Professional Master's Degree
Nutritional Genomics and Precision Nutrition

tech technological university

![tech technological university logo]

Professional Master's Degree
Nutritional Genomics and Precision Nutrition

- » Modality: **online**
- » Duration: **12 months**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/medicine/professional-master-degree/master-nutritional-genomics-precision-nutrition**

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01
Introduction

In recent times, the battle for health has been propelled by scientific research, creating a line of work that transcends conventional dietary recommendations to dive into the relationship between genetics, nutrition and pathologies. This new way of working opens up a new avenues for medical professionals to intervene that offers innovative and promising means of prevention and even improvement in many pathologies. However, constant innovation in this field and the volume of existing materials makes it difficult to become proficient in this field. This program meets this need. It is a complete and up-to-date compendium of knowledge that will allow physicians to become thoroughly up to date in all the ins and outs of Nutritional Genomics and Precision Nutrition.

A comprehensive compendium of the most advanced knowledge and techniques in nutritional genomics that offers physicians the opportunity to update themselves as experts in this innovative area of intervention"

The Professional Master's Degree in Nutritional Genomics and Precision Nutrition is unique because it includes a wide range of innovative topics and state-of-the-art results in the field of nutrigenetics and nutrigenomics.

The educational program covers everything a health professional needs to know about this new specialty. The material is organized in such a way as to advance knowledge without leaving any doubts or gaps in information. It is the best program on the market, because it offers the opportunity to learn about all of the innovations in the field of nutritional genomics online, including specific modules on laboratory techniques and statistics.

The content includes everything new in the broad field of nutritional genomics, such as nutrigenetics, nutrigenomics, epigenetics, metabolomics, market status and laboratory techniques, among other things. There is a selection of scientific articles, high-level studies, innovative results and books that students will be able to access and study.

In addition, this program is innovative in that it includes practical sections on the current state of the market that offer a realistic, practical and up-to-date view for health professionals who require a 360º vision of the subject. The practical units help to students obtain the critical capacity and deep knowledge of the subject matter that is required for them to know how to apply it in clinical practice.

This program provides students with specific tools and skills to successfully develop their professional activity in the field of Nutritional Genomics and Precision Nutrition. As it is a Professional Master's Degree, students are not bound by fixed schedules or the need to move to another physical location, rather, they can access the content at any time of the day, balancing their professional or personal life with their academic life.

This **Professional Master's Degree in Nutritional Genomics and Precision Nutrition** 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 Nutritional Genomics and Precision Nutrition
- The graphic, schematic and practical contents of the course are designed to provide all the essential information required for professional practice
- Practical exercises where the self-assessment process can be carried out to improve learning
- Special emphasis on innovative methodologies in Nutritional Genomics and Precision Nutrition
- 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

This Professional Master's Degree is the best investment you can make in selecting a refresher program to update your knowledge in Nutritional Genomics and Precision Nutrition"

This Professional Master's Degree is the best investment you can make in selecting a refresher program to update your knowledge in Nutritional Genomics and Precision Nutrition"

This program offers training in simulated environments, which provides an immersive learning experience designed to train for real-life situations.

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

Its teaching staff includes professionals belonging to the field of nutrition, who contribute their work experience to this 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 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 throughout the program. To do so, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Nutritional Genomics and Precision Nutrition.

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 Nutritional Genomics and Precision Nutrition.

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 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
- Learn 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 updated 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. Introduction to Nutritional Genomics and Precision Nutrition

- Present definitions necessary to follow the thread of the following modules
- Explain relevant points of human DNA, nutritional epidemiology, scientific method
- Analyze key studies in Genomic Nutrition

Module 2. Laboratory Techniques for Nutritional Genomics

- Understand the techniques used in Nutritional Genomics Studies
- Acquire the latest advances in omics and bioinformatics techniques

Module 3. Biostatistics for Genomic Nutrition

- Acquire the necessary knowledge to correctly design experimental studies in the areas of nutrigenomics and nutrigenetics
- Delve into statistical models for clinical studies in humans

Module 4. Nutrigenetics I

- Acquire the latest knowledge on population genetics
- Understand how the basis for the interaction between genetic variability and diet is generated
- Introducing the advanced Circadian Control System and Central and Peripheral Clocks

Module 5. Nutrigenetics II - Key Polymorphisms

- Present the Key Polymorphisms to date related to Human Nutrition and Metabolic Processes that the Professional needs to know about
- Analyze the Key Studies that support these Polymorphisms and the debate, where it exists

Module 6. Nutrigenetics III

- Present the Key Polymorphisms to date related to Complex Diseases that depend on Nutritional Habits
- Introduce new Advanced Concepts in Nutrigenetic Research

Module 7. Nutrigenomics

- Deepen in the Differences between Nutrigenetics and Nutrigenomics
- Present and analyze genes related to metabolic processes affected by Nutrition

Module 8. Metabolomics-Proteomics

- Know the Principles of Metabolomics and Proteomics
- Delve into microbiota as a tool for preventive and personalized nutrition

Module 9. Epigenetics

- Explore the fundamentals of the relationship between epigenetics and nutrition
- Present and analyze how MicroRNAs are involved in Nutritional Genomics

Module 10. Current Market State

- Present and Analyze Key Aspects for the Application of Genomic Nutrition in Society
- Reflect on and analyze past and present cases and anticipate future market developments in the field of Nutritional Genomics

03
Skills

After passing the assessments on the program course, the professional will have acquired the skills required for a quality and up-to-date practice based on the most innovative teaching methodology.
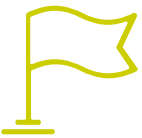
This program will help you acquire the skills you need to excel in your daily work"

General Skills

- Conduct individual reflective work on new Nutrigenetics and Precision Nutrition data
- Study and evaluate current controversial issues on this subject
- Evaluate and use in clinical practice commercially available tools for Nutritional Genomics and Precision Nutrition

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

Specific Skills

- Distinguishing between Nutrigenetics and Nutrigenomics

- Possess and understand original knowledge within the broader context of nutrition

- Apply critical, logical and scientific thinking to nutritional recommendations

- Understand the global context of Nutritional Genomics and Precision Nutrition

- Acquire in-depth knowledge of all fields of Nutritional Genomics and Precision Nutrition, its history and future applications

- Acquire the latest advances in nutritional research

- Know the strategies used in research to identify the loci and genetic variants studied by Nutrigenetics

- Learn how advances in Nutritional Genomics were generated and what skills are needed to keep up to date

- Formulate new hypotheses and work in an inter-disciplinary manner

- Integrate knowledge and deal with the complexity of data, evaluate relevant literature to incorporate scientific advances into one's own professional field

- Understand how the scientific knowledge of Nutrigenetics and Nutrigenomics is translated and applied to clinical use in today's society

- Apply knowledge of Nutritional Genomics for health promotion

- Know the theory of basic laboratory techniques used in nutritional genomics

- Know the basis of statistical analyses used in nutritional genomics

- Know the current state of the market in the field of nutritional genomics

- Know the trends in the field of nutritional genomics

- Understand the process of discovering new genetic nutrition data and the process of evaluating it prior to use

- Delve into the analysis of different types of studies in genetic epidemiology in order to be able to perform an adequate interpretation of the articles published in this field and identify the limitations of each type of study

04
Course Management

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

Leading professionals in the field have come together to teach you the latest advances in Nutritional Genomics and Precision Nutrition"

Management

Dr. Konstantinidou, Valentini

- Doctorate in Biomedicine
- Lecturer in Nutrigenetics
- Founder of DNANUTRICOACH®
- Dietitian- Nutritionist
- Food Technologist

Professors

Mr. Anglada, Roger

- Graduate in Multimedia. Open University of Catalonia
- Certificate of Higher Education (HNC) en Superior Technician in Analysis and Control. Narcís Monturiol HSI, Barcelona
- Superior Technical support for research in Genomics Core Facility, Pompeu Fabra University

Dr. García Santamarina, Sarela

- EIPOD Marie Curie Postdoctoral Fellow. Project: "Probing the impact of xenobiotics on gut microbial communities (or microbiome)" European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
- Postdoctoral Associate. Mentor: Professor Dennis J. Thiele. Project: "Copper homeostasis mechanisms at the host fungal pathogen interface in Cryptococcus neoformans". Duke University, Durham, North Carolina, USA
- PhD degree in Basic Biomedical Research. Project "Isolation and characterization of new models of endogenous oxidative stress in Schizosaccharomyces pombe" Pompeu Fabra University, Barcelona, Spain

05

Structure and Content

The structure of the contents has been designed by a team of professionals who possess extensive knowledge of the implications of training in daily practice, who are aware of the current relevance of Nutritional Genomics and Precision Nutrition training; and are committed to quality teaching using new educational technologies.

"

We have the most complete and up-to-date Scientific Program on the Market"

Module 1. Introduction to Nutritional Genomics and Precision Nutrition

Module 2. Laboratory Techniques for Nutritional Genomics

Module 3. Biostatistics for Nutritional Genomics

Module 4. Nutrigenetics I

Module 5. Nutrigenetics II - Key Polymorphisms

5.1.   Obesity-Related SNPs
    5.1.1.   The Tale of the Obese Monkey
    5.1.2.   Appetite Hormones
    5.1.3.   Thermogenesis

5.2.   Vitamin-Related SNPs
    5.2.1.   Vitamin D
    5.2.2.   B Complex Vitamins
    5.2.3.   Vitamin E

5.3.   Exercise-Related SNPs
    5.3.1.   Strength vs. Competition
    5.3.2.   Sports Performance
    5.3.3.   Injury Prevention/Recovery

5.4.   Oxidative Stress/Detoxification-related SNPs
    5.4.1.   Genes Encoding Enzymes
    5.4.2.   Anti-Inflammatory Processes
    5.4.3.   Phase I+II of Detoxification

5.5.   SNP related to Addictions
    5.5.1.   Caffeine
    5.5.2.   Alcohol
    5.5.3.   Salt

5.6.   SNP related to Flavor
    5.6.1.   Sweet Taste
    5.6.2.   Salty Taste
    5.6.3.   Bitter Taste
    5.6.4.   Acid Taste

5.7.   SNP vs. Allergies vs Intolerances
    5.7.1.   Lactose
    5.7.2.   Gluten
    5.7.3.   Fructose

5.8.   PESA Study

Module 6. Nutrigenetics III

6.1.   SNPs Predisposing to Complex Nutrition-Related Diseases -- *Genetic Risk Scores* (GRS)
6.2.   Type II Diabetes
6.3.   Hypertension
6.4.   Atherosclerosis
6.5.   Hyperlipidemia
6.6.   Cancer
6.7.   The Exposome Concept
6.8.   Metabolic Flexibility Concept
6.9.   Current Studies-Challenges for the Future

Module 7. Nutrigenomics

7.1.   Differences and Similarities with Nutrigenetics
7.2.   Bioactive Components of Diet on Gene Expression
7.3.   The Effect of Micro and Macro Nutrients on Gene Expression
7.4.   The Effect of Dietary Patterns on Gene Expression
    7.4.1.   The Mediterranean Diet Example
7.5.   Main Studies in Gene Expression
7.6.   Genes Related to Inflammation
7.7.   Genes Related to Insulin Sensitivity
7.8.   Genes related to Lipid Metabolism and Adipose Tissue Differentiation
7.9.   Genes Related to Atherosclerosis
7.10.   Genes Related to the Myosceletal System

Module 8. Metabolomics-Proteomics

8.1.   Proteomics
    8.1.1.   Principles of Proteomics
    8.1.2.   The Flow of Proteomics Analysis

8.2.   Metabolomics
    8.2.1.   Principles of Metabolomics
    8.2.2.   Targeted Metabolomics
    8.2.3.   Non-Targeted Metabolomics

8.3.   The Microbiome/Microbiota
    8.3.1.   Microbiome Data
    8.3.2.   Human Microbiota Composition
    8.3.3.   Enterotypes and Diet

8.4.   Main Metabolomic Profiles
    8.4.1   Application to Disease Diagnosis
    8.4.2.   Microbiota and Metabolic Syndrome
    8.4.3.   Microbiota and Cardiovascular Diseases Effect of the Oral and Intestinal Microbiota

8.5.   Microbiota and Neurodegenerative Diseases
    8.5.1.   Alzheimer's Disease
    8.5.2.   Parkinson's Disease
    8.5.3.   ALS

8.6.   Microbiota and Neuropsychiatric Diseases
    8.6.1.   Schizophrenia
    8.6.2.   Anxiety, Depression, Autism

8.7.   Microbiota and Obesity
    8.7.1.   Enterotypes
    8.7.2.   Current Studies and State of Knowledge

Module 9. Epigenetics

9.1.   History of Epigenetics - The Way I Eat and Inheritance for My Grandchildren

9.2.   Epigenetics vs. Epigenomics

9.3.   Methylation
    9.3.1.   Examples of Folate and Choline, Genistein
    9.3.2.   Examples of Zinc, Selenium, Vitamin A, Protein Restriction

9.4.   Histone Modification
    9.4.1.   Examples of Butyrate, Isothiocyanates, Folate and Choline
    9.4.2.   Examples of Retinoic Acid, Protein Restriction

9.5.   MicroRNA
    9.5.1.   Biogenesis of MicroRNAs in Humans
    9.5.2.   Mechanisms of Action-Regulating Processes

9.6.   Nutrimiromics
    9.6.1.   Diet-Modulated MicroRNAs
    9.6.2.   MicroRNAs involved in Metabolism

9.7.   Role of MicroRNAs in Diseases
    9.7.1.   MicroRNA in Tumorogenesis
    9.7.2.   MicroRNAs in Obesity, Diabetes and Cardiovascular Diseases

9.8.   Gene Variants that Generate or Destroy Binding Sites for MicroRNAs
    9.8.1.   Main Studies
    9.8.2.   Results in Human Diseases

9.9.   MicroRNA Detection and Purification Methods
    9.9.1.   Circulating MicroRNAs
    9.9.2.   Basic Methods Used

Module 10. Current Market State

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

06

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 we use the Case Method

What should a professional do in a given situation? 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. Specialists learn better, faster, and more sustainably over time.

With TECH you will 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 power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method"

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.

2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.

3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.

4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

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 the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. 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 highly 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.

Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and 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 the videos as many times as you like.

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.

20%

15%

15%

3%

20%

17%

7%

3%

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 on the usefulness of learning by observing experts. The system known as 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.

07
Certificate

The Professional Master's Degree in Genomics and Precision Nutrition guarantees students, in addition to the most rigorous and up-to-date education, access to a Professional Master's Degree certificate issued by TECH Technological University.
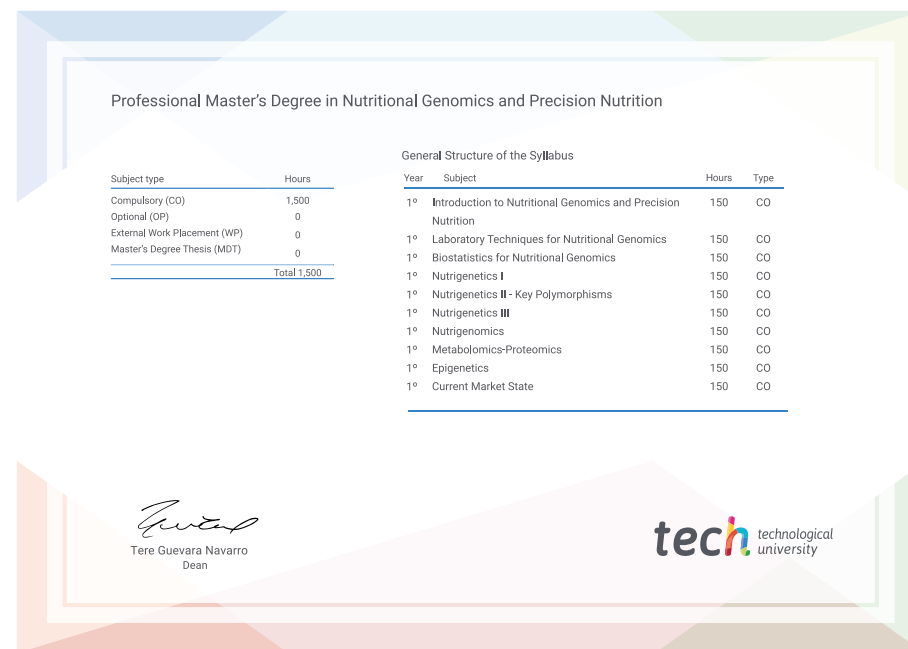
Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This **Professional Master's Degree in Nutritional Genomics and Precision Nutrition** 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 **Professional Master's Degree** diploma issued by **TECH Technological University** via tracked delivery*.

The diploma issued by **TECH Technological University** will express the qualification obtained in the Professional Master's Degree, and will meet the requirements commonly demanded by labor exchanges, competitive examinations and career evaluation committees.

Title: **Professional Master's Degree in Nutritional Genomics and Precision Nutrition**

Official Nº of Hours: **1,500 hours.**

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Awards the following
DIPLOMA
to

Mr./Ms. _____, with identification number _____.
For having successfully passed and accredited the following program

PROFESSIONAL MASTER'S DEGREE

in

Nutritional Genomics and Precision Nutrition

This is a qualification awarded by this University, equivalent to 1,500 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro
Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country.   Unique TECH Code: AFWORD23S   techtitute.com/certificates

Professional Master's Degree in Nutritional Genomics and Precision Nutrition

Subject type	Hours
Compulsory (CO)	1,500
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
Total	1,500

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Introduction to Nutritional Genomics and Precision Nutrition	150	CO
1º	Laboratory Techniques for Nutritional Genomics	150	CO
1º	Biostatistics for Nutritional Genomics	150	CO
1º	Nutrigenetics I	150	CO
1º	Nutrigenetics II - Key Polymorphisms	150	CO
1º	Nutrigenetics III	150	CO
1º	Nutrigenomics	150	CO
1º	Metabolomics-Proteomics	150	CO
1º	Epigenetics	150	CO
1º	Current Market State	150	CO

Tere Guevara Navarro
Dean

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*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.

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