

# Postgraduate Certificate Antibiotic Pharmacology



## Postgraduate Certificate

### Antibiotic Pharmacology

Course Modality: Online

Duration: 6 weeks

Endorsed by: TECH Technological University

5 ECTS Credits

Hours 125 hours.

Website: [www.techtute.com/medicine/postgraduate-certificate/postgraduate-certificate-antibiotic-pharmacology](http://www.techtute.com/medicine/postgraduate-certificate/postgraduate-certificate-antibiotic-pharmacology)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

# 01

# Introduction

Pharmacology allows us to know the possible adverse effects that certain drugs may have on humans. It is therefore important for the healthcare professional to keep abreast of new developments in this area. With this Postgraduate Certificate in Antibiotic Pharmacology, you will be able to obtain the knowledge of the latest advances in this field and future antibiotic therapies.



“

*This Postgraduate Certificate in Antibiotic Pharmacology will generate a sense of security in the performance of your profession, which will help you to grow personally and professionally".*

Clinical Pharmacology seeks to promote the effective and efficient use of therapeutic resources, as well as to evaluate their effects. However, there is still a long way to go, which involves research and new technologies, especially nanotechnology, thanks to which the future of pharmacology seems to be the stuff of science fiction. Experts predict great advances in this area, so it is necessary to continue training in order to adapt to the coming changes.

In this Postgraduate Certificate we delve into the study of the main areas of Pharmacology, clinical trials, meta-analysis and the process of reasoned therapeutics, to offer students the most complete training on the market and to advance their skills in the field.

This program is designed to facilitate the professional's update in the clinical pharmacological bases to improve the antibiotic therapy approach to their patients, through the latest educational technology, 100% online. Designed for practicing professionals who cannot leave their healthcare activity to get up to date, the access to the contents is agile and simple to facilitate learning and optimize the effort.

On the pharmaceutical side, it should be noted that antibiotics are the most widely used drugs worldwide to combat infections caused by bacteria, which has led some bacteria to become immune to them. For this reason, the following academic program will also focus on the future perspectives of antibiotic therapy.

This Postgraduate Certificate endorses the main advances in this field with a didactic program that places it as one of the best in the market and gives the professional the keys to act in the most accurate way in the diagnosis of their patients.

This **Postgraduate Certificate in Antibiotic Pharmacology** includes the most complete and up-to-date scientific program on the market. The most outstanding features of the University Course are:

- The development of more than 75 case studies presented by experts in Pharmacology in Antibiotic Therapy. 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.
- The latest news on Antibiotic Pharmacology.
- The content of practical exercises where the self-evaluation process can be carried out to improve learning.
- Special emphasis is placed on innovative methodologies in Antibiotic Pharmacology.
- 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 program of the Postgraduate Certificate in Antibiotic Pharmacology".*

“

*This Postgraduate Certificate may be the best investment you can make in the selection of an updating program for two reasons: besides updating your knowledge in Pharmacology in Antibiotic Therapy, you will obtain a Postgraduate Certificate issued by TECH Technological University".*

Its teaching staff includes professionals from the field of Antibiotic Pharmacology, who bring to this training the experience of their work, as well as renowned specialists from prestigious reference societies and 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's design is based on problem-based learning, by means of which the professional must try to solve the different professional practice situations that arise during the course university. For this purpose, the professional will be assisted by an innovative interactive video system developed by recognized experts in the field of Pharmacology in Antibiotic Therapy and with great experience.

*Increase your decision-making confidence by updating your knowledge through this Postgraduate Certificate*

*Take the opportunity to learn about the latest advances in antibiotic therapy and improve the training of your students.*



# 02 Objectives

The main goal of the Postgraduate Certificate is the improvement of health professionals, based on the acquisition of the most updated and innovative scientific knowledge in the field of Pharmacology in Antibiotic Therapy that will allow them to develop skills for the correct and rational use of these drugs, making their daily clinical practice a bastion of the standards of the best scientific evidence available, with a critical, innovative, multidisciplinary and integrative sense.





“

*This program will provide you with a sense of confidence in your medical practice, which will help you grow personally and professionally”*



## General Objective

---

- Guarantee the professional improvement, through the currentness, novelty and depth of the best scientific evidence on microbiology for the correct use of these drugs and the adequate treatment of infectious diseases with a multidisciplinary and integrative approach that facilitates the control of these pathologies.



*Update your knowledge through the Antibiotic Pharmacology program.*





## Specific Objectives

---

- ◆ Provide students with advanced, in-depth, up-to-date, and multidisciplinary information that allows them to comprehensively approach the health-infectious disease process, the use of antibiotics, and antibiotic resistance.
- ◆ Assess and interpret the epidemiological sanitary characteristics and conditions of countries that are conducive to the emergence and development of antibiotic resistance.
- ◆ Explain the complex interrelationships between the host, the microorganism, and the antibiotic to be used.
- ◆ Highlight the importance of rational therapeutics in the rational use of antimicrobials.
- ◆ Delve into drug usage studies within pharmacoepidemiology to facilitate the selection of antimicrobials in daily clinical practice.
- ◆ Describe the most important elements of the absorption, transportation, distribution, metabolism, and excretion of antibiotics.
- ◆ Address, in detail and depth, the most up-to-date scientific evidence on the mechanisms of action, adverse effects, dosage, and use of antimicrobials.
- ◆ Explain the pathophysiologic and pathogenic interrelationships between antimicrobial use and the immune response.
- ◆ Justify the importance of controlling the use of antimicrobials as a means of reducing antibiotic resistance.
- ◆ Emphasize the development of future antibiotics and other therapeutic modalities for infectious diseases.
- ◆ Emphasize the future challenges of infectious diseases in decreasing infectious diseases morbidity and mortality and antimicrobial treatment.

03

# Course Management

Renowned and recognized medical specialists with numerous publications, teaching experience, and professional experience in many countries, where many of the diseases studied have a high morbimortality, participate in the teaching program. The teaching staff is made up of a multidisciplinary team from various medical specialties, as internal medicine, pediatrics, general surgery, gynecology and obstetrics, microbiology, pathological anatomy and pharmacology, among others.





“

*Learn about , the latest advances in Antibiotic Therapy and Antibiotic Resistance from leading professionals”*

## Management



### Dr. Bécares Martínez, Francisco Javier

- ♦ Head of the Pharmacy Department Jiménez Díaz Foundation Hospital
- ♦ Graduate in Pharmacy. University of Salamanca.
- ♦ Specialist in Hospital Pharmacy. Severo Ochoa Hospital
- ♦ Specialist in Clinical Analysis. San Carlos Clinical Hospital
- ♦ Degree in Medicine. Complutense University of Madrid.
- ♦ Assistant pharmacist, specialist in Hospital Pharmacy at the Fundación Jiménez Díaz University Hospital.
- ♦ Associate Professor in Health Sciences at Complutense University of Madrid
- ♦ Collaborating Professor at the University School of Nursing of the Fundación Jiménez Díaz.

## Professors

### Ardizone Jiménez, Beatriz

- ♦ Degree in Pharmacy at Complutense University of Madrid
- ♦ Master's Degree in Applied Microbiology in Public Health and Infectious Diseases Research
- ♦ Resident Intern Pharmacist in Hospital Pharmacy at the Fundación Jiménez Díaz University Hospital.
- ♦ X Practical Course in Dermopharmacy, Faculty of Pharmacy, Complutense University of Madrid.
- ♦ XIX Course in Initiation to Research in Microbiology.
- ♦ Antimicrobial Stewardship Course, Menéndez Pelayo International University, Santander, Spain.



**García Jiménez, Laura**

- ◆ Specialist Pharmacist in Hospital Pharmacy. Adjunct of Outpatient Area. HU Fundación Jiménez Díaz.
- ◆ Residency in Hospital Pharmacy. HU Fundación Jiménez Díaz.
- ◆ Specialist Pharmacist in Hospital Pharmacy. Onco-hematology Phase I Clinical Trials Unit Pharmacy. Start Madrid FJD. HU Fundación Jiménez Díaz.
- ◆ Degree in Pharmacy. Faculty of Pharmacy, University of Salamanca.
- ◆ Rational use of parenteral nutrition course.
- ◆ Course on Safety and approach to restraints in AMAS residential centers.
- ◆ Good Clinical Practice Guidelines (GCP) Online Course. Andalusian initiative of advanced therapies.
- ◆ Joaquim Bonal Clinical Pharmacy Course. Santa Creu and Sant Pau Hospital.

**Ortega Gómez, José Manuel**

- ◆ Director of Hospital Pharmacy Specialist in Hospital Pharmacy, HM Hospitales Madrid
- ◆ Specialist in Hospital Pharmacy, HM Hospitales Group
- ◆ Specialist in Hospital Pharmacy, HM Sanchinarro (Madrid) 2010-2012
- ◆ Specialist in Hospital Pharmacy, La Paz University Hospital (Madrid) 2006-2010
- ◆ Specialist in Hospital Pharmacy, Fundación Jiménez Díaz (Madrid) 1998-2006
- ◆ Specialist in Hospital Pharmacy, Hospital HM Madrid (Madrid) 1995-1998
- ◆ Specialist in Hospital Pharmacy, Hospital del Río Hortega (Valladolid) 1992-1994

# 04

# Structure and Content

The teaching program has been designed by a group of professors and medical professionals from various medical specialties, with extensive medical, research and teaching experience in several countries in Europe, Africa, Central and South America, interested in integrating the latest and most current scientific knowledge of Pharmacology in Antibiotic Therapy to ensure training and professional development to improve the daily clinical practice of professionals who care for patients or populations with infectious diseases.





“

*This Postgraduate Certificate in Antibiotic Pharmacology includes the most complete and up-to-date scientific program on the market”*

## Module 1. Introduction to Pharmacology and Therapeutics

- 1.1. The Use of Clinical Pharmacology.
  - 1.1.1. Concept.
  - 1.1.2. Object of Study.
  - 1.1.3. Branches of Pharmacology.
  - 1.1.4. The Use of Clinical Pharmacology.
- 1.2. Pharmacokinetics: Certainties and Contradictions in its Practical Use.
  - 1.2.1. The Dynamics of Absorption, Distribution, Metabolism, and Elimination of Drugs, Especially Antimicrobials.
- 1.3. Pharmacodynamics: Its Use in the Practical Use of New Antimicrobials.
  - 1.3.1. Molecular Mechanisms of Action of Drugs, Especially Antimicrobials.
  - 1.3.2. Drug-Drug Interactions of Antibiotics with Other Medications.
  - 1.3.3. Pharmacokinetics/Pharmacodynamics Models in Antibiotic Use.
- 1.4. Pharmacovigilance.
  - 1.4.1. Concept.
  - 1.4.2. Objectives.
  - 1.4.3. Adverse Reactions to Antibiotics.
- 1.5. Pharmacoepidemiology: Update on Antimicrobial Research.
  - 1.5.1. Concept.
  - 1.5.2. Objectives.
  - 1.5.3. Drug Usage Studies.
- 1.6. Clinical Trials.
  - 1.6.1. Concept.
  - 1.6.2. Methodology.
  - 1.6.3. Objectives.
  - 1.6.4. The Stages of Clinical Trials.
  - 1.6.5. Uses.
- 1.7. Meta-Analysis.
  - 1.7.1. Concept.
  - 1.7.2. Methods.
  - 1.7.3. Objectives.
  - 1.7.4. Uses.



- 1.8. Rational Treatment: From Old to New and Evidence-Based Medicine.
  - 1.8.1. The Stages of Rational Treatment.
  - 1.8.2. The Use and Importance of Rational Treatment.
- 1.9. Clinical Practice Guidelines: New Approaches to Practical Application.
  - 1.9.1. Creating Clinical Practice Guidelines.
  - 1.9.2. The Impact of Clinical Practice Guidelines.
- 1.10. Clinical Pharmacology: Advances and Future Perspectives for the Improvement of Antibiotic Treatment.
  - 1.10.1. Research Activities and Scientific Advances: Pharmacy Fiction?
  - 1.10.2. Molecular Pharmacology and its Role in Antibiotic Therapy.

“ *A unique, key, and decisive training experience to boost your professional development* ”



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. Gervas, 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.*



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.





#### 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

This **Postgraduate Certificate in Antibiotic Pharmacology** guarantees you, in addition to the most rigorous and updated training, access to a Postgraduate Certificate issued by **TECH Technological University**.



“

*Successfully complete this training and receive your certificate without the hassle of travel or paperwork”.*

This **Postgraduate Certificate in Antibiotic Pharmacology** includes the most complete and up-to-date scientific program on the market”

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

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

Diploma: **Postgraduate Certificate in Antibiotic Pharmacology**

5 ECTS Credits

Nº Hours: **125**



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

health future  
confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
development languages  
virtual classroom



**Postgraduate Certificate**  
Antibiotic Pharmacology

Course Modality: **Online**

Duration: **6 weeks**

Endorsed by: **TECH Technological University**

**5 ECTS Credits**

Hours **125 hours.**

# Postgraduate Certificate Antibiotic Pharmacology