Postgraduate Certificate

Forensic Radiology of the Human Skeleton at Different Stages of Biological Development

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Postgraduate Certificate

Forensic Radiology of the Human Skeleton at Different Stages of Biological Development

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

Website: www.techtitute.com/us/medicine/postgraduate-certificate/forensic-radiology-human-skeleton-different-stages-biological-development

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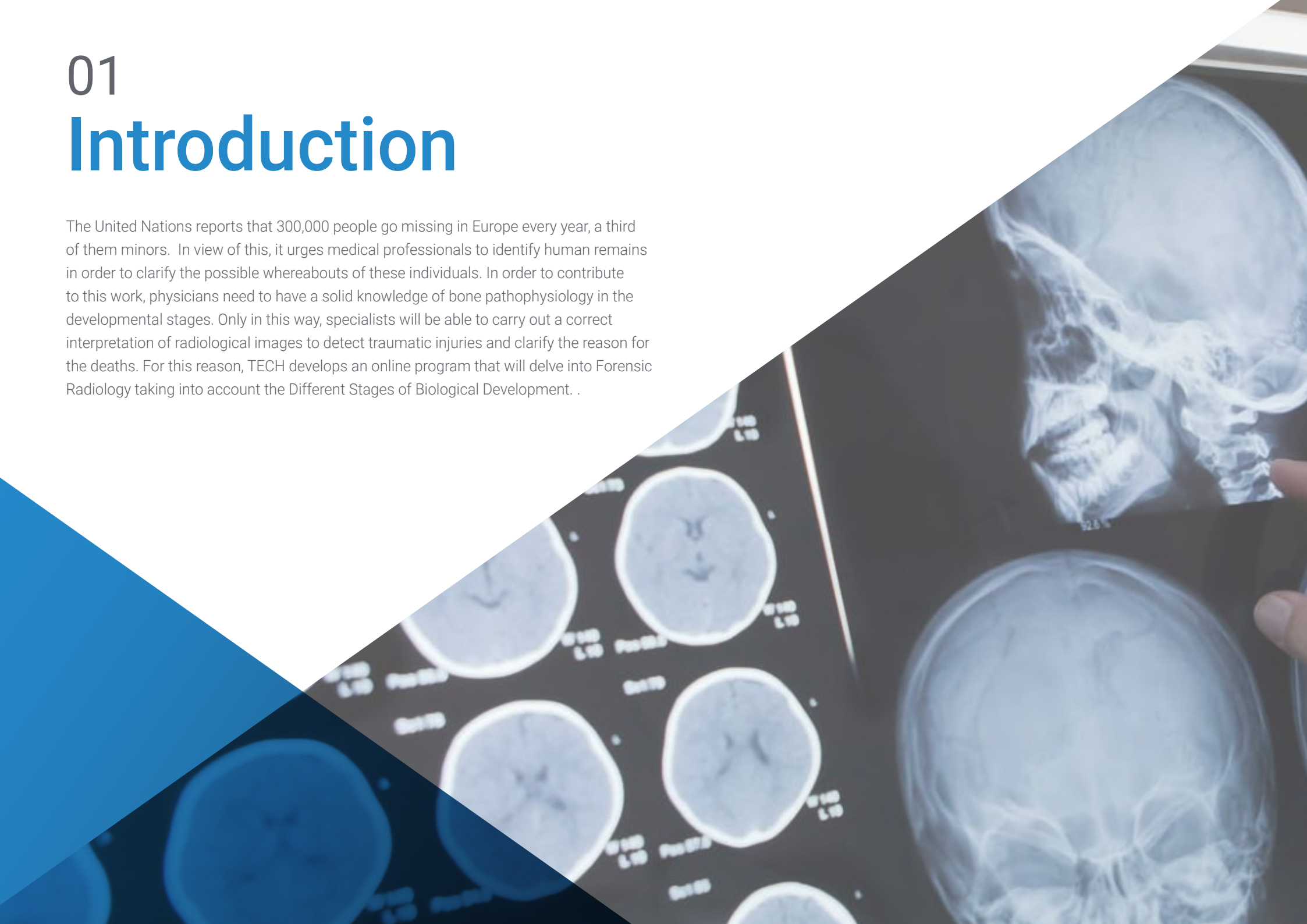
01

Introduction

The United Nations reports that 300,000 people go missing in Europe every year, a third of them minors. In view of this, it urges medical professionals to identify human remains in order to clarify the possible whereabouts of these individuals. In order to contribute to this work, physicians need to have a solid knowledge of bone pathophysiology in the developmental stages. Only in this way, specialists will be able to carry out a correct interpretation of radiological images to detect traumatic injuries and clarify the reason for the deaths. For this reason, TECH develops an online program that will delve into Forensic Radiology taking into account the Different Stages of Biological Development. .



With this 100% online program, you will optimize your practice with the most innovative techniques to recognize the radiological changes that occur in the bones during growth and aging"

In the medical environment, Forensic Radiology applied to the child skeleton is a highly demanded field of specialization. Among the reasons for this is that radiological equipment allows professionals to detect a wide range of diseases and congenital anomalies (from bone dysplasias to malformations). In this sense, the evaluation of the anatomical characteristics and specific growth patterns of bones can provide crucial information to identify children who have died as a result of natural disasters, accidents or even homicides. In addition, in cases where skeletal remains of minors are found, imaging tools are helpful in estimating the age of the individuals at the time of the events.

For this reason, TECH is developing an avant-garde program in Forensic Radiology of the Human Skeleton at Different Stages of Biological Development. The academic itinerary will delve into the bone pathophysiology of young individuals, taking into account factors such as bone growth and the frequent acquired pathologies. Along the same lines, the syllabus will deal with the main diseases affecting the bones, among which Osteoporosis, Bone Cancer or Rickets stand out. Likewise, specialists will enhance their skills to adequately interpret radiological images derived from tools such as Computed Tomography, X-rays and Magnetic Resonance Imaging. In this way, graduates will identify evidence of trauma in children's bones and these findings will contribute to solve cases of child abuse.

As for the methodology of this program, it should be noted that it reinforces its innovative character. TECH provides students with a 100% online educational environment, therefore adapting to the needs of busy professionals who want to advance in their careers. It also employs the Relearning teaching system, based on the repetition of key concepts to fix knowledge and facilitate learning. In this way, the combination of flexibility and a robust pedagogical approach makes it highly accessible.

This **Postgraduate Certificate in Forensic Radiology of the Human Skeleton at Different Stages of Biological Development** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of practical cases presented by experts in Forensic Radiology
- The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable for professional practice
- Practical exercises where the self-assessment 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

Assist in identifying human remains by comparing radiological features with descriptions of missing individuals"

You will acquire skills to recognize radiological signs of skeletal maturation in medical images such as X-rays or CT scans"

You will delve into Bone Growth to estimate the age of individuals and help in the identification of human remains during criminal investigations.

A syllabus, based on the revolutionary Relearning methodology, that will help you to consolidate the concepts efficiently.

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

02

Objectives

Through this university program, physicians will be highly qualified to identify radiological characteristics of skeletal maturation from radiological images. In this line, graduates will use the specific radiological characteristics of bodies to determine the chronological age of individuals at the time of death. In addition, specialists will enhance their skills to interpret images and achieve radiological findings that serve to identify human remains.

You will have a comprehensive understanding of the variability of skeletal maturation and will optimize your skills in the interpretation of radiological images"

General Objectives

- Analyze the sequence of ossification, joint development and the formation of bone structures at different stages of childhood, as well as the factors that influence bone growth, such as genetics, nutrition and chronic diseases
- Develop skills to interpret specific images of the above conditions and understand their impact on growth and musculoskeletal function
- Understand how skeletal growth and mineralization are processes that begin during fetal development and continue at different rates through childhood and adolescence until the third decade of life, when peak bone mass is reached
- Identify normal features of childhood bone anatomy, as well as signs of traumatic injuries, bone disease and pediatric orthopedic conditions, with emphasis on the importance of exposure to specific imaging techniques for children and the radiologic safety considerations for this group

Specific Objectives

- Determine the development of the bone along the growth phases, from the neonatal phase to adolescence and the respective images obtained by radiographs
- Master the morphology of healthy bone: its histology, the ossification center, the different types of bone tissues present in the bones and their dynamics during childhood
- Analyze bone factors with congenital, metabolic and infectious pathologies, distinguishing them from healthy bone and know how to apply the appropriate imaging technique to each case.
- Identify the most frequent bone lesions among children and adolescents, including the establishment of the difference between accidental injuries and injuries possibly resulting from assault and abuse.

The Virtual Campus will be available to you 24 hours a day, so that you can log in at the time that suits you best"

03

Course Management

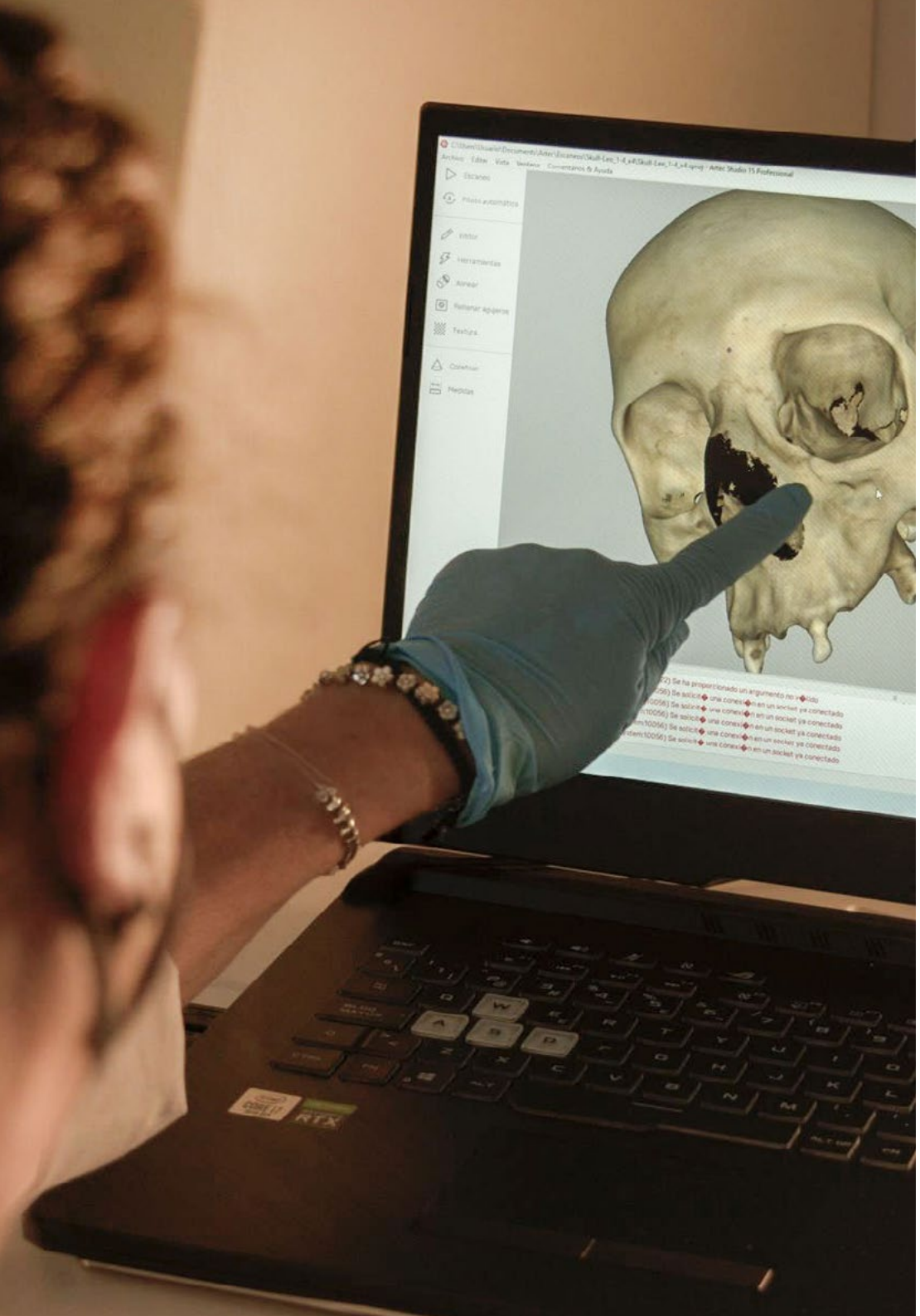
In order to provide an educational experience of the highest quality, TECH has carried out a thorough selection process to select the teaching staff that makes up this program. Therefore, it has brought together true references in the field of Forensic Radiology. These professionals stand out both for their solid knowledge in this area and for their extensive professional background, which has led them to form part of prestigious institutions. Therefore, students will have access to excellent teaching materials that will allow them to obtain new skills with which to make a leap in their careers.

You will consult your doubts directly with the teaching staff, therefore enjoying personalized tutoring adapted to your circumstances"

Management

Dr. Ortega Ruiz, Ricardo

- PhD in Biomedical Engineering from the Polytechnic University of Madrid, specializing in Diagnostic Imaging
- Director of the Laboratory of Archaeology and Forensic Anthropology of the Institute of Professional Training in Forensic Sciences
- Investigator of Crimes against Humanity and War Crimes in Europe and the Americas
- Judicial Expert in Human Identification
- International Observer in Drug Trafficking Crimes in Iberoamerica
- Collaborator in police investigations for the search of missing persons in foot or canine tracking with Civil Protection
- Instructor of adaptation courses in Basic Scale to Executive Scale aimed at the Scientific Police
- Master's Degree in Forensic Sciences applied to the Search for Missing Persons and Human Identification
  Cranfield University
- Master's Degree in Archeology and Heritage with the Specialty of Forensic Archeology for the Search of Missing Persons in Armed Conflict



Professors

Ms. Leyes Merino, Valeria Alejandra

- Conventional Radiology Technician in High Imaging at Hospital Teodoro J. Schestakow
- Radiology Technician at Hospital Teodoro J. Schestakow
- Conventional Radiology Technician in High Imaging
- Expert in Densitometry at the Nuclear Medicine Foundation (FUESMEN)
- Radiology Technician at the Red Cross

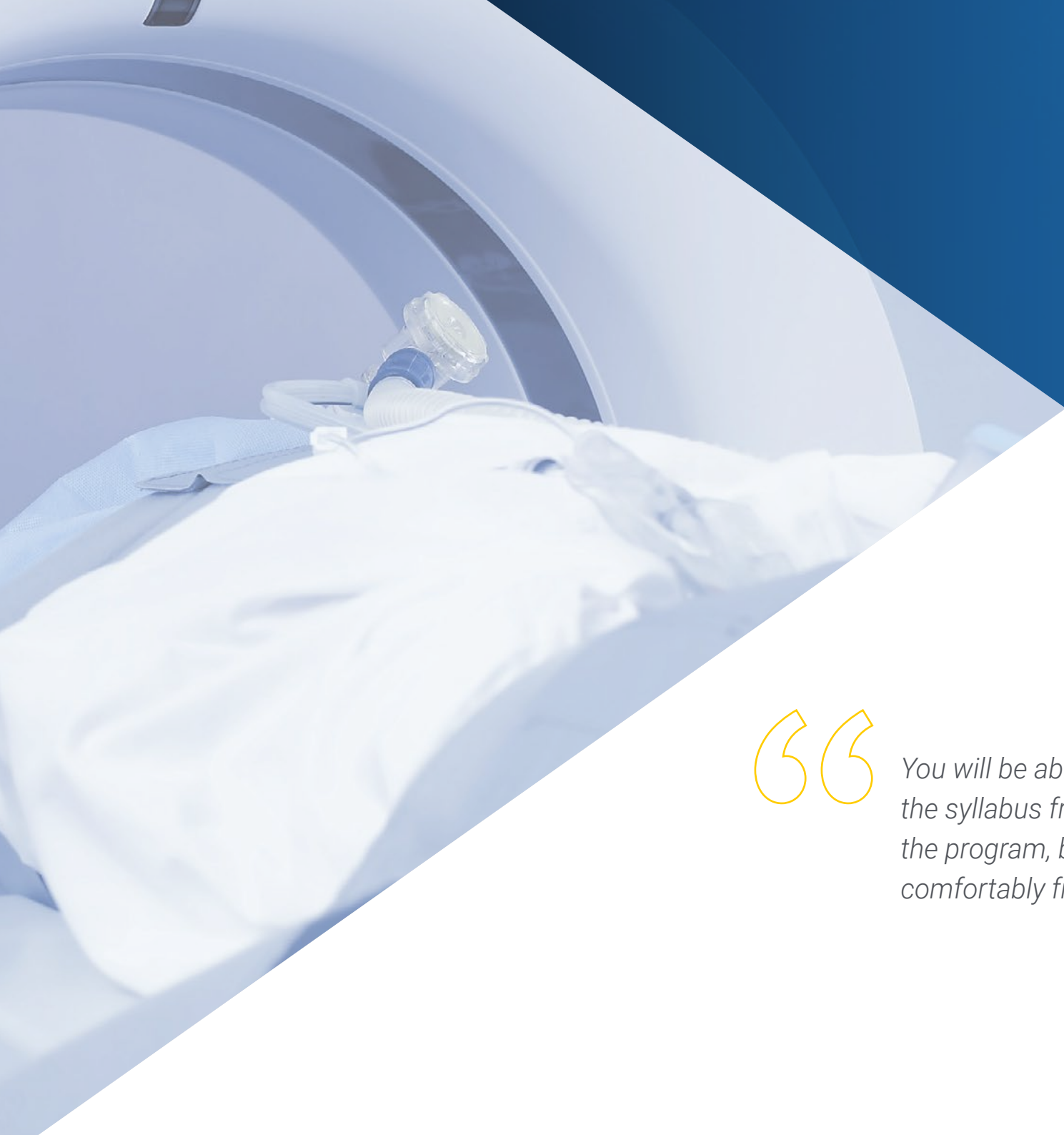
Dr. Lini, Priscila

- Director of the Laboratory of Bioanthropology and Forensic Anthropology of Mato Grosso do Sul
- Legal Advisor at the Federal Prosecutor's Office at the Federal University of Latin American Integration
- Technical Collaborator at the Public Defender's Office of the State of Mato Grosso do Sul
- Master's Degree in Law from the Pontifical Catholic University of Paraná
- Bachelor's Degree in Biological Sciences from Instituto Prominas
- Law Degree from State University of Western Paraná
- Specialization in Physical and Forensic Anthropology from the Institute of Professional Training in Forensic Sciences

04

Structure and Content

This university program will highlight the importance of having an exhaustive knowledge of the human skeleton in its developmental stages in order to know its fundamental characteristics and to perform an optimal radiological interpretation. The academic itinerary will analyze in depth the bone physiopathology, emphasizing the cellular components. Likewise, the syllabus will delve into the study of bone vascularization so that graduates can determine the age of an individual at the time of death. The didactic materials will delve into the main diseases that affect bones, such as Osteoporosis or Rickets. Graduates will be able to identify them properly in the different radiological images.



You will be able to download all the syllabus from the first day of the program, being able to study it comfortably from your smartphone"

Module 1. Forensic Radiology of the Human Skeleton in Phases of Biological Maturation

1.1. Bone Physiopathology in the Forensic Context
- 1.1.1. Functions
- 1.1.2. Composition - Bone Tissue
- 1.1.3. Cellular Component
  - 1.1.3.1. Bone-Forming Cells (Osteoblasts)
  - 1.1.3.2. Bone Destroyers (Osteoclasts)
  - 1.1.3.3. Mature Bone Cells (Osteocytes)

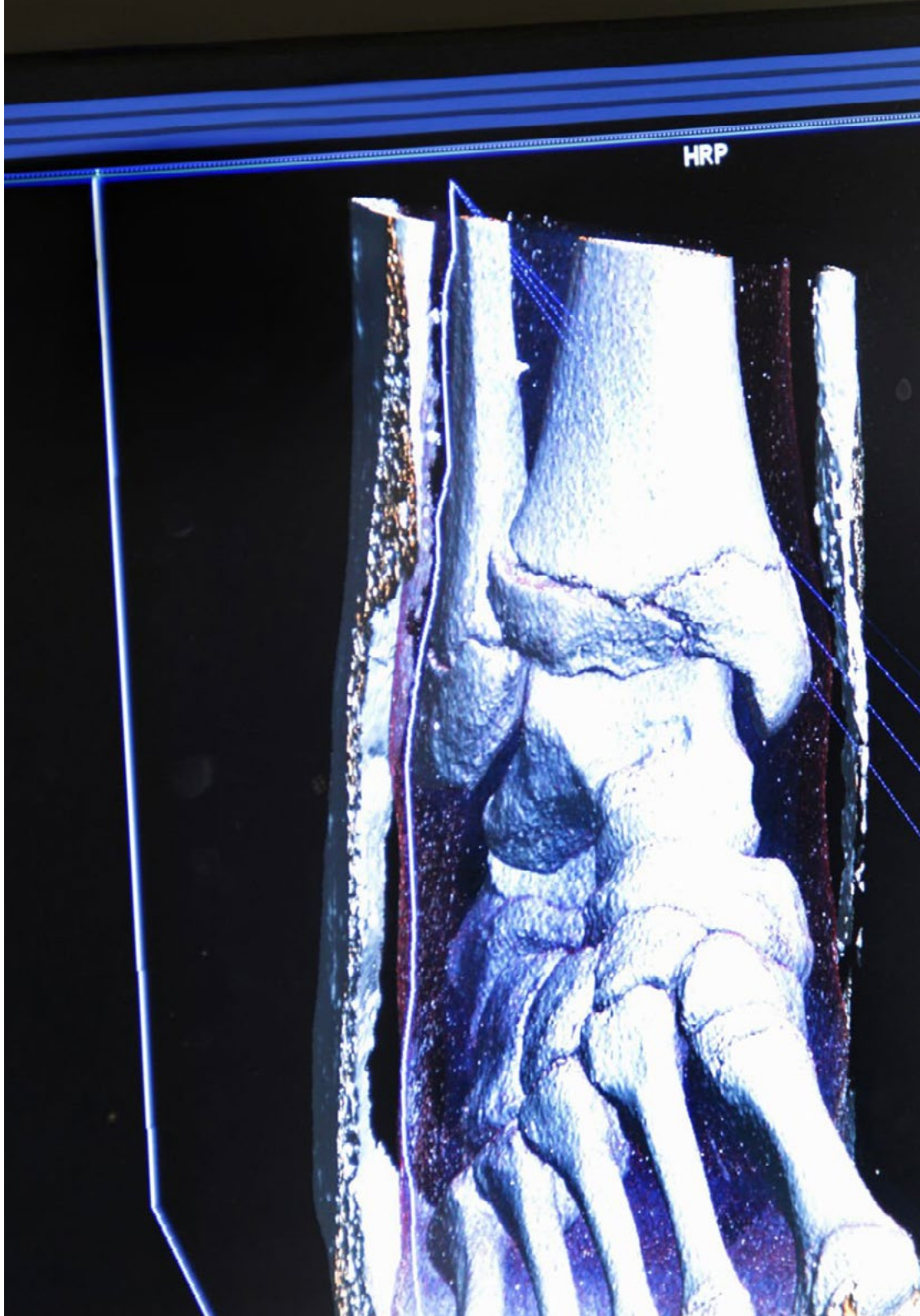
1.2. Osteogenesis in Individuals in the Forensic Context
- 1.2.1. Membranous Ossification Pathway
- 1.2.2. Chondral Ossification Pathway
- 1.2.3. Periosteum

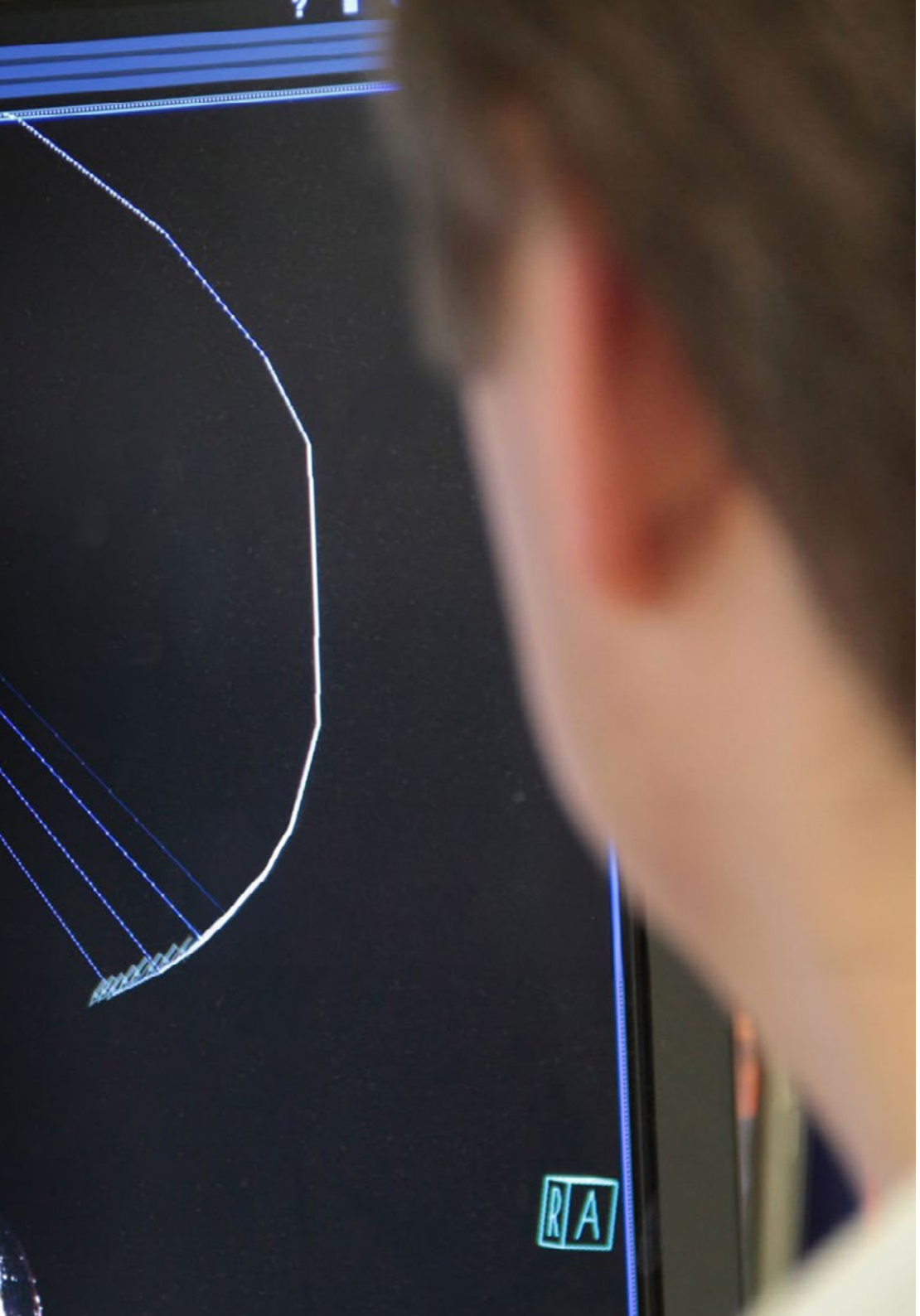
1.3. Bone Vascularization in the Forensic Context
- 1.3.1. Main Pathway
- 1.3.2. Epiphyseal Pathway
- 1.3.3. Metaphyseal Pathway
- 1.3.4. Periosteal Arterial Pathway

1.4. Bone Growth in the Forensic Context
- 1.4.1. Width
- 1.4.2. Length
- 1.4.3. Associated Pathologies

1.5. Forensic Radiology of Pathologies in Developing Individuals
- 1.5.1. Congenital Pathologies
- 1.5.2. Acquired Pathologies
- 1.5.3. Trauma and its Variants

1.6. Bone Diseases Through Diagnostic Imaging in the Forensic Context
- 1.6.1. Osteoporosis
- 1.6.2. Bone Cancer
- 1.6.3. Osteomyelitis
- 1.6.4. Osteogenesis Imperfecta
- 1.6.5. Rickets





1.7. Forensic Radiology of the Child Skull
- 1.7.1. Embryonic, Fetal and Neonatal Formation.
- 1.7.2. Fontanelles and Fusion Phases
- 1.7.3. Facial and Dental Development

1.8. Forensic Radiobiological Osteology in the Adolescent
- 1.8.1. Sexual Dimorphism and Bone Growth
- 1.8.2. Bone Changes Resulting from Hormonal Action
- 1.8.3. Juvenile Growth Retardation and Metabolic Problems

1.9. Trauma and Categories of Childhood Fractures in Forensic Diagnostic Imaging
- 1.9.1. Frequent Traumas in Infantile Long Bones
- 1.9.2. Frequent Traumas in Infantile Flat Bones
- 1.9.3. Trauma Resulting from Aggression and Mistreatment

1.10. Radiology and Diagnostic Imaging Techniques in Forensic Pediatrics
- 1.10.1. Radiology for Neonates and Infants
- 1.10.2. Radiology for Children in Early Childhood
- 1.10.3. Radiology for Adolescents and Juveniles

Updating your knowledge about Forensic Radiology of the Human Skeleton at Different Stages of Biological Development will be much easier thanks to the multimedia material provided by this program"

05

Methodology

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

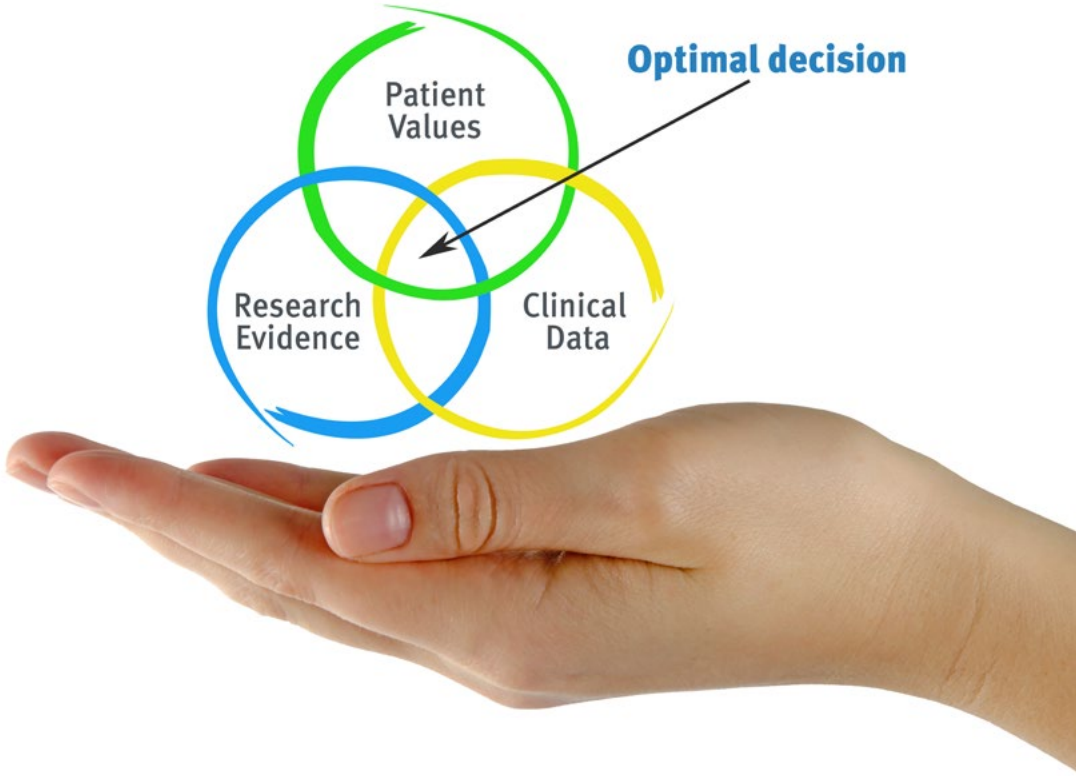
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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:

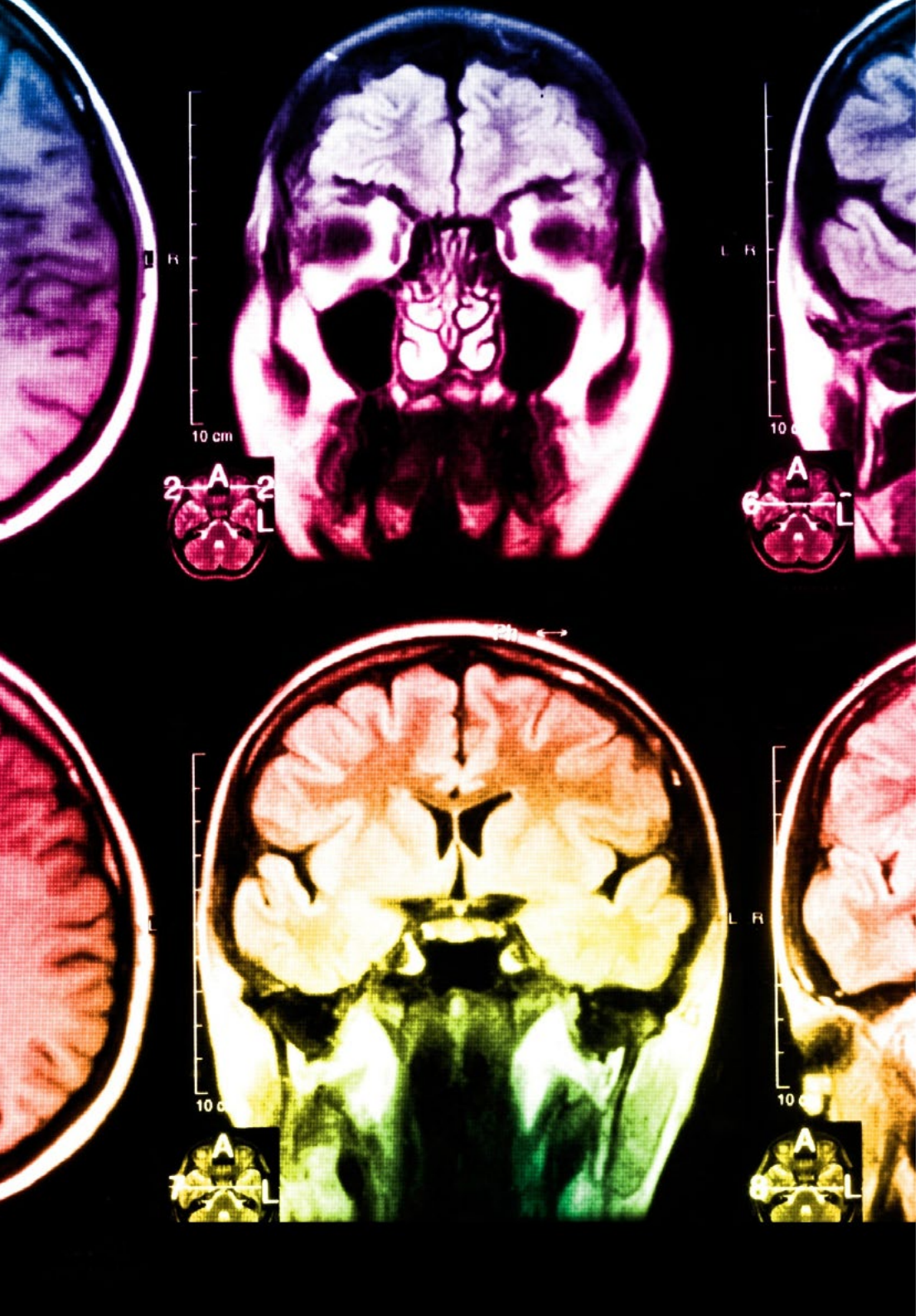
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better 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.



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.

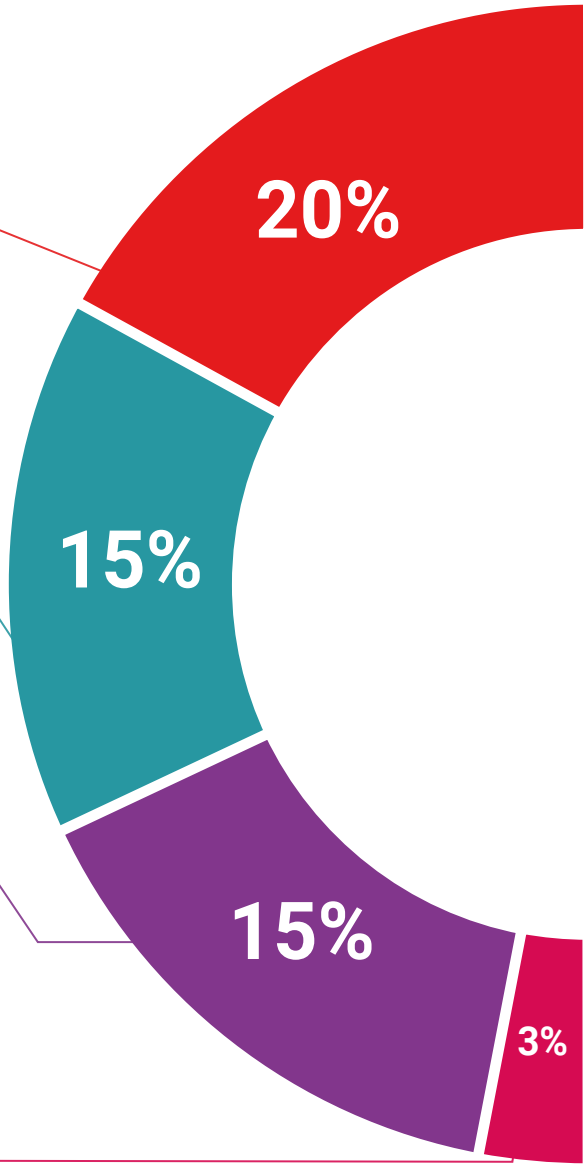
Interactive Summaries

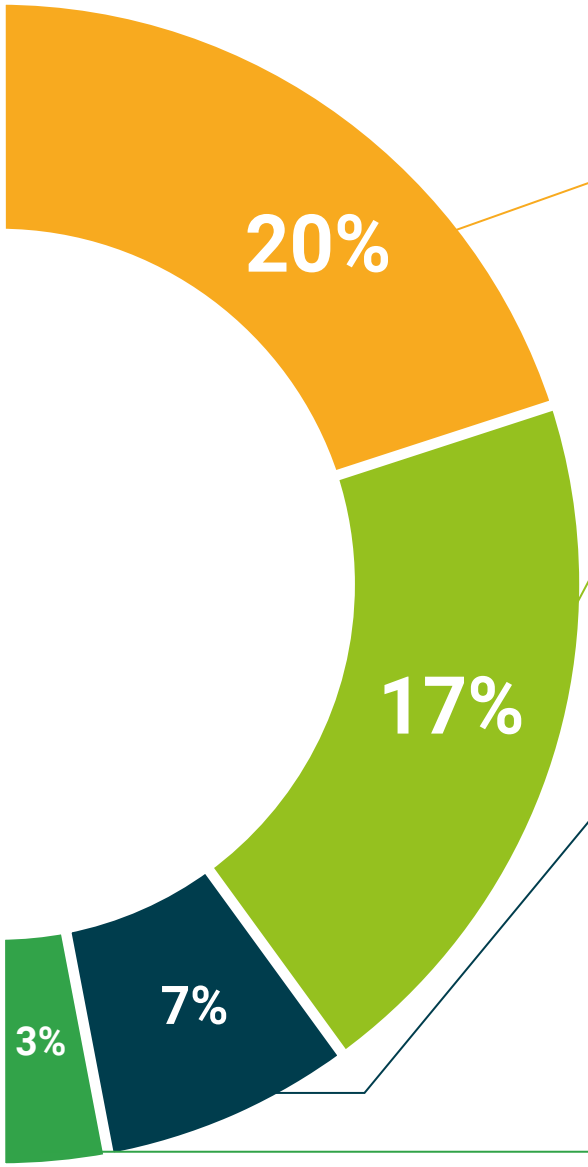
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Forensic Radiology of the Human Skeleton at Different Stages of Biological Development guarantees, in addition to the most accurate and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.

Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork"

This private qualification will allow you to obtain a **Postgraduate Certificate in Forensic Radiology of the Human Skeleton at Different Stages of Biological Development** 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** private qualification 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 Forensic Radiology of the Human Skeleton at Different Stages of Biological Development**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**


tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Forensic Radiology of the Human Skeleton at Different Stages of Biological Development

This is a private qualification of 180 hours of duration equivalent to 6 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Dean

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

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

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