Professional Master's Degree

Infectious Diseases

tech global university

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Professional Master's Degree
Infectious Diseases

- Modality: **online**
- Duration: **18 months**
- Certificate: **TECH Global University**
- Credits: **90 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/medicine/professional-master-degree/master-infectious-diseases

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01

Introduction

The effects of globalization, economic crises and the increase in migration flows have all caused the spread of diseases to escalate. The COVID-19 pandemic is just one example of how modern lifestyles contribute to the uncontrolled spread of a particular pathogen around the world. Healthcare professionals and specialists must be prepared to respond to international diseases of all kinds, which means continuously reviewing the most recent scientific principles, theories and practices. This program offers a comprehensive review of the most important issues affecting infectious diseases, providing the specialist with powerful tools and techniques to apply to their daily practice. All this with the advantage of having a course which is 100% online and can be perfectly balanced with the most demanding professional schedules and responsibilities.

Update your knowledge on the most prevelant Infectious Diseases with theoretical and practical information from a first-class teaching staff"

Emerging and re-emerging infectious diseases are of particular concern to global health. Dengue, Ebola or even Tuberculosis are some of the illnesses that have put health professionals around the world on alert, either due to the resistance they have built up, the threat of new outbreaks or the current lack of effective treatments.

All this has lead us to a situation where specialists and infectologists are on the front line in the battle to treat particularly delicate and complex cases. Fortunately, research into this area is constantly being carried out, and a multitude of new techniques and methodologies are being established in order to combat these adverse situations.

In response to this healthcare situation, TECH has brought together a team of specialists, researchers and high-level practitioners to offer a quality academic program in this field. In this Professional Master's Degree, the teaching team has joined forces to bring together the most effective theoretical and practical knowledge on antibiotic therapies, differential diagnosis and prevention of Infectious Diseases.

Various modules on the syllabus have been prepared using a large amount of audiovisual material which has been created by the teachers themselves so as to provide a more adequate contextualization and justification for each of the subjects covered. Specialist will gain access to a virtual classroom with detailed videos, video summaries, self-knowledge exercises, research articles and complementary readings in order to deepen their understanding of those topics which are of greatest interest.

The completely online format of the program will also provide a level of flexibility which will enable students to balance this academic study with any kind of professional activity. They will be able to access the virtual classroom at any time from any device with an Internet connection, and can also download the contents for offline study at a later date.

This **Professional Master's Degree in Infectious Diseases** contains the most complete and up-to-date scientific program on the market. The most important features include:

- Clinical cases presented by experts in infectious diseases
- 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 self-assessment can be used to improve learning
- 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

Access the most recent findings in the treatments and approaches to infectious diseases with practical studies that you will be able to incorporate into your daily work"

By downloading all the content from the virtual classroom you will have access to a unique reference guide in the field of infectious diseases, which will be indispensible to you even after completing the program"

You will be able to deepen your understanding of the topics you are most interested in thanks to the extensive collection of documents and complementary readings compiled by the TECH's teaching team.

You won't have to adhere to fixed schedules or attend face-to-face classes. Choose where, when and how to take on the workload.

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

02

Objectives

Taking into account the importance of Infectious Diseases to the current global context, the objective of this program is to provide specialists with the most effective and advanced theoretical and practical knowledge available. As a result, upon completion of this course the graduate will have gained in-depth knowledge of the most prevelant infectious diseases from a modern perspective, including an essential review of the challenges being faced in the sector currently, new technology and the most recent epidemiological literature.

It examines, in depth, scientific documentation of the highest calibre in Infectious Diseases, compiled by a teaching team with extensive experience in the area"

General objectives

- Gain in-depth knowledge of key aspects in the field of Infectious Diseases
- Analyze the prevention management, diagnosis and treatment of infectious diseases
- Gain in-depth knowledge of the multidisciplinary and comprehensive approach to controlling these pathologies
- Acquire the relative skills in the field of infectious diseases
- Apply the latest technological innovations to establish an optimal diagnostic management
- Gain up-to-date and in-depth knowledge and develop your skills for daily clinical practice in healthcare, teaching or research roles in the field of infectious diseases in order to provide individual or group population care that allows for the improvement of health indicators
- Improve the medical attention and the overall health of patients with infectious diseases based on integral care, the application of the epidemiological clinical method and the correct use of antimicrobials in correspondence with the most up to date scientific evidence
- Update the physician's knowledge of infectious diseases and antimicrobial treatment, establishing diagnostic and therapeutic methods to face pathologies and the management of the signs and symptoms of syndromic situations caused by them

Specific objectives

Module 1. Epidemiology of Infectious Diseases

- Know the epidemiological, economic, social and political conditions of countries with major infectious diseases
- Identify the different taxonomies of infectious agents, as well as the properties of microorganisms
- Gain in-depth knowledge of the chemical and physical agents in microorganisms
- Know the indications and interpretations of a microbiological study, understanding all the technical aspects

Module 2. Clinical Research in Infectious Diseases

- Provide students with advanced, in-depth, up-to-date, and multidisciplinary information that allows them to comprehensively approach the process of health-infectious diseases
- Provide theoretical and practical education to enable a certain clinical diagnosis to be made, supported by the efficient use of diagnostic methods to indicate an effective integral therapy
- Develop skills to implement prophylactic plans for the prevention of these diseases

Module 3. Challenges in the Diagnostic Process of Infectious Diseases

- Gain in-depth knowledge in the diagnosis of bacteremias of catheter and soft tissue related infections
- Know the latest diagnostic techniques in microbiology
- Diagnose, using the latest scientific innovation, the different mycological infections
- Integrate the best sampling practices into the professional work, mainly in blood cultures, urine and exudates, among others

Module 4. Advances in Antibiotic Therapy

- Identify new developments in the management of new antibiotics
- Define and describe diagnostic and therapeutic methods in infectious pathology
- Identify and classify the different types of infections that commonly occur in the community
- Differentiate between the management of viral and bacterial infections in light of the latest advances in treatment of choice

Module 5. Responsible Antibiotic Use

- Convey the responsibility of the clinician in prescribing antibiotic treatment and its consequences
- Sensitize the physician to the rational use of medication and its long-term consequences for the patient and the community

Module 6. Infectious Diseases in International Travellers

- Highlight the importance of morbidity and mortality from infections in the international traveller
- Explain the health controls for international travellers
- Know and identify the most common infections for international travellers such as fever on returning from a trip or traveller's diarrhoea

Module 7. Nosocomial Infections

- Incorporate the latest diagnostic and therapeutic procedures for hospital-acquired or healthcare-associated infections into daily practice
- Determine infection control activities in the field of hospital surveillance and in-hospital control of nosocomial infection

Module 8. Assessment and Treatment of Community Infections

- Identify actions to be taken on transmissible diseases in the community
- Incorporate the latest diagnostic and therapeutic procedures for community-acquired infections into daily practice
- Acquire skills to manage, advise or lead multidisciplinary teams for the study of infectious diseases in communities or individual patients, as well as scientific research teams

Module 9. Urinary, Skin and Soft Tissue Infections

- Examine the diversity of genital tract infections and STDs
- Analyze the incidence of viral, fungal and mycobacterial skin infections
- Review the current situation regarding intra-abdominal and enteric infections

Module 10. Zoonotic and Bacterial Infections

- Gain in-depth understanding of the actuality of Tuberculosis, community-acquired pneumonia and zoonotic and bacterial infections
- Explore the condition of Fever of Unknown Origin (FUO) in the 21st century
- Study, in depth, intermediate febrile syndrome and mononucleosis syndrome

Module 11. Hepatitis and HIV/AIDS and Tuberculosis Co-Infection

- Characterize the clinical picture, viral markers, evolution and treatment of Hepatitis, Tuberculosis and HIV/AIDS infection
- Understand in detail the clinical manifestations of co-infection at pulmonary and extrapulmonary levels
- Evaluate the comprehensive care received by patients with infections in patients with co-infection and therapeutic considerations
- Consider other antituberculosis treatments in patients with tuberculosis/HIV/AIDS coinfection

Module 12. Parasitic and Tropical Diseases

- Delve deeper into the study of the most important parasitic diseases
- Highlight the importance of morbidity and mortality from infections in the international traveller
- Explain the clinical, diagnostic and treatment elements of rare or uncommon parasitic and tropical diseases

Module 13. Antimicrobial Resistance

- Raise the crucial issue of super-resistant microbes and their relationship to the use of antimicrobials
- Highlight the development of vaccines for new diseases
- Emphasize the development of future antibiotics and other therapeutic modalities for infectious diseases
- Explain the clinical, diagnostic and treatment elements of rare or uncommon infectious diseases
- Emphasize the future challenges related to infectious diseases in reducing infectious morbidity and mortality

Module 14. ICT and Clinical History in Infectious Diseases

- Define the concepts of clinical decisions electronic support applied to infectious pathology
- Identify new information systems and their usefulness in the patient's medical record

Module 15. Coronavirus Infections

- Know the microbiological characteristics of coronaviruses
- Know how to assess the morbidity and mortality of coronavirus infections
- Identify the main risk groups and mechanisms of coronaviruses
- Be able to perform the necessary tests for diagnosing Coronavirus
- Know how to apply the necessary preventive measures, as well as the most accurate treatments according to the type of patient

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

03

Skills

COVID-19 has highlighted the importance of preparing healthcare personnel to deal with unpredictable and sudden situations. When treating infections of all types, it is paramount that the specialist has a refined set of skills, and, at the same time, relies on the most important clinical findings that have the greatest relevance to their own work. Hence the theoretical and practical approach employed by this program, we offer an abundance of real and simulated cases that help to further deepen understanding of the most important competencies in this area.

The specific contextualization provided by the case studies on each topic will be essential to further deepening your understanding of infectious diseases in the current climate"

General skills

- Know the scope of application of an antibiotic treatment, its pharmacological and pharmacodynamic characteristics and its indications
- Manage the different families of traditional antibiotics and the new drugs both in individual and combined use
- Characterize the different clinical syndromes of community-acquired infection, nosocomial-acquired infections, or those related to them, using the latest healthcare techniques
- Gain in-depth knowledge of HIV infection, from its epidemiology and history to its multiple manifestations, its current diagnostic and therapeutic management and prevention
- Know the new emerging and re-emerging infections and those imported by the international traveller
- Collect, process, and analyze in very diverse clinical and epidemiological contexts, any scientific information for diagnostic and therapeutic decision-making in the field of clinical infectious diseases specifically and health in general
- Increase their diagnostic and therapeutic capabilities for infectious diseases and their patients' health care in general, through the in-depth study of the epidemiological, clinical, pathophysiological, diagnostic and therapeutic elements of these diseases
- Manage, advise or lead multidisciplinary teams for the study of infectious diseases in communities or individual patients, as well as scientific research teams
- Educate the population in the field infectious diseases in order to acquire and develop a culture of prevention in the population, based on healthy styles and ways of life

Specific skills

- Gain a deeper understanding of the handling of microbiological samples, their processing and the interpretation and clinical application of identification and sensitivity results
- Apply epidemiological and clinical methods in collective or individual care to solve the main health problems related to infectious diseases
- Characterize clinical syndromes of infection in immunocompromised non-HIV patients, characteristics of chronic hepatitis b or hepatitis c infection and emerging, imported and traveller's infectious pathology
- Define the currently used antibiotic prescription support equipment and its practical application
- Carry out professional work with patients diagnosed with or with symptoms of coronavirus, complying with all safety measures
- Learn about the latest advances in diagnostic tests to detect possible cases of coronavirus
- Explain the management of severe sepsis and the relevance of the existence of the Code Sepsis
- Master the biological, epidemiological, and social determinants that favor the development of infectious diseases and their impact on morbidity and mortality rates
- Apply existing control measures to prevent the transmission of these diseases between countries, in real and/or simulated conditions
- Evaluate the epidemiological aspects related to chronic diseases that will allow them to implement actions for their control in the community in real and/or simulated conditions
- Identify, in a timely manner, the appearance of new diseases or the rise of emerging or re-emerging diseases, based on the application of the scientific method of the profession
- Diagnose, using clinical manifestations, the most frequent or new infections in order to ensure their correct treatment, rehabilitation and control
- Justify the importance of vaccination as an important public health measure for the control of communicable diseases
- Master the clinical, epidemiological, diagnostic, and therapeutic elements for the main epidemiological threats in the world population such as HIV/AIDS infection, parasitosis, TB, and hemorrhagic diseases
- Halt the progression of antibiotic resistance, based on reasoned therapeutics and supported by the best scientific evidence

This Professional Master's Degree has an outstanding multidisciplinary approach, covering the most prevelant infectious diseases"

04

Course Management

In order to ensure we provide our students with a distinctive and transversal approach to this program, TECH has brought together a teaching team made up of professionals from diverse specialities in the field of health. Specialists in infectious diseases have created content that not only brings together the most recent scientific findings and research, but also draws from their own clinical experience working in the most prestigious centers and hospitals, where they have first-hand experience in cases of all kinds.

You can rely on a teaching staff committed to helping you update your knowledge and willing to solve any doubts you may have during the process"

International Guest Director

A pioneer in the use of **CD8+ T Cells** as a therapeutic tool for various **Viral Infections**, Dr. Otto Yang is a prestigious **Physician** highly specialized **in Cellular Immunology**. In addition, he has led multiple **scientific research** projects that have laid the groundwork for the development of innovative therapies and even vaccines.

In this sense, he has worked in health institutions of international reference such as **UCLA Health** in California. In this way, his work has been focused on the creation and implementation of modern treatments to manage conditions related to **HIV, AIDS or cancer**. Thanks to this, he has driven advances in the design of personalized immunological treatments adapted to the specific needs of each patient. As a result, he has managed to optimize the **overall well-being** of numerous patients in the long term.

Moreover, he has been a key figure in the conduct of **clinical trials** related to **COVID-19**. As such, he has conducted a variety of comprehensive analyses to evaluate the effects of therapies such as **Remdesivir, Baricitinib** and even **Monoclonal Antibodies**. Such work has been essential to identify the most effective therapeutic options and improve informed clinical decision making on a global scale in the face of the SARS-CoV-2 outbreak.

Throughout its 40-year history, its clinical excellence has been rewarded on several occasions in the form of **awards**. An example of this is the award he received from the American Association of Immunologists for his **CAR-T therapies** for the treatment of **leukemias**. In his strong commitment to advancing healthcare, he has led a wide range of projects that have received more than 30 million dollars in funding. These achievements reflect his strategic leadership in generating cutting-edge solutions that bring tangible value to society.

Dr. Yang, Otto

- Chief of the Division of Infectious Diseases at UCLA Health in California, United States
- Founder and Chief Medical Officer of CDR3 Therapeutics, California
- Director of Scientific Research at AIDS Healthcare Foundation, Los Angeles, Los Angeles
- Research Scientist with over 170 published papers
- Scientific Director of Ozyma, Los Angeles
- HIV Physician at MCI-Cedar Junction, Massachusetts
- Infectious Diseases Internship at Harvard Medical School
- Internal Medicine Residency at Bellevue Hospital, New York
- M.D. from Brown University
- Member of: Board of Directors at California Applied Medicine and Frontida Electronic Health Records Software

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

Management

Dr. Díaz Pollán, Beatriz

- Faculty Specialist at La Paz University Hospital
- Faculty Specialist at San Carlos Clinical Hospital
- Resident Physician at San Carlos Clinical Hospital
- Master's Degree in Clinical Medicine from the Rey Juan Carlos University
- Degree in Medicine and Surgery from the Autonomous University of Madrid
- Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU - Cardenal Herrera University
- Postgraduate Diploma in Community and Nosocomial Infections from CEU - Cardenal Herrera University
- Postgraduate Diploma in Chronic Infectious Diseases and Imported Infections from CEU - Cardenal Herrera University
- Postgraduate Diploma in Microbiological Diagnosis, Antimicrobial Treatment and Research in Infectious Pathology from CEU - Cardenal Herrera University

Professors

Dr. Arribas López, José Ramón

- Head of the Infectious Diseases and Clinical Microbiology Unit. La Paz University Hospital
- Coordinator of the High-Level Isolation Unit. La Paz University Hospital- Carlos III
- Member of the Interministerial Committee for the management of the Ebola crisis
- Head of the AIDS and Infectious Diseases research group at IdiPAZ
- PhD in Medicine. Autonomous University of Madrid
- Degree in Medicine and Surgery. Complutense University of Madrid

Dr. Loeches Yagüe, María Belén

- Specialist in the area of Infectious Diseases at La Paz General University Hospital
- Professor of Infectious Diseases at the Infanta Sofía University Hospital in Madrid European University of Madrid
- Doctor of Medicine. Autonomous University of Madrid
- Degree in Medicine. Complutense University of Madrid
- Master in Theoretical and Practical Learning in Infectious Diseases. Complutense University of Madrid
- Specialized Training in Microbiology and Infectious Diseases. Gregorio Marañón General University Hospital

Dr. Mora Rillo, Marta

- Specialist in the area of Infectious Diseases at La Paz University
- Clinical Teaching Collaborator in the Department of Medicine. Autonomous University of Madrid
- Doctor of Medicine. Autonomous University of Madrid
- Degree in Medicine and Surgery. University of Zaragoza
- Master's Degree in Infectious Diseases in Intensive Care. University of Valencia
- Online Masters in Infectious Diseases and Antimicrobial Treatment CEU Cardenal Herrera University. 2017
- Master's Degree in Tropical Medicine and International Health. Autonomous University of Madrid
- Postgraduate Diploma in Emerging and High-Risk Virus Pathology. Autonomous University of Madrid
- Postgraduate Diploma in Tropical Medicine. Autonomous University of Madrid

Dr. Ramos Ramos, Juan Carlos

- Doctor at La Paz University Hospital. Madrid
- Official Doctoral Program in Medicine. University of Alcalá
- Degree in Medicine and Surgery. Complutense University of Madrid
- Master's Degree in Infectious Diseases in Intensive Care. University-Company Foundation Valencia
- Author of Several Scientific Publications

Dr. Rico Nieto, Alicia

- Specialist in the Microbiology and Parasitology Department at La Paz University Hospital
- Assistant and co-founder of the Infectious Diseases and Clinical Microbiology Unit at La Paz University Hospital
- Team Member of PROA (Programs of Reinforcement, Orientation and Support)
- Teaching Collaborator of the Department of Medicine at UAM
- Member of the Infection and Policy Committee of La Paz University Hospital.
- Member of SEIMC (the Spanish Society of Infectious Diseases and Clinical Microbiology)
- Participation in several research projects
- Degree in Medicine from the Complutense University of Madrid
- Doctorate Courses at the Complutense University of Madrid

05

Structure and Content

All the content provided in this Professional Master's Degree follows TECH's teaching methodology, based on Relearning. This is a distinct advantage for the specialist, as the progression through the program's content is completely natural and gradual, repeating the most relevant terms in infectious diseases on a regular basis throughout the course. This avoids the need to invest an excessive number of hours into studying in order to pass the syllabus, enabling you to dedicate that time to deepening your understanding of each topic thanks to our extensive database of complementary material.

You will be able to perform a number of exercises to improve your knowledge of each topic covered, following a process of continuous self-evaluation throughout the program"

Module 1. Epidemiology of Infectious Diseases

1.1. Epidemiological, Economic and Social Conditions by Continent that Favor the Emergence of Infectious Diseases
- 1.1.1. Africa
- 1.1.2. America
- 1.1.3. Europe and Asia

1.2. New and Emerging Diseases by Continent
- 1.2.1. Morbidity and Mortality from Infectious Diseases in Africa
- 1.2.2. Morbidity and Mortality from Infectious Diseases in the Americas
- 1.2.3. Infectious Disease Morbidity and Mortality in Asia
- 1.2.4. Morbidity and Mortality from Infectious Diseases in Europe

1.3. The Taxonomy of Infectious Agents
- 1.3.1. Viruses
- 1.3.2. Bacteria
- 1.3.3. Fungus
- 1.3.4. Parasites

1.4. Disease-Producing Properties of Micro-Organisms
- 1.4.1. Mechanisms of Pathogenicity
- 1.4.2. Mechanisms of Adhesion and Multiplication
- 1.4.3. Mechanisms Enabling the Acquisition of Nutrients from the Host
- 1.4.4. Mechanisms Inhibiting the Phagocytic Process
- 1.4.5. Mechanisms For Evading the Immune Response

1.5. Microscopy and Staining
- 1.5.1. Microscopes and Types of Microscopes
- 1.5.2. Composite Stains
- 1.5.3. Acid-Fast Micro-Organism Stainings
- 1.5.4. Staining to Demonstrate Cellular Structures

1.6. Cultures and Growth of Micro-Organisms
- 1.6.1. General Culture Mediums
- 1.6.2. Specific Culture Methods

1.7. Effect of Chemical and Physical Agents on Micro-Organisms
- 1.7.1. Sterilization and Disinfection
- 1.7.2. Disinfectants and Antiseptics Used in Practice

1.8. Molecular Biology and its Importance for the Infectologist
- 1.8.1. Bacterial Genetics
- 1.8.2. Polymerase Chain Reaction Tests

1.9. Indication and Interpretation of Microbiological Studies

Module 2. Clinical Research in Infectious Diseases

2.1. The Clinical Method in the Diagnostic Process of Infectious Diseases
- 2.1.1. Fundamental Concepts of the Clinical Method: Stages, Principles
- 2.1.2. The Clinical Method and its Usefulness in Infectology
- 2.1.3. Most Common Errors in the Application of the Clinical Method

2.2. Epidemiology in the Study of Infectious Diseases
- 2.2.1. Epidemiology as a Science
- 2.2.2. The Epidemiological Method
- 2.2.3. Epidemiology Tools Applies in the Study of Infectious Diseases

2.3. Clinical Epidemiology and Scientific Evidence-Based Medicine
- 2.3.1. Scientific Evidence and the Clinical Experience
- 2.3.2. The Importance of Evidence-Based Medicine in Diagnosis and Treatment
- 2.3.3. Clinical Epidemiology as a Powerful Weapon of Medical Thinking

2.4. Behavior of Infectious Diseases in the Population
- 2.4.1. Endemic
- 2.4.2. Epidemic
- 2.4.3. Pandemic

2.5. Confronting Epidemic Outbreaks
- 2.5.1. Diagnosis of Epidemic Outbreaks
- 2.5.2. Measures for the Control of Epidemic Outbreaks

2.6. Epidemiological Monitoring
- 2.6.1. Types of Epidemiological Monitoring
- 2.6.2. Designs of an Epidemiological Monitoring Systems
- 2.6.3. Usefulness and Importance of Epidemiological Monitoring

2.7. International Health Regulations
- 2.7.1. Components of International Health Regulations
- 2.7.2. Diseases Subject to International Sanitary Control
- 2.7.3. Importance of International Health Regulations

2.8. Mandatory Reporting Systems for Infectious Diseases
- 2.8.1. Characteristics of Diseases Subject to Mandatory Reporting
- 2.8.2. Role of the Doctor in Mandatory Reporting Systems for Infectious Diseases

2.9. Vaccines
- 2.9.1. Immunological Basis of Vaccination
- 2.9.2. Development and Production of Vaccines
- 2.9.3. Diseases Preventable with Vaccines
- 2.9.4. Experiences and Results of the Vaccine System in Cuba

2.10. Research Methodology in the Field of Health
- 2.10.1. The Importance of Public Health in Research Methodology as a Science
- 2.10.2. Scientific Thought in Healthcare
- 2.10.3. The Scientific Method
- 2.10.4. Stages of Scientific Research

2.11. Information Management and the Use of New Information and Communication Technologies (ICT)
- 2.11.1. The Use of New ICT in the Management of Knowledge for Healthcare Professionals in the Professional Clinical, Teacher and Research Work
- 2.11.2. Information Literacy

2.12. Design of Research Studies for Infectious Diseases
- 2.12.1. Types of Studies in Healthcare and Medical Sciences
- 2.12.2. The Design of Research Applied to Infectious Diseases

2.13. Descriptive and Inferential Statistics
- 2.13.1. Summary Measures for the Different Variables in Scientific Research
- 2.13.2. Central Tendency Measures: Mean, Mode and Median
- 2.13.3. Dispersion Measures: Variants and Standard Deviation
- 2.13.4. Statistical Estimation
- 2.13.5. Population and Sample
- 2.13.6. Tools for Inferential Statistics

2.14. Design and Use of Databases
- 2.14.1. Types of Databases
- 2.14.2. Programs and Statistical Packages for the Management of Databases

2.15. Protocol of Scientific Research
- 2.15.1. Protocol Components of Scientific Research
- 2.15.2. Usefulness of Protocol of Scientific Research

2.16. Clinical Trials and Meta Analysis
- 2.16.1. Types of Clinical Trials
- 2.16.2. The Role of a Clinical Trial in Healthcare Research
- 2.16.3. Meta Analysis: Conceptual Definitions and Their Methodological Design
- 2.16.4. Application of Meta-Analyses and Their Role in the Medical Sciences

2.17. Critical Reading of Research Results
- 2.17.1. Medical Journals, Their Role in the Dissemination of Scientific Information
- 2.17.2. Medical Journals of High-Impact on a Global Level in the Field of Infectology
- 2.17.3. Methodological Tools for Critical Reading of Scientific Literature

2.18. Publication of Scientific Research Results
- 2.18.1. The Scientific Article
- 2.18.2. Types of Scientific Articles
- 2.18.3. Methodology Requirements for the Publication of Scientific Research Results
- 2.18.4. The Process of Scientific Publications in Medical Journals

Module 3. Challenges in the Diagnostic Process of Infectious Diseases

3.1. Diagnosis of Bacteremia, Catheter-Related Infections, and Soft Tissue Infections
3.2. Bacteriological Diagnosis of Bacteremia. Genitourinary Infections
3.3. Concepts and Application of In Vitro Antibiotic Sensitivity Testing. Detection of Resistance Mechanisms
3.4. Microbiological Diagnosis of Mycobacteria
3.5. Mycological Diagnosis and In Vitro Sensitivity Studies
3.6. Viral Diagnosis
3.7. Parasitic Diagnosis
3.8. Procedures in Clinical Practice
  3.8.1. Sample Collection: Blood Cultures, Respiratory Samples, Urine, Genital Exudates, Exudates, Surgical Samples and Biopsies, Stool Cultures, etc
  3.8.2. Interpretation of Results: Microbiological Identification (Colonization, Infection, Contamination), Sensitivity and Serology Tests

Module 4. Advances in Antibiotic Therapy

4.1. Basic Principles in the Selection and Use of Antimicrobials
4.2. Resistance Bases and Their Clinical Implications
4.3. Clinical Application of the PK/PD Parameters
4.4. Use of Antimicrobials in Special Situations in the Host

Module 5. Responsible Antibiotic Use

5.1. Beta-Lactams I: Penicillins, Aminopenicillins and Beta-Lactamase Inhibitors
5.2. Beta-Lactams II: Cephalosporins, Monobactams and Carbapenems
5.3. Aminoglycosides, Tetracyclines, Lincosamides, Rifamycins, and Antifolates
5.4. Quinolones and Macrolides
5.5. Glycopeptides. New Antibiotics for Gram-Positive Infections (Lipopeptides and Oxazolidinones)
5.6. Anti-Fungal Agents
5.7. Anti-Viral Agents (Excluding Antiretrovirals and Direct Antivirals for Hepatitis C)
5.8. Combinations of Antimicrobials Pros and Cons

Module 6. Infectious Diseases in International Travellers

6.1. Vaccines in the International Traveler
  6.1.1. Vaccines in the International Traveler
  6.1.2. Vaccination Against Yellow Fever
6.2. Prophylaxis for Travellers to Tropical Areas
  6.2.1. Pharmacological Treatment According to the Geographical Area to Be Visited
  6.2.2. Glucose-6-Phosphate Dehydrogenase Deficiency and Antimalarial Drugs
  6.2.3. Preventive Measures for Travelers in Tropical Areas
6.3. Traveler's Diarrhoea
  6.3.1. Epidemiology
  6.3.2. Etiology
  6.3.3. Clinical Manifestations
  6.3.4. Diagnosis
  6.3.5. Treatment
6.4. Health Screening of International Travelers
6.5. Fever on Return from International Travel
  6.5.1. Main Etiologies
  6.5.2. Diagnostic Approach
  6.5.3. Imported Infectious Pathology in the International Traveller

Module 7. Nosocomial Infections

7.1. Infections Associated with Medical Procedures
  7.1.1. Infection of the Surgical Wound: Superficial and Deep
  7.1.2. Nosocomial Pneumonia Associated with Mechanical Ventilation
  7.1.3. Infection Associated with Non-Tunneled Peripheral and Central Venous Catheters
  7.1.4. Infections Associated with Urinary Catheter
  7.1.5. Clostridium Difficile Infection
  7.1.6. Global Vision of the Infection in Critical Patients in the ICU

Module 8. Assessment and Treatment of Community Infections

8.1. Assessment of the Severity of Infectious Diseases
8.2. Support of Biomarkers in the Clinical Diagnosis of Infection
8.3. Basic Principles for the Clinician in Assessing the Indication and Choice of Empirical Antibiotic Treatment
8.4. Severe Sepsis and Septic Shock. Code Sepsis
8.5. Osteoarticular Infections
8.6. Infections of the CNS
8.7. Bacterial Endocarditis

Module 9. Urinary, Skin and Soft Tissue Infections

9.1. Infections of the Genital Tract and STDs I
9.2. Infections of the Genital Tract and STDs II
9.3. Genital Infections in Women
9.4. Urinary Tract Infections
9.5. Viral Skin Infections
9.6. Fungal and Microbacterial Skin Infections
9.7. Skin and Soft Tissue Infections
9.8. Intra-Abdominal and Enteric Infections

Module 10. Zoonotic and Bacterial Infections

10.1. TB
10.2. Community-Acquired Pneumonia (CAP)
10.3. Zoonoses (Brucella, Rickettsia, Bartonella, Leptospira, Lyme, Leishmania, Arbovirus,etc.)
10.4. Intermediate Febrile Syndrome
10.5. Mononucleosis Syndrome
10.6. Fever and Rash
10.7. Fever and Lymphadenopathies in Immunocompetent Patients
10.8. Fever of Unknown Origin (FUO) in the 21st century

Module 11. Hepatitis and HIV/AIDS and Tuberculosis Co-Infection

11.1. Viral Hepatitis A
  11.1.1. Virus Characteristics and Replication Cycle
  11.1.2. Clinical Picture
  11.1.3. Viral Markers
  11.1.4. Evolution and Prognosis
  11.1.5. Treatment
11.2. Viral Hepatitis B and C
  11.2.1. Virus Characteristics and Replication Cycle
  11.2.2. Clinical Picture
  11.2.3. Viral Markers
  11.2.4. Evolution and Prognosis
  11.2.5. Treatment
11.3. Viral Hepatitis D and E
  11.3.1. Virus Characteristics and Replication Cycle
  11.3.2. Clinical Picture
  11.3.3. Viral Markers
  11.3.4. Evolution and Prognosis
  11.3.5. Treatment
11.4. Epidemiology of Morbidity and Mortality from TB/HIV/AIDS Coinfection
  11.4.1. Incidence
  11.4.2. Prevalence
  11.4.3. Mortality
11.5. Pathobiology from TB/HIV/AIDS Coinfection
  11.5.1. Pathophysiological Alterations in Co-Infection
  11.5.2. Pathological Alterations
11.6. Clinical Manifestations of Co-Infection
  11.6.1. Clinical Manifestations of Pulmonary TB
  11.6.2. Clinical Manifestations of Extrapulmonary TB

11.7. Diagnosis of Tuberculosis in Patients Living with HIV/AIDS
- 11.7.1. Diagnostic Studies in Pulmonary TB in HIV/AIDS Patients

11.8. Integral Care of Patients with Co-infection TB and HIV/AIDS and Therapeutic Considerations
- 11.8.1. The System of Comprehensive Care for TB/HIV/AIDS Patients
- 11.8.2. Anti-tuberculosis Treatment Considerations in Patients with Tuberculosis and HIV/AIDS Coinfection
- 11.8.3. Anti-Tuberculosis Treatment Considerations in Patients with TB/HIV/AIDS Co-Infection
- 11.8.4. The Issue of Anti-Tuberculosis and Anti-Retroviral Resistance in These Patients

Module 12. Parasitic and Tropical Diseases

12.1. Introduction to Parasitology
- 12.1.1. General Concepts Used in Parasitology
- 12.1.2. Epidemiology of the Main Parasitosis and Tropical Diseases
- 12.1.3. Classification of Parasites
- 12.1.4. Tropical Diseases and Fever Syndrome in the Tropics

12.2. Malaria
- 12.2.1. Epidemiology
- 12.2.2. Etiological Agent
- 12.2.3. Pathogenesis
- 12.2.4. Clinical Picture
- 12.2.5. Complications
- 12.2.6. Diagnosis
- 12.2.7. Treatment

12.3. Diseases from Intestinal Protozoa
- 12.3.1. Main Intestinal Protozoa
- 12.3.2. Diagnosis of Intestinal Protozoa
- 12.3.3. Amebiosis and Giardiosis

12.4. Filarial Diseases
- 12.4.1. Epidemiology and the Worldwide Situation
- 12.4.2. Clinical Syndromes
- 12.4.3. Main Filarial Diseases: Wuchereria Bancrofti, Brugia Malayi, BrugiaTtimori, Onchocerca Volvulus, Loa loa, Mansonella Perstans, Mansonella Streptocerca and Mansonella Ozzardi

12.5. Leishmaniasis
- 12.5.1. Cutaneous Leishmaniasis
- 12.5.2. Deep Leishmaniasis

12.6. Trypanosomiasis
- 12.6.1. African Trypanosomiasis
- 12.6.2. American Trypanosomiasis

12.7. Schistosomiasis
- 12.7.1. Hematobium Schistosomiasis
- 12.7.2. Schitosomiosis Mansoni
- 12.7.3. Schitosomiosis Japonicum
- 12.7.4. Schitosomiosis Intercalatum

12.8. Intestinal Parasitism
- 12.8.1. Epidemiology
- 12.8.2. Ascaridiosis
- 12.8.3. Oxiuriasis
- 12.8.4. Hookworm Disease and Necatoriasis
- 12.8.5. Trichuriosis

12.9. Taeniasis Infections
- 12.9.1. Intestinal Tapeworms
- 12.9.2. Tissue Tapeworms

12.10. Antiparasitics II
- 12.10.1. General Concepts
- 12.10.2. Main Definitions Used in the Management of Antiparasitics
- 12.10.3. Classifications Used by Chemical Structure, Mechanism of Action or Antiparasitic Action
- 12.10.4. Mechanisms of Action

12.11. Antiprotozoals
- 12.11.1. Classification
- 12.11.2. Mechanisms of Action
- 12.11.3. Antiparasitic Spectrum
- 12.11.4. Pharmacokinetics and Pharmacodynamics
- 12.11.5. Dose and Presentation

12.12. Antiparasitic for Helminths
- 12.12.1. Classification
- 12.12.2. Mechanisms of Action
- 12.12.3. Antiparasitic Spectrum
- 12.12.4. Pharmacokinetics and Pharmacodynamics
- 12.12.5. Dose and Presentation

Module 13. Antimicrobial Resistance

13.1. Epidemiology. From Molecular to Socioeconomic
- 13.1.1. Analysis of Molecular Evolution, Genetics, Clinical Manifestation, Epidemiology and Socioeconomics of the Resistance to Antibiotics
- 13.1.2. Mortality Due to Super Bacteria
- 13.1.3. Most Lethal Super Bacteria

13.2. Mechanisms of Antimicrobial Resistance
- 13.2.1. Genetic Mechanisms
- 13.2.2. Acquired Mechanisms

13.3. MRSA and GISA
- 13.3.1. Epidemiology
- 13.3.2. Resistance Mechanisms
- 13.3.3. Alternative Treatments

13.4. Resistant Enterobacteria
- 13.4.1. Epidemiology
- 13.4.2. Resistance Mechanisms
- 13.4.3. Alternative Treatments

13.5. Resistant Pneumococcus
- 13.5.1. Epidemiology
- 13.5.2. Resistance Mechanisms
- 13.5.3. Alternative Treatments

13.6. Viral Resistance
- 13.6.1. Epidemiology
- 13.6.2. Resistance Mechanisms
- 13.6.3. Alternative Treatments

13.7. Mycotic and Parasitic Resistance
- 13.7.1. Epidemiology
- 13.7.2. Resistance Mechanisms
- 13.7.3. Alternative Treatments

13.8. Worldwide Program for the Control of Antimicrobial Resistance and Research into New Antibiotics
- 13.8.1. Objectives and Action of the Worldwide Program for the Control of Antimicrobial Resistance
- 13.8.2. Research into New Antibiotics for Multiresistant Germs
- 13.8.3. Emergence of Other Forms of Treatment for Infection Control

Module 14. ICT and Clinical History in Infectious Diseases

14.1. Clinical Decision Support Systems

14.2. Information Systems and Sales Programming

14.3. Record Keeping and Surveillance System

Module 15. Coronavirus Infections

15.1. Discovery and Evolution of Coronaviruses
- 15.1.1. Discovery of Coronaviruses
- 15.1.2. Global Trends in Coronavirus Infections

15.2. Main Microbiological characteristics and Members of the Coronavirus Family
- 15.2.1. General Microbiological Characteristics of Coronaviruses
- 15.2.2. Viral Genome
- 15.2.3. Principal Virulence Factors

15.3. Epidemiological Changes in Coronavirus Infections from its Discovery to the Present
- 15.3.1. Morbidity and Mortality of Coronavirus Infections from their Emergence to the Present

15.4. The Immune System and Coronavirus Infections
- 15.4.1. Immunological Mechanisms Involved in the Immune Response to Coronaviruses
- 15.4.2. Cytokine Storm in Coronavirus Infections and Immunopathology
- 15.4.3. Modulation of the Immune System in Coronavirus Infections

15.5. Pathogenesis and Pathophysiology of Coronavirus Infections
- 15.5.1. Pathophysiological and Pathogenic Alterations in Coronavirus Infections
- 15.5.2. Clinical Implications of the Main Pathophysiological Alterations

15.6. Risk Groups and Transmission Mechanisms of Coronaviruses
- 15.6.1. Main Sociodemographic and Epidemiological Characteristics of Risk Groups Affected by Coronavirus
- 15.6.2. Coronavirus Mechanisms of Transmission

15.7. Natural History of Coronavirus Infections
- 15.7.1. Stages of Coronavirus Infection

15.8. Latest Information on Microbiological Diagnosis of Coronavirus Infections
- 15.8.1. Sample Collection and Shipment
- 15.8.2. PCR and Sequencing
- 15.8.3. Serology Testing
- 15.8.4. Virus Isolation

15.9. Current Biosafety Measures in Microbiology Laboratories for Coronavirus Sample Handling
- 15.9.1. Biosafety Measures for Coronavirus Sample Handling

15.10. Up-to-Date Management of Coronavirus Infections
- 15.10.1. Prevention Measures
- 15.10.2. Symptomatic Treatment
- 15.10.3. Antiviral and Antimicrobial Treatment in Coronavirus Infections
- 15.10.4. Treatment of Severe Clinical Forms

15.11. Future Challenges in the Prevention, Diagnosis, and Treatment of Coronavirus
- 15.11.1. Global Challenges for the Development of Prevention, Diagnostic, and Treatment Strategies for Coronavirus Infections

You will have the freedom to study from your smartphone or tablet by downloading the content and accessing it offline"

06

Methodology

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

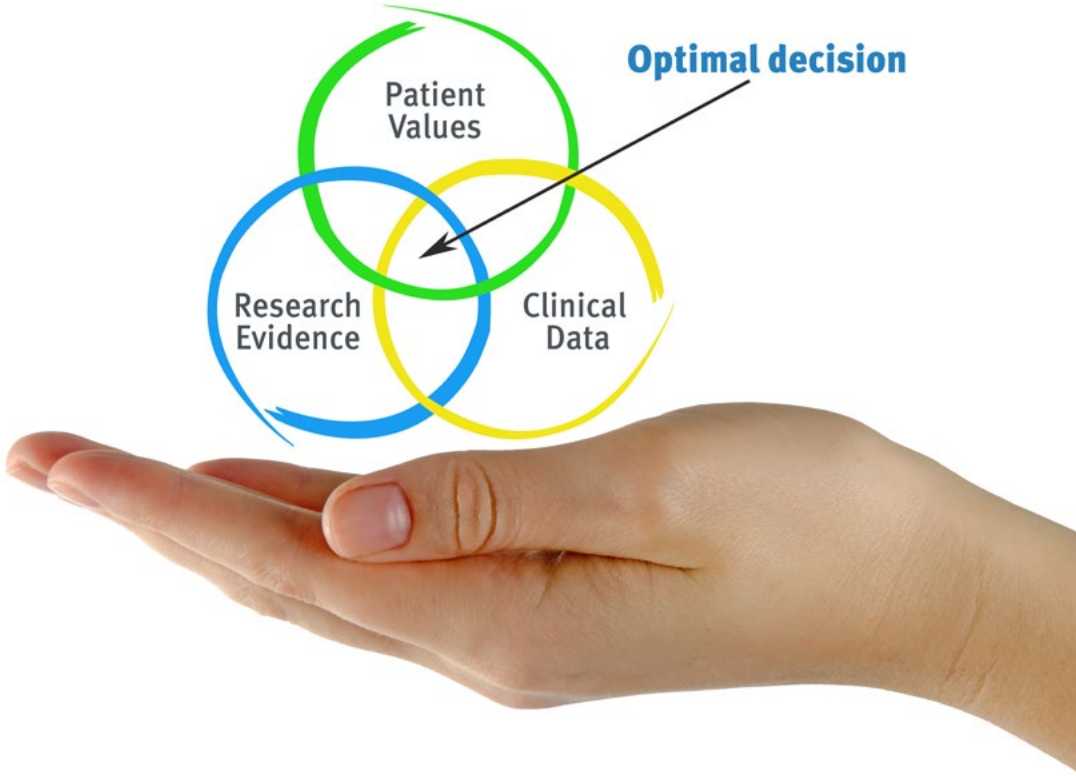
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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:

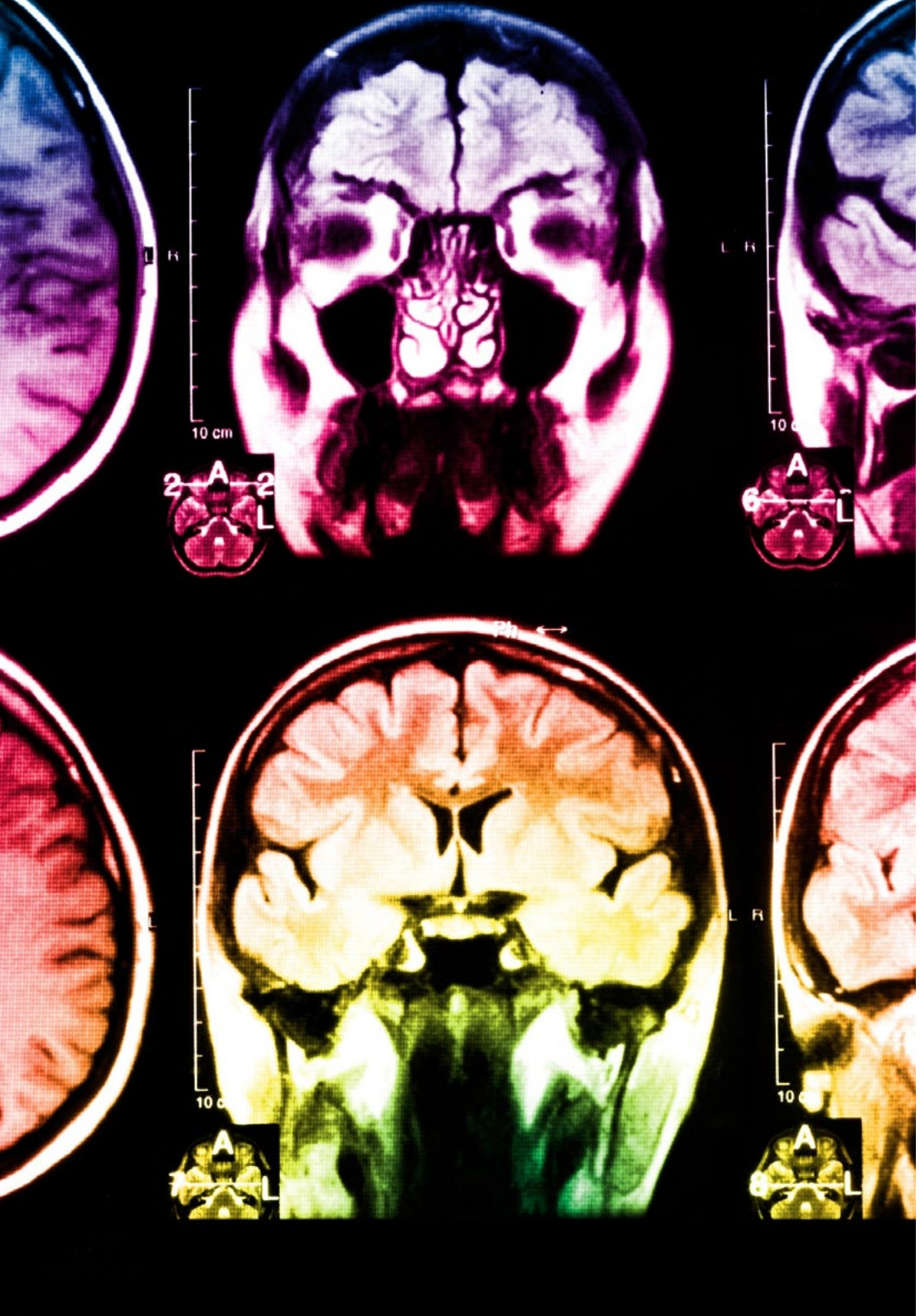
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better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

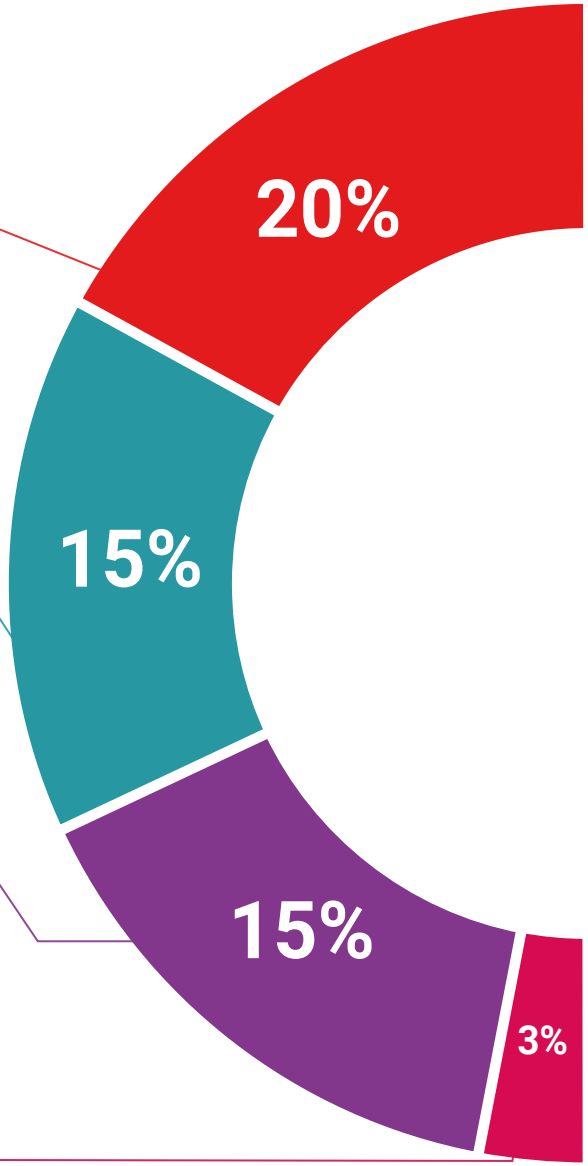
Interactive Summaries

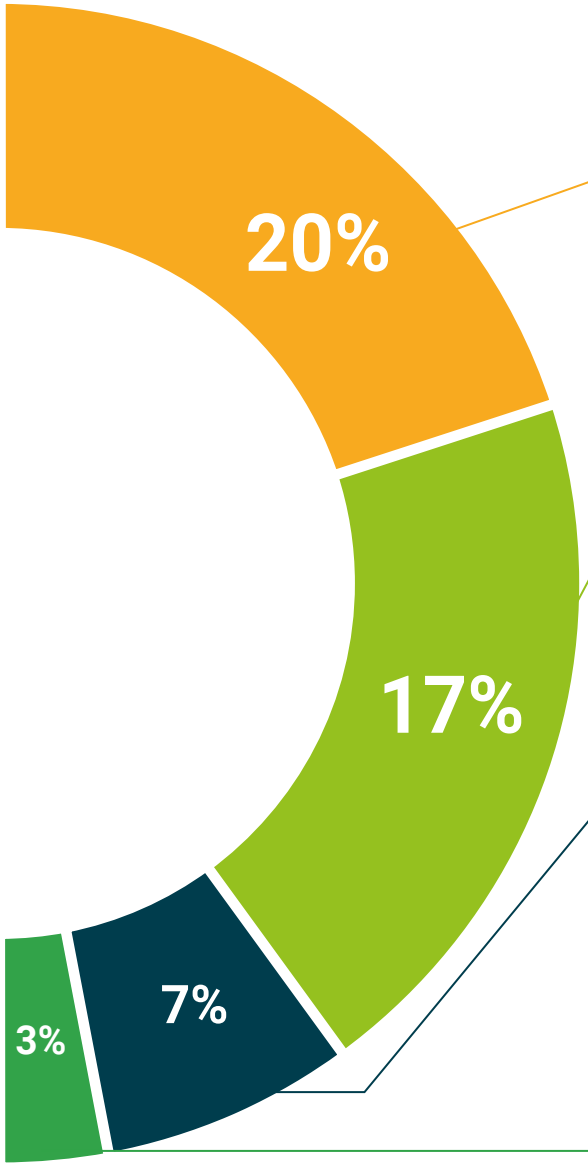
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.

07

Certificate

The Professional Master's Degree in Infectious Diseases guarantees you, in addition to the most rigorous and up-to-date training, access to a Professional Master's Degree issued by TECH Global University.

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

This private qualification will allow you to obtain a **Professional Master's Degree diploma in Infectious Diseases** 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: **Professional Master's Degree in Infectious Diseases**

Modality: **online**

Duration: **18 months**

Accreditation: **90 ECTS**

tech global university

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

Professional Master's Degree in Infectious Diseases

This is a private qualification of 2,700 hours of duration equivalent to 90 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

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

Dr. Pedro Navarro Illana
Dean

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

Professional Master's Degree in Infectious Diseases

General Structure of the Syllabus

Subject type	ECTS
Compulsory (CO)	90
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
	Total 90

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Epidemiology of Infectious Diseases	6	CO
1º	Clinical Research in Infectious Diseases	6	CO
1º	Challenges in the Diagnostic Process of Infectious Diseases	6	CO
1º	Advances in Antibiotic Therapy	6	CO
1º	Responsible Antibiotic Use	6	CO
1º	Infectious Diseases in International Travellers	6	CO
1º	Nosocomial Infections	6	CO
1º	Assessment and Treatment of Community Infections	6	CO
1º	Urinary, Skin and Soft Tissue Infections	6	CO
1º	Zoonotic and Bacterial Infections	6	CO
1º	Hepatitis and HIV/AIDS and Tuberculosis Co-Infection	6	CO
1º	Parasitic and Tropical Diseases	6	CO
1º	Antimicrobial Resistance	6	CO
1º	ICT and Clinical History in Infectious Diseases	6	CO
1º	Coronavirus Infections	6	CO

Dr. Pedro Navarro Illana
Chancellor

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*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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Professional Master's Degree
Infectious Diseases
Modality: online
Duration: 18 months
Certificate: TECH Global University
Credits: 90 ECTS
Schedule: at your own pace
Exams: online

Professional Master's Degree

Infectious Diseases

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