Postgraduate Diploma

Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market

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Postgraduate Diploma

Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market

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

Website: **www.techtitute.com/us/pharmacy/postgraduate-diploma/postgraduate-diploma-nutritional-genomics-precision-nutrition-laboratory-biostatistics-current-market**

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01

Introduction

Pharmacy counseling is one of the pillars of health care. Increasingly, the pharmacists need a compendium of specific and complete knowledge that will enable them to act in this field as experts at the cutting edge of science. Update your knowledge in Nutritional Genomics and Precision Nutrition with this comprehensive program that focuses on laboratory, biostatistics and current market issues. A specific program for pharmacists that will allow you to improve your daily practice with the help of the best teaching methodology.

Better trained pharmacists means better counseled patients. Don't hesitate any longer and join us. We offer you the best refresher program on the market"

This Postgraduate Diploma details everything a health professional needs to know about Nutritional Genomics and Precision Nutrition, taking into account aspects related to the Laboratory, Biostatistics and the Current Market. Therefore, the material is organized in order to advance knowledge, without leaving doubts or information gaps. It is the best education on the market, because it offers students the opportunity to learn about all the innovations in the field of genomic nutrition, 100% online, including specific modules on laboratory techniques and statistics.

The program introduces the main and basic points of the human genome, genetic variation and the studies that have been carried out in the field, introducing their designs and their main findings so that the student can study the following modules. In this regard, we cover the main studies worldwide where Nutritional Genomic analyses have been performed and whose results have been published in the field.

Laboratory techniques used in the field of Nutritional Genomics and Precision Nutrition are also studied and the basic aspects are presented so that the student will be able to recognize and appreciate them once in a laboratory.

The methodology used in human clinical studies is analyzed, delving into the designs used mainly in nutritional epidemiology. For this purpose, we demonstrate how to perform statistical analysis of studies in large nutrition populations.

Finally, the key aspects for the application of nutritional genomics in society, such as legal and ethical aspects, are presented and analyzed. There is also an analysis of DTCs and the role of the healthcare professional in the new genomic and Big Data era, reflecting on and analyzing cases from the past and present, and anticipate future market developments in the field of Nutritional Genomics.

This Postgraduate Diploma includes innovative practical sections on the current state of the market that offer a realistic, practical and up-to-date insight for healthcare professionals who need a 360º vision of the subject. The practical topics help them to obtain the necessary critical capacity and in-depth knowledge of the subject so that the students can use and apply it in their clinical practice.

This Postgraduate Diploma provides students with specific tools and skills to successfully develop their professional activity related to Nutritional Genomics and Precision Nutrition.

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 Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market** 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 eminently 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, focusing on aspects such as Laboratory, Biostatistics and the Current Market
- Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection

Pharmacists can help their patients by counseling them on genetics and nutrition"

This Postgraduate Diploma is the best investment you can make in selecting a refresher program to update your knowledge in Nutritional Genomics and Precision Nutrition"

This Postgraduate Diploma offers learning in simulated environments, which provides an immersive learning experience designed to prepare for real-life situations

A 100% online Postgraduate Diploma that will allow you to study with the best teaching methodology

Its teaching staff includes professionals from the field of nutrition, who contribute their work experience to this program, 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 an immersive program designed to learn 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 an innovative interactive video system created by renowned and experienced experts in Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market, and with great experience.

02

Objectives

The main objective of the program is the development of theoretical and practical learning, so that the pharmacist can master, in a practical and rigorous way, the study of Nutritional Genomics and Precision Nutrition.

Our goal is to help you progress in your career with the best program you can find in the field"

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 prevent disease
- 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 Genomic and Precision Nutrition in order to know how to apply it in their professional activity
- Put all the up-to-date knowledge into 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 Genomic and Precision Nutrition

- Present definitions that are required in order to follow the thread of the following modules
- Explain relevant points of human DNA, nutritional epidemiology, scientific method
- Analyze key studies in Nutritional Genomics

Module 2. Laboratory Techniques for Nutritional Genomics

- Understand the techniques used in Nutritional Genomics Studies
- Acquire the latest advances in Bioinformatics and Biomedical 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. Current Market State

- Present and analyze key aspects for the application of Nutritional Genomics in society
- Reflect on and analyze both past and present cases and anticipate future market developments in the field of 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 Genomic 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 Genomics and Precision Nutrition"

Management

Dr. Konstantinidou, Valentini

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

Professors

Dr. García Santamarina, Sarela

- PhD 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, UK, 2006-2007
- Master's Degree in Biochemistry and Molecular Biology, Autonomous University of Barcelona, Spain, 2003-2004
- Degree in Chemistry, Major 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

Mr. Anglada, Roger

- Graduate in Multimedia, Catalunya Open University (Universitat Oberta de Catalunya)
- Senior Technician in Analysis and Control, Institute of Secondary Education Narcís Monturiol, Barcelona
- Senior research support technician at the Genomics Service of the Pompeu Fabra University where he is responsible for the equipment and devices for sequencing and real-time PCR, providing support to users from different centers both in the design and interpretation of the results
- Co-author of several scientific publications since 2002. He combines his work with lectures and teaching both at Pompeu Fabra University and in different programs and courses

04

Structure and Content

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

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"

Module 1. Introduction to Genomic 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 and Heritability Factor
- 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

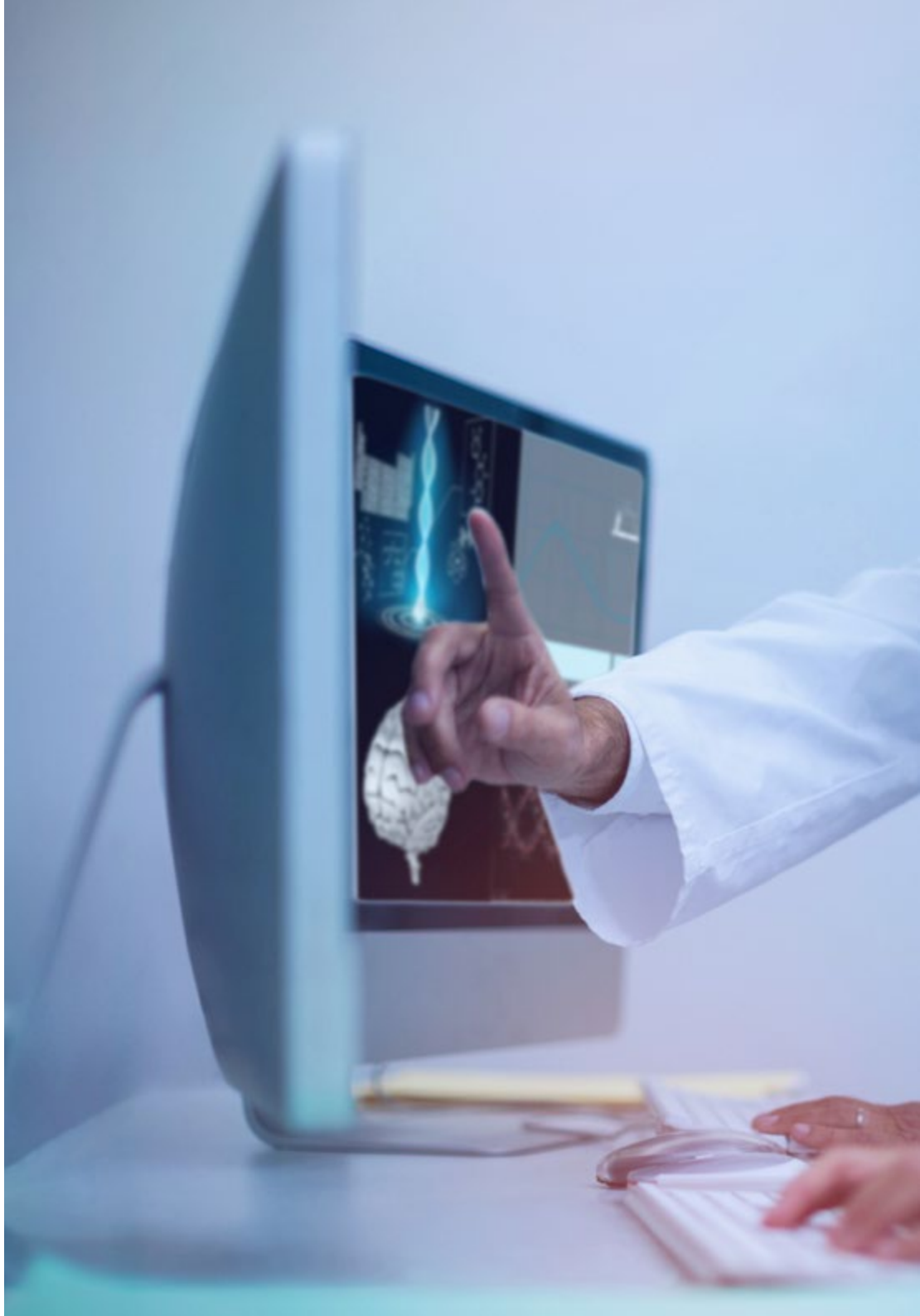
1.4. Precision Medicine
- 1.4.1. Influence of Genetics and Environmental Factors in Complex Diseases
- 1.4.2. Need for Precision: The Problem of Missing Heritability. Concept of Interaction

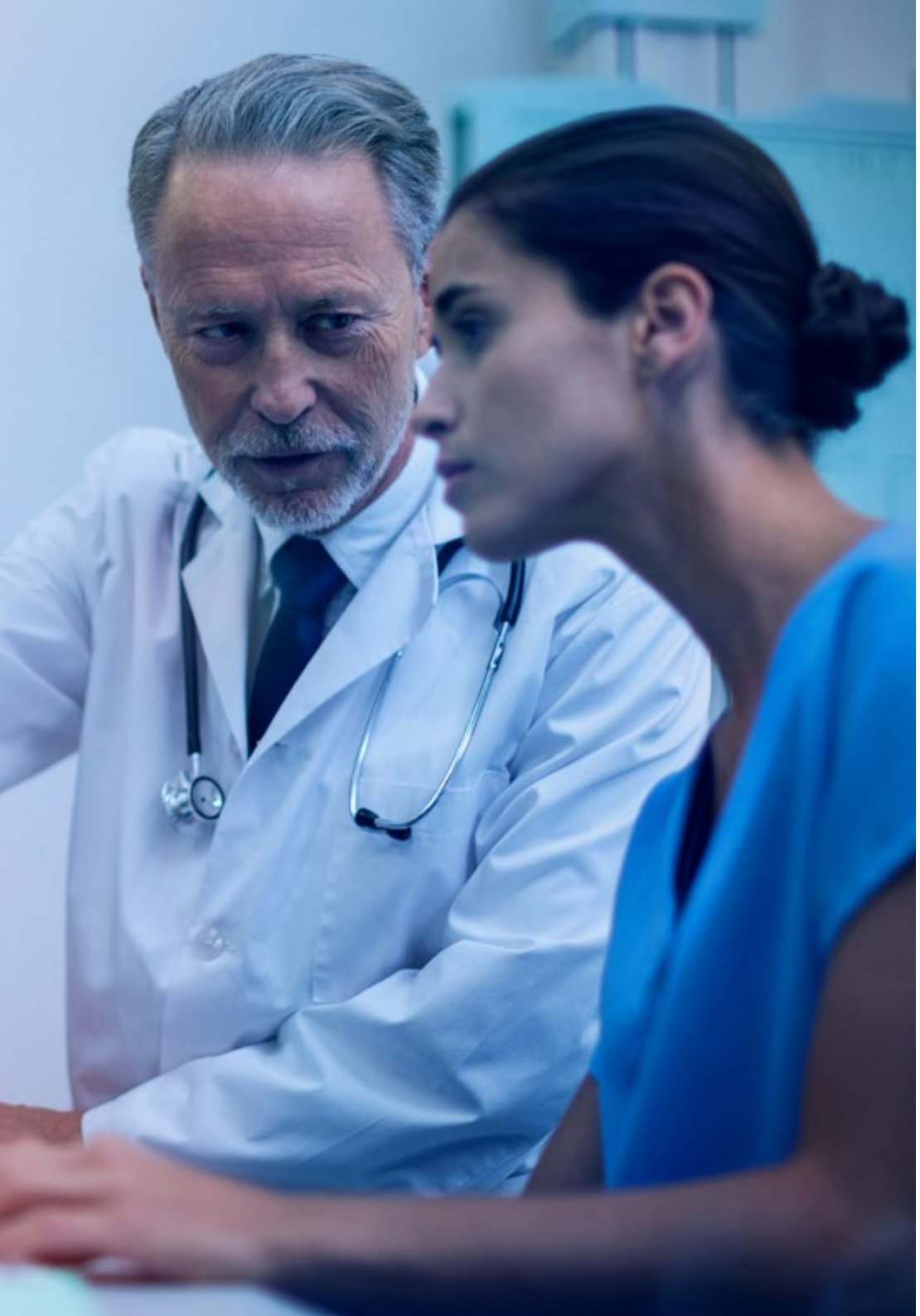
1.5. Precision Nutrition vs. Community Nutrition
- 1.5.1. The Principles of Nutritional Epidemiology
- 1.5.2. Current Bases of Nutritional Research
- 1.5.3. Experimental Designs in Precision Nutrition

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 Nutritional Genomics
- 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 Genomic Nutrition

3.1. Biostatistics
- 3.1.1. Human Studies Methodology
- 3.1.2. Introduction to Experimental Design
- 3.1.3. Clinical Trials

3.2. Statistical Aspects of a Protocol
- 3.2.1. Introduction, Objectives and 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. Assignation 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, Carry-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. Multivariate Analysis

3.10. Statistical Programs
- 3.10.1. The R
- 3.10.2. SPSS

Module 4. Current Market State

4.1. Legal Aspects
4.2. Ethical Aspects
4.3. DTC (Direct-To-Consumer) Tests
  4.3.1. Pros and Cons
  4.3.2. Myths of Early DTCs
4.4. Quality Criteria for a Nutrigenetic Test
  4.4.1. SNP Selection
  4.4.2. Interpretation of Results
  4.4.3. Laboratory Accreditations
4.5. Health Professionals
  4.5.1. Training Needs
  4.5.2. Criteria of Professionals Applying Genomic Nutrition
4.6. Nutrigenomics in the Media
4.7. Integration of Evidence for Personalized Nutritional Counseling
4.8. Critical Analysis of the Current Situation
4.9. Discussion Work
4.10. Conclusions: Use of Genomic and Precision Nutrition as Prevention

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

05

Methodology

This program offers a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

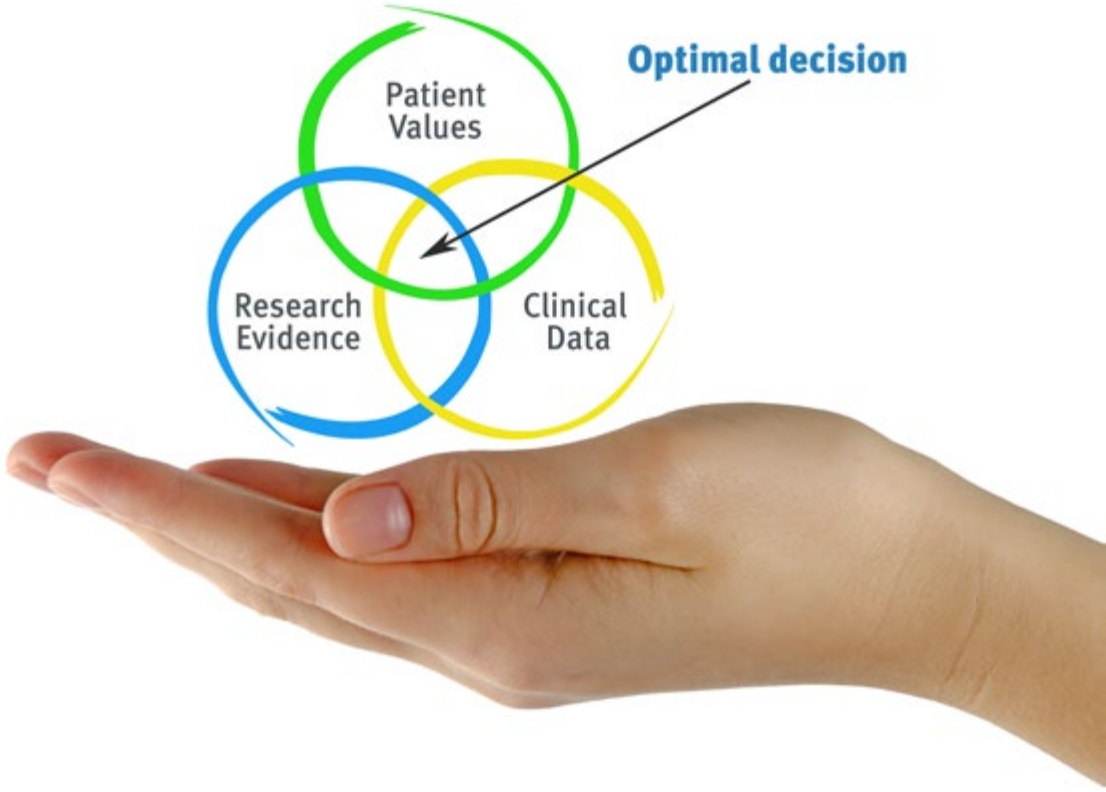
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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 be confronted with multiple simulated clinical cases based on real patients, in which they will have to investigate, establish hypotheses and ultimately, resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Pharmacists learn better, more quickly 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, attempting to recreate the actual conditions in a pharmacist'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:

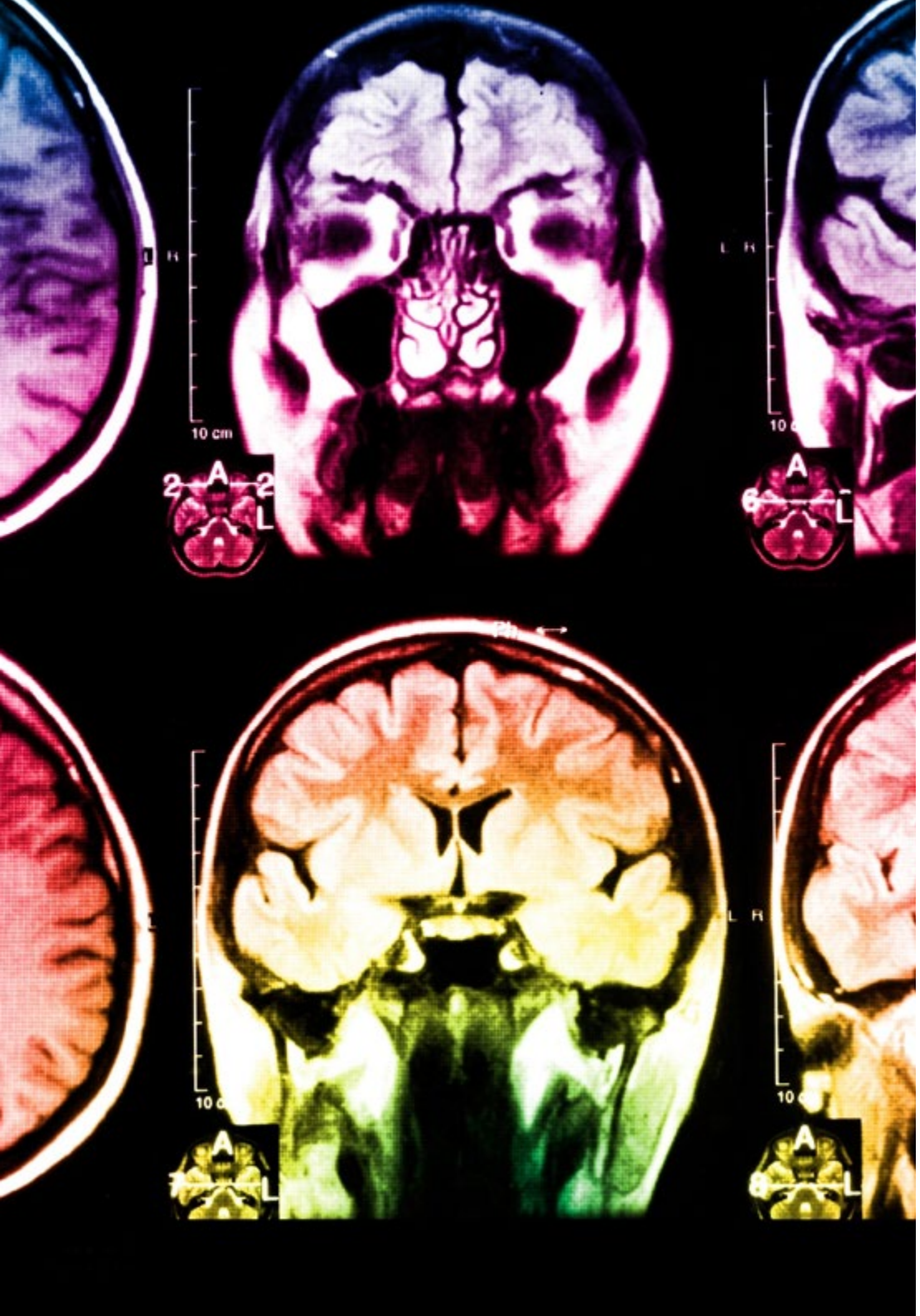
1. Pharmacists who follow this method not only grasp concepts, but also develop their mental capacity, by evaluating real situations and applying their knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts 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 Harvard case method with the best 100% online teaching methodology available: Relearning.

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.

Pharmacists 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, more than 115.000 pharmacists have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. This pedagogical methodology is developed in a highly demanding environment, with a university student body with a high socioeconomic profile and an average age of 43.5 years.

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 created specifically for the course by specialist pharmacists who will be teaching the course, so that the teaching is highly specific and accurate.

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.

Video Techniques and Procedures

TECH introduces students to the latest techniques, to the latest educational advances, to the forefront of current pharmaceutical care procedures. All of this, first hand, and explained and detailed with precision to contribute to assimilation and a better understanding. And best of all, you can watch them as many times as you want.

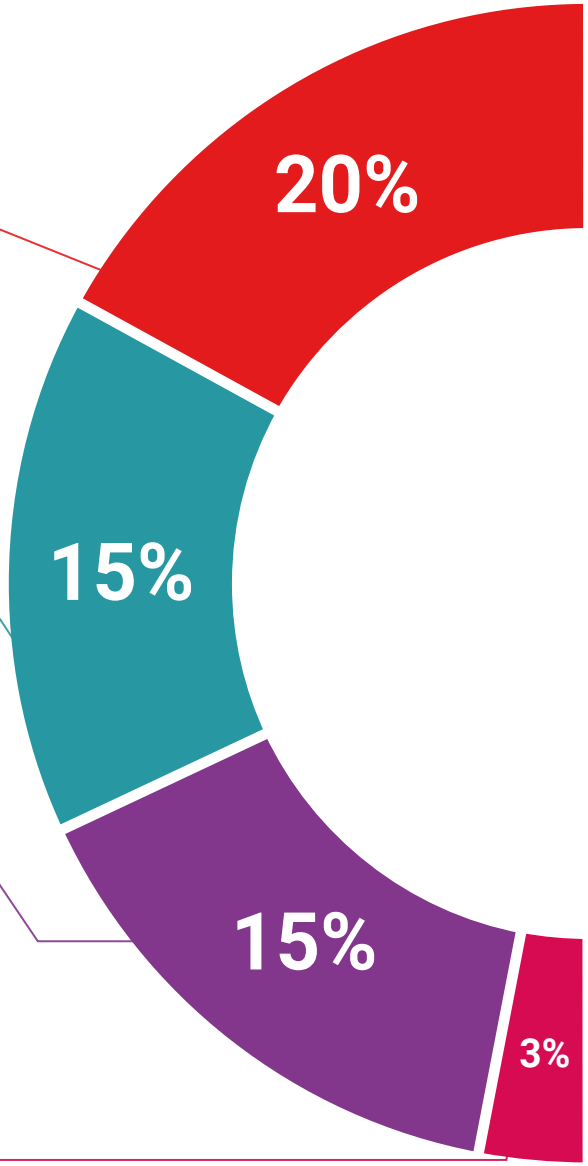
Interactive Summaries

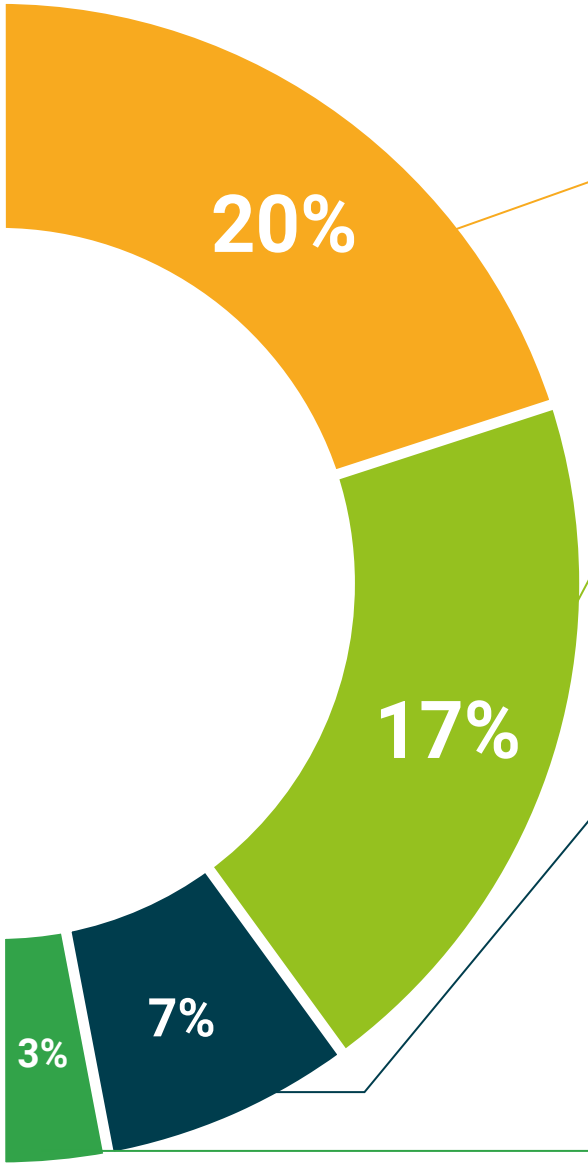
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system 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, 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 & 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 termed Learning from an Expert strengthens knowledge and recall capacity, and generates confidence in the face of difficult decisions in the future.

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

This Postgraduate Diploma in Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market guarantees, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Technological University.

Successfully complete this program and receive your certificate without travel or laborious paperwork"

This **Postgraduate Diploma in Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market** 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 Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market**

Official Nº of hours: **600 h.**


tech technological university

Awards the following

DIPLOMA

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Nutritional Genomics and Precision Nutrition. Laboratory, Biostatistics and Current Market

This is a qualification awarded by this University, equivalent to 600 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

*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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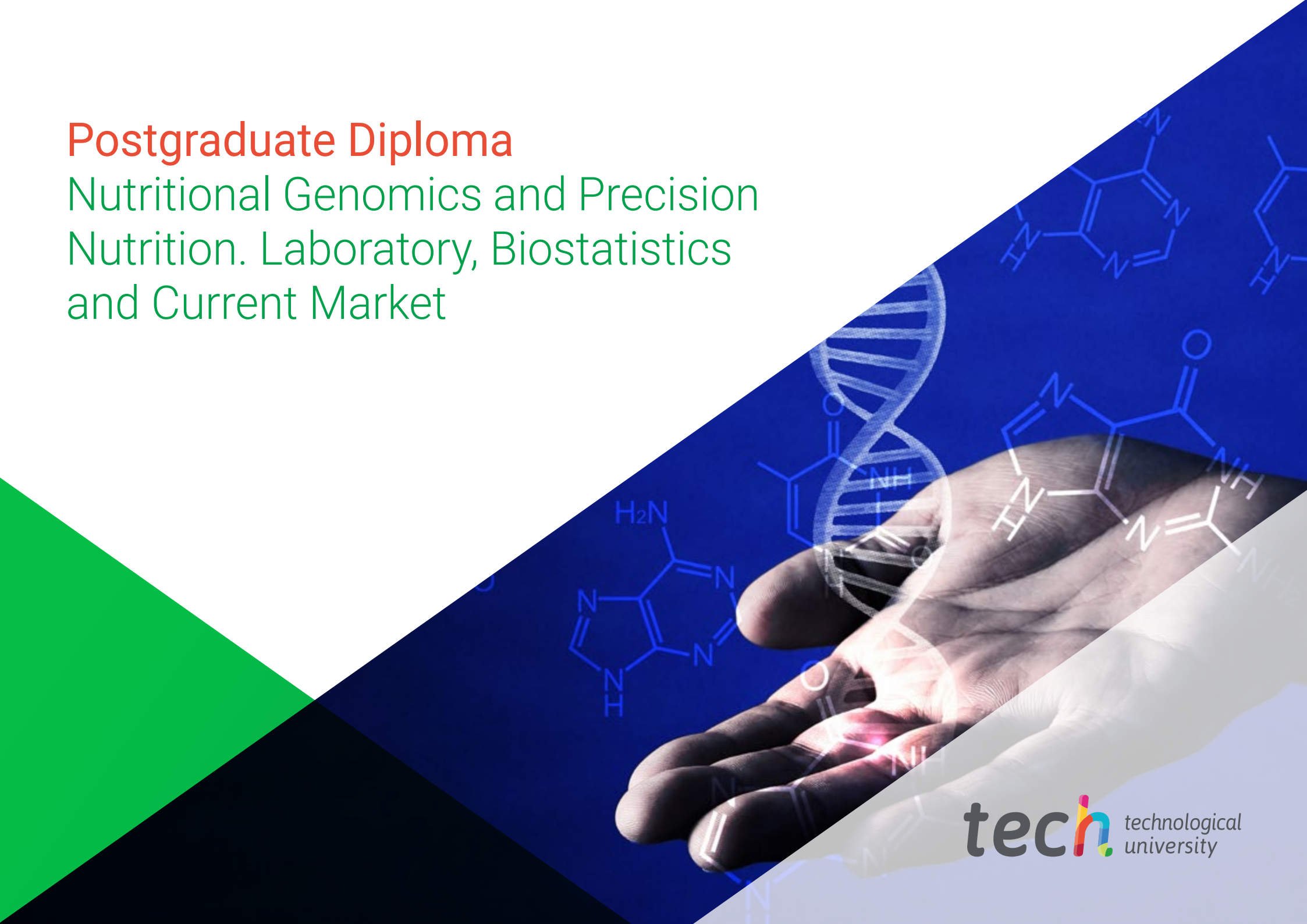

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