

# Postgraduate Certificate

## Genetics, Precision Medicine And COPD





## Postgraduate Certificate Genetics, Precision Medicine And COPD

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

Website: [www.techtitute.com/us/medicine/postgraduate-certificate/genetics-precision-medicine-copd](http://www.techtitute.com/us/medicine/postgraduate-certificate/genetics-precision-medicine-copd)

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# 01

# Introduction

The human genome contains all the genetic information of the cells of a living being, which determines the physical, intellectual and, for many, psychological characteristics. Its decoding has made it possible to know the genes that predispose a person to certain pathologies, making it possible to identify risk factors that allow changes to be made in the lives of individuals. If we add to this the concept of Precision Medicine, we have the perfect combination to determine the treatment or prevention of certain diseases based on the genomic characteristics of a person. Thus, in this program in Genetics, Precision Medicine and COPD, these genomic characteristics will be evaluated in depth, emphasizing the deficiencies and phenotypes that make a person susceptible to suffer from Chronic Obstructive Pulmonary Disease.



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*With this comprehensive Postgraduate Certificate in Genetics, Precision Medicine and COPD you will learn about the genetic links behind this disease and the possible treatments focused on the individual"*

Precision Medicine refers to an adjustment in traditional medicine, focusing on the individual characteristics of each patient and not on the globality of the disease they suffer from. This is especially important at the time of establishing a successful treatment to improve a person's condition, since with this methodology other determining factors such as genetic characteristics, biomarkers and other phenotypic characteristics that distinguish each patient can be evaluated.

In this sense, genes play a fundamental role, since it is here that the totality of a person's genetic information is stored, determining his or her physical, psychological and intellectual characteristics. Decoding the genome has allowed health professionals and researchers to know which genes predispose a person to certain pathologies. Being a carrier of some of these changes can become a risk factor, however, thanks to decoding, the professional will be able to recommend the necessary preventive measures to avoid these risks.

COPD is understood as a complex disease, which has several non-linear factors that can interact together. On the other hand, some approaches indicate that it is heterogeneous, since these factors are not present in all patients or in the same patient all the time.

Based on the above, this Postgraduate Certificate in Genetics, Precision Medicine and COPD has been designed to study in depth the genetic links of this disease with a special emphasis on alpha-1 antitrypsin deficiency, describing the phenotypes and personalized treatments that are focused on changing health habits. All this will be achieved by having a teaching staff and their training in this particular area of medicine, accompanying the student at all times and making available their extensive work experience.

A 100% online program that allows the student to take it comfortably, wherever and whenever he/she wants. All you need is a device with internet access to take your career one step further. A modality according to the current times with all the guarantees to position the doctor in a highly demanded sector.

This **Postgraduate Certificate in Genetics, Precision Medicine And and COPD** 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 Genetics, Precision Medicine And and COPD
- ♦ 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
- ♦ Practical exercises where to perform the self-assessment process to improve the learning process
- ♦ 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



*This course provides an opportunity for students to learn about the genetic basis of COPD and possible patient-focused treatments"*

“ *Genes play a key role in predisposing patients to certain pathologies*”

The program's teaching staff includes professionals from the sector who contribute their work experience to this training 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 during the academic year. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Excellent professionals in the field of Genetics, Precision Medicine and COPD accompany students to study in depth the biological basis of COPD.*

*When and where you want, this Genetics, Precision Medicine and COPD program is 100% online.*



# 02 Objectives

After studying in depth the key aspects of Genetics, Precision Medicine And COPD, the student will acquire the necessary competencies to be up-to-date in their profession. The knowledge found in this module will drive the professional from a global perspective, with the necessary training to achieve the proposed objectives. In this way, he will develop all his skills in the field of genetics, one of the most demanded sectors worldwide. To this end, TECH has a series of general and specific objectives that perfectly meet the professional requirements of future graduates, being the following.



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*Boost your career from a global perspective by fulfilling the objectives of this Postgraduate Certificate in Genetics, Precision Medicine And and COPD"*



## General Objectives

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- Provide in-depth knowledge on the genetic linkage of respiratory diseases
- Interpret and generate knowledge with the information provided by primary and secondary sources in the area of Genetics
- Improve evaluation for prognosis and prevention of respiratory diseases.
- Understand the precision treatment of pulmonary pathology in the daily practice of medicine
- Acquire a solid knowledge of the different pulmonary pathologies and their genetic basis





## Specific Objectives

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- In-depth understanding of the genetic and perinatal links of COPD
- Studying genetic links and smoking in more depth
- Delving into hereditary COPD due to alpha-1 antitrypsin deficiency
- Know the state of the art of COPD management oriented to treatable features
- Exploring genetic linkage to physical training outcomes in COPD

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*Take advantage of the opportunity and take the step to get up to date on the latest developments in ultrasound imaging”*

# 03

## Course Management

In its quest to always offer an elite education, TECH has a group of renowned professionals who will help students consolidate their knowledge in the area of Genetics, Precision Medicine And COPD. Therefore, this program is backed by the extensive experience of this group of teachers who offer all the necessary tools to explore all their capabilities. As a result, the professional has the guarantees required to specialize at an international level in a booming sector that will catapult him/her to professional success.





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*A professional team will provide students with all their work experience to train in this area of medicine"*

## International Guest Director

Dr. George Chaux is a medical professional with a strong background in Interventional Pulmonology, Lung Transplantation and Critical Care. With many years of experience in the healthcare industry, he has worked tirelessly to improve the quality of life of his patients through a multidisciplinary and specialized approach. In addition, his deep knowledge in the field of healthcare management and medical care has positioned him as a reference in his area, always at the forefront of the latest innovations in Pulmonary Medicine.

Throughout his career, he has worked in prestigious institutions, such as Cedars-Sinai Medical Center, where he has accumulated vast experience in the management of critical and complex cases. He has also been Medical Director at Providence St. John's Health Center, where he has led the development of Interventional Pulmonology and General Pulmonary Consulting services, applying advanced techniques that have made a significant difference in the care of his patients. In fact, his focus on excellence and innovation has allowed him to implement procedures that have optimized clinical outcomes in every intervention.

Internationally, Dr. George Chaux has been widely recognized for his contributions to Pulmonary Medicine. In this regard, he has been invited as a speaker at several global conferences on Lung Transplantation and Respiratory Diseases, having received numerous awards for his work in medical research and clinical practice.

Likewise, he has led research in the field of Genomic Precision Pulmonology and Big Data, exploring how these emerging technologies can revolutionize the diagnosis and treatment of Lung Diseases. Likewise, it is worth mentioning that he has published several articles in specialized journals, consolidating his position as a reference in the application of cutting-edge technologies in Respiratory Medicine.



## Dr. Chaux, George

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- Medical Director at Providence St. John's Health Center, California, United States
- Medical Director of the Interventional Pulmonology Program at Cedars-Sinai Medical Center
- Medical Director of the Lung Transplant Program at Cedars-Sinai Medical Center
- Medical Director of the Lung Transplantation Program at UC San Diego Health Medical Center
- Doctor of Medicine from Boston University
- B.S. in Biochemistry from Bowdoin University

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

## Management



### Dr. Puente Maestu, Luis

- Professor of Pneumology, Department of Medicine, Universidad Complutense de Madrid
- Chief of the Pneumology Department of the Hospital General Universitario Gregorio Marañón
- Degree in Medicine from the Complutense University of Madrid
- Specialist in Pneumology, Complutense University of Madrid
- Doctor *Cum Laude* in Medicine from the Complutense University of Madrid
- Master's Degree in Design and Statistics in Health Sciences from the Autonomous University of Barcelona
- University Master's Degree in Senior Management of Health Services and Business Management of the University of Alcalá



### Dr. De Miguel Díez, Javier

- Section Chief and Resident Tutor in the Pneumology Department of the Hospital General Universitario Gregorio Marañón
- PhD in Medicine and Surgery from the Autonomous University of Madrid
- Master's Degree in Healthcare Management
- University Master's Degree in Smoking
- Master's Degree in Advances in Diagnosis and Treatment of Airway Disease
- Postgraduate master's degree in Advances in Diagnosis and Treatment of Sleep Disorders
- Master's Degree in Advances in Diagnosis and Treatment of Diffuse Interstitial Lung Diseases
- Master in Pulmonary Hypertension and Master in Thrombotic Pathology





## Professors

### Dr. Calle Rubio, Myriam

- ◆ Head of Section at the Hospital Clínico San Carlos
- ◆ Care Management Techniques for Clinical Units at the Hospital Clínico San Carlos
- ◆ Specialization in Bronchiectasis at the University of Alcalá de Henares
- ◆ Master's Degree in Clinical Unit Management at the University of Murcia
- ◆ Doctor in the Official Postgraduate Program in Medicine of the Complutense University of Madrid

# 04

## Structure and Content

Following the requirements proposed by the teaching team of this Postgraduate Certificate, a program has been developed that covers a broad perspective of Genetics, Precision Medicine And COPD. All this, with the motivation to encourage the student to apply this knowledge in their work environment, either nationally or internationally. In this way, all the fields of work involved in this area of medicine are incorporated. From Module 1, the professional will see his or her knowledge broadened, which will enable him or her to develop professionally, knowing that he or she has the support of an excellent team of experts.





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*With a curriculum updated to market demands, this Postgraduate Certificate in Genetics, Precision Medicine and COPD seeks to broaden the knowledge of its students”*

## Module 1. Genetics, Precision Medicine and COPD

- 1.1. Genetic Links of COPD
- 1.2. Genetics of Alpha1 Deficiency
  - 1.2.1. Antitrypsin
- 1.3. Epidemiology of Alpha 1 Antitrypsin Deficiency
- 1.4. Management of Alpha 1 Antitrypsin Deficiency
  - 1.4.1. Treatment Genetic Counseling
- 1.5. COPD and Low Birth Weight
  - 1.5.1. COPD Trajectories
- 1.6. Genetics of Smoking
- 1.7. COPD Phenotypes
  - 1.7.1. Bio markers
- 1.8. Personalized Medicine:
  - 1.8.1. Phenotype-Oriented Treatment
- 1.9. Sarcopenia
  - 1.9.1. Exercise Intolerance
  - 1.9.2. Physical Inactivity
  - 1.9.3. Sedentary Behavior
- 1.10. Association of Polymorphisms in ACTN3 Genes
  - 1.10.1. ECA and PPARGC1A with the Effectiveness of Physical Training





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*A complete program that covers all the professional requirements students need to advance their careers in the area of Genetics and Precision Medicine”*

# 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 Harvard 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 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

The Postgraduate Certificate in Genetics, Precision Medicine and COPD guarantees, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Technological University.





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*Successfully complete this training  
and receive your diploma without the  
hassle of travel or paperwork”*

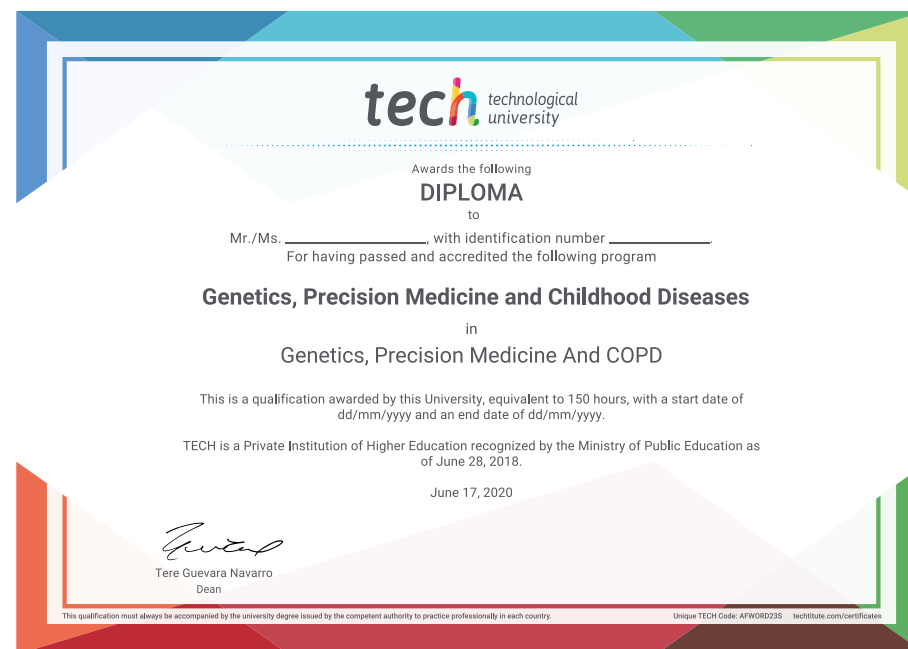
This **Postgraduate Certificate** in **Genetics, Precision Medicine And COPD** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the **Postgraduate Certificate** and meets the requirements commonly demanded by job markets, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Genetics, Precision Medicine and COPD**

Official N° of Hours: 150 h.



\*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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health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development languages  
virtual classroom



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