Postgraduate Certificate
Big Data in Anatomy Pathology

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Postgraduate Certificate
Big Data in Anatomy Pathology

» Modality: **online**
» Duration: **2 months**
» Certificate: **TECH Technological University**
» Dedication: **16h/week**
» Schedule: **at your own pace**
» Exams: **online**

Website: www.techtitute.com/pk/medicine/postgraduate-certificate/postgraduate-certificate-big-data-anatomy-pathology

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01
Introduction

Technological advances in the medical area have enabled the development of the Big Data platform where clinical and analytical data related to oncological diseases are dumped, allowing the practitioner to have a broader view of the disease.

This great technological revolution in oncological medicine is intended to be a great opportunity for professionals who wish to develop professionally, acquiring new technological knowledge that allows them to generate added value to the performance of the physician. In this Postgraduate Certificate, medical professionals will learn about Big Data in Pathological Anatomy.

" *This Course in Big Data in Anatomy Pathology program will generate a sense of security in the performance of your profession, which will help you to offer a quality service to your patients"*

This Big Data in Anatomy Pathology course is designed to learn the basic aspects that allow the professional to manage and use the Big Data tool as an ally in medical research, as well as the most effective diagnosis and treatment for the patient.

The program has been designed and developed by oncology specialists ranked among the best in medical excellence, who have provided students with the most advanced knowledge, experience and practical cases to create a program following the highest quality criteria available on the market.

This Postgraduate **Certificate in Big Data in Anatomy Pathology** contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- More than 75 practical cases presented by experts in Big Data in Anatomical Pathology.
- The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- News on Big Data in Anatomy and Pathology.
- It contains practical exercises where the self-evaluation process can be carried out to improve learning.
- With special emphasis on innovative methodologies in Big Data in Anatomy Pathology.
- All of this will be complemented by 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.

Update your knowledge through the "Postgraduate Certificate in Big Data in Anatomy Pathology "program"

This course may be the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge of Big Data in Anatomy Pathology, you will obtain a Postgraduate certificate from TECH Technological University"

Increase your confidence in decision making by updating your knowledge through this course.

Take the opportunity to learn about the latest advances in Big Data in Anatomy Pathology, and improve the training of your students.

It includes in its teaching staff professionals belonging to the field of Big Data in Anatomy Pathology, who pour into this training the experience of their work, in addition to recognized specialists belonging to reference 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 program 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 course. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned experts in the field of oncological diagnosis. Technological advances and Big Data. and with great medical expertise.

02
Objectives

This online Postgraduate Certificate in Big Data in Anatomy Pathology is aimed at facilitating the performance of the professional dedicated to aesthetic medicine with the latest advances and newest treatments in the sector.

This Postgraduate Certificate is designed for you to update your knowledge in Big Data in Anatomy Pathology, with the use of the latest medical technology and scientific advances to contribute to promote the health and quality of life of patients"

General Objective

- The main goal of this training Big Data in Anatomy and Pathology is to introduce the professional in the use and management of medical technology, Big Data that allow to obtain more effective medical data for the diagnosis of oncological disease.

Specific Objectives

- Recognize the characteristics of malignant neoplasms, their classification according a their histogenesis, as well as aspects related to their biological behavior.
- Acquire up-to-date knowledge on cancer epidemiological data worldwide.
- Learn about screening methods in at-risk populations to diagnose cancerous lesions early.
- Recognize the environmental and occupational factors (mutagenic agents) that are directly and indirectly involved in cancer, and the carcinogenic capacity of some toxic substances found in food.
- Relate DNA AND RNA viruses known to cause cancer in humans.
- Expose the mechanisms by which viruses are able to subjugate the normal activity of host cytoplasmic proteins, affecting key points in the control of the cell cycle, cell growth and differentiation, causing severe alterations in cell growth and cancer development.
- Recognize the role of H. pylori bacteria in the pathogenesis of gastric cancer.
- Understand cancer as a genetic disease resulting from mutations that accumulate

in genes that are critical for the growth and development of somatic cells.

- Describe the genes associated with cancer, and the importance of DNA analysis to identify individuals, detect predisposing gene polymorphisms, analyze mutations, and establish the diagnosis of cancer as a genetic disease.

- Recognize the susceptibility genes involved in breast, lung, thyroid, colon, skin, bone, pancreatic, and neuroblastoma cancers, and by what mechanism they participate in tumorigenesis.

- Know the symptoms and signs that are most frequently related to cancer, as well as the different systems for the staging of tumor disease and their importance.

- Know the main problems in the management and structuring of data in pathology.

- Introduction to the fundamentals of Big Data.

- Identify opportunities for research and problem solving through Big Data, know its main utilities and limits.

- Know the main methodologies most used in Big Data.

- Know the main cloud tools for Big Data management and analysis.

04
Course Management

The program includes in its teaching staff reference experts in Big Data in Anatomy Pathology who share their work experience in this training. In addition, other experts of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary way.
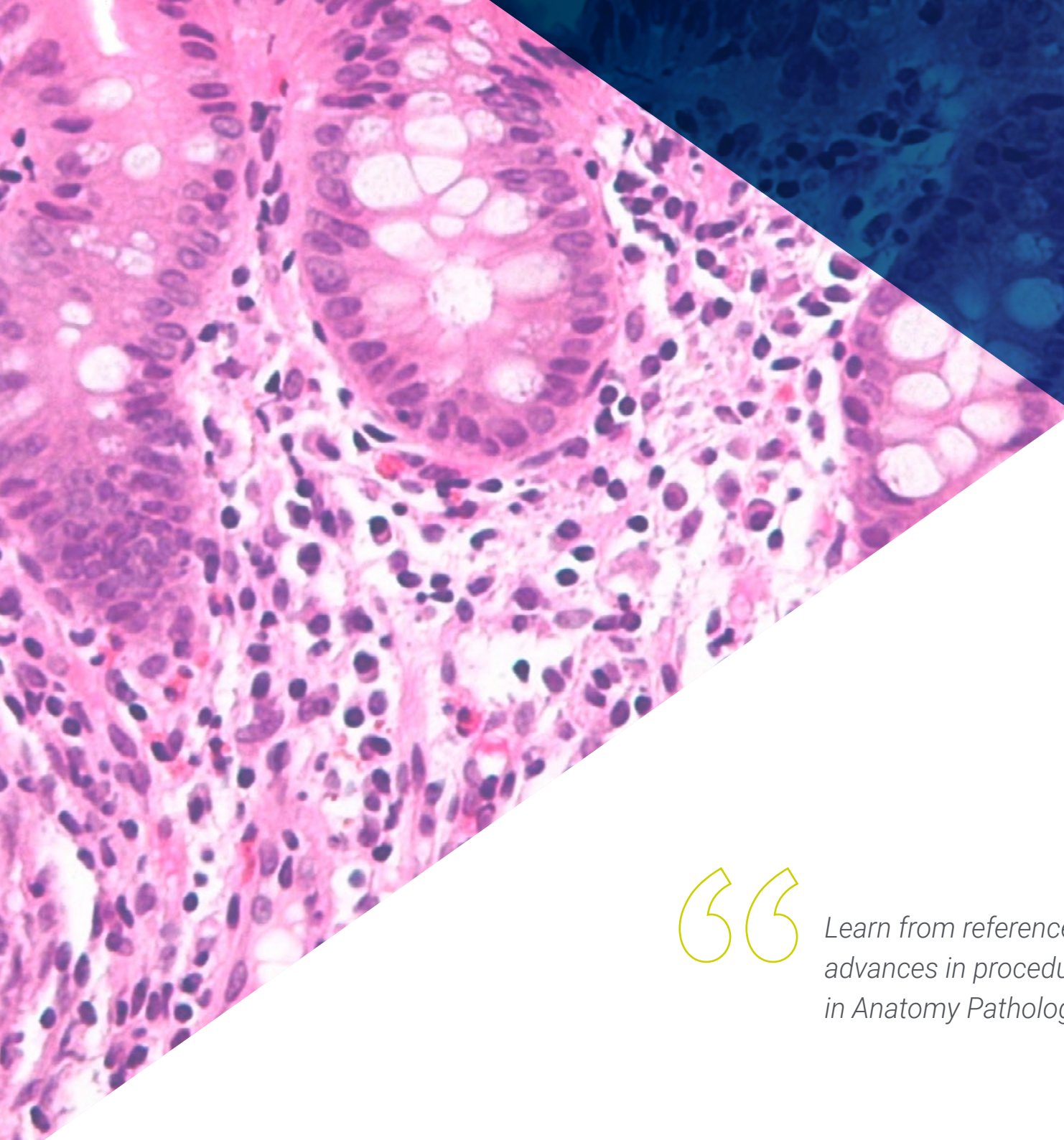
Learn from reference professionals, the latest advances in procedures in the field of Big Data in Anatomy Pathology"

International guest conductor

With more than 4 decades of professional career in the area of Pathology, Dr. Ignacio Wistuba is considered an international reference in this complex medical field. This prestigious researcher leads the Department of Translational Molecular Pathology at MD Anderson Cancer Center. He is also Director of the Khalifa Institute for Cancer Personalization, linked to the University of Texas.

In parallel, he directs the Thoracic Molecular Pathology Laboratory, the SPORE Lung Tissue Bank and the Institutional Tissue Bank. In turn, he is Director of the Biorepository and Pathology Core Network at the Eastern Cooperative Oncology Group, in conjunction with the American College of Radiology Imaging Network (ECOG-ACRIN).

One of the main lines of work of this pathologist in recent years has been Genomic and Precision Medicine. His multiple investigations in this field have allowed him to address the origin and complexities of different types of tumors, their incidence and their relationship with specific characteristics of the DNA of individuals. Specifically, he has delved into these issues in relation to lung neoplasms.

On the other hand, Wistuba maintains active research collaborations with other specialists from different parts of the world. An example of this is his participation in an exploratory analysis of cytokine levels in pleural fluid associated with immunotherapeutic protocols with the University for Development in Chile. He is also a member of global teams that, orchestrated by the Australian Royal Prince Alfred Hospital, have investigated different predictive biomarkers of lung cancer.

Likewise, the pathologist has sustained a continuous education since his initial studies in distinguished Chilean universities. Proof of this are his postdoctoral research internships in renowned institutions such as the Southwestern Medical Center and the Simmons Cancer Center in Dallas.

Dr. Wistuba, Ignacio

- President of the Department of Translational Molecular Pathology, MD Anderson Cancer Center
- Director of the Division of Pathology/Laboratory Medicine at MD Anderson Cancer Center
- Specialty Pathologist in the Department of Thoracic/Head and Neck Medical Oncology at the
- University of Texas Medical Center
- Director, UT-Lung SPORE Tissue Bank
- Lung Cancer Pathologist for the Lung Cancer Committee at Southwestern Oncology Group (SWOG)
- Principal Investigator on several studies conducted by the Cancer Prevention and Research Institute of Texas
- Principal Investigator of the Translational Genomics and Precision Cancer Medicine Training Program at NIH/NCI
- Postdoctoral Fellow at the Hamon Center for Therapeutic Oncology Research Center
- Postdoctoral Fellow at Southwestern Medical Center and Simmons Cancer Center

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

Management

Dr. Rey Nodar, Severino

- Head of the Anatomy Pathology Department at Manises University Hospital, Synlab Pathology Europe. Valencia, Spain.
- President of FORESC and FEBIP (Foundation for Sciences and Research USA/ Spanish Foundation for Training in Biomedical Sciences and Oncologic Pathology).
- Doctor Honoris Causa 2012 at Bircham International University, USA.
- Chief Editor of Journal of Cancer and Tumor international.
- Member of the Editorial Board of 6 international journals (topics related to oncopathology).
- Author: Glands Thyroid Pathology. Ed. Bubok 2012 y Endocrine Pathology. Text and Atlas. Ed. EdStudios, Spain, 2018
- Member of the New York Academy of Sciences (Sciences Academy of NY), 2011
- Integrant of the Power List 2019

Professors

Dr. Aldecoa Ansorregui, Iban
- Specialist in Anatomy and Pathology Barcelona Clinical Hospital
- Neuropathology Expert

Dr. Barbella, Rosa
- Anatomopathologist attached to the Anatomy and Pathology Service at Albacete General Hospital. Resident tutor. Faculty of Medicine, Castilla La Mancha University. Expert in breast pathology

Lic. Ballester Lozano, Gabriel
- Molecular Biologist at Vinalopó Hospital Ribera Salud Group

Dr. Camarasa, Natalia
- Specialist in Anatomy and Pathology at Castellón University Hospital, Valencia, Spain.
- Expert in hemato-lymphoid pathology

Professor. Dr. Cuatrecasas, Miriam
- Specialist in Anatomy and Pathology Barcelona Clinical Hospital
- Expert and Consultant in Gastrointestinal Pathology
- Coordinator of the Digestive Pathology SEAP working group.
- Coordinator of the Catalan Network of Tumor Banks (XBTC) and the Tumor Bank Clinic Hospital-IDIBAPS.
- IDIBAPS researcher

Dr. Franco, María Ángeles
- Head of Radiodiagnosis Service, Torrevieja and Vinalopó University Hospitals.
- Radiology Professor at UCAM.
- President of the Spanish Society of Radiodiagnosis and former Chief of Service of the Fundación Jiménez Díaz.

Dr. Gómez Román, Javier
- Specialist in Anatomy and Pathology Marqués de Valdecilla Hospital, Santander, Spain
- Expert in Pulmonary Pathology and Molecular Pathology
- Researcher - Cantabria University

Dr. Herrero, Josefa
- Specialist in Anatomy Pathology, Torrevieja and Vinalopó University Hospitals.
- Professor at Alicante University
- Expert in Uropathology

Dr. Labiano Miravalles, Tania
- Specialist in Anatomy and Pathology, Pamplona Hospital Complex, Navarra, Spain.
- Cytology Expert

Professor. Dr. Machado, Isidro
- Specialist in Pathological Anatomy, Valencian Institute of Oncology (IVO), Valencia.
- Expert in Soft Tissue Pathology and Sarcomas

Dr. Ortiz Reina, Sebastián
- Specialist in Pathological Anatomy.
- University Specialist in Electron Microscopy at Madrid Complutense University. University Specialist in Dermatopathology at Alcalá de Henares University. Associate Professor of Health Sciences in the subject of Pathological Anatomy at Madrid Complutense University.
- Lecturer in Histology and Cell Biology at the University School of Nursing at the Murcia University.
- University professor of practices for students of the career of Medicine at Murcia Catholic University.
- Tutor of residents of Anatomy Pathology of the University Complex of Cartagena

Dr. Rey Nodar, Severino
- Head of Female Anatomy Service, Torrevieja and Vinalopó University Hospitals.
- Expert in Endocrine, Head and Neck, and Thoracic Pathology

Dr. Ribalta, Teresa
- Anatomy and Pathology Professor, Barcelona University
- Expert in Neuropathology, currently Pediatric Pathology.
- Head of the Anatomy and Pathology Department, Sant Joan de Déu Hospital, Barcelona, Spain

Lic. Rubio Fornés, Abel
- Mathematician. Postgraduate Diploma in Statistics and Operations Research. University of Valencia

Lic. Sansano Botella, Magdalena
- Degree in Criminology at the Alicante University.
- Technician specializing in Anatomy and Pathology, Alicante University.

05
Structure and Content

The contents structure has been designed by a team of the best professionals in the field of pathological anatomic anatomical pathology with a long history and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with extensive knowledge of new technologies applied to anatomopathological diagnosis.

*This Postgraduate Certificate in Big Data in Anatomy Pathology contains the most complete and up-to-date scientific program on the market"*

Module 1. Cancer General Aspects. Risk Factors

1.1.   Introduction.
    1.1.1.   Overview of Malignant Neoplasms.
        1.1.1.1. Nomenclature.
        1.1.1.2. Features.
        1.1.1.3. How Metastases Spread.
        1.1.1.4. Prognostic Factors
    1.1.2.   Epidemiology of Cancer.
        1.1.2.1. Incidence.
        1.1.2.2. Prevalence.
        1.1.2.3. Geographical Distribution
        1.1.2.4. Risk Factors.
        1.1.2.5. Prevention.
        1.1.2.6. Early Diagnosis.
    1.1.3.   Mutagenic Agents.
        1.1.3.1. Environmental.
        1.1.3.2. Workplace.
        1.1.3.3. Toxic Substances in Food.
    1.1.4.   Biological Agents and Cancer.
        1.1.4.1. RNA Virus.
        1.1.4.2. DNA Virus.
        1.1.4.3. H. pylori.
    1.1.5.   Genetic Predisposition.
        1.1.5.1. Genes Linked to Cancer.
        1.1.5.2. Susceptibility Genes.
            1.1.5.2.1. Breast Tumors.
            1.1.5.2.2. Lung Tumors.
            1.1.5.2.3. Thyroid Tumors.
            1.1.5.2.4. Colon Tumors.
            1.1.5.2.5. Skin Tumors.
            1.1.5.2.6. Bone Tumors.
            1.1.5.2.7. Pancreas Tumors.
            1.1.5.2.8. Neuroblastoma.
    1.1.6.   Clinical Aspects of Malignant Neoplasms.
    1.1.7.   Staging of neoplastic disease.
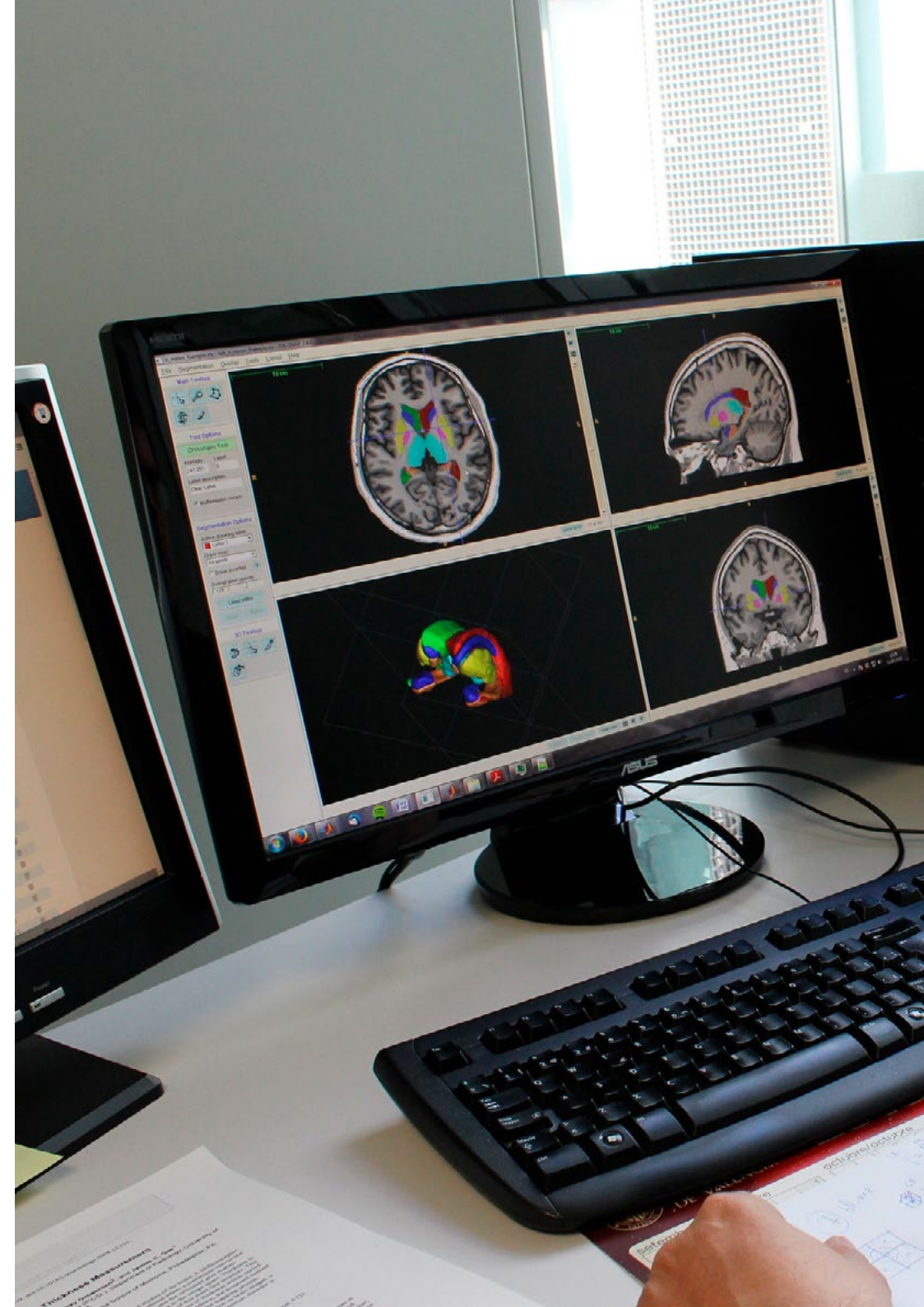
Module 2. Big Data in Anatomy Pathology

2.1.   Introduction to Big Data in Pathology.

    2.1.1.   Introduction.

        2.1.1.1. Pathology and Big Data.

        2.1.1.2. Data Mining in Pathology.

        2.1.1.3. Big Data.

            2.1.1.3.1. The Fundamentals of Big Data.

            2.1.1.3.2. Types of Big Data.

                2.1.1.3.2.1. Relational.

                2.1.1.3.2.2. 15.1.1.3.2.2 Non-Relational (SQL and NoSQL).

            2.1.1.3.3. Types of Data.

                2.1.1.3.3.1. Structured.

                2.1.1.3.3.2. Unstructured.

                2.1.1.3.2.3. Semi-Structured.

            2.1.1.3.4. The Limits of Big Data.

2.2.   Great Opportunities and Uses of Big Data.

    2.2.1.   Data Standardization and Digital Pathology.

    2.2.2.   Personalized Medicine: Personalized Diagnostics and Therapies.

    2.2.3.   Predictive Markers.

    2.2.4.   Advances in Research Fields Such As: Genomics, Molecular Pathology Diagnostics, Proteomics, and Diagnostic Comparison.

2.3.   Algorithms, Models and Methodologies used in Big Data.

    2.3.1.   Architectures for Massively Parallel Processing.

    2.3.2.   Modeling and Decision Trees.

    2.3.3.   Machine Learning and Deep Learning.

    2.3.4.   Neural Networks.

2.4.   Big Data and Cloud Computing Technologies.

    2.4.1.   Apache Hadoop.

    2.4.2.   Working with NoSQL Databases.

        2.4.2.1. DynamoDB or Cassandra.

    2.4.3.   Data Analysis.

        2.4.3.1. BigQuery.

        2.4.3.2. Infosphere Streams.

        2.4.3.3. Oracle Big Data Appliance.

2.5.   Conclusions and Benefits of Big Data from a Pathology Point of View.

05
Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: *Re-learning*.

This teaching system is used 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 Re-learning, 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

In a given situation, what would you do? Throughout the program, you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you can experience a way of learning that is shaking the foundations of traditional universities around the world.
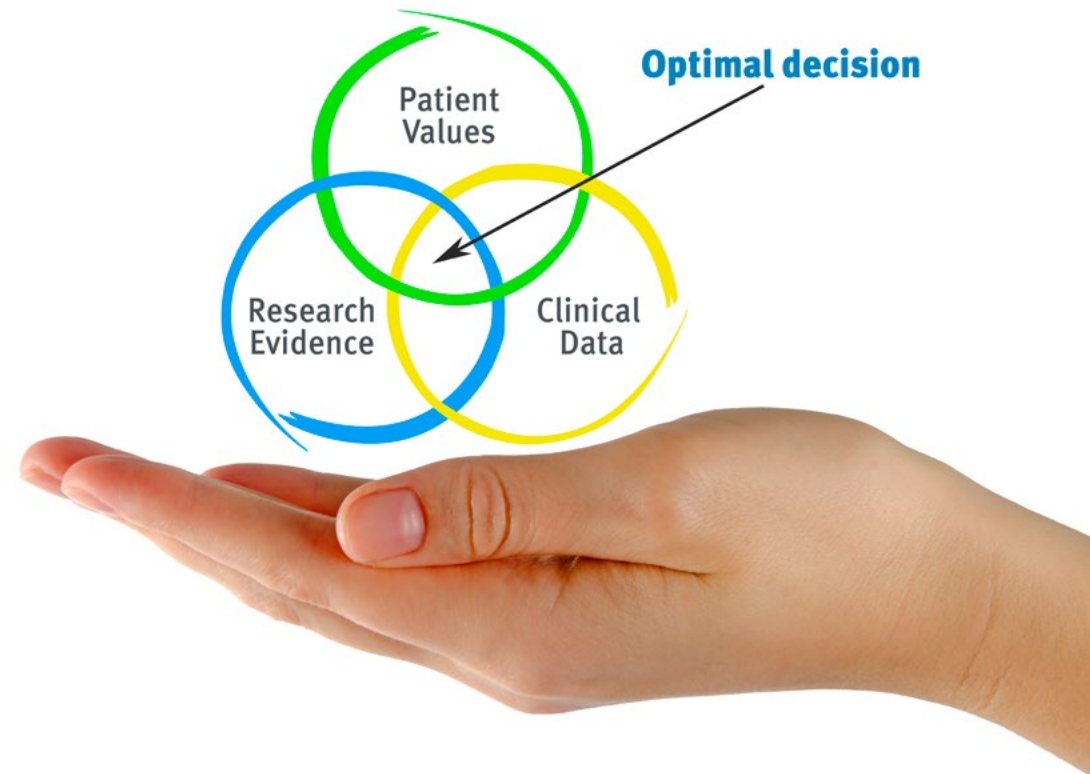
According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching potential or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in professional medical 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 grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.

2. The learning process has a clear focus on 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.

Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.

The physician will learn through real cases and by solving 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

Re-learning 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 (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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

In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.

Interactive Summaries

We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.
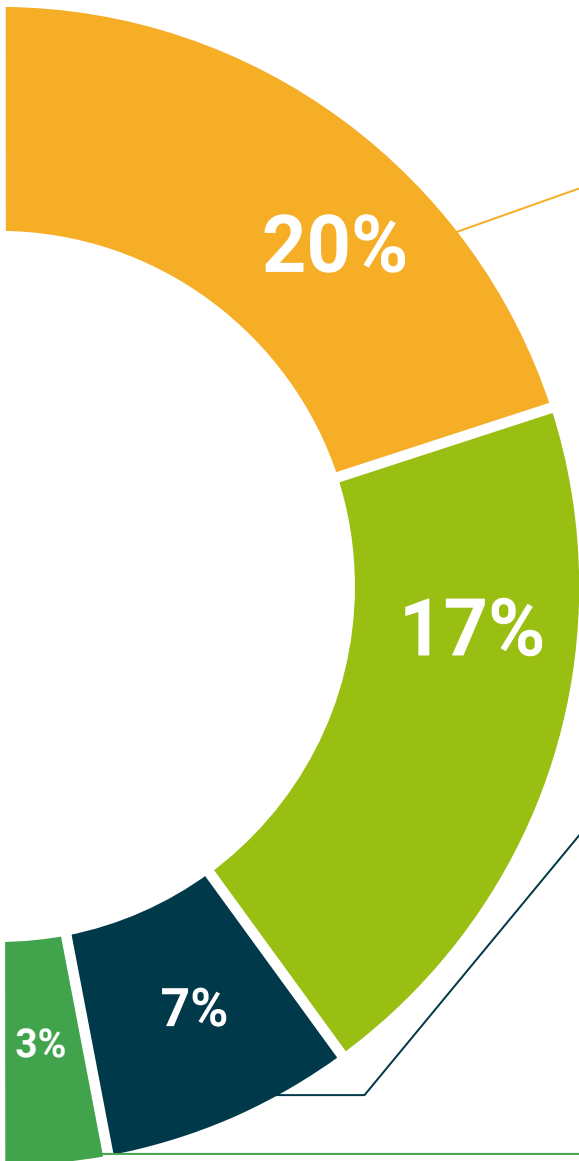
This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.

20%

15%

15%

3%

20%

17%

7%

3%
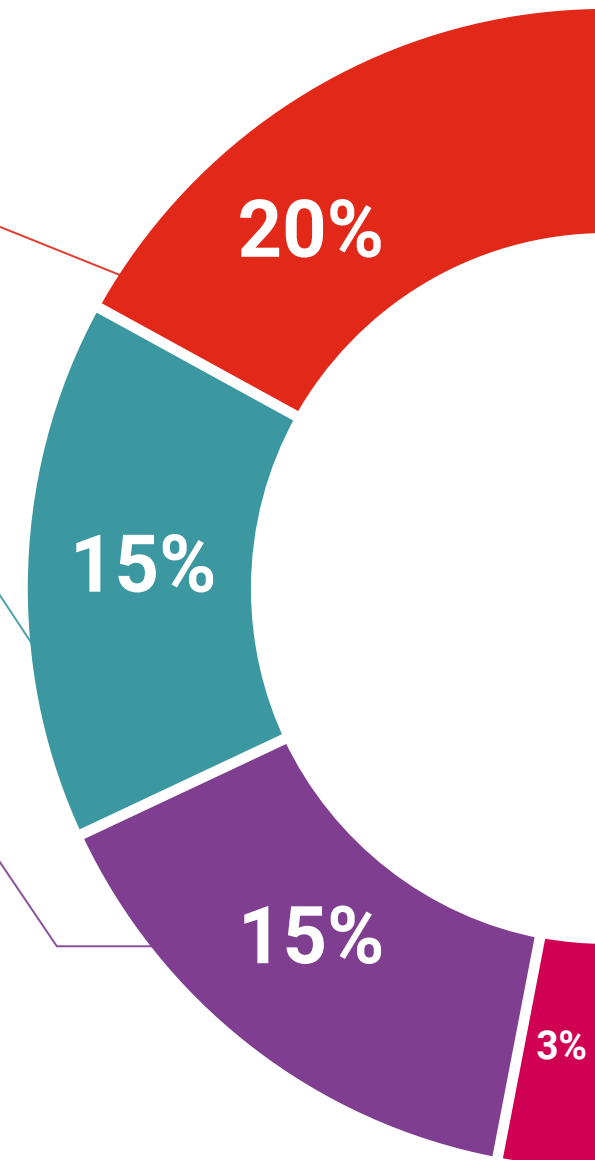
Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Re-testing

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your goals.

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an expert strengthens knowledge and memory, and generates confidence in our future difficult decisions.

Quick Action Guides

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.

06
Certificate

Through a different and stimulating learning experience, you will be able to acquire the necessary skills to take a big step in your training. An opportunity to progress, with the support and monitoring of a modern and specialized university, which will propel you to another professional level.

" Successfully complete this training and receive your university degree without travel or laborious paperwork"

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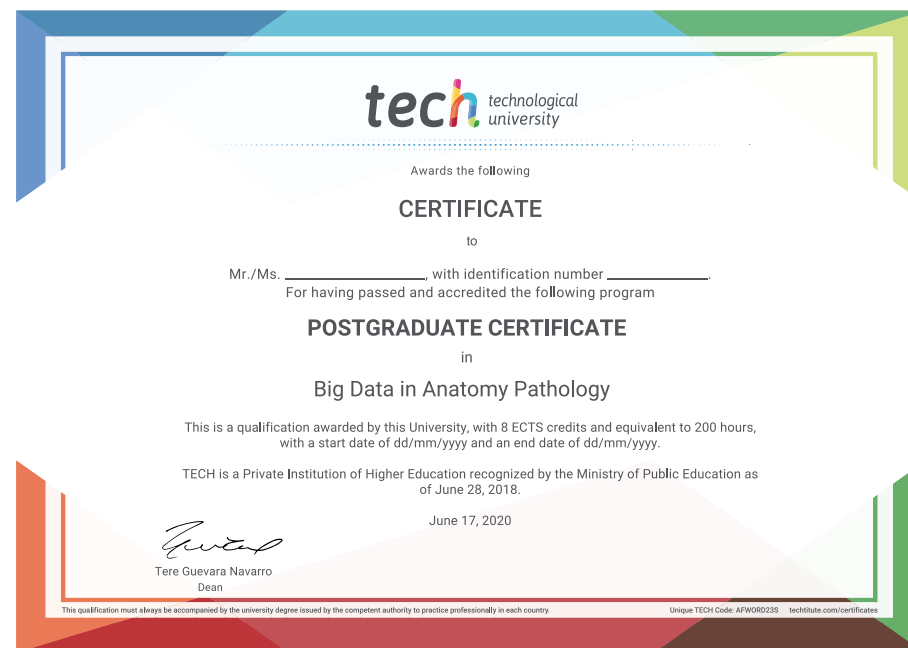
After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery.

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

Title: **Postgraduate Certificate in Big Data in Anatomy Pathology**
ECTS: **8**
Official Number of Hours: **200**

tech technological university

Awards the following

CERTIFICATE

to

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

POSTGRADUATE CERTIFICATE

in

Big Data in Anatomy Pathology

This is a qualification awarded by this University, with 8 ECTS credits and equivalent to 200 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

*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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Postgraduate Certificate
Big Data in Anatomy and Pathology

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