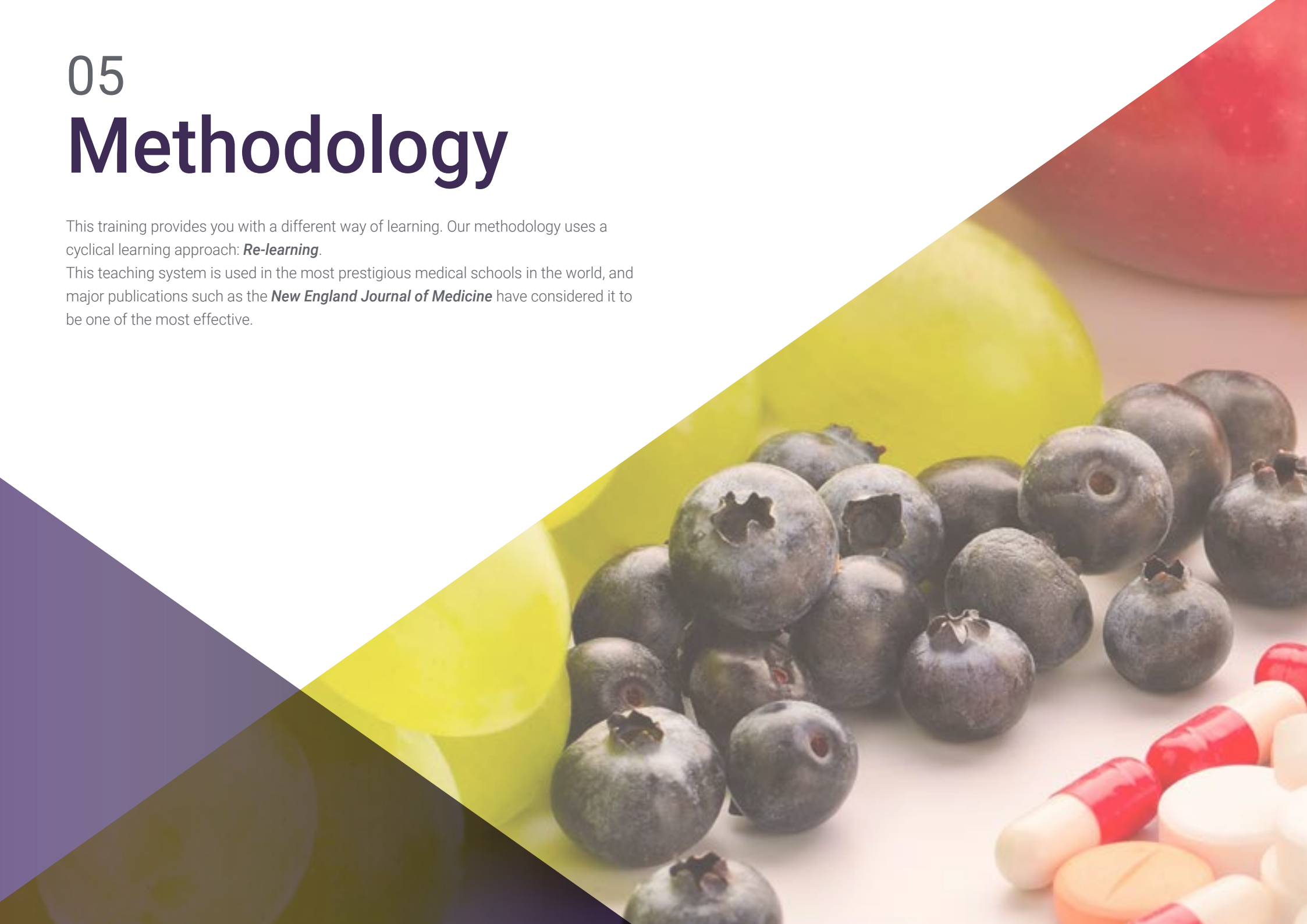
A unique, key and decisive training experience to boost your professional development”

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 an abundance of scientific evidence on the effectiveness of the method. Nutritionists learn better, faster, and more sustainably over time.

With TECH, nutritionists can experience a way of learning that is shaking the foundations of traditional universities around the world.



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching 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 of professional nutritional 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. Nutritionists 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 is solidly focused on practical skills that allow the nutritionist to better integrate the knowledge into clinical practice.
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 nutritionist 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 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 have trained more than 45,000 nutritionists with unprecedented success, in all clinical specialties regardless of the workload. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Re-learning will allow you to learn with less effort and better performance, involving you more in your training, 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 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.

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.



Nutrition Techniques and Procedures on Video

We introduce you to the latest techniques, the latest educational advances, and the forefront of current nutritional procedures and techniques. All this, in first person, 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

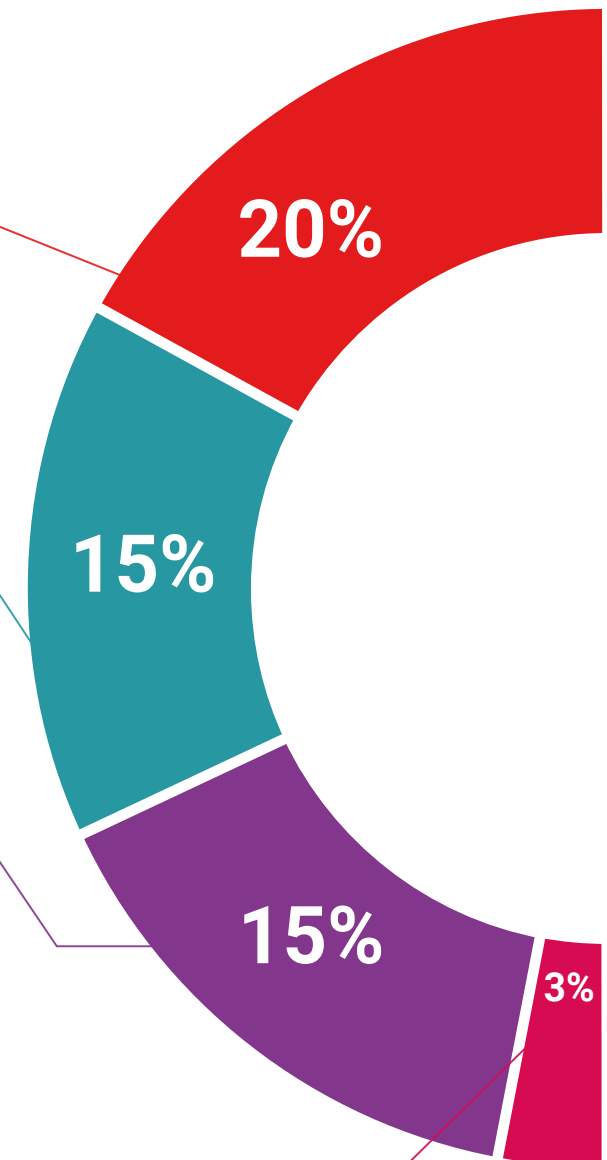
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 difficult future 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 Diploma in Nutrigenomics, Metabolomics and Epigenetics** guarantees you, in addition to the most accurate and up-to-date training, access to a Postgraduate Diploma certificate issued by **TECH - Technological University**.



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Successfully complete this training and receive your university diploma without travel or laborious paperwork”

This **Postgraduate Diploma in Nutrigenomics, Metabolomics and Epigenetics** 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 Nutrigenomics, Metabolomics and Epigenetics**

ECTS: **18**

Official Number of Hours: **450**



future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present

online training

development languages

virtual classroom

tech technological
university

Postgraduate Diploma
Nutrigenomics,
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and Epigenetics

Course Modality: Online

Duration: 6 months.

Certificate: TECH Technological University

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Teaching Hours: 450 hours.

Postgraduate Diploma

Nutrigenomics, Metabolomics
and Epigenetics