

# Postgraduate Certificate

## Artificial Intelligence in Diagnostics and Personalized Therapies



## Postgraduate Certificate

### Artificial Intelligence in Diagnostics and Personalized Therapies

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

Website: [www.techtute.com/us/pharmacy/postgraduate-certificate/artificial-intelligence-diagnostics-personalized-therapies](http://www.techtute.com/us/pharmacy/postgraduate-certificate/artificial-intelligence-diagnostics-personalized-therapies)

# Index

01

Introduction to the Program

---

*p. 4*

02

Syllabus

---

*p. 8*

03

Teaching Objectives

---

*p. 12*

04

Study Methodology

---

*p. 16*

05

Teaching Staff

---

*p. 26*

06

Certificate

---

*p. 30*

01

# Introduction to the Program

Artificial Intelligence has emerged as a transformative tool in Pharmacy, particularly in diagnostics and personalized therapies. According to a WHO report, AI is revolutionizing healthcare, improving diagnostic accuracy and optimizing treatment allocation. In an environment where technological advances are transforming the pharmacological sector, this breakthrough is presented as a key tool to improve diagnostic accuracy and develop tailored treatments for each patient. Therefore, TECH has developed this 100% online postgraduate course, in which specialists will acquire the knowledge and skills necessary to apply AI in their clinical practice, offering personalized solutions based on genomic and biomedical data.



“

*With a flexible and efficient methodology, you will have access to innovative tools that will make you a leader in modern Pharmacy. With TECH you will be prepared to make a difference in the global healthcare sector!”*

Artificial Intelligence has revolutionized the field of Pharmacy, especially in the field of diagnosis and personalized therapies, transforming the way diseases and their treatment are approached. In this sense, its importance lies in its ability to process and analyze large volumes of biomedical and genomic data faster and more accurately than traditional methods. In this way, it is possible to identify patterns invisible to the human eye and make early assessments, which is essential to treat pathologies before they become serious problems.

In this context, TECH has designed this Postgraduate Certificate in Artificial Intelligence in Diagnostics and Personalized Therapies, which will train professionals in one of the most innovative and promising fields of Pharmacy. Through this multidisciplinary program, they will know how to apply advanced AI tools in pharmacological practice, which will allow them to optimize diagnostic processes and personalize treatments according to the specific needs of each patient. In addition, they will be trained in the creation of therapies that can better respond to the unique biology of each patient, increasing the likelihood of success and improving long-term health outcomes.

Upon completion, graduates will be prepared to perform in a variety of roles within the pharmaceutical system and the technology industry, from the implementation of solutions to the development of new personalized AI-based therapies. In short, they will be ready to aspire to excellent job prospects in a highly specialized field with a direct impact on improving the quality of life of users.

Likewise, the 100% online modality offered by this postgraduate course will allow students to train from anywhere, adapting to their schedules and pace of life. In turn, this will be complemented by the innovative Relearning methodology, an approach that promotes deep understanding through strategic repetition, constant practice and reinforcement of previous knowledge.

This **Postgraduate Certificate in Artificial Intelligence in Diagnostics and Personalized Therapies** contains the most complete and up-to-date educational program on the market. Its most notable features are:

- ♦ The development of case studies presented by experts with a deep mastery of AI in Diagnostics and Personalized Therapies
- ♦ The graphic, schematic and eminently practical content of the book provides scientific and practical information on those disciplines that are essential for professional practice
- ♦ Practical exercises where the process of 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



*Did you know that AI is transforming pharmacology? With this innovative postgraduate program, you will master the use of predictive algorithms and clinical data analysis techniques. Your next step towards innovation starts here!"*

“

*Be part of the future of Pharmacy!  
Join TECH, the world's largest online  
university according to Forbes, and  
lead the pharmacological revolution.  
You will know how to implement AI  
for more accurate diagnostics and  
personalized therapies”*

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.

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 experts.

*By opting for TECH, you will not only  
enjoy accessible and up-to-date training,  
but you will also benefit from multimedia  
materials such as infographics, interactive  
summaries and case studies.*

*With highly experienced teachers, case  
studies and a 100% online methodology,  
this Postgraduate Certificate will  
turn you into the professional the  
pharmaceutical sector is looking for.*



# 02 Syllabus

This academic pathway is a unique opportunity for professionals to take a step towards advances in Pharmacy. Through specialized training, they will know how to use predictive algorithms, clinical data analysis techniques and digital platforms to optimize drug selection and dosing, ensuring more accurate and effective care for patients. In addition, the curriculum will address key topics such as the analysis of genomic and phenotypic data for the creation of personalized therapies, the integration of intelligent systems in pharmacovigilance and the design of treatments based on AI models.




“

*The knowledge this curriculum will provide will prepare you to lead pharmaceutical innovation and offer more effective treatments tailored to the specific needs of each patient”*

## Module 1. Artificial Intelligence in Diagnostics and Personalized Therapies

- 1.1. Early Diagnosis of Diseases
  - 1.1.1. Importance of Early Diagnosis in the Treatment of Diseases
  - 1.1.2. AI Algorithms for Early Detection of Pathology
  - 1.1.3. AI for Predictive Analysis of Risk Factors
  - 1.1.4. Examples such as PathAI for Automated Diagnosis
- 1.2. AI-Based Personalized Therapies
  - 1.2.1. Introduction to Personalized Medicine and Its Relevance
  - 1.2.2. AI for Personalization of Treatments according to Patient Profile
  - 1.2.3. Predictive Models for Personalized Dose Adjustment
  - 1.2.4. Applications such as Tempus in Personalized Oncology
- 1.3. Biomarker Detection Using AI
  - 1.3.1. Concept and Types of Biomarkers in Medicine
  - 1.3.2. AI Algorithms for the Identification of Key Biomarkers
  - 1.3.3. Importance of Biomarkers in Diagnosis and Treatment
  - 1.3.4. Tools such as Freenome for Biomarker Detection
- 1.4. Genomic Medicine and Pharmacogenomics
  - 1.4.1. Genomics and Pharmacogenomics for Personalization of Therapies
  - 1.4.2. AI Applications in the Analysis of Genetic Profiling
  - 1.4.3. AI in the Study of Genetic Variations for Personalized Medicine
  - 1.4.4. Cases such as 23andMe in Personalized Genetic Analysis
- 1.5. AI in Immunotherapy and Oncology
  - 1.5.1. Introduction to Immunotherapy and Its Impact on Cancer Treatment
  - 1.5.2. Application of AI to Personalize Immune Therapies
  - 1.5.3. AI Models for Optimizing Efficacy of Immunotherapies
  - 1.5.4. Examples such as GNS Healthcare for Immunotherapy in Oncology
- 1.6. Personalized Pharmacological Counseling
  - 1.6.1. Importance of Personalized Pharmacological Counseling
  - 1.6.2. AI for Treatment Recommendations according to Specific Conditions
  - 1.6.3. AI Models to Optimize Drug Selection
  - 1.6.4. Example of IBM Watson for Oncology in Treatment Recommendations



- 
- A man with glasses is looking at a laptop screen. Overlaid on the screen is a glowing blue DNA double helix structure. The background is slightly blurred, showing the man's face and the laptop.
- 1.7. Treatment Response Prediction
    - 1.7.1. AI Techniques for Predicting Responses to Different Treatments
    - 1.7.2. Predictive Models of Efficacy and Safety of Treatments
    - 1.7.3. AI Algorithms for Treatment Personalization
    - 1.7.4. Tools such as Foundation Medicine for Analysis of Treatment Response
  - 1.8. Development of Algorithms for Specific Therapies
    - 1.8.1. Principles of Algorithm Development for Targeted Therapies
    - 1.8.2. AI for Identifying and Developing Targeted Therapies
    - 1.8.3. Algorithms Personalized according to Disease Type
    - 1.8.4. Applications such as Owkin in Federated Learning for Oncology
  - 1.9. Remote Patient Monitoring
    - 1.9.1. Importance of Remote Monitoring in Chronic Patients
    - 1.9.2. AI for Monitoring Parameters and Vital Signs Remotely
    - 1.9.3. Predictive Models to Anticipate Patient Complications
    - 1.9.4. Tools such as Biofourmis for Remote Monitoring
  - 1.10. AI in Portable Diagnostic Devices
    - 1.10.1. Impact of Portable Devices on Health Diagnosis
    - 1.10.2. AI Algorithms in Portable Devices Data Analysis
    - 1.10.3. AI for Real-Time Detection of Health Conditions
    - 1.10.4. Examples such as Butterfly iQ, AI-Assisted Portable Ultrasound

“Through a comprehensive module, designed by industry experts, TECH will provide you with the tools you need to meet the challenges of Pharmaceutical Medicine”

03

# Teaching Objectives

The main goal of this Postgraduate Certificate is to provide specialists with the necessary skills to apply Artificial Intelligence in the diagnosis and creation of personalized treatments, revolutionizing the approach to patient care. Through comprehensive and practical training, graduates will acquire advanced knowledge on the analysis of large volumes of clinical and genomic data, which will allow them to optimize the choice and dosage of drugs, based on the individual characteristics of each patient. In addition, they will strengthen the accuracy of pharmaceutical diagnosis and the effectiveness of treatments.





“

*You will receive state-of-the-art training, with updated content and the most innovative methodology. In this way, you will become an expert in the application of AI in diagnosis and personalized therapies in pharmacology”*



## General Objectives

---

- ♦ Apply Artificial Intelligence in the analysis of clinical and genomic data for the personalization of pharmacological treatments
- ♦ Develop predictive models to optimize the diagnosis and treatment of diseases in patients
- ♦ Integrate AI systems in pharmacovigilance to improve the safety and efficacy of drugs
- ♦ Design personalized therapies based on patients' genetic and phenotypic profiles
- ♦ Improve the accuracy of pharmaceutical diagnostics using AI algorithms
- ♦ Analyze large volumes of data to identify patterns and predict treatment responses
- ♦ Implement digital platforms in the development and monitoring of pharmacological treatments
- ♦ Foster innovation in pharmacy through the application of advanced AI technologies in patient care





### Specific Objectives

---

- ♦ Integrate AI tools to improve accuracy in medical diagnosis based on clinical data
- ♦ Apply AI models to personalize therapies based on genetic characteristics and biomarkers of the patients
- ♦ Develop predictive systems with AI to anticipate therapeutic responses and optimize treatments
- ♦ Implement AI in the real-time monitoring and adjustment of personalized treatments



*Do you want to increase your career prospects and growth within the field of Specialty Pharmacy? You've come to the right place. This TECH postgraduate program will propel you to meet your goals!"*

04

# Study Methodology

TECH is the world's first university to combine the **case study** methodology with **Relearning**, a 100% online learning system based on guided repetition.

This disruptive pedagogical strategy has been conceived to offer professionals the opportunity to update their knowledge and develop their skills in an intensive and rigorous way. A learning model that places students at the center of the educational process giving them the leading role, adapting to their needs and leaving aside more conventional methodologies.



“

*TECH will prepare you to face new challenges in uncertain environments and achieve success in your career”*

## The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

“

*At TECH you will NOT have live classes  
(which you might not be able to attend)”*



### The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“

*TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want”*

## The student: the priority of all TECH programs

In TECH's study methodology, the student is the main protagonist.

The teaching tools of each program have been selected taking into account the demands of time, availability and academic rigor that, today, not only students demand but also the most competitive positions in the market.

With TECH's asynchronous educational model, it is students who choose the time they dedicate to study, how they decide to establish their routines, and all this from the comfort of the electronic device of their choice. The student will not have to participate in live classes, which in many cases they will not be able to attend. The learning activities will be done when it is convenient for them. They can always decide when and from where they want to study.

“

*At TECH you will NOT have live classes  
(which you might not be able to attend)”*



### The most comprehensive study plans at the international level

TECH is distinguished by offering the most complete academic itineraries on the university scene. This comprehensiveness is achieved through the creation of syllabi that not only cover the essential knowledge, but also the most recent innovations in each area.

By being constantly up to date, these programs allow students to keep up with market changes and acquire the skills most valued by employers. In this way, those who complete their studies at TECH receive a comprehensive education that provides them with a notable competitive advantage to further their careers.

And what's more, they will be able to do so from any device, pc, tablet or smartphone.

“*TECH's model is asynchronous, so it allows you to study with your pc, tablet or your smartphone wherever you want, whenever you want and for as long as you want*”

## A 100% online Virtual Campus with the best teaching resources

In order to apply its methodology effectively, TECH focuses on providing graduates with teaching materials in different formats: texts, interactive videos, illustrations and knowledge maps, among others. All of them are designed by qualified teachers who focus their work on combining real cases with the resolution of complex situations through simulation, the study of contexts applied to each professional career and learning based on repetition, through audios, presentations, animations, images, etc.

The latest scientific evidence in the field of Neuroscience points to the importance of taking into account the place and context where the content is accessed before starting a new learning process. Being able to adjust these variables in a personalized way helps people to remember and store knowledge in the hippocampus to retain it in the long term. This is a model called Neurocognitive context-dependent e-learning that is consciously applied in this university qualification.

In order to facilitate tutor-student contact as much as possible, you will have a wide range of communication possibilities, both in real time and delayed (internal messaging, telephone answering service, email contact with the technical secretary, chat and videoconferences).

Likewise, this very complete Virtual Campus will allow TECH students to organize their study schedules according to their personal availability or work obligations. In this way, they will have global control of the academic content and teaching tools, based on their fast-paced professional update.



*The online study mode of this program will allow you to organize your time and learning pace, adapting it to your schedule"*

### 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 assess 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.

## The university methodology top-rated by its students

The results of this innovative teaching model can be seen in the overall satisfaction levels of TECH graduates.

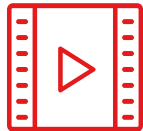
The students' assessment of the teaching quality, the quality of the materials, the structure of the program and its objectives is excellent. Not surprisingly, the institution became the top-rated university by its students according to the global score index, obtaining a 4.9 out of 5.

*Access the study contents from any device with an Internet connection (computer, tablet, smartphone) thanks to the fact that TECH is at the forefront of technology and teaching.*

*You will be able to learn with the advantages that come with having access to simulated learning environments and the learning by observation approach, that is, Learning from an expert.*



As such, the best educational materials, thoroughly prepared, will be available in this program:



#### 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.



#### Practicing Skills and Abilities

You will carry out activities to develop specific competencies and skills in each thematic field. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop within the framework of the globalization we live in.



#### Interactive Summaries

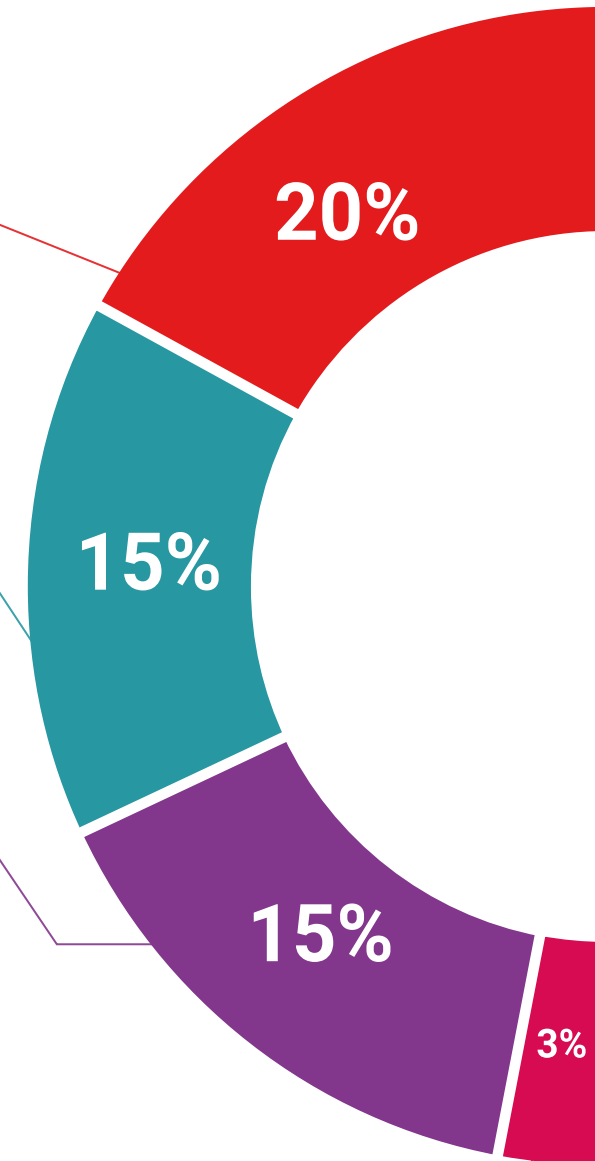
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

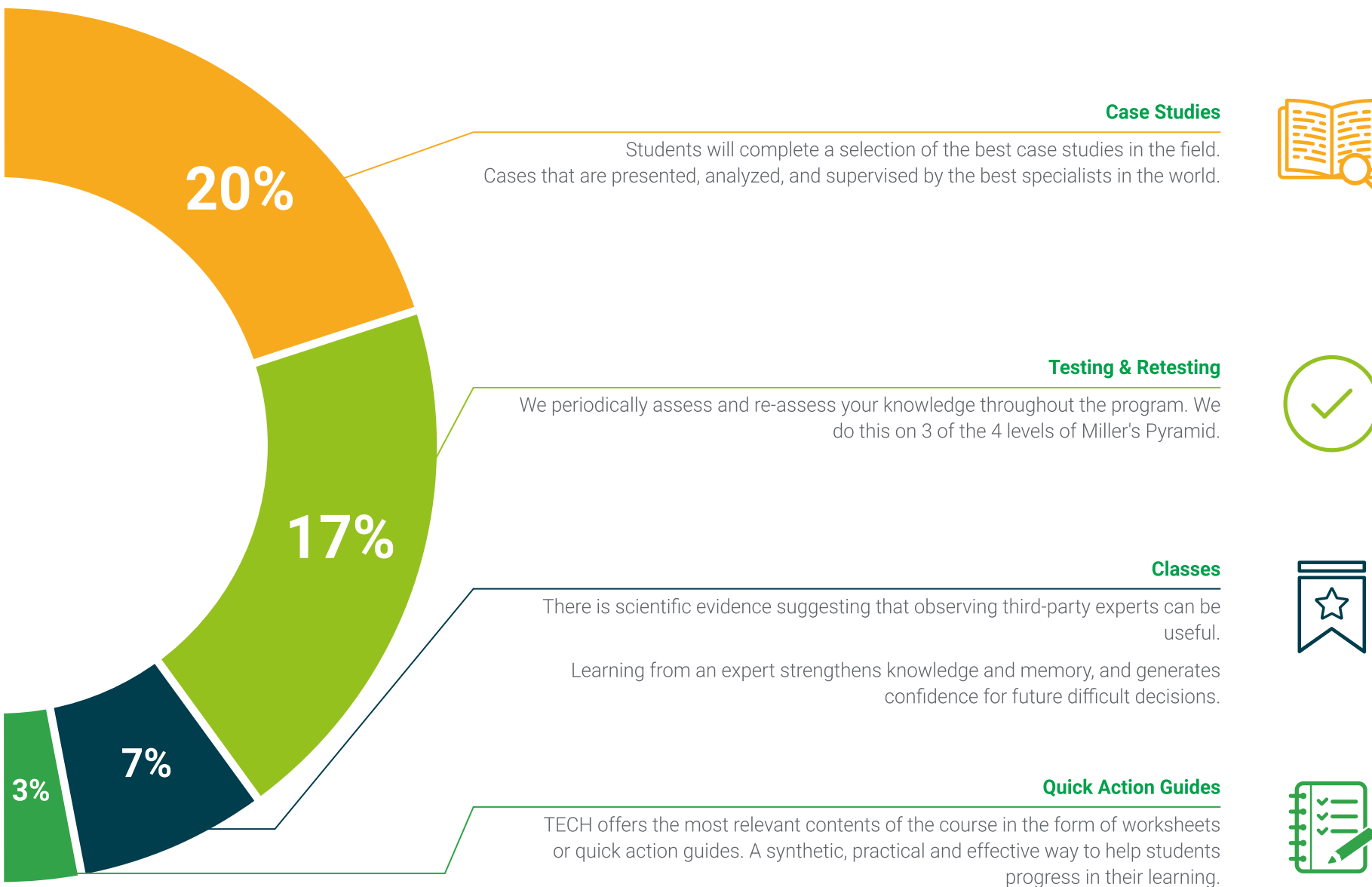
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

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





05

# Teaching Staff

This Postgraduate Certificate has a teaching staff composed of renowned professionals in the field of pharmacology, Artificial Intelligence and health. In this sense, the mentors are experts in the use of AI for the development of personalized therapies, in addition, their deep knowledge in the analysis of clinical and genomic data will guarantee a quality and cutting-edge teaching. As such, each member will bring a unique combination of practical and academic experience, providing students with comprehensive and up-to-date training on the latest trends and technological advances.



“

*With the support of this highly specialized teaching team, you will be equipped to lead in a professional environment that increasingly demands expertise in technological innovation applied to Pharmacy”*

## Management



### Dr. Peralta Martín-Palomino, Arturo

- ♦ CEO and CTO at Prometheus Global Solutions
- ♦ CTO at Korporate Technologies
- ♦ CTO at AI Shepherds GmbH
- ♦ Consultant and Strategic Business Advisor at Alliance Medical
- ♦ Director of Design and Development at DocPath
- ♦ Doctorate in Psychology from the University of Castilla La Mancha
- ♦ Doctorate in Economics, Business and Finance from the Camilo José Cela University
- ♦ Doctorate in Psychology from University of Castilla La Mancha
- ♦ Master's Degree in Executive MBA from the Isabel I University
- ♦ Master's Degree in Sales and Marketing Management from the Isabel I University
- ♦ Expert Master's Degree in Big Data by Hadoop Training
- ♦ Master's Degree in Advanced Information Technologies from the University of Castilla La Mancha
- ♦ Member of the research group SMILE

## Professors

### Mr. Popescu Radu, Daniel Vasile

- ♦ Independent Specialist in Pharmacology, Nutrition and Dietetics
- ♦ Freelance Producer of Didactic and Scientific Content
- ♦ Nutritionist and Community Dietitian
- ♦ Community Pharmacist
- ♦ Researcher
- ♦ Master's Degree in Nutrition and Health from the Open University of Catalonia
- ♦ Master's Degree in Psychopharmacology from the University of Valencia
- ♦ Pharmacist from the Complutense University of Madrid
- ♦ Nutritionist-Dietitian by the European University Miguel de Cervantes

### Mr. Del Rey Sánchez, Alejandro

- ♦ In Charge of Implementing Programs to Improve Tactical Emergency Care
- ♦ Degree in Industrial Organization Engineering
- ♦ Certification in Big Data and Business Analytics
- ♦ Certification in Microsoft Excel Advanced, VBA, KPI and DAX
- ♦ Certification in CIS Telecommunication and Information Systems

### Ms. Del Rey Sánchez, Cristina

- ♦ Talent Management Administrator at Securitas Seguridad España, S.L.
- ♦ Extracurricular Activities Center Coordinator
- ♦ Tutor and pedagogical interventions with Primary and Secondary Education students
- ♦ Postgraduate in Development, Delivery and Tutoring of e-Learning Training Actions
- ♦ Postgraduate in Early Childhood Care
- ♦ Degree in Pedagogy from the Complutense University of Madrid

### Mr. Martín-Palomino Sahagún, Fernando

- ♦ Chief Technology Officer and R+D+i Director at AURA Diagnostics (medTech)
- ♦ Business Development at SARLIN
- ♦ Chief Operating Officer at Alliance Diagnostics
- ♦ Director of Innovation at Alliance Medical
- ♦ Chief Information Officer at Alliance Medical
- ♦ Field Engineer & Project Management in Digital Radiology at Kodak
- ♦ MBA from the Polytechnic University of Madrid
- ♦ Executive Master's Degree in Marketing and Sales at ESADE
- ♦ Telecommunications Engineer from the University Alfonso X El Sabio

### Dr. Carrasco González, Ramón Alberto

- ♦ Head of Business Intelligence (Marketing) at the Caja General de Ahorros de Granada and Banco Mare Nostrum
- ♦ Head of Information Systems (Data Warehousing and Business Intelligence) at Caja General de Ahorros de Granada and Banco Mare Nostrum
- ♦ Computer Science and Artificial Intelligence Specialist and Researcher
- ♦ Doctorate in Artificial Intelligence from the University of Granada
- ♦ Senior Engineer in Computer Science from the University of Granada



*Take the opportunity to learn about the latest advances in this field in order to apply it to your daily practice"*

# 06 Certificate

The Postgraduate Certificate in Artificial Intelligence in Diagnostics and Personalized Therapies 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 private qualification will allow you to obtain a **Postgraduate Certificate in Artificial Intelligence in Diagnostics and Personalized Therapies** 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 Artificial Intelligence in Diagnostics and Personalized Therapies**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**





**Postgraduate Certificate**  
Artificial Intelligence  
in Diagnostics and  
Personalized Therapies

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

# Postgraduate Certificate

## Artificial Intelligence in Diagnostics and Personalized Therapies