

# Postgraduate Certificate

## Bone Metabolic Pathology in the Geriatric Patient





## Postgraduate Certificate Bone Metabolic Pathology in the Geriatric Patient

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

Website: [www.techtute.com/in/medicine/postgraduate-certificate/bone-metabolic-pathology-geriatric-patient](http://www.techtute.com/in/medicine/postgraduate-certificate/bone-metabolic-pathology-geriatric-patient)

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# 01

# Introduction

Bone Metabolic Pathology is a major concern in the geriatric population, with osteoporosis as the most prevalent bone disease. Osteoporosis is a chronic disease that increases the risk of fracture and can cause disability and death in the geriatric population. The diagnosis and management of these pathologies in the geriatric patient can be complex due to the physiological changes that occur with age. To address this issue, TECH has created an academic program that seeks to expose the latest advances in bone molecular biology, train health professionals to perform an initial evaluation of the elderly patient with osteoporosis, identify problems and limitations in the techniques. This program is taught through a 100% online methodology and the innovative Relearning.





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*Did you know that osteoporosis is a common disease in the elderly? Learn how to prevent and treat it thanks to this Postgraduate Certificate in Bone Metabolic Pathology in the Geriatric Patient. Enroll today!”*

Bone Metabolic Pathology in the Geriatric Patient is a public health problem of great relevance due to the aging population worldwide. Bone disorders, such as osteoporosis and osteoarthritis, are common in the elderly and increase the risk of fractures and other complications. Therefore, it is necessary to have professionals trained in the management and treatment of these pathologies in order to provide adequate care and improve the quality of life of patients.

And this Postgraduate Certificate is a response to the need for specialized education in this field. The program provides participants with up-to-date knowledge on the latest advances in molecular and cellular biology of bone metabolism, diagnostic techniques and pharmacological and non-pharmacological treatment of bone pathologies in the geriatric population.

The program consists of theoretical and practical classes, in which clinical cases are analyzed and exercises are performed to apply the acquired knowledge. Participants will be advised by professionals specialized in the field of Bone Metabolic Pathology in the Geriatric Patient. In addition, technological tools will be used for online learning, which will allow greater flexibility for graduates who wish to take the Postgraduate Certificate remotely. At the end of the program, participants will be able to perform a correct evaluation and treatment of bone pathologies in the geriatric population, therefore contributing to the improvement of the health of this vulnerable population.

This **Postgraduate Certificate in Bone Metabolic Pathology in the Geriatric Patient** 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 medicine focused on the Pathology of Bone Metabolism in the Geriatric Patient
- ◆ 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 self-assessment can be used 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



*If you work in the health area and you are interested in specializing in Bone Metabolic Pathologies in the elderly, this online Postgraduate Certificate is for you. Learn in a practical way and with experts in the field”*

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*Update your knowledge in bone molecular biology and improve your diagnosis and management of Metabolic Bone Pathology in Elderly Patients”*

The program's teaching staff includes professionals from the field who contribute their work experience to this educational program, as well as renowned specialists from leading 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 education programmed 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. For this purpose, the students will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Become an expert in osteoporosis and other bone metabolism problems in the geriatric patient with this 100% online program.*

*Discover the most effective diagnostic techniques to evaluate the bone health of geriatric patients thanks to this Postgraduate Certificate.*



# 02 Objectives

The objective of the Postgraduate Certificate in Pathology of Bone Metabolism in the Geriatric Patient is to provide students with a complete and updated training in the most common bone pathologies affecting the geriatric population. The program also aims to provide students with the necessary knowledge to perform an adequate initial evaluation of the elderly patient with bone pathologies, identify the risk factors for fracture and the risk of fracture. Likewise, the program seeks that students develop skills and knowledge about pharmacological and non-pharmacological therapeutic measures, allowing them to apply an adequate and personalized treatment in each specific case.







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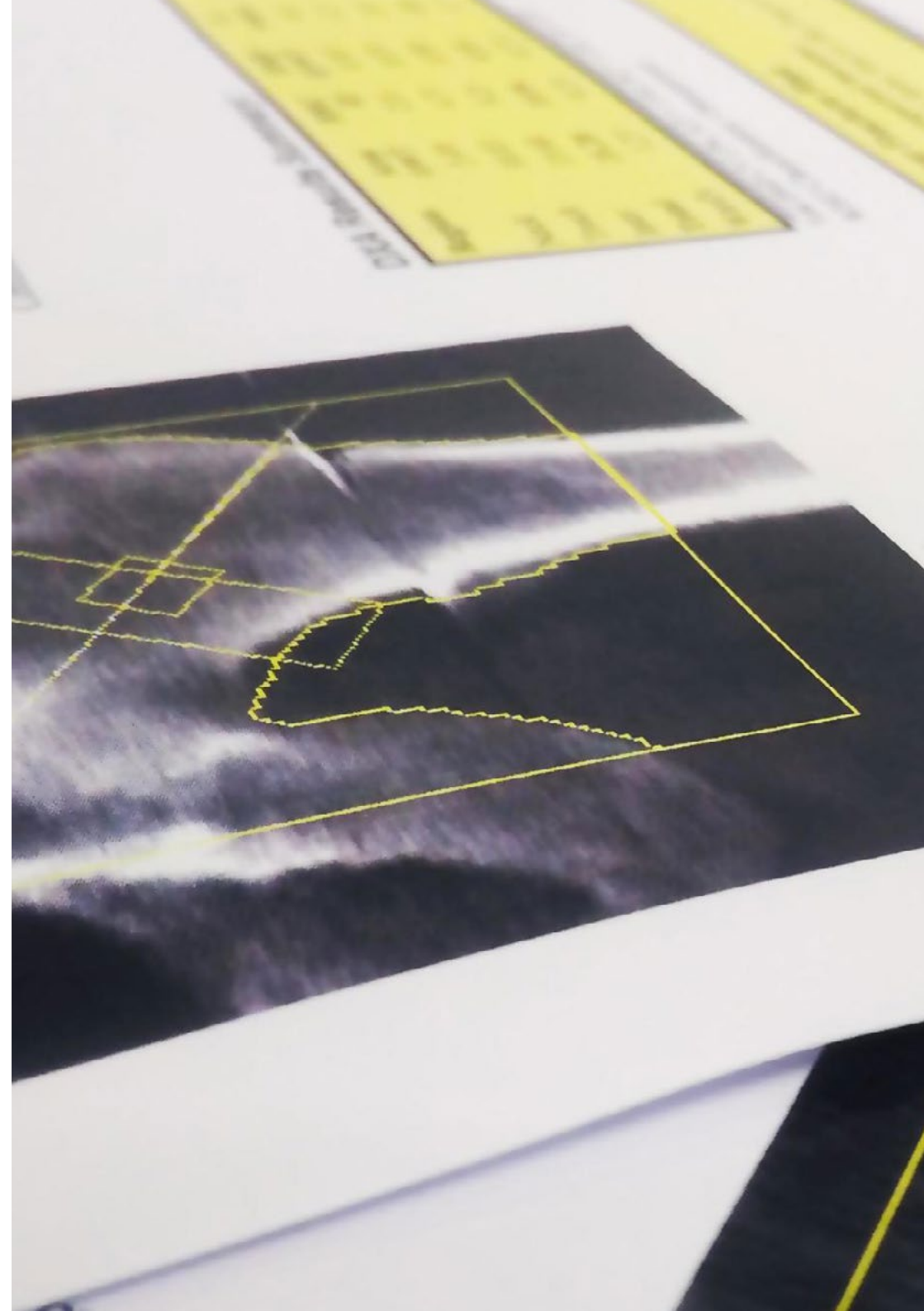
*Learn how to properly manage pharmacological and non-pharmacological therapeutic measures to treat metabolic bone pathologies in the geriatric population”*



## General Objectives

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- ◆ Delve into the processes of aging, its clinical, diagnostic and prognostic implications
- ◆ Research on the specific biological and physiological determinants of geriatric patients
- ◆ Delve into the reasons why pathologies manifest themselves differently in geriatric patients, as well as the pharmacological characteristics that condition their treatments
- ◆ Update knowledge about the biopsychosocial determinants related to the aging process
- ◆ Promote comprehensive and holistic care in geriatric patients with rheumatic pathologies, whether measured by the immune system, bone metabolism, paraneoplastic or degenerative manifestations





## Specific Objectives

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- ◆ Present the latest advances in bone molecular biology to facilitate the diagnosis and management of metabolic bone pathology
- ◆ Perform a correct initial evaluation of the elderly patient with osteoporosis, as well as recognize fracture risk factors and fracture risk
- ◆ Identify the problems and limitations of diagnostic techniques and be able to adapt to the specific conditions of this population group to ensure an adequate diagnosis
- ◆ Perform an adequate management of pharmacological and non-pharmacological therapeutic measures in each of the situations that may arise in metabolic bone pathologies in the specific context of the geriatric population

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*Improve the quality of life of your geriatric patients with this Postgraduate Certificate in Bone Metabolic Pathology in the Geriatric Patient, taught 100% online for greater convenience”*

03

# Course Management

This program offered by TECH is directed by a team of highly qualified experts in the field of medicine and geriatrics. These professionals have extensive experience and up-to-date knowledge in Pathologies related to Bone Metabolism in Geriatric Patients. In addition, students will have access to a wide range of educational resources, including a virtual platform and online learning tools, to assist them in their learning process and preparation for their future career. The course management is committed to providing students with an elite education that will enable them to acquire a solid knowledge in the specialty and develop their skills to be leaders in their field.



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*The program's management is committed to providing an elite education that will enable students to acquire a solid knowledge in the specialty and develop their skills to be leaders in their field of work”*

## Management



### Dr. García Martos, Álvaro

- ♦ Specialist in Rheumatology at the Hospital Universitario del Tajo
- ♦ Specialist in Rheumatology at the Hospital Universitario 12 de Octubre
- ♦ Associate Professor of Rheumatology at the University Alfonso X, El Sabio
- ♦ Research proficiency from the Complutense University of Madrid
- ♦ Degree in Medicine from the University of Cantabria
- ♦ Master's Degree in Rheumatic Diseases mediated by the Immune System, Universidad Rey Juan Carlos and the Spanish Society of Rheumatology
- ♦ EFSUMB Certification: Musculoskeletal Ultrasound level 1
- ♦ Levels A and B of Musculoskeletal Ultrasound of the Spanish Society of Sports Medicine



## Professors

### Dr. Arconada López, Celia

- ◆ Specialist in Rheumatology at the Hospital Universitario Infanta Elena de Valdemoro
- ◆ Rheumatologist at the Hospital Universitario 12 de Octubre in Madrid
- ◆ Rheumatologist at the Hospital Universitario Infanta Cristina in Parla
- ◆ Rheumatologist at the New Medical Center of Majadahonda
- ◆ Rheumatologist at the Clínica Mediacentro of Boadilla del Monte
- ◆ Rheumatologist at the Clínica Mediacentro of Boadilla del Monte
- ◆ Clinical tutor of internships in the Degree in Medicine at the Francisco de Vitoria University
- ◆ Researcher in the REASON and STAR studies
- ◆ Degree in Medicine from the University of Cantabria
- ◆ Member of: Member of the Spanish Society of Rheumatology, Madrid Society of Rheumatology (SORCOM), Uveitis working group of the SER

# 04

## Structure and Content

This Postgraduate Certificate consists of a module that covers various aspects related to bone metabolism and its impact on geriatric patients. Within this module, students will be able to enhance their knowledge on topics such as the epidemiology of bone metabolism pathologies, diagnostic techniques and interpretation, as well as pathologies due to decrease and increase of bone mineral density, respectively. To this end, graduates will have access to up-to-date learning resources and a wide range of educational tools, including a virtual platform available 24 hours a day.





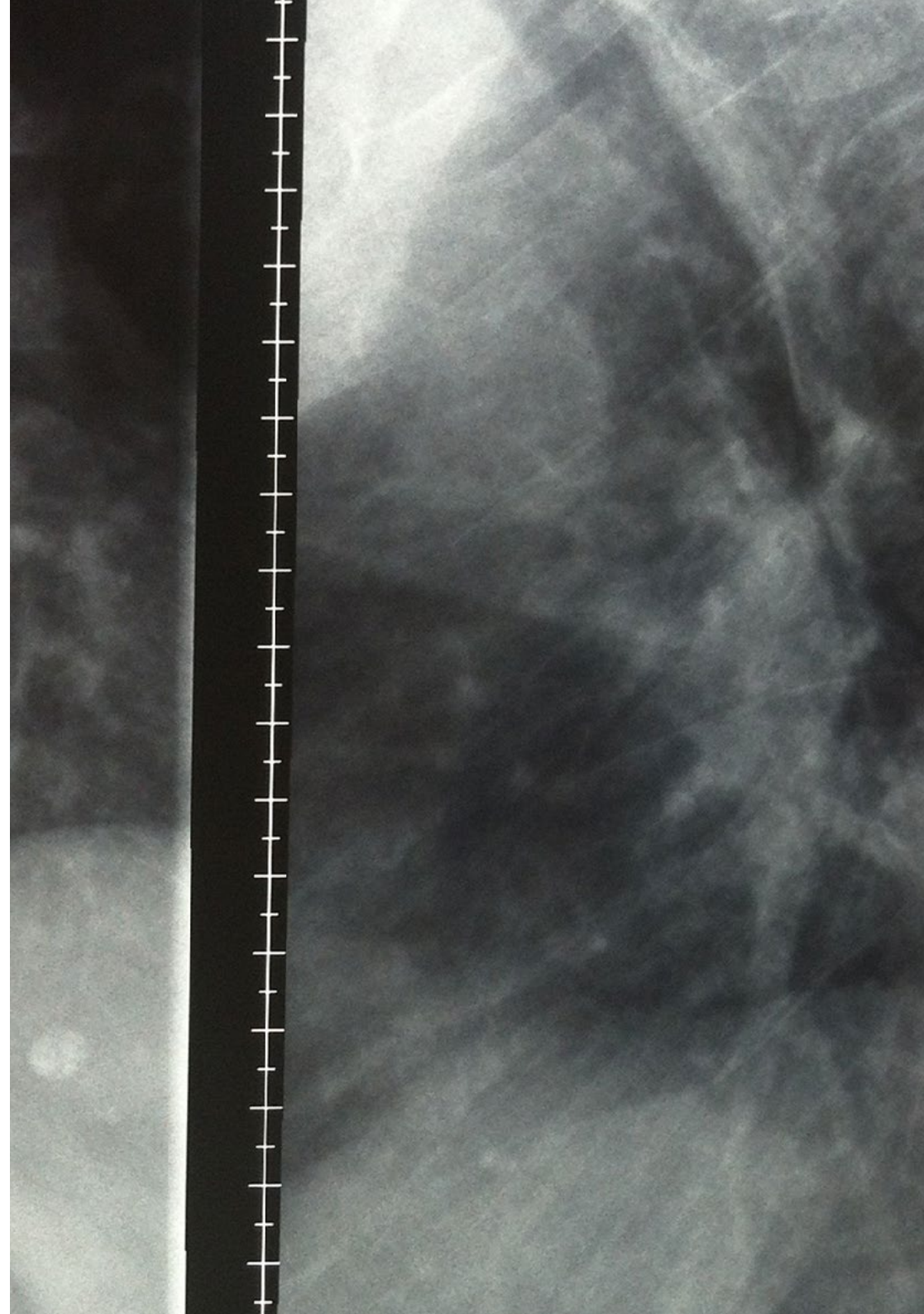


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*This program explores the latest scientific evidence on the molecular and cellular biology of bone metabolism”*

## Module 1. Pathology of bone metabolism

- 1.1. Bone metabolism in the geriatric patient
  - 1.1.1. Osteoporosis
  - 1.1.2. Importance of osteoporosis in the elderly. Special characteristics of the geriatric patient
- 1.2. Epidemiology of bone metabolism pathologies
  - 1.2.1. Most frequent bone diseases
  - 1.2.2. Epidemiology of bone diseases in the elderly
- 1.3. Molecular and cellular biology of bone metabolism
  - 1.3.1. Bone tissue. Bone remodeling. Acquisition of peak bone mass
  - 1.3.2. Bone formation/destruction imbalance in the elderly patient
  - 1.3.3. Elderly patient: oxidative stress, osteoblast and osteocyte senescence, autophagy
- 1.4. Diagnostic techniques and interpretation
  - 1.4.1. Initial evaluation of the patient with osteoporosis
  - 1.4.2. Bone densitometry and its correct interpretation. FRAX. Strengths and limitations
  - 1.4.3. Biochemical markers of bone remodeling
- 1.5. The importance of 25-hydroxyvitamin D
  - 1.5.1. Absorption and Metabolism
  - 1.5.2. Optimal level of 25-hydroxyvitamin D. Daily requirements
  - 1.5.3. Deficit and Excess of 25-hydroxyvitamin D
- 1.6. Pathologies due to a decrease in bone mineral density
  - 1.6.1. Previous key concepts
  - 1.6.2. Osteomalacia
- 1.7. Pathologies due to increased bone mineral density
  - 1.7.1. DISH. Diffuse idiopathic skeletal hyperostosis
  - 1.7.2. Paget's disease of bone



1.8. Other Bone Diseases

- 1.8.1. Osteonecrosis. Avascular necrosis of the hip
- 1.8.2. Sympathetic Reflex Dystrophy
- 1.8.3. Renal osteodystrophy

1.9. Treatment I: Prevention and non-pharmacological measures

- 1.9.1. Physical activity and exercise in the elderly patient
- 1.9.2. Geriatric nutrition: Nutritional problems in older adults
- 1.9.3. Calcium and vitamin D supplementation

1.10. Treatment II: Pharmacology

- 1.10.1. Types of Drugs Antiresorptive and osteoformers
- 1.10.2. Combined therapy vs. sequential therapy
- 1.10.3. Special Situations



*With this program you will effectively update the tools used to carry out a correct evaluation of the Bone Metabolism of the Geriatric Patient”*

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 Program

The Postgraduate Certificate in Bone Metabolic Pathology in the Geriatric Patient guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





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*Successfully complete this program  
and receive your university certification  
without traveling or complex paperwork”*

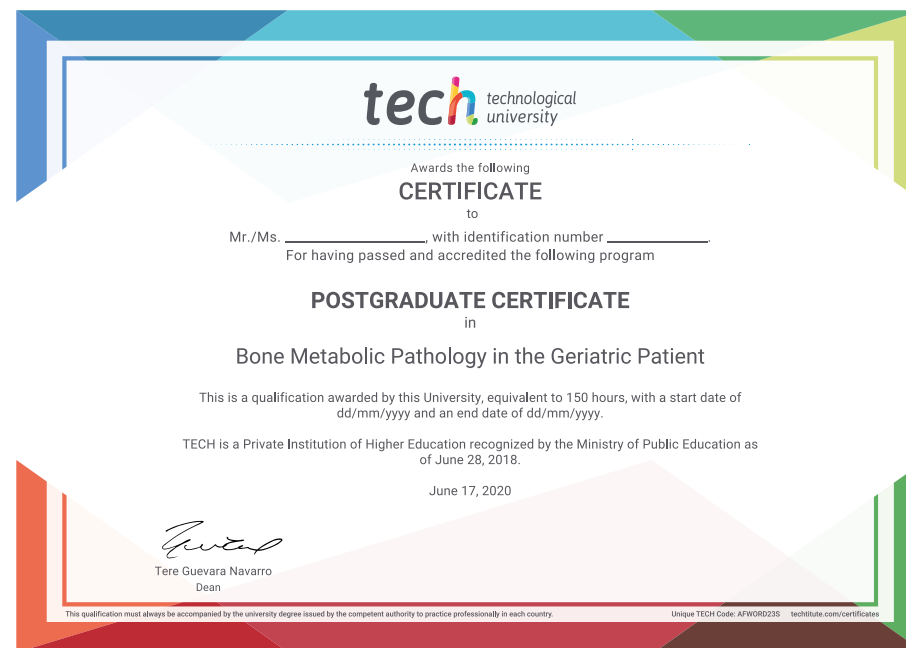
This **Postgraduate Certificate in Bone Metabolic Pathology in the Geriatric Patient** contains the most complete and up-to-date scientific on the market.

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

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

Title: **Postgraduate Certificate in Bone Metabolic Pathology in the Geriatric Patient**

Official N° of Hours: **150 h.**



\*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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personalized service innovation

knowledge present

online training

development languages

virtual classroom

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