

Postgraduate Certificate Laboratory Techniques for Nutritional Genomics



Postgraduate Certificate Laboratory Techniques for Nutritional Genomics

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

Website: www.techtute.com/us/medicine/postgraduate-certificate/laboratory-techniques-nutritional-genomics

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01

Introduction

The tasks performed in the laboratory are essential in the area of Nutritional Genomics, since they make it possible to carry out studies aimed at extracting the DNA characteristics of each person. To this end, it is essential to master those techniques that allow its preparation accurately and with maximum security, in order to ensure the accuracy of the subsequent results. Given this context, TECH has designed this program, through which the doctor will increase their skills in the use of the High-Throughput or Real-Time PCR method to perform a high-level praxis in this field. In a 100% online way, they will acquire this learning without the need to travel to study centers.





With this program, you will increase your skills in the use of methods such as High-Throughput or Real-Time PCR for genetic studies"

Nutritional Genomics has progressively established itself in the field of Medicine as an effective method to prevent various diseases or to establish their treatment. As a result, the techniques used in the laboratory for the elaboration of genetic studies have evolved significantly, seeking to carry them out in a short interval of time and with a superlative level of accuracy. Given that the success not only of the analysis, but also the optimization of subsequent therapy with the patient will depend on this work, doctors must be aware of these advances and apply them correctly in their daily work in order to perfect their professional development in the world of Nutritional Genomics.

Faced with this situation, TECH has opted to create this program, with which the student will adopt the innovative laboratory techniques that allow the realization of DNA studies in an agile, simple way and with excellent results to subsequently successfully adapt the diet to the genetic particularities of each person. During 6 weeks of intensive learning, they will assimilate the most updated DNA sequencing protocols or they will thoroughly handle the biomarkers of Metabolomics or Metagenomics. They will also use the most advanced bioinformatics programs and tools for the retrieval and storage of the genetic data obtained.

Thanks to the 100% online methodology that characterizes this Postgraduate Certificate, the student will be able to manage their own time as they wish in order to achieve a completely efficient learning process. Additionally, they will have access to educational content available in media such as complementary readings or explanatory video, so that they can adapt their teaching to their particular study requirements.

This **Postgraduate Certificate in Laboratory Techniques for Nutritional Genomics** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of case studies presented by experts in Nutritional Genomics and Precision Nutrition
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ The practical exercises where the self-evaluation process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ 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



The Postgraduate Certificate in Laboratory Techniques for Nutritional Genomics will enable you to accurately handle the biomarkers of Metabolomics or Metagenomics”

“

Combine your learning with your professional and work duties thanks to the completely online mode of delivery of this program”

Assimilate the most updated DNA sequencing protocols thanks to this Postgraduate Certificate that TECH offers you.

Through a simple Smartphone with an Internet connection you will be able to take this program from anywhere.

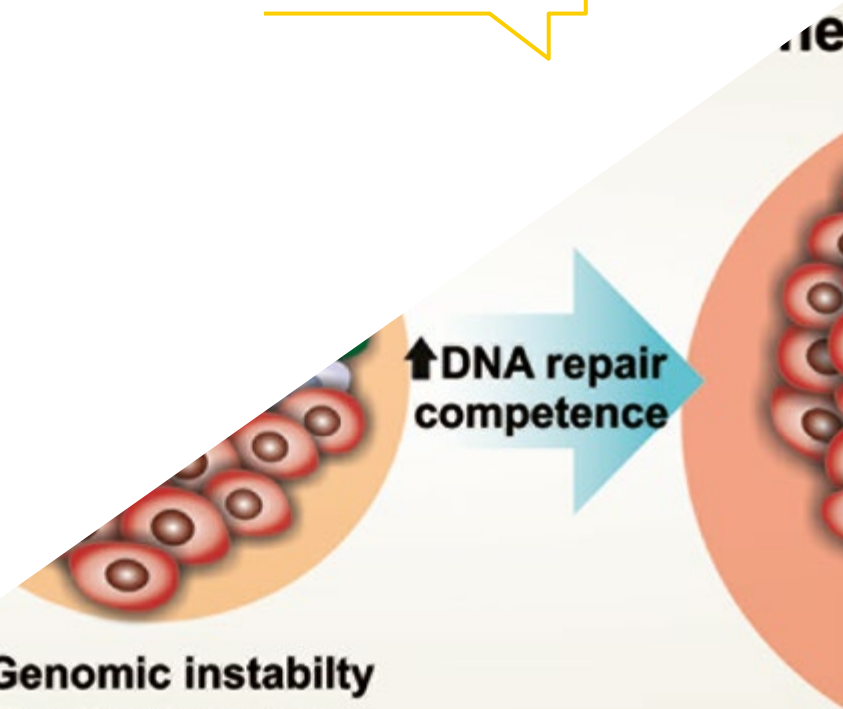
The program includes in its teaching staff professionals of the field who pour into this training the experience of their work, in addition to recognized specialists from reference societies and prestigious universities.

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

The design of this program focuses on Problem-Based Learning, in which the professional will have to try to solve the different professional practice situations that will arise throughout the academic course. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

↑ **Genomic instability**
↑ **Replicative stress**

↑ **DNA repair competence**



02 Objectives

This Postgraduate Certificate has been designed with the intention of providing the physician with the latest and most efficient laboratory techniques to perform various studies focused on the field of Nutritional Genomics. In this way, they will delve into the sophisticated methods of DNA extraction or the use of updated bioinformatics tools, ensuring excellent learning thanks to the following general and specific objectives outlined by TECH.



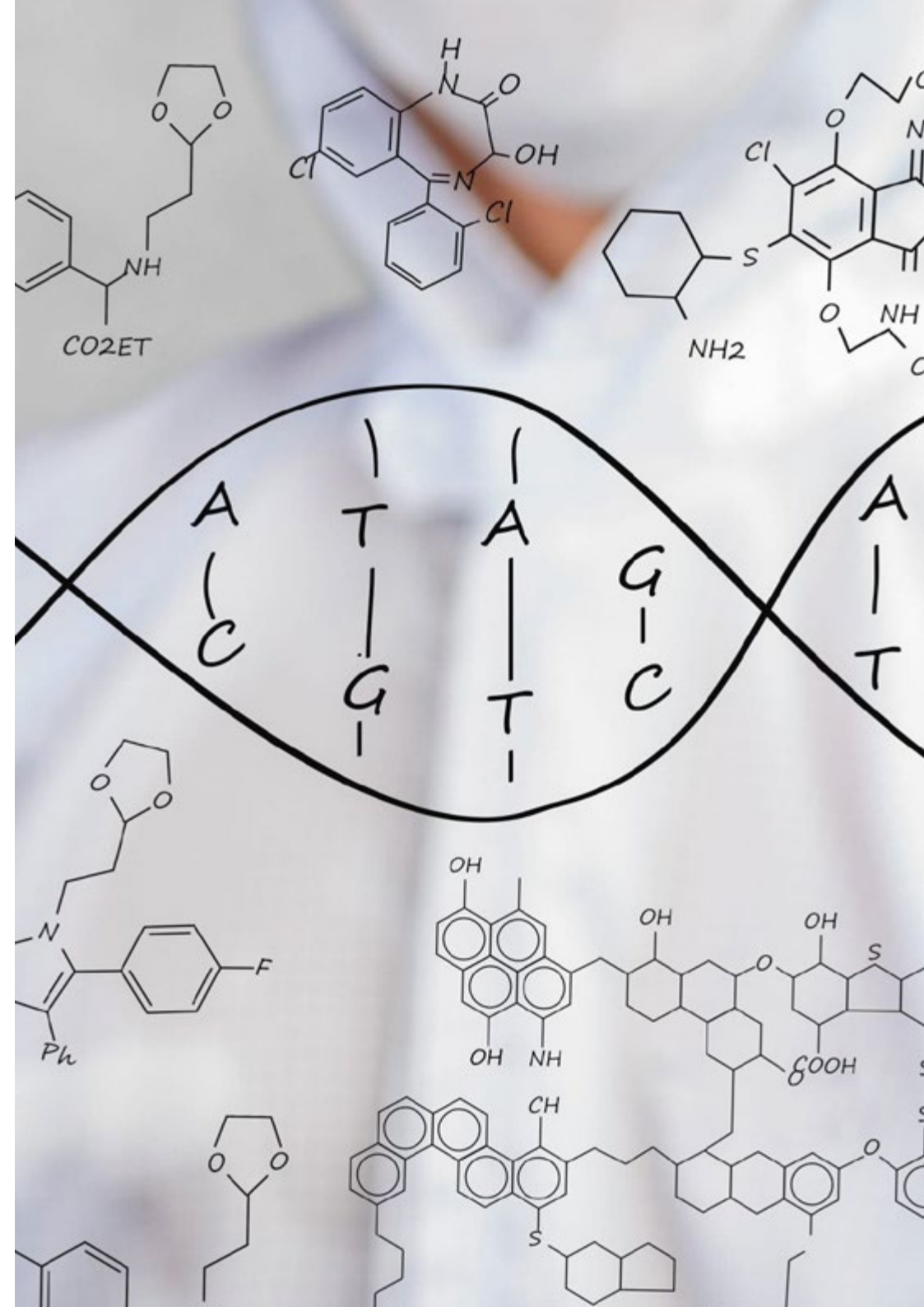
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*Incorporate in your work methodology
the latest advances in Laboratory
Techniques for Nutritional Genomics”*



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
- ◆ Understand how nutrition influences gene expression in humans
- ◆ Learn about new concepts and future trends in the field of Nutritional Genomics and Precision Nutrition
- ◆ Adapt personalized dietary and lifestyle habits according to genetic polymorphisms
- ◆ Provide health professionals with all the up-to-date knowledge in the field of Nutritional Genomics and Precision Nutrition in order to know how to apply it in their professional activity
- ◆ Put all the updated knowledge in perspective. Where we are now and where we are going and where it is headed so that the student can appreciate the ethical, economic and scientific implications in the field



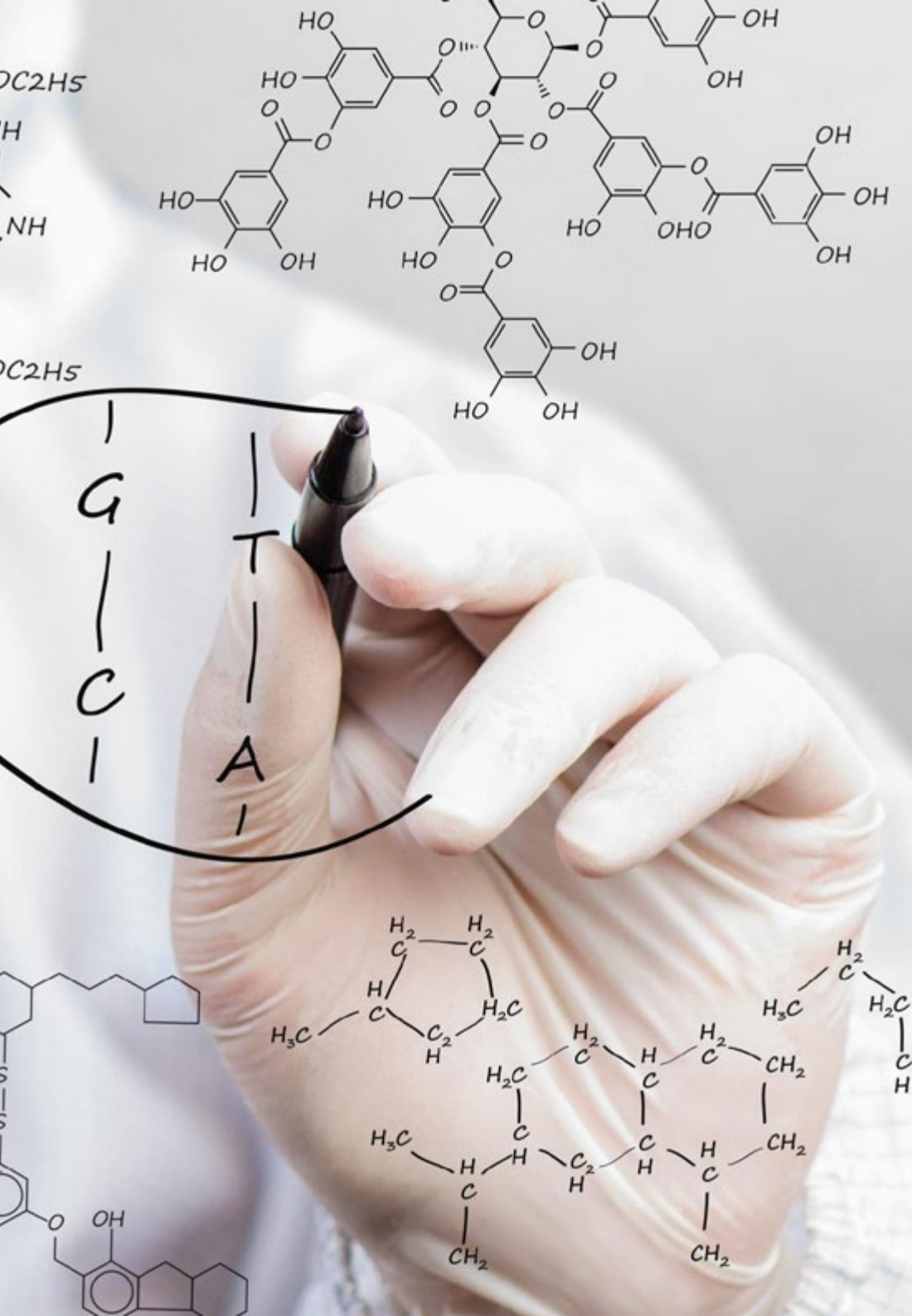


Specific Objectives

- ◆ Understand the techniques used in Nutritional Genomics Studies
- ◆ Master state-of-the-art DNA extraction techniques
- ◆ Acquire the latest advances in omics and bioinformatics techniques
- ◆ Use the most up-to-date bioinformatics programs and tools

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Following the general and specific objectives that TECH has outlined for this program, you will adopt a series of skills that will help you to perfect your performance in the laboratory”



03

Course Management

With TECH's characteristic untiring commitment to offer a first class education to its students, this academic program is directed and taught by the best experts in Nutritional Genomics and Precision Nutrition, who have extensive experience in conducting research focused on this area. These specialists are the ones in charge of elaborating all the didactic materials that the doctor will have throughout this program, so that the contents that they will provide will be applicable in their professional life.



“

This academic program, taught by great experts in Nutritional Genomics and Precision Nutrition, will provide you with the most updated knowledge in this field"

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

- ◆ Dietitian-Nutritionist Specialist in Nutrigenetics and Nutrigenomics
- ◆ Founder of DNANutricoach
- ◆ Creator of the Food Coaching method to change eating habits
- ◆ Professor in Nutrigenetics
- ◆ Doctorate in Biomedicine
- ◆ Dietitian- Nutritionist
- ◆ Food Technologist
- ◆ Accredited Life Coach of the British body IPAC&M
- ◆ Member of: American Society for Nutrition

Professors

Mr. Anglada, Roger

- ◆ Research Support Technician at the Genomics Service of UPF
- ◆ Senior Research Support Technician at the Genomics Service of Pompeu Fabra University
- ◆ Senior Technician in Analysis and Control. Narcís Monturiol HSI, Barcelona
- ◆ Co-author of different scientific publications
- ◆ Graduate in Multimedia, Catalunya Open University



04

Structure and Content

The syllabus of this program is made up of 1 module with which the physician will adopt the state-of-the-art laboratory techniques used to carry out research related to Nutritional Genomics. All the didactic resources that the student will have access to throughout this academic itinerary are available in convenient and modern formats such as self-assessment tests, explanatory videos or interactive summaries. This, added to the 100% online methodology of this program, guarantees an enjoyable and individualized learning.

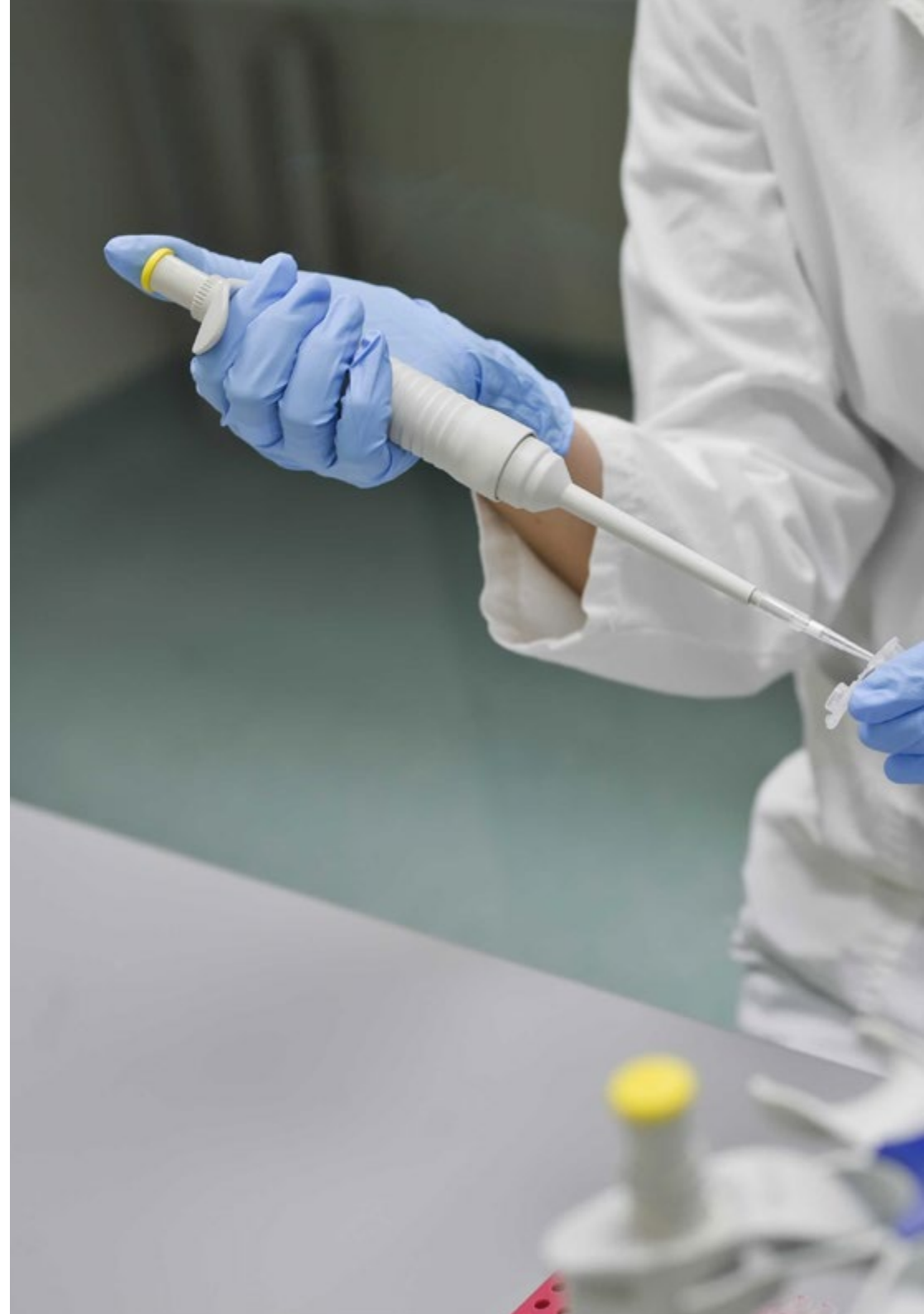


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Through a 100% online methodology, you will have the possibility to achieve excellent learning without having to adhere to strict schedules"

Module 1. Laboratory Techniques for Nutritional Genomics

- 1.1. Molecular Biology Laboratory
 - 1.1.1. Basic Instructions
 - 1.1.2. Basic Material
 - 1.1.3. Accreditations Required in the U.S
- 1.2. DNA Extraction
 - 1.2.1. From Saliva
 - 1.2.2. From Blood
 - 1.2.3. From Other Fabrics
- 1.3. Real-Time PCR
 - 1.3.1. Introduction - History of the Method
 - 1.3.2. Basic Protocols Used
 - 1.3.3. Most Used Equipment
- 1.4. Sequencing
 - 1.4.1. Introduction - History of the Method
 - 1.4.2. Basic Protocols Used
 - 1.4.3. Most Used Equipment
- 1.5. High-throughput
 - 1.5.1. Introduction - History of the Method
 - 1.5.2. Examples of Human Studies
- 1.6. Gene Expression - Genomics - Transcriptomics
 - 1.6.1. Introduction - History of the Method
 - 1.6.2. Microarrays
 - 1.6.3. Microfluidic Cards
 - 1.6.4. Examples of Human Studies





- 1.7. Omics Technologies and their Biomarkers
 - 1.7.1. Epigenomics
 - 1.7.2. Proteomics
 - 1.7.3. Metabolomics
 - 1.7.4. Metagenomics
- 1.8. Bioinformatics Analysis
 - 1.8.1. Pre- and Post-Computing Bioinformatics Programs and Tools
 - 1.8.2. GO Terms, Clustering of DNA MicroarrayData
 - 1.8.3. Functional Enrichment, GEPAS, Babelomics

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Enjoy excellent learning materials available in formats such as video or interactive summary with this TECH program"

05

Methodology

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

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



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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.



06 Certificate

The Postgraduate Certificate in Laboratory Techniques for Nutritional Genomics guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.





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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 **Postgraduate Certificate in Laboratory Techniques for Nutritional Genomics** endorsed by **TECH Global University**, the world's largest online university.

TECH Global University is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

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

Title: **Postgraduate Certificate in Laboratory Techniques for Nutritional Genomics**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 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 languages
virtual classroom



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