Postgraduate Certificate
Biomedical Databases, the Foundations of Big Data

tech global university

tech global university

Postgraduate Certificate

Biomedical Databases, the Foundations of Big Data

- 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/biomedical-databases-foundations-big-data

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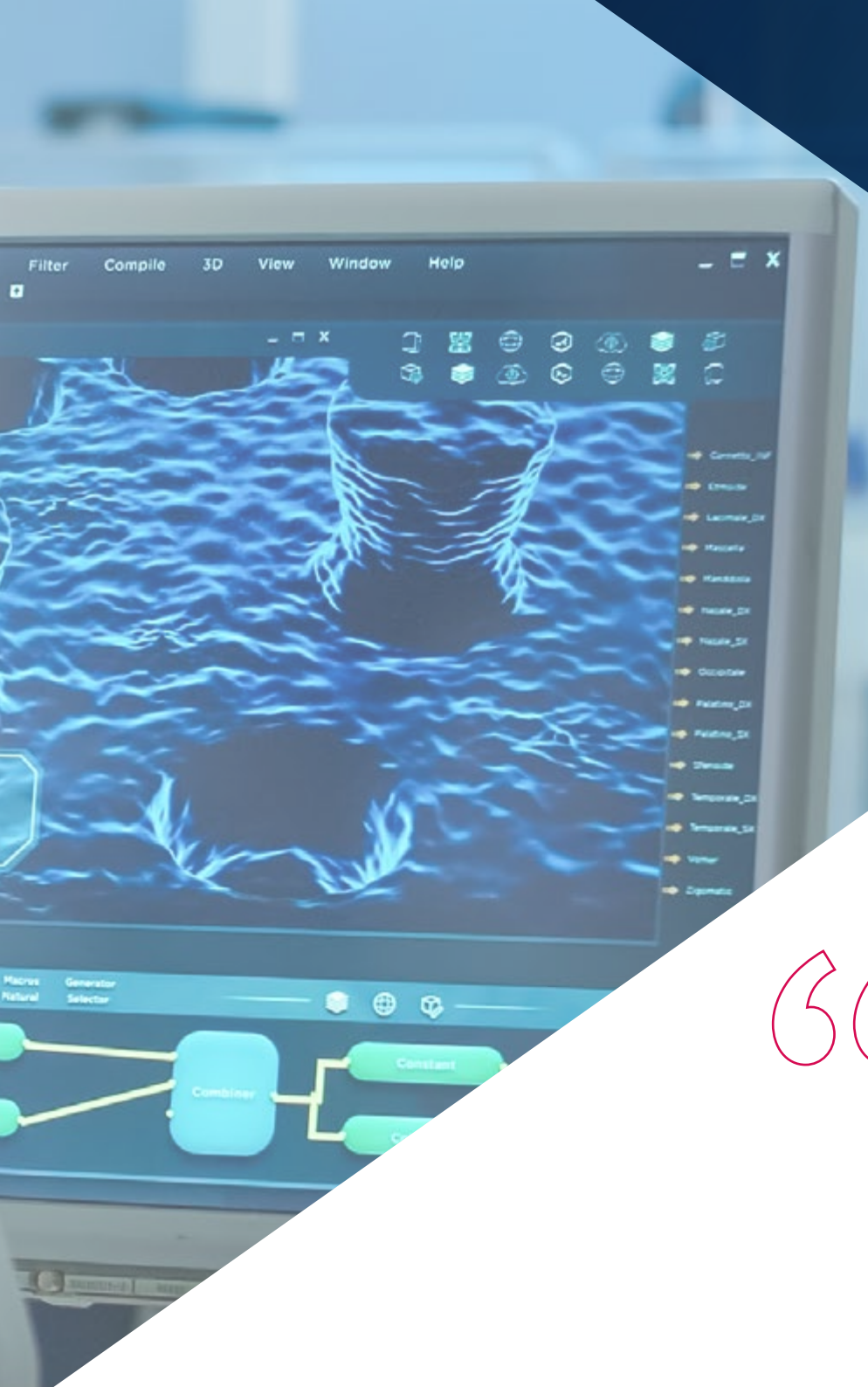
01

Introduction

The need to generate work with higher performance and better control the existing information within medical environments has led to the integration of the benefits provided by Big Data in these spaces. This element allows the extensive databases to be housed without any inconvenience and therefore, to give them the appropriate treatment in order to achieve a much more effective processing. For this reason, we present an academic program focused on providing students with all the necessary knowledge about this field so that they can achieve a complete update. This is 100% online, a benefit that will allow the trainee to have more control over your time.



A Postgraduate Certificate that will help you strengthen your skills in the management of Biomedical Databases and increase your professional expectations"

The advance of technology and the need to manage large amounts of information in the medical field have made the implementation of Biomedical Databases essential nowadays. For this reason, Big Data has transformed the way of studying health and it is precisely this Postgraduate Certificate will provide its students with the fundamental aspects that encompass this field.

Thanks to the program's comprehensive academic itinerary, students will acquire the knowledge and skills necessary to handle large amounts of data. In addition, students will learn about the various types of databases in order to master them completely and optimize working time during their use in a medical environment.

In addition, important topics on the management of self-reported patient repositories and Elixir open databases will be addressed, with the aim of enabling students to delve deeper into this area and identify the problems that may be encountered when working with large information channels.

All this, 100% online, a benefit that comes from studying under the Relearning methodology and that will allow students to have more flexible schedules, since they will have access 24 hours a day to the multimedia resources. In addition, students will have a team of professors specialized in the field of Big Data applied to medicine, who will be willing to share their knowledge in this field.

This **Postgraduate Certificate in Biomedical Databases, the Foundations for Big Data** 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 Biomedical Databases, the Foundations of 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 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 work
- Content that is accessible from any fixed or portable device with an Internet connection

You set the limits and TECH gives you the tools to overcome them. Start now this Postgraduate Certificate and discover how far you can go"

Master the concept of Big Data and apply it in your professional work, thanks to this degree"

From the comfort of your own home and at your own pace, you will be able to consolidate all the academic elements of this Postgraduate Certificate.

Develop an effective work methodology that allows you to work with any kind of database.

The program includes in its teaching staff professionals from the sector who bring to this program the experience of their work, as well as recognized specialists from leading societies and prestigious universities.

Its 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 an immersive education programmed to learn in real situations.

The design of this program focuses on Problem-Based Learning, by means of which the professional must try to solve the different professional practice situations that are presented throughout the academic course. This will be done with the help of an innovative system of interactive videos made by renowned experts.

02

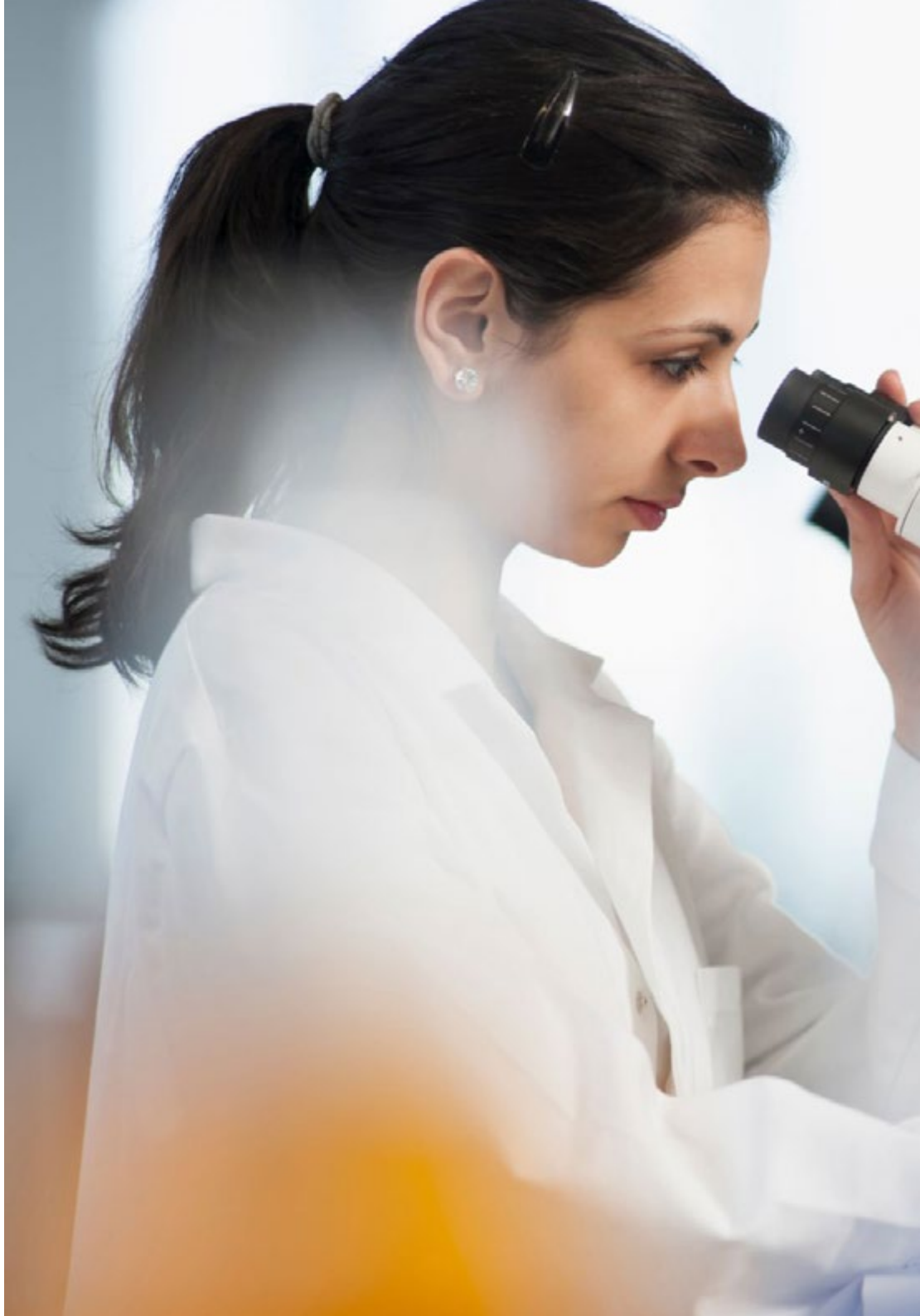
Objectives

The main purpose of this academic program is to provide the student with the most significant practical tools to effectively carry out the collection and organization of information. In this way, the student will be able to update its knowledge in this area and perfect its competences completely to face the particularities of this field, through the multimedia didactic resources that have been specially prepared by TECH for this degree.

Acquire an in-depth knowledge of the types of databases that exist and the correct way to use them in the medical environment"

General Objectives

- Develop key concepts of medicine that will provide a vehicle for understanding clinical medicine
- Determine the major diseases affecting the human body classified by apparatus or systems, structuring each module into a clear outline of pathophysiology, diagnosis, and treatment
- Provide the necessary resources to practically apply all the concepts in the modules
- Develop the fundamental concepts of databases
- Determine the importance of medical databases



Specific objectives

- Understand the concept of biomedical information databases
- Examine the different types of biomedical information databases
- Study data analysis methods in depth
- Compile models that are useful in predicting outcomes
- Analyze patient data and organize it logically
- Report on large amounts of information
- Determine the main lines of research and testing
- Utilize tools for bioprocess engineering

The importance of databases in the world of medicine is growing and with this program, you will become part of the professionals of the future"

03

Course Management

TECH has carefully selected the teaching team for this program, in order to guarantee a quality education and provide a complete training that will allow students to access better job opportunities. Leading professionals in this field will share with the students their knowledge on the realization of Biomedical Databases, which will allow them to develop advanced skills in the integration of Big Data as acn optimal and effective tool. In addition, students will strengthen their job skills by learning first-hand about the current requirements in this field.

The best professionals will transfer to you all the advanced knowledge about Biomedical Databases"

Management

Ms. Sirera Pérez, Ángela

- Biomedical Engineer expert in Nuclear Medicine and exoskeleton design
- Designer of specific parts for 3D printing at Technadi
- Technician in the Nuclear Medicine area of the University Clinic of Navarra
- Degree in Biomedical Engineering from the University of Navarra
- MBA and Leadership in Healthcare and Medical Technology Companies

Professors

Ms. Ruiz de la Bastida, Fátima

- Data Scientist at IQVIA
- Area Specialist, Bioinformatics Unit, Jimenez Diaz Foundation Research Institute
- Oncology Researcher at the La Paz University Hospital
- Graduate in Biotechnology, University of Cadiz
- Master's Degree in Bioinformatics and Computational Biology, Autonomous University of Madrid
- Specialist in Artificial Intelligence and Data Analysis at the University of Chicago

04

Structure and Content

Leading experts in the area of E-Health and Big Data have developed the contents of the syllabus of this Postgraduate Certificate in order to provide students with the most up-to-date knowledge in this area. In this way, students will delve into the advances that have emerged in the construction of Biomedical Databases, through multimedia resources that will provide them with the essential elements to understand the most essential elements related to this field.

This is the best curriculum to develop advanced skills in Big Data and its implementation in the medical field"

Module 1. Biomedical Databases

1.1. Biomedical Databases
- 1.1.1. Biomedical Databases
- 1.1.2. Primary and Secondary Databases
- 1.1.3. Major Databases

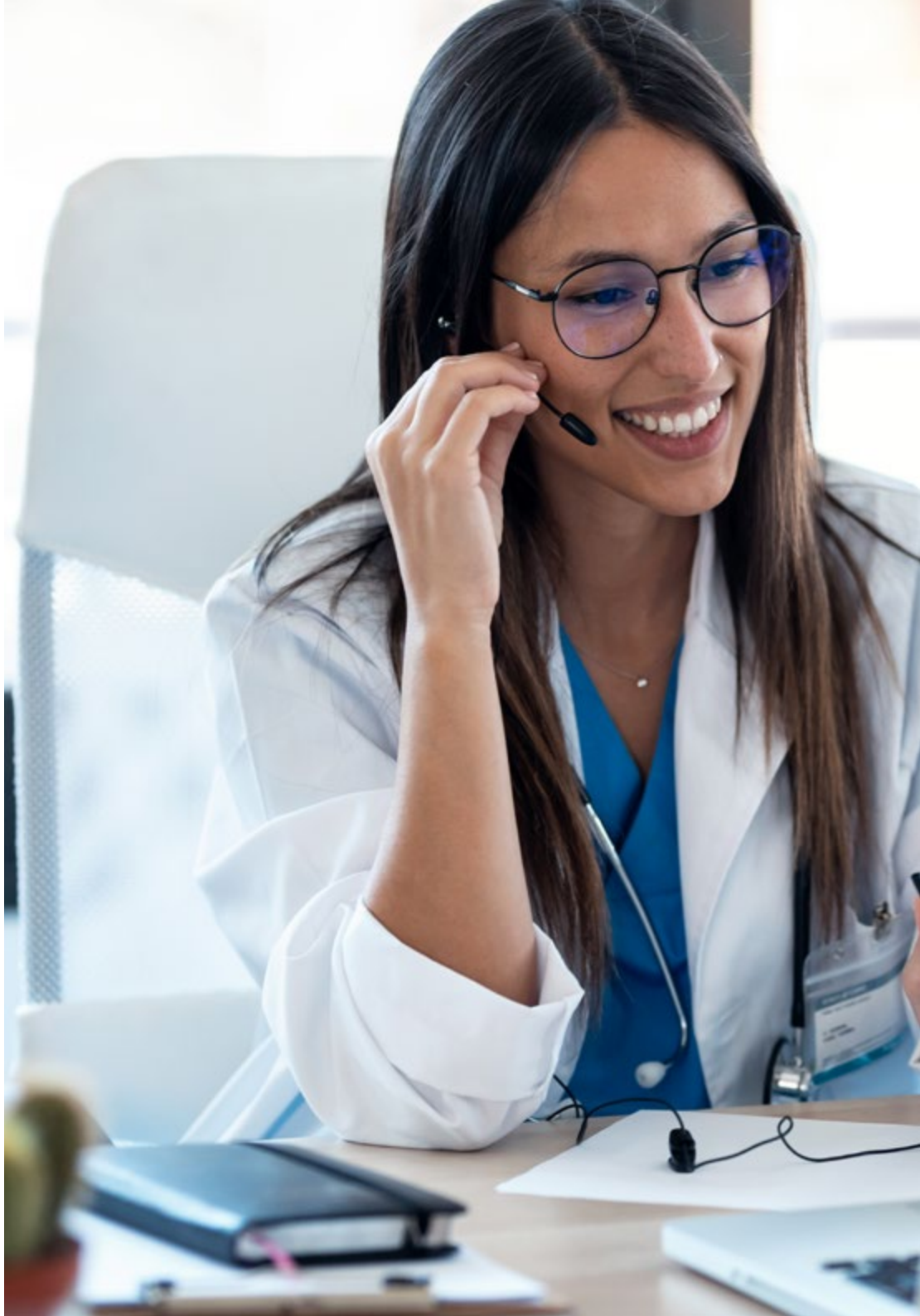
1.2. DNA Databases
- 1.2.1. Genome Databases
- 1.2.2. Gene Databases
- 1.2.3. Mutations and Polymorphisms Databases

1.3. Protein Databases
- 1.3.1. Primary Sequence Databases
- 1.3.2. Secondary Sequence and Domain Databases
- 1.3.3. Macromolecular Structure Databases

1.4. Omics Projects Databases
- 1.4.1. Genomics Studies Databases
- 1.4.2. Transcriptomics Studies Databases
- 1.4.3. Proteomics Studies Databases

1.5. Genetic Diseases Databases. Personalized and Precision Medicine
- 1.5.1. Genetic Diseases Databases
- 1.5.2. Precision Medicine. The Need to Integrate Genetic Data
- 1.5.3. Extracting Data from OMIM

1.6. Self-Reported Patient Repositories
- 1.6.1. Secondary Data Use
- 1.6.2. Patients' Role in Deposited Data Management
- 1.6.3. Repositories of Self-Reported Questionnaires. Examples:



1.7. Elixir Open Databases
  1.7.1. Elixir Open Databases
  1.7.2. Databases Collected on the Elixir Platform
  1.7.3. Criteria for Choosing between Databases
1.8. Adverse Drug Reactions (ADRs) Databases
  1.8.1. Pharmacological Development Processes
  1.8.2. Adverse Drug Reaction Reporting
  1.8.3. Adverse Reaction Repositories at Local, National, European and International levels
1.9. Research Data Management Plans. Data to be Deposited in Public Databases
  1.9.1. Data Management Plans
  1.9.2. Data Custody in Research
  1.9.3. Data Entry in Public Databases
1.10. Clinical Databases. Problems with Secondary Use of Health Data
  1.10.1. Medical Record Repositories
  1.10.2. Data Encryption
  1.10.3. Access to Health Data. Legislation

Don't hesitate any longer to boost your career and start this Postgraduate Certificate to update you on the latest developments in your profession"

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:

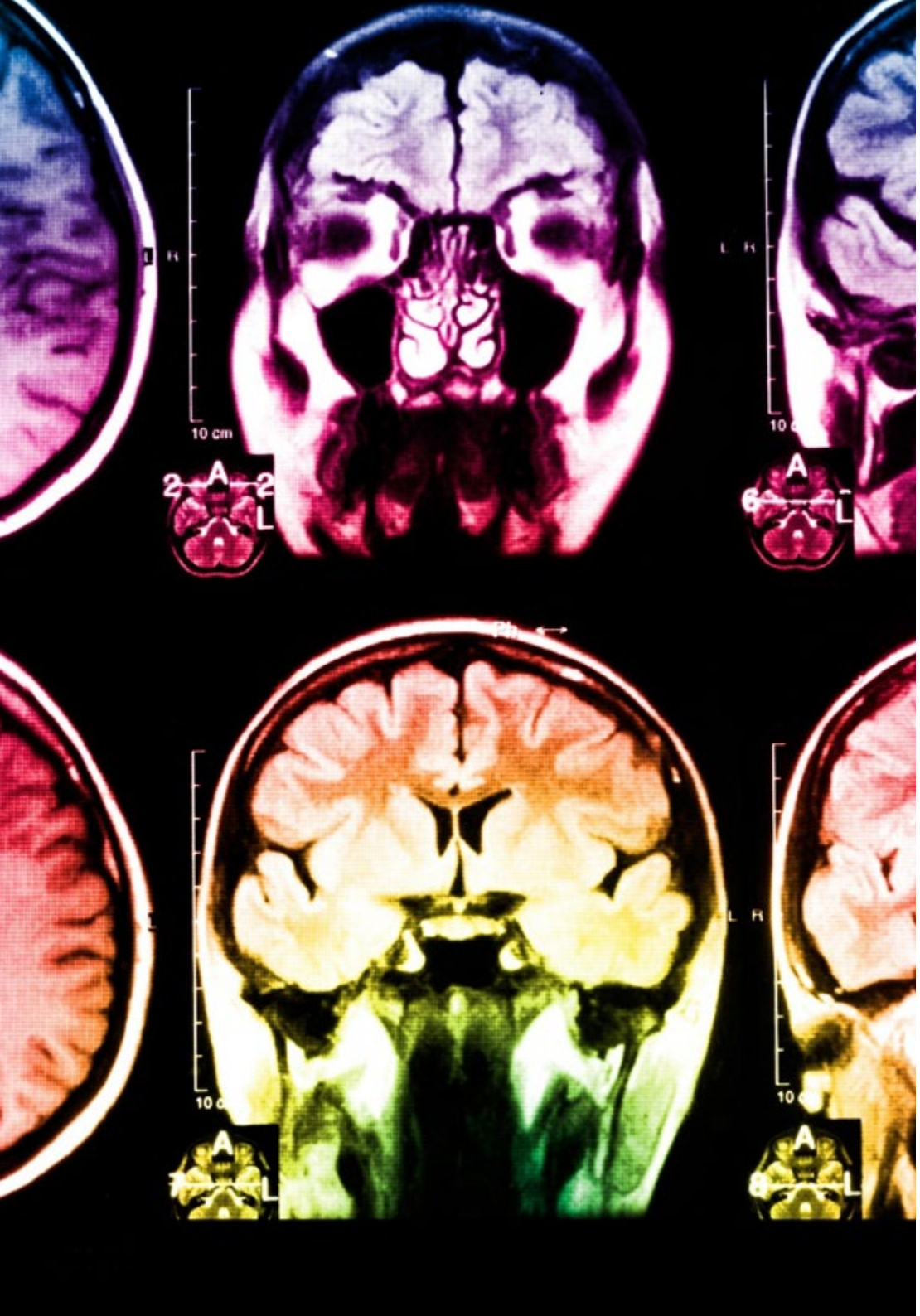
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better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

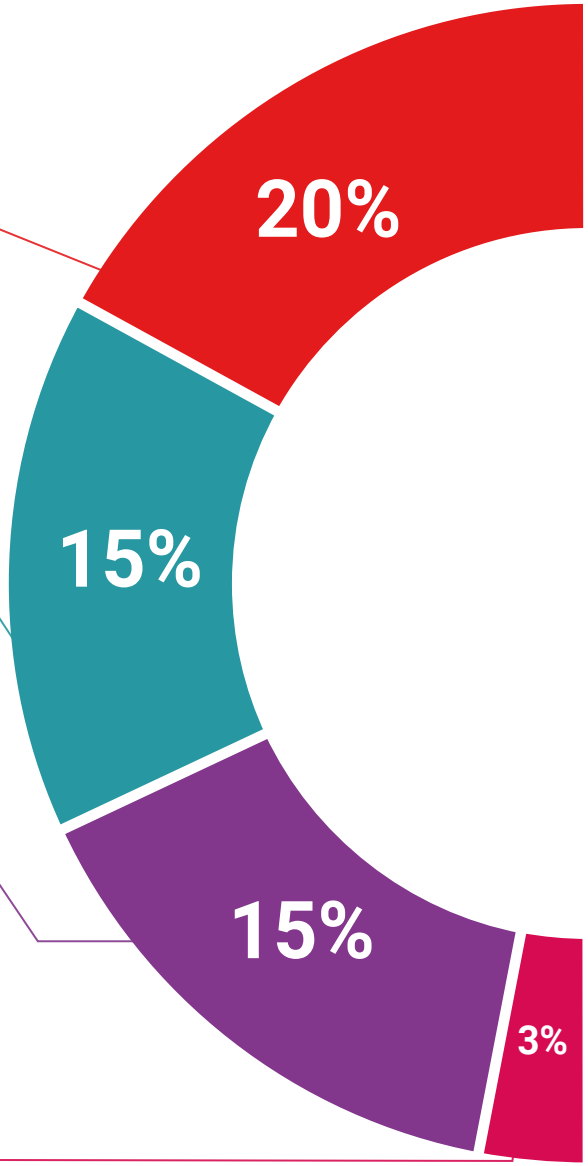
Interactive Summaries

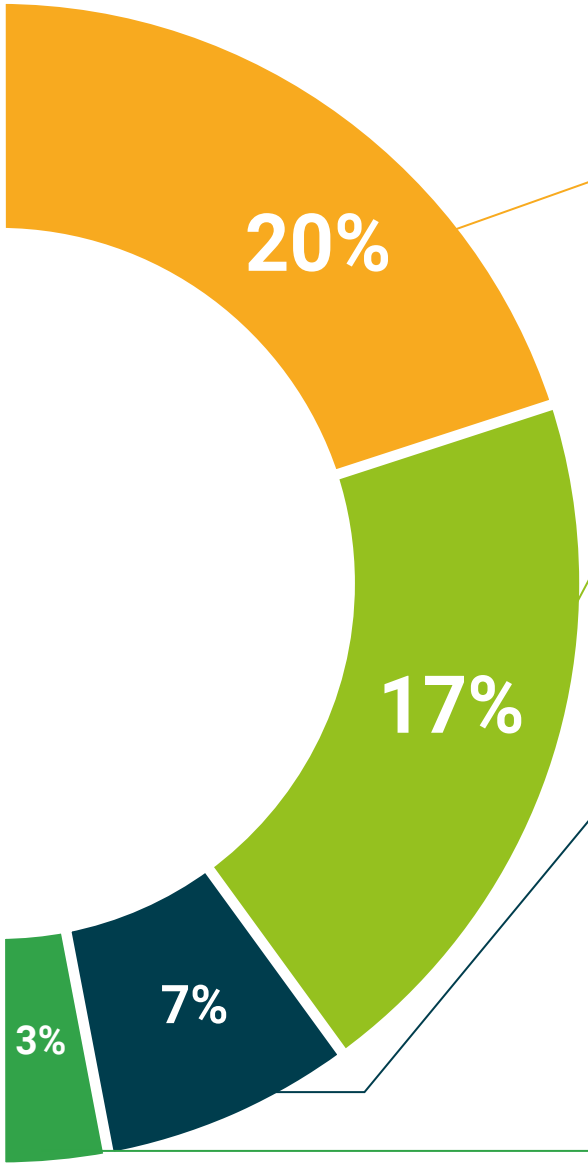
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Biomedical Databases, the Foundations of Big Data guarantees students, in addition to the most rigorous 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 program will allow you to obtain your **Postgraduate Certificate in Biomedical Databases,the Foundations of Big Data** endorsed by **TECH Global University**, the world's largest online university.

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

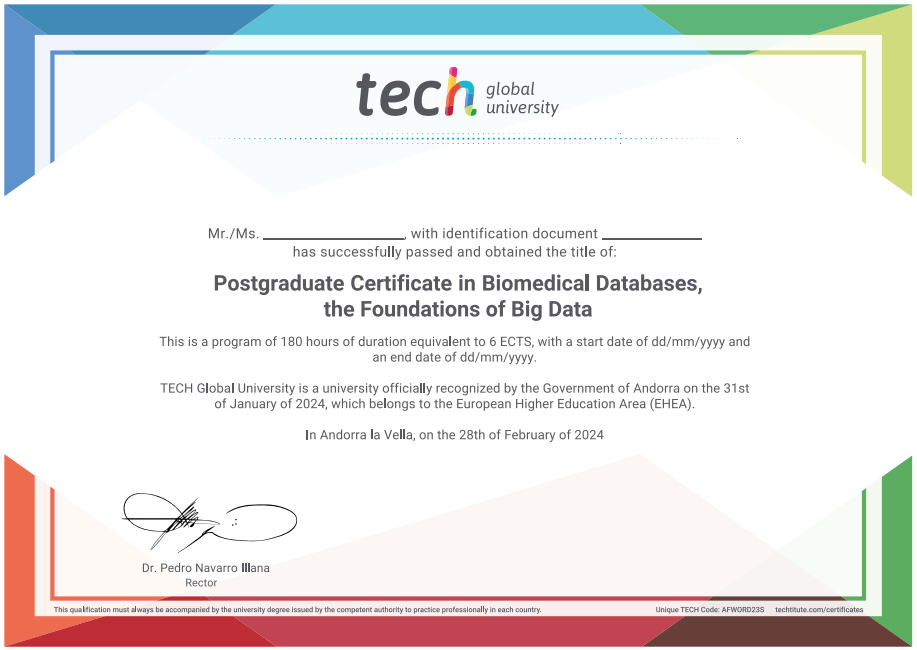
This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Biomedical Databases,the Foundations of Big Data**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**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Mr./Ms. _____ with identification document _____
has successfully passed and obtained the title of:

Postgraduate Certificate in Biomedical Databases, the Foundations of Big Data

This is a program 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
Rector

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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