

Master's Degree

Nutritional Genomics and Precision Nutrition



Master's Degree Nutritional Genomics and Precision Nutrition

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: www.techtitute.com/us/medicine/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.





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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 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 360° 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 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 **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 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"

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This 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"

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.

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.



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.

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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

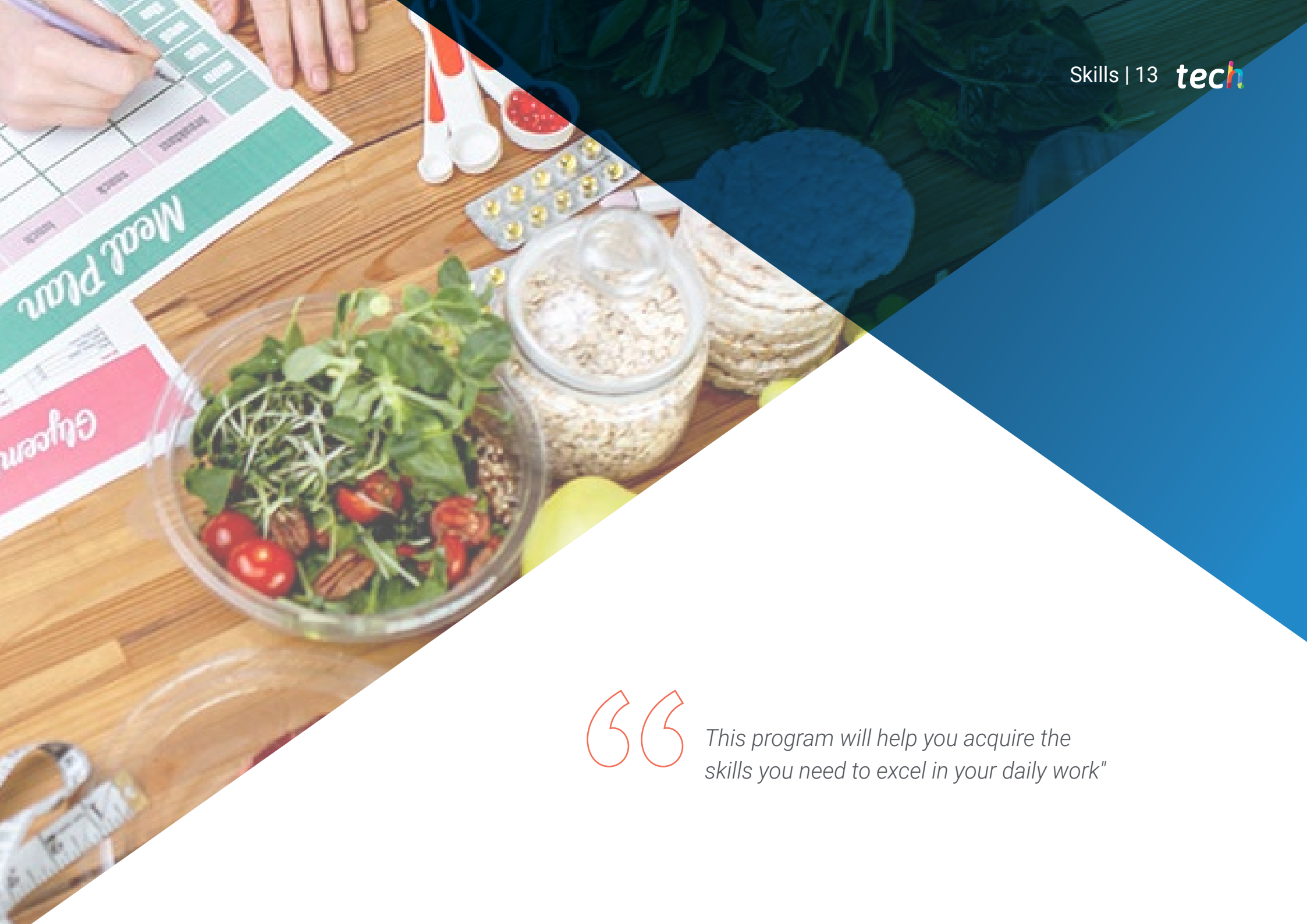
Module 10. Current Market State

- ◆ 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.





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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

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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.



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

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

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

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

- ◆ EIPD 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.





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

Module 1. Introduction to Nutritional Genomics and Precision Nutrition

- 1.1. Human Genome
 - 1.1.1. DNA Discovery
 - 1.1.2. Year 2001
 - 1.1.3. Human Genome Project
- 1.2. Variations of Interest in Nutrition
 - 1.2.1. Genomic Variations and the Search for Disease Genes
 - 1.2.2. Environment vs. Genetic Factor and Heritability
 - 1.2.3. Differences between SNPs, Mutations and CNVs
- 1.3. The Genome of Rare and Complex Diseases
 - 1.3.1. Examples of Rare Diseases
 - 1.3.2. Examples of Complex Diseases
 - 1.3.3. Genotype and Phenotype
- 1.4. Precision Medicine
 - 1.4.1. Influence of Genetics and Environmental Factors in Complex Diseases
 - 1.4.2. Need for Precision The Problem of Missing Heritability Concept of Interaction
- 1.5. Precision Nutrition vs. Community Nutrition
 - 1.5.1. The Principles of Nutritional Epidemiology
 - 1.5.2. Current Bases of Nutritional Research
 - 1.5.3. Experimental Designs in Precision Nutrition
- 1.6. Levels of Scientific Evidence
 - 1.6.1. Epidemiological Pyramid
 - 1.6.2. Regulation
 - 1.6.3. Official Guides
- 1.7. Consortia and Major Studies in Human Nutrition and Genomic Nutrition
 - 1.7.1. Precision4Health Project
 - 1.7.2. Framingham
 - 1.7.3. PREDIMED.
 - 1.7.4. CORDIOPREV



- 1.8. Current European Studies
 - 1.8.1. PREDIMED Plus
 - 1.8.2. NU-AGE
 - 1.8.3. FOOD4me
 - 1.8.4. EPIC

Module 2. Laboratory Techniques for Nutritional Genomics

- 2.1. Molecular Biology Laboratory
 - 2.1.1. Basic Instructions
 - 2.1.2. Basic Material
 - 2.1.3. Accreditations Required in the U.S.
- 2.2. DNA Extraction
 - 2.2.1. From Saliva
 - 2.2.2. From Blood
 - 2.2.3. From Other Fabrics
- 2.3. Real-Time PCR
 - 2.3.1. Introduction - History of the Method
 - 2.3.2. Basic Protocols Used
 - 2.3.3. Most Used Equipment
- 2.4. Sequencing
 - 2.4.1. Introduction - History of the Method
 - 2.4.2. Basic Protocols Used
 - 2.4.3. Most Used Equipment
- 2.5. High-throughput
 - 2.5.1. Introduction - History of the Method
 - 2.5.2. Examples of Human Studies
- 2.6. Gene Expression - Genomics - Transcriptomics
 - 2.6.1. Introduction - History of the Method
 - 2.6.2. Microarrays
 - 2.6.3. Microfluidic Cards
 - 2.6.4. Examples of Human Studies

- 2.7. Omics Technologies and their Biomarkers
 - 2.7.1. Epigenomics
 - 2.7.2. Proteomics
 - 2.7.3. Metabolomics
 - 2.7.4. Metagenomics
- 2.8. Bioinformatics Analysis
 - 2.8.1. Pre- and Post-Computing Bioinformatics Programs and Tools
 - 2.8.2. GO Terms, Clustering of DNA Microarray Data
 - 2.8.3. Functional Enrichment, GEPAS, Babelomics

Module 3. Biostatistics for Nutritional Genomics

- 3.1. Biostatistics
 - 3.1.1. Human Studies Methodology
 - 3.1.2. Introduction to Experimental Design
 - 3.1.3. Clinical Studies
- 3.2. Statistical Aspects of a Protocol
 - 3.2.1. Introduction, Objectives, Description of Variables
 - 3.2.2. Quantitative Variables
 - 3.2.3. Qualitative Variables
- 3.3. Design of Clinical Studies in Humans, Methodological Guidelines
 - 3.3.1. Designs with 2 treatments 2x2
 - 3.3.2. Designs with 3 treatments 3x3
 - 3.3.3. Parallel, Cross-Over, Adaptive Design
 - 3.3.4. Sample Size Determination and Power Analysis
- 3.4. Evaluation of Treatment Effect
 - 3.4.1. For Parallel Design, for Repeated Measurements, for Cross-Over Design
 - 3.4.2. Randomization of the Order of Treatment Assignment
 - 3.4.3. Carry-Over Effect (Wash Out)
- 3.5. Descriptive Statistics, Hypothesis Testing, Risk Calculation
 - 3.5.1. Consort, Populations
 - 3.5.2. Study Populations
 - 3.5.3. Control Group
 - 3.5.4. Subgroup Analysis Types of Studies

- 3.6. Statistical Errors
 - 3.6.1. Measurement Errors
 - 3.6.2. Random Error
 - 3.6.3. Systematic Error
- 3.7. Statistical Bias
 - 3.7.1. Selection Bias
 - 3.7.2. Observation Bias
 - 3.7.3. Assignment Bias
- 3.8. Statistical Modeling
 - 3.8.1. Continuous Variable Models
 - 3.8.2. Categorical Variables Models
 - 3.8.3. Linear Mixed Models
 - 3.8.4. Missing Data, Flow of Participants, Presentation of Results
 - 3.8.5. Adjustment for Baseline Values, Transformation of Response Variable: Differences, Ratios, Logarithms, Over Evaluation
- 3.9. Statistical Modeling with Co-Variables
 - 3.9.1. ANCOVA
 - 3.9.2. Logistic Regression for Binary and Count Variables
 - 3.9.3. Multi-Variant Analysis
- 3.10. Statistical Programs
 - 3.10.1. The R
 - 3.10.2. SPSS
- 4.3. GWAS II
 - 4.3.1. Allelic and Genotypic Frequencies
 - 4.3.2. Gene-Disease Association Studies
 - 4.3.3. Association Models (Dominant, Recessive, Co-dominant)
 - 4.3.4. Genetic Scores
- 4.4. The Discovery of Nutrition-Related SNPs
 - 4.4.1. Key Studies-Design
 - 4.4.2. Main Results
- 4.5. The Discovery of SNPs Associated with Nutrition-Related Diseases (Diet-Depended)
 - 4.5.1. Cardiovascular Diseases
 - 4.5.2. Diabetes Mellitus Type II
 - 4.5.3. Metabolic Syndrome
- 4.6. Main Obesity-Related GWAS
 - 4.6.1. Strengths and Weaknesses
 - 4.6.2. The FTO Example
- 4.7. Circadian Control of Intake
 - 4.7.1. Gut-Brain Axis
 - 4.7.2. Molecular and Neurological Basis of the Brain-Gut Connection
- 4.8. Chronobiology and Nutrition
 - 4.8.1. Central Clock
 - 4.8.2. Peripheral Clocks
 - 4.8.3. Circadian Rhythm Hormones
 - 4.8.4. Intake Control (Leptin and Ghrelin)
- 4.9. SNPs related to Circadian Rhythms
 - 4.9.1. Regulatory Mechanisms of Satiety
 - 4.9.2. Hormones and Intake Control
 - 4.9.3. Possible Pathways Involved

Module 4. Nutrigenetics I

- 4.1. Nutrigenetics Authorities and Organizations
 - 4.1.1. NuGo
 - 4.1.2. ISSN
 - 4.1.3. Evaluation Committees
- 4.2. GWAS I Studies
 - 4.2.1. Population Genetics - Design and Use
 - 4.2.2. Hardy-Weinberg Law
 - 4.2.3. Linkage Imbalance

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 Myoskeletal 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. Nutrимиomics
 - 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 Tumorigenesis
 - 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

- 10.1. DTC (Direct-to-Consumer) Tests
 - 10.1.1. Pros and Cons
 - 10.1.2. Myths of Early DTCs
- 10.2. Quality Criteria for a Nutrigenetic Test
 - 10.2.1. SNP Selection
 - 10.2.2. Interpretation of Results
 - 10.2.3. Laboratory Accreditations
- 10.3. Health Professionals
 - 10.3.1. Training Needs
 - 10.3.2. Criteria of Professionals Applying Genomic Nutrition
- 10.4. Nutrigenomics in the Media
- 10.5. Integration of Evidence for Personalized Nutritional Counseling
- 10.6. Critical Analysis of the Current Situation
- 10.7. Discussion Work
- 10.8. Conclusions, Use of Nutritional Genomics and Precision Nutrition as Prevention



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.

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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. 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.



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.





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 Master's Degree in Genomics and Precision Nutrition guarantees students, in addition to the most rigorous and up-to-date education, access to a Master's Degree certificate issued by TECH Global University.



“

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

This program will allow you to obtain your **Master's Degree diploma in Nutritional Genomics and Precision Nutrition** 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: **Master's Degree in Nutritional Genomics and Precision Nutrition**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**



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

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



Master's Degree
Nutritional Genomics
and Precision Nutrition

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Global University
- » Credits: 60 ECTS
- » Schedule: at your own pace
- » Exams: online

Master's Degree

Nutritional Genomics and Precision Nutrition

