Professional Master's Degree
Precision Pulmonology Genomics and Big Data

tech technological university

Professional Master's Degree
Precision Pulmonology Genomics and Big Data

Course Modality: **Online**

Duration: **12 months.**

Certificate: **TECH Technological University**

Official Nº of hours: **1,500 h.**

Website: **www.techtitute.com/medicine/professional-master-degree/master-precision-pulmonology-genomics-big-data**

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01
Introduction

In recent years, significant advances have been made in identifying genotypes or phenotypes that allow the detection of specific treatments, which is known today as Precision Medicine. This, combined with the revolution in information technology, has made it possible to establish genetic links to most pneumological diseases. Thanks to this, it has been possible to generate and process enormous amounts of structured (electronic records) and unstructured (Big Data) information, which makes it possible to detect those individuals in the population who are more susceptible to diseases or more sensitive to treatment. Therefore, this program updates the knowledge acquired in this field of Precision Pulmonology Genomics and Big Data, allowing the professional to learn about the most current treatments aimed at specific genetic or biological therapeutic targets.

> *Keeping knowledge in Precision Pulmonology Genomics and Big Data up to date helps practitioners improve their diagnostics and treatment"*

Research in rare diseases has changed over the years. Because it is possible to have patients from all over the world with a particular condition in one place, researchers and specialists have been able to improve and develop new forms of diagnosis and treatment. To all this, we must add the many years of study in which they have been able to identify and understand the human genome.

The use of Big Data leaves behind tedious records, completely eliminating causal relationships, as it allows analyzing huge amounts of data and finding correlations that cannot be established through causality. The use of Big Data leaves behind tedious records, completely eliminating causal relationships, as it allows analyzing huge amounts of data and finding correlations that cannot be established by means of random causes.

Therefore, this Professional Master's Degree in Precision Pulmonology Genomics and Big Data seeks to boost the knowledge of students in a didactic and in depth way on the genetic basis of respiratory diseases, the methodology and knowledge obtained from the analysis of Big Data and the use of therapies directed to specific therapeutic targets (Precision Medicine) with a modern teaching methodology that facilitates learning.

Throughout the development of the Professional Master's Degree, you will find a complete package of knowledge, which covers a variety of topics that are almost always not raised in other programs on the market, in addition to being taught by experts in the area. This begins with an in depth review of the conceptual aspects of Precision Medicine and the use of information sources such as Big Data and real life studies, genomics and proteinomics.

Advancing in the program, the professional will be able to identify minimally invasive endoscopic techniques that allow to increase the diagnostic accuracy of pulmonary and pleural processes. Highly specific therapeutic procedures for patients with neoplastic or airway diseases are also reviewed.

This **Professional Master's Degree in Precision Pulmonology Genomics and Big Data** contains the most complete and up to date educational program on the market. The most important features include:

- ◆ Case studies presented by experts in Precision Pulmonology Genomics and Big Data
- ◆ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- ◆ Practical exercises where to perform the self assessment process to improve the learning process
- ◆ 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 use of Big Data makes it possible to leave behind tedious records and study respiratory diseases in a more dynamic way"

Learning in a 100% online environment allows the professional to control their learning and access information anywhere in the world.

With extensive work and academic experience, the teachers of the Professional Master's Degree provide students with quality references for their professional development.

" *Learn about new techniques for the genetic study of respiratory pathologies in children and how it could affect their growth"*

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.
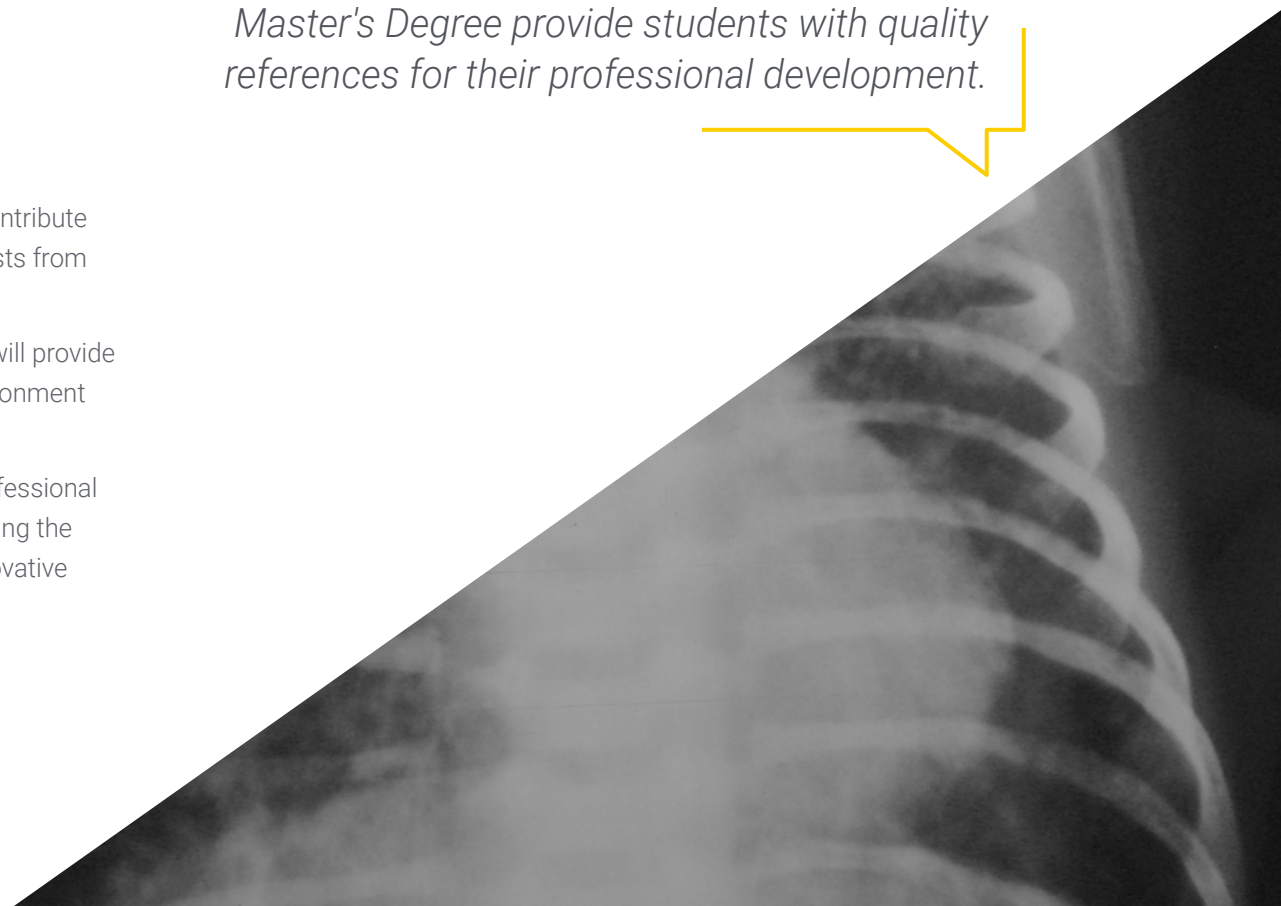
02
Objectives

The design of the program of this Professional Master's Degree will allow students to acquire the necessary skills to update in the profession after studying in depth the key aspects of Precision Pulmonology Genomics and Big Data. The knowledge acquired in the development of the points of the syllabus will drive the professional from a global perspective, with full capacity to achieve the proposed goals. You will be fully empowered in a field of medicine that is versatile, global and essential, guiding you towards excellence in an industry in continuous technological adaptation. For this reason, TECH has established a series of general and specific objectives for the satisfaction of future graduates, as follows.
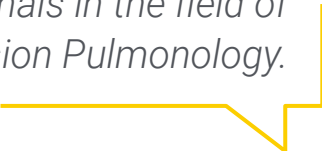
At TECH you will find the boost you need for your career, specializing in the area of Precision Medicine"

General Objectives

- Provide in depth knowledge on the genetic linkage of respiratory diseases
- Interpret and generate knowledge with the information provided by primary and secondary Big Data sources
- 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

Reach your goals with the best professionals in the field of Precision Pulmonology.

Specific Objectives

Module 1. Personalized Precision Medicine and Big Data in Pulmonology prelude

- Delve into the health care and ethical implications of Precision Medicine
- Study in depth the sources of information on Precision Medicine
- Master the omic biomarkers of interest in pneumology
- Determine the contribution of specific care in personalized care

Module 2. Interventional Pulmonology and Precision Medicine

- Study in depth the minimally invasive bronchological techniques that allow genetic and precision diagnosis.
- Learn more about minimally invasive pleural techniques that allow genetic and precision diagnosis.
- Master endoscopic invasive treatments for specific pneumologic patients

Module 3. Precision medicine, imaging techniques and pulmonary function

- In depth knowledge of invasive techniques that increase bronchological diagnostic accuracy
- Master invasive techniques that increase pleural diagnostic accuracy
- Further development of precision endobronchial treatments

Module 4. Genetics and Precision Medicine and Pediatric Diseases

- In depth understanding of genetic links to disease in the pediatric population
- Delve into the implications of childhood congenital diseases on respiratory health during a person's lifetime
- Mastering the management of common genetic respiratory diseases
- Precision medicine in childhood asthma. Use of biologicals

Module 5. Genetics, Precision Medicine and Asthma
- Study in depth the epidemiological associations of asthma that suggest a genetic basis of the disease
- Explore the genetic complexity of asthma in the light of the most current knowledge
- Master the biology, therapeutic targets and clinical use of precision treatments in asthma

Module 6. Genetics, Precision Medicine and Lung Cancer
- Studying the genetic susceptibility of lung cancer in more depth
- Further exploring driver gene mutations with approved lung cancer treatments
- Know future treatments against therapeutic targets
- Master the state of the art of lung cancer treatment with respect to the contribution of treatments based on genetic therapeutic targets

Module 7. Genetics, Precision Medicine And COPD
- 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

Module 8. Genetics, Precision Medicine and Other Respiratory Diseases
- Further investigate genetic links to pulmonary vascular diseases and interstitial diseases
- In-depth understanding of genetic linkages and susceptibility to infection
- Study telomeres as prognostic markers in respiratory diseases in greater depth
- Master the mechanisms and results of new mRNA-based vaccines

Module 9. Big Data and Respiratory Diseases I
- Know the applications of Big Data in the study of the epidemiology of Respiratory Diseases
- Discuss the usefulness of Big Data in the evaluation of procedures used in respiratory pathology
- Explain how Big Data can help in the study of risk factors for Respiratory Diseases
- Describe the utility of Big Data in the management of obstructive diseases and sleep ventilation disorders

Module 10. Big Data and Respiratory Diseases II
- Know the usefulness of Big Data in the study of Respiratory Diseases of infectious origin
- Discuss the use of Big Data to assess the impact of environmental pollution on respiratory infections
- Study in depth the importance of Big Data in the evaluation of other Respiratory Diseases such as pleural pathology, lung cancer, interstitial diseases, pulmonary thromboembolism and pulmonary hypertension
- Describe the applications of Big Data in the field of Neonatal Onset Respiratory Diseases

03
Skills

A unique methodology has been created to ensure that the Professional Master's Degree student is able to identify and solve the problems related to Precision Pulmonology Genomics and Big Data. In this way, TECH guarantees students quality content according to their expectations, giving them the opportunity to excel in their area of work. You will be able to perform the various functions related to this Professional Master's Degree, together with the most innovative proposals in this field of action, guiding you towards excellence. A series of aspects demanded by industry professionals and today's world.

The skills you will acquire after completing this Professional Master's Degree will position you as a professional capable of understanding the genetic basis of respiratory diseases"

General Skills

- Apply the epidemiological and clinical method in collective or individual care to solve the main health problems related to respiratory diseases

- Perform a critical reading of the scientific literature on these diseases and at the same time have the tools to communicate research results

- Collect, process and analyze in very diverse clinical and epidemiological contexts any scientific information for diagnostic and therapeutic decision making in the field of Precision Pulmonology in a specific way and health in a general way

- Develop learning to learn as one of the most important skills for any professional nowadays, who is obliged to constantly train and improve their professional skills due to the dizzying and fast paced process of scientific knowledge production

Improve your skills in a medical area that will boost both your professional career and personal career"
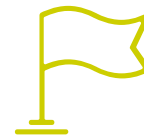
Specific Skills

- The professional will be able to identify the care and ethical implications of Precision Medicine, understanding the sources of information in this area and mastering the biomarkers that are of interest in pneumology

- Identify endoscopic techniques that are less invasive for patients, improving your ability to perform pulmonary diagnostics

- Be able to identify treatable features that allow personalizing the treatment or prognosis of patients with pulmonary diseases

- The future Professional Master's Degree graduate will have an extensive understanding of childhood diseases associated with specific genetic alterations and their potential implications for future respiratory health

- You will gain the knowledge necessary to review the genetic aspects of asthma, as well as biological treatments directed at specific targets

- Update your knowledge of current and future biomarkers and their relationship to the different phenotypes of asthma

- You will acquire a complete overview of the most current knowledge on the genetic basis of lung cancer, as well as the most relevant driver mutations for their therapeutic implications

- You will learn about current strategies for the management of lung cancer at the center of genetic therapeutic targets

- Complete mastery of the genetic links of COPD, as well as the relationship between smoking and genes

- The professional will learn about the role of telomeres in lung aging and the mechanism of operation of mRNA-based vaccines

- Complete training on the usefulness of Big Data in the study of respiratory diseases of infectious origin

04
Course Management

In its maxim of offering an elite education for all, TECH relies on renowned professionals to provide the student with a solid knowledge in the area of Precision Pulmonology Genomics and Big Data. Therefore, this Professional Master's Degree has a highly qualified team with extensive experience in the sector, which will offer the best tools for the student in the development of their skills during the course. In this way, the professional has the guarantees required to specialize at an international level in a booming sector that will catapult him/her to professional success.

"
Succeed with the best and acquire the knowledge and skills you need to embark on a career in Precision Pulmonology"

Management

Dr. Puente Maestu, Luis

- Professor of Pulmonology, Department of Medicine, Universidad Complutense de Madrid
- Chief of the Pulmonology Department of the Hospital Generaluniversitario Gregorio Marañón
- Degree in Medicine from the Complutense University of Madrid
- Specialist in Pulmonology, Universidad Complutense de 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 Alcala

Dr. De Miguel Díez, Javier

- Section Chief and Resident Tutor in the Pulmonology 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

Mr. Calles Blanco, Antonio
- Regional Ministry of Health in the Department of Medical Oncology, Madrid
- Care, teaching and research work at the Hospital General Universitario Gregorio Marañón in Madrid
- Resident tutor and collaborating medical teacher in External Medical Practice Teaching at the Complutense University of Madrid
- Specialist in Medical Oncology at the Hospital Clínico San Carlos, Madrid
- Degree in Medicine and Surgery from the Universidad Autónoma de Madrid

Dr. Alcázar Navarrete, Bernardino
- Specialist Pulmonology Physician at the Agencia Pública Empresarial Sanitaria Hospital de Poniente
- Coordinator of the COPD Area of SEPAR
- Member of the Executive Committee of the COPD IIP of SEPAR
- SEPAR Congress Committee Member
- Treasurer of the Southern Association of Pneumologists (Neumosur)
- Clinical pulmonologist with research activity focused mainly in the field of COPD, and more specifically in the study of biomarkers for the diagnosis, treatment and follow up of this disease

Dr. González, Francisco Javier
- Director of the High Complexity Asthma Specialized Unit, Hospital Clínico Universitario de Santiago de Compostela
- Specialist in Pulmonology University Clinical Hospital of Santiago de Compostela
- Associate Professor of Health Sciences University of Santiago de Compostela
- Miembro del Comité Editorial de International Journal of Environmental Research and Public Health

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

Dr. Benedetti, Paola Antonella
- Assistant of the Bronchoscopy and Functional Tests Section, Pulmonology Department, Hospital Gregorio Marañón, Madrid
- Surgeon at the Universidad Central de Venezuela
- Pulmonology Residency at the Hospital Clínico San Carlos, Madrid
- Doctoral candidate of the Medical Surgical Sciences program. Complutense University of Madrid

Mr. Girón Matute, Walther Iván

- Specialist in Pulmonology at Vithas La Milagrosa Hospital
- Medical Degree from the National Autonomous University of Honduras
- Professional Master's Degree in Diagnosis and Treatment of Sleep Disorders. San Antonio Catholic University
- Professional Master's Degree in Infectious Diseases and Treatment. Cardenal Herrera University. 60 ECTS

Dr. de Castro Martínez, Francisco Javier

- Physician in charge of the Difficult to Control Asthma Consultation in the Allergology Department of the Hospital General Universitario Gregorio Marañón
- Physician in charge (in collaboration with the Pulmonology Department) of the monographic consultation of Asthma at the Hospital General Universitario Gregorio Marañón
- Physician Assistant (F.E.A. Allergist) at Hospital General Universitario Gregorio Marañón
- On call Internal Medicine as an attending physician in the Emergency Department of the Gregorio Marañón Hospital
- Degree in Medicine and Surgery. University of Granada
- Allergology training at the Hospital General Universitario Gregorio Marañón
- PhD program in Immunology from the Department of Medicine of the Complutense University of Madrid
- Postgraduate Certificate in Electrocardiogram in Emergencies. Gregorio Marañón General University Hospital
- Postgraduate Certificate in Diagnostic and Therapeutic Protocols in Emergency Medicine. Gregorio Marañón General University Hospital

Dr. Calderón Alcalá, Mariara Antonieta

- Facultative Area Specialist. Pulmonology Service at Hospital Universitario Infanta Leonor. Madrid
- Facultative Area Specialist. Pulmonology Service: hospitalization, consultations and techniques at Hospital Central de La Defensa Gómez Ulla, Madrid
- Facultative Area Specialist. Neurology Service Hospitalization. Pulmonology on call. Intermediate Respiratory Care Unit. COVID19 at Hospital Universitario de Getafe. Getafe, Madrid
- Degree in Medicine: Medical Surgeon Degree. At Universidad Central de Venezuela, School of Medicine, Dr. Luis Razetti School. Caracas, Venezuela
- Official Degree of Medical Specialist in Pulmonology, Ministry of Education, Culture and Sports, Hospital Universitario Clínico San Carlos, Madrid
- Postgraduate Diploma in Diffuse Interstitial Pulmonary Interstitial Diseases in Systemic Autoimmune Diseases at Universidad Complutense de Madrid

Dr. España Yandiola, Pedro Pablo

- Head of the Medical/Technical Service, Pulmonology Department, Hospital Galdakao-Usánsolo, Basque Country
- Degree in Medicine and Surgery from the University of the Basque Country.
- Doctor of Medicine and Surgery, University of the Basque Country
- Professional Master's Degree in Clinical Units Management

Dr. Zambrano Ibarra, Gabriela

- Allergist Physician Hospital General Universitario Gregorio Marañon
- Allergist Physician Hospital del Tajo
- Allergist Physician Hospital del Fuenlabrada
- Research activity: retrospective observational study in routine clinical practice of the immunological follow-up of treatment with high dose modified allergens in patients with rhinoconjunctivitis and/or asthma sensitized to Phleum pratense, Olea e, Platanus a, Cupressus arizonica and Salsola k pollens using objective biological parameters. Tagus-Aranjuez Hospital
- Research activity: biological standardization of Cupressus arizonica allergenic extract to determine the biological activity in Histamine Equivalent Units (HEP)
- Research activity: prospective study to evaluate the quality of life with its determinants such as adherence to treatment and satisfaction with immunotherapy in patients with rhinoconjunctivitis with or without asthma, sensitized to at least one aeroallergen. Laboratorios Bial-Arístegui,S.A.

Ms. Bellón Alonso, Sara

- Specialist Physician in the Pediatrics Service of the Gregorio Marañón University Hospital. Pediatric Pulmonology Unit
- Graduate of the School of Medicine. University of Oviedo
- Bachelor's Degree in Medicine and Surgery at the School of Medicine. University of Oviedo

05
Structure and Content

The syllabus has been designed based on the requirements of the medical specialties, following the requirements proposed by the teaching team of this Professional Master's Degree. Thus, a curriculum has been established whose modules offer a broad perspective of Precision Pulmonology Genomics and Big Data, from a global point of view for the sake of its application at an international level, incorporating all the fields of work involved in the development of its functions, both public and private. 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 a team of experts.

"

Expert curriculum and quality content are the key to your learning success"

Module 1. Personalized Precision Medicine and Big Data in Pulmonology prelude

1.1. Ethics of Precision Medicine
1.2. Advantages
    1.2.1. Disadvantages of Precision Medicine
1.3. Precision Medicine as a strategy
1.4. The Big Data Revolution
1.5. Real Life Studies
    1.5.1. Advantages
    1.5.2. Inconveniences
1.6. Pharmacogenomics
1.7. Proteomics
1.8. Chronicity
    1.8.1. Personalization of Care
1.9. Telemedicine
1.10. Personalized Care for Dependents
    1.10.1. Role of Nursing

Module 2. Interventional Pulmonology and Precision Medicine

2.1. Linear Endobronchial Ultrasound (EBUS-endobronchial Ultrasound)
    2.1.1. Its Role in the Genetic Diagnosis and More Accurate Staging of Lung Cancer
2.2. Radial Endobronchial Ultrasound (r-EBUS)
    2.2.1. Its Role in the Diagnosis of Peripheral Lesions and the Genetic Typing of Lung Cancer
2.3. Electromagnetic Navigation
    2.3.1. Their Role in the Diagnosis and Treatment of Peripheral Lesions
2.4. Narrow Band Imaging Bronchoscopy in Bronchoscopic Examination for Suspected Bronchial Neoplastic Disease
2.5. Endobronchial Therapy of Treatable Features
    2.5.1. Homogeneous Emphysema with Intact Cysura
2.6. Endobronchial Therapy of Treatable Traits, Homogeneous Emphysema with Interlobar Communication

2.7. Endobronchial Therapy of Treatable Features
    2.7.1. Non-Eosnophilic Asthma
2.8. Detection of Diagnostic Markers of Malignant Pleural Pathology Using Minimally Invasive Techniques
2.9. Medical Thoracoscopy
    2.9.1. Contribution to the Diagnostic Accuracy of Pleural Effusion
    2.9.2. Alveoloscopy: *in vivo* Analysis of Peripheral Airways

Module 3. Precision Medicine, Imaging Techniques and Pulmonary Function

3.1. Quantification of Obstructive Pulmonary Impairment by Chest Computed Tomography Applied as a Tool for Increasing Diagnostic Accuracy
3.2. Lung Nodule Volumetry applied as a Tool for Increasing Diagnostic Accuracy
3.3. Elastography of Lung Lesions
    3.3.1. Pleurals as a Tool for Increasing Diagnostic Accuracy
3.4. Pleural Ultrasound Applied as a Tool to Increase Diagnostic Accuracy
3.5. Detection of Treatable Traits in Respiratory Diseases
    3.5.1. Hyperinflation (Lung Volumes, Dynamic Hyperinflation)
3.6. Detection of Treatable Traits in Respiratory Diseases
    3.6.1. Pulmonary Resistances
    3.6.2. Peripheral Tract Involvement
3.7. Detection of Treatable Traits in Respiratory Diseases:
    3.7.1. Measurement of Physical Activity in Personalizing Patient Care and Prognosis.
3.8. Detection of Treatable Traits in Respiratory Diseases
    3.8.1. Adherence to Treatment
3.9. Detection of Treatable Traits in Respiratory Diseases
    3.9.1. Non-Invasive Detection of Bronchial Inflammation by Exhaled Nitric Oxide Fraction
3.10. Detection of Treatable Traits in Respiratory Diseases.
    3.10.1. Non-invasive Detection of Bronchial Inflammation with Sputum Induced Sputum

Module 4. Genetics, Precision Medicine and Pediatric Diseases

4.1.   Cystic Fibrosis Epidemiology

    4.1.1.   Genetically Based

4.2.   Cystic Fibrosis in Children

    4.2.1.   Manifestations

4.3.   Cystic Fibrosis in Children

    4.3.1.   Screening and Treatment. Primary Ciliary Dyskinesia

4.4.   Genetic Links to Respiratory Distress in Newborns

    4.4.1.   Bronchopulmonary Dysplasia

4.5.   Duchenne and Becker Muscular Dystrophy

    4.5.1.   Genetically Based

4.6.   Duchenne and Becker Muscular Dystrophy

    4.6.1.   Management and Prosistic

4.7.   Respiratory Impairment in Sickle Cell Disease

4.8.   Low Birth Weight and Respiratory Disease

4.9.   Treatments Oriented to Specific Therapeutic Targets in Childhood Asthma

    4.9.1.   Use of Biologics in the Pediatric Population

Module 5. Genetics, Precision Medicine and Asthma

5.1.   Epidemiology of Asthma

    5.1.1.   Family, Racial or Gender Associations

    5.1.2.   Twin Studies

5.2.   Asthma-Related Genes

    5.2.1.   Location 1

5.3.   Asthma- Associate Genes

    5.3.1.   Location 2

5.4.   Inflammatory Pathways in Asthma

5.5.   Precision Medicine in Asthma

    5.5.1.   Anti IgE Antibodies

5.6.   Precision Medicine in Asthma

    5.6.1.   Anti-IL5 or Anti-IL5 Receptor Antibody

5.7.   Precision Medicine in Asthma

    5.7.1.   Anti-IL4/IL13 Antibodies

5.8.   Precision Medicine and Other Biological Treatments in Asthma

    5.8.1.   Anti-IL9, Anti-TNFalpha, Anti T-Lymphocyte Antibodies

5.9.   Precision Medicine

    5.9.1.   Current and Future Biomarkers

5.10.   Precision Medicine in Asthma

    5.10.1.   Linking Phenotypes to Specific Treatments
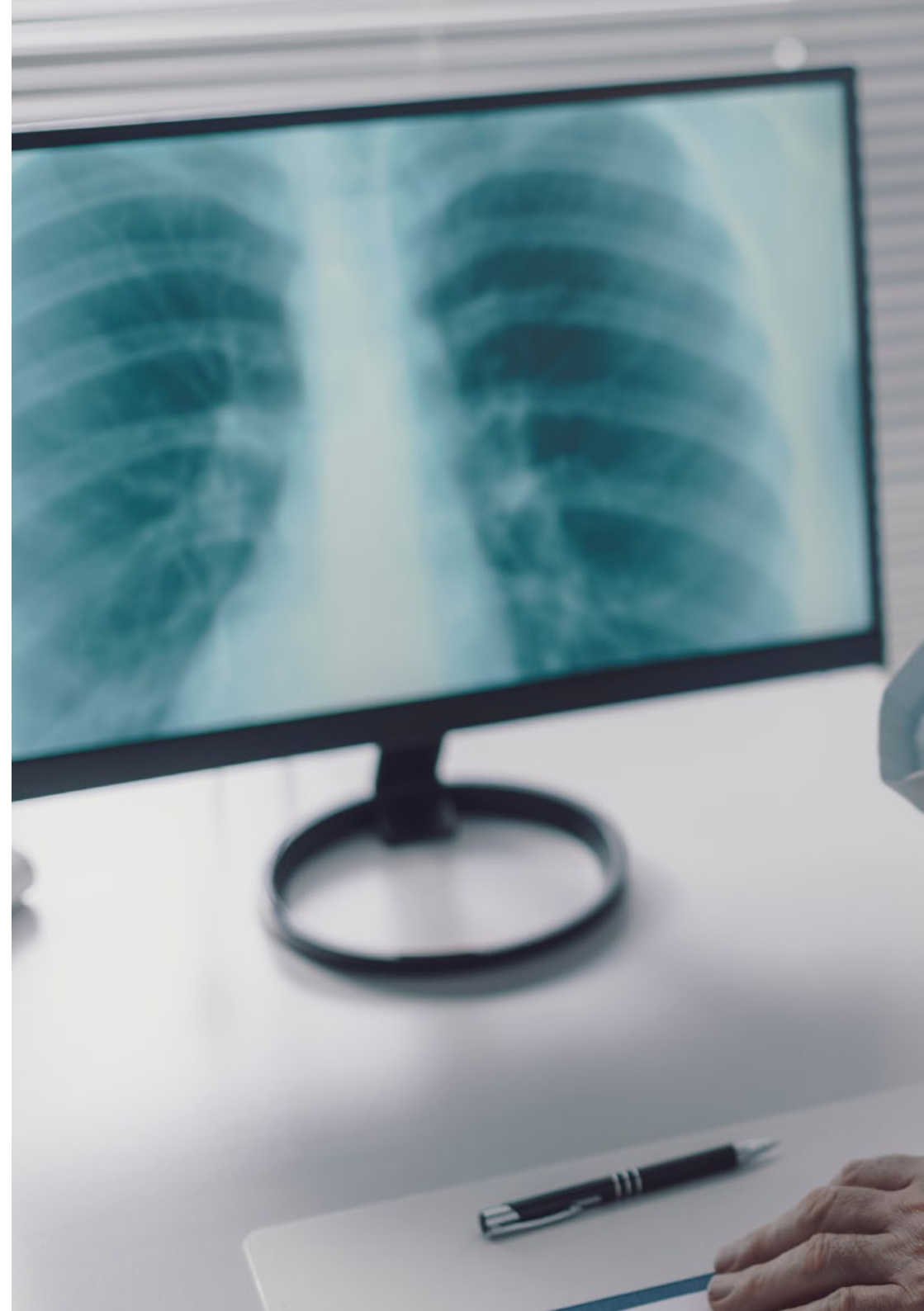
Module 6. Genetics, Precision Medicine and Lung Cancer

6.1.   The Genetics of Lung Cancer Susceptibility

    6.1.1.   Implications for Treatment

6.2.   Molecular Biology of Adenocarcinoma of the Lung

    6.2.1.   Conductive Mutations

6.3.   Molecular Biology of Squamous Cell Carcinoma of the Lung

    6.3.1.   Sarcomatoid Carcinoma of the Lung

6.4.   Molecular Biology of Microcytic Carcinoma of the Lung

6.5.   Genomic Platforms for Lung Cancer Molecular Diagnostics and Liquid Biopsy

6.6.   Conductive Mutations as Therapeutic Targets

    6.6.1.   EGFR Mutations

6.7.   Conductive Mutations as Therapeutic Targets

    6.7.1.   ALK Translocations

6.8.   Conductive Mutations as Therapeutic Targets

    6.8.1.   Others (ROS1, MET, RET, BRAF, NTRK)

6.9.   Treatments Against Therapeutic Targets Under Investigation

    6.9.1.   HER2, NRG1 and KRAS

6.10.   Precision Medicine in Lung Cancer

    6.10.1.   Global Lung Cancer Management Strategy Linked to Therapeutic Targets

Module 7. Genetics, Precision Medicine And COPD

7.1.   Genetic Links of COPD
7.2.   Genetics of Alpha1 Deficiency
    7.2.1.   Antitrypsin
7.3.   Epidemiology of Alpha 1 Antitrypsin Deficiency
7.4.   Management of Alpha 1 Antitrypsin Deficiency
    7.4.1.   Treatment Genetic Counseling
7.5.   COPD and Low Birth Weight
    7.5.1.   COPD Trajectories
7.6.   Genetics of Smoking
7.7.   COPD Phenotypes
    7.7.1.   Bio markers
7.8.   Personalized Medicine:
    7.8.1.   Phenotype-Oriented Treatment
7.9.   Sarcopenia
    7.9.1.   Exercise Intolerance
    7.9.2.   Physical Inactivity
    7.9.3.   Sedentary Behavior
7.10.   Association of Polymorphisms in ACTN3 Genes.
    7.10.1.   ECA and PPARGC1A with the Effectiveness of Physical Training

Module 8. Genetics, Precision Medicine and Other Respiratory Diseases

8.1.   Linkage of Diffuse Interstitial Lung Diseases and Genetics
8.2.   Linkage of Primary Pulmonary Hypertension and Genetics
8.3.   Genetic Bases of Susceptibility to Hypoxemia in COPD
8.4.   Genetic Disorders that Increase Susceptibility to Venous Thrombo Embolic Disease and Pulmonary Thromboembolism
8.5.   Cystic Fibrosis in Adults
    8.5.1.   Suspicion and Diagnosis
8.6.   Genetic Aspects of Obstructive Sleep Apneas Syndrome

Module 9. Big Data and Respiratory Diseases I

Module 10. Big Data and Respiratory Diseases II

Methodology

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

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

Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.

According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

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

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

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

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

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

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

Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

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

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

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.

This program offers the best educational material, prepared with professionals in mind:

Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.

Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

Interactive Summaries

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

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.

20%

15%

15%

3%

20%

17%

7%

3%

Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.

Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.

07

Certificate

The Professional Master's Degree in Precision Pulmonology Genomics and Big Data guarantees students, in addition to the most rigorous and up to date education, access to a Professional Master's Degree issued by TECH Technological University.

Successfully complete this training program and receive your university certificate without travel or laborious paperwork"
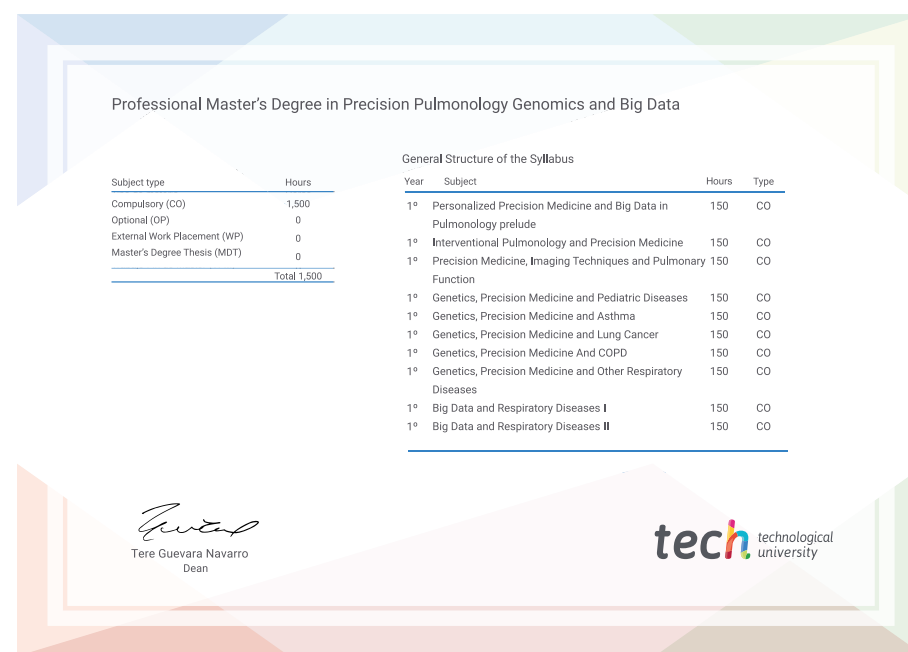
This **Professional Master's Degree in Precision Pulmonology Genomics and Big Data** contains the most complete and up to date educational program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** certificate issued by **TECH - Technological University** via tracked delivery*.

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

Title: **Professional Master's Degree in Precision Pulmonology Genomics and Big Data**

Official Nº of hours: **1,500 h.**

tech technological university

Awards the following
CERTIFICATE
to

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

PROFESSIONAL MASTER'S DEGREE
in

Precision Pulmonology Genomics and Big Data

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

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

June 17, 2020

Tere Guevara Navarro
Dean

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

Professional Master's Degree in Precision Pulmonology Genomics and Big Data

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

General Structure of the Syllabus

Year	Subject	Hours	Type
1º	Personalized Precision Medicine and Big Data in Pulmonology prelude	150	CO
1º	Interventional Pulmonology and Precision Medicine	150	CO
1º	Precision Medicine, Imaging Techniques and Pulmonary Function	150	CO
1º	Genetics, Precision Medicine and Pediatric Diseases	150	CO
1º	Genetics, Precision Medicine and Asthma	150	CO
1º	Genetics, Precision Medicine and Lung Cancer	150	CO
1º	Genetics, Precision Medicine And COPD	150	CO
1º	Genetics, Precision Medicine and Other Respiratory Diseases	150	CO
1º	Big Data and Respiratory Diseases I	150	CO
1º	Big Data and Respiratory Diseases II	150	CO

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Dean

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

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Professional Master's Degree
Precision Pulmonology Genomics and Big Data

Course Modality: **Online**
Duration: **12 months.**
Certificate: **TECH Technological University**
Official Nº of hours: **1,500 h.**

Professional Master's Degree
Precision Pulmonology
Genomics and Big Data

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