

# Postgraduate Certificate

Research Methodology in Public  
Health Epidemiology



## Postgraduate Certificate

### Research Methodology in Public Health Epidemiology

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

Website: [www.techtitute.com/us/medicine/postgraduate-certificate/research-methodology-public-health-epidemiology](http://www.techtitute.com/us/medicine/postgraduate-certificate/research-methodology-public-health-epidemiology)

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# 01

# Introduction

The growing incidence of chronic non-communicable diseases constitutes a significant challenge for public health at the international level. According to the World Health Organization, pathologies such as chronic heart disease, cancer and diabetes are responsible for more than 70% of global deaths. This trend represents a major burden on healthcare systems and highlights the need for sound epidemiological research to understand the associated risk factors and develop effective prevention and control strategies. In this sense, this university program provides an in-depth view of the scope of the analysis tools of this discipline and encourages physicians to update their knowledge. All this through a convenient 100% online academic format.





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*Thanks to this 100% online Postgraduate Certificate you will face future medical challenges and you will promote the prevention of community risk diseases"*

Public Health Epidemiological Research is essential to understand and address the health challenges facing communities worldwide. This discipline, which thrives on the rigorous analysis of population data and the application of scientific methods, plays a crucial role in the understanding of diseases, their spread and strategies for their control and prevention.

In this context, TECH has designed a program of academic excellence, which aims to equip physicians with the necessary knowledge to update their skills. By mastering all the aspects included in this syllabus, they can identify risk factors and create a plan to ensure community well-being. Also, it delves into how to create a complete conceptual framework of the Public Health situation, examining the significant advances that have radically transformed Epidemiological Research.

Moreover, the use of advanced computational software, such as SPSS, R, STATA and Epidat, is vital in this program. Specialists address the different systems, which are ideal for facilitating the analysis of complex data and allowing an accurate interpretation of the results, in order to make evidence-based decisions. Likewise, the identification of the types of variables and the study of distributions are examined in order to determine which statistical methods should be applied in each case to achieve optimal results.

For the development of this Postgraduate Certificate, the graduates have a 100% online methodology and without pre-established schedules, to facilitate the adaptation of the study time to their daily routine. The innovative Relearning system, based on the reiteration of key concepts for their internalization, as well as the possibility of deepening the subject matter thanks to the analysis of cases prepared and guided by experts, is also noteworthy. In addition, they will be able to test themselves through the effective self-evaluation system.

This **Postgraduate Certificate in Research Methodology in Public Health Epidemiology** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of case studies presented by experts in Public Health and Health Management
- ♦ The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*You will analyze real clinical cases in which the most advanced Epidemiological Research in Public Health has been applied, through a very complete Virtual Campus"*

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*Update your knowledge of Biostatistics and the different types of variables that influence Methodological Research”*

The program's teaching staff includes professionals from the sector who contribute their work experience to this specializing 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 and experienced experts.

*Become skilled with this exclusive university program and get up to date on health safety strategies in the globalized context of the 21st century.*

*Specialize in Epidemiological Research, delve into the underlying causes of complex diseases and their risk factors.*





# 02 Objectives

This Postgraduate Certificate is designed with the objective that the students approach the most innovative concepts and research practices in Public Health Epidemiology. In addition, it is intended that they master different methods and identify the steps to follow for the assessment of diseases, using previously obtained data. They also have the opportunity to examine the international and global framework of health policies and to define ethical principles. In addition, the academic pathway delves into evaluation strategies to measure the efficacy and effectiveness of clinical interventions.





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*With this Postgraduate Certificate, you will delve into the fundamentals of Clinical Epidemiology and analyze the main risks to the health of different vulnerable groups”*



## General Objectives

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- ♦ Develop a broad and comprehensive conceptual framework of the situation, challenges and needs of Public Health in the 21st century
- ♦ Examine the international and global framework of Public Health policies
- ♦ Determine the key factors for correct communication in health crisis: crisis communication and communication crisis
- ♦ Identify the theoretical and methodological framework for evaluation in Public Health
- ♦ Identify the steps to be followed for disease assessment using epidemiological data
- ♦ Compile the research methodology related to disease surveillance
- ♦ Identify the main risk and protective factors in communicable and non-communicable diseases
- ♦ Analyze the importance of quality assessment of intervention studies
- ♦ Develop the fundamentals of clinical epidemiology, measurement of frequency and distribution of diseases
- ♦ Critically evaluate the efficacy and effectiveness of clinical interventions, pharmacological treatments, surgical interventions and prevention strategies
- ♦ Fundamentals of the principles of the epidemiological method
- ♦ Fundamentals of the principles of health promotion, social determinants of health, health-related behavioral theories, and strategies to promote healthy lifestyles and environments.
- ♦ Analyze the main health risks for different vulnerable groups
- ♦ Implement a holistic and integrative vision in the impact assessment of environmental risks on health protection





## Specific Objectives

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- Determine the main univariate statistical techniques
- Differentiate between univariate and multivariate analyses
- Develop the main multivariate techniques
- Calculate incidence and prevalence
- Establish statistical packages for data analysis
- Apply qualitative methodology
- Design qualitative research
- Conduct health study designs
- Analyze and interpret results
- Use ethical principles in epidemiological research

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*TECH provides you with the best didactic tools, such as interactive summaries and complementary readings, so that you can achieve all your objectives”*



03

# Course Management

Under the maxim of offering maximum specialization to its students, this TECH Postgraduate Certificate offers an exclusive opportunity to update knowledge under the guidance of prestigious professionals. These experts with extensive academic and practical experience in the field of Epidemiological Research in Public Health have extensive experience and guarantee a strong commitment to the students, offering them the best tools to develop their careers.

They will also work to equip them with vital skills, abilities and knowledge to excel in an area that addresses increasingly necessary issues.





“

*Acquire the fundamental competencies to develop effective epidemiological research under the guidance of prestigious professionals”*

## Management



### Ms. Ruiz Redondo, Julia María

- ◆ Coordinator of the National Working Group on Public Health 2.0 in the SEMG
- ◆ Coordinator of the General Directorate of Public Health in the Ministry of Health of Castilla-La Mancha
- ◆ Coordinator of the Regional Advisory Group on Immunization at the Regional Ministry of Health of Castilla-La Mancha
- ◆ Nurse Inspector in the Management of Coordination and Inspection of Castilla-La Mancha in the SESCOAM
- ◆ Nurse of Specialized Care in the Hospital Emergency Area at the General Hospital of Tomelloso
- ◆ Master's Degree in Medical Management and Clinical Management by the UNED, ISCIII, National School of Health
- ◆ Master's Degree in Vaccines from the Catholic University of San Antonio de Murcia
- ◆ Master's Degree in Specialized Emergency Nursing Care, Critical Patient Area and Post-Anesthesia Care by the University of Valencia
- ◆ Master's Degree in Nursing Services Management from the UNED
- ◆ Senior Healthcare Management Program from San Telmo Business School
- ◆ Graduate in Nursing from the Catholic University of Avila
- ◆ Diploma in Nursing from the University of Jaén

## Professors

### Dr. Losada Salamanca, Diana Carolina

- ♦ Palliative Medicine Physician, Palliative Care Unit at Hospital Virgen de la Luz
- ♦ Emergency Physician at the Hospital Virgen de la Luz
- ♦ Master's Degree in Bioethics by the Catholic University of Valencia
- ♦ Master's Degree in Palliative Care for Medicine by the CEU Cardenal Herrera
- ♦ Expert in Individualized Palliative Care for Medicine
- ♦ Expert in Clinical Management of the Palliative Care Patient For Medicine
- ♦ Expert in Psychosocial Aspects in the Palliative Patient For Medicine
- ♦ Medical Specialist in Family and Community Medicine (2020)
- ♦ Degree in Medicine and Surgery from the Pontifical Javeriana University

### Dr. Silva Contreras, Javier

- ♦ Head of the Preventive Medicine Service of the Virgen de la Luz Hospital
- ♦ Master's Degree in Public Health and Healthcare Management, University of Valencia
- ♦ Master's Degree in Infectious Diseases and Antimicrobial Treatment by the Cardenal Herrera University
- ♦ Specialist in Vaccines by the University of Santiago de Compostela
- ♦ Specialist in Nosocomial Infections by the EUROINNOVA Postgraduate Training Center
- ♦ Specialist Doctor in Preventive Medicine and Public Health
- ♦ Degree in Medicine and Surgery from the Pontifical Javeriana University



*A unique, crucial and decisive learning experience to boost your professional development"*

# 04

# Structure and Content

The syllabus of this Postgraduate Certificate has been designed based on the academic rigor of TECH and supported by the experiences of prestigious professionals in Epidemiology and Public Health. A complete and high quality program has been established, through which students will acquire fundamental competences to develop efficient investigations. At the same time, it delve into statistical models and methods, as well as in the processes of data collection and interpretation in health studies. Likewise, doctors can update their knowledge and get up to date with the latest techniques in Artificial Intelligence, applied to qualitative analysis.





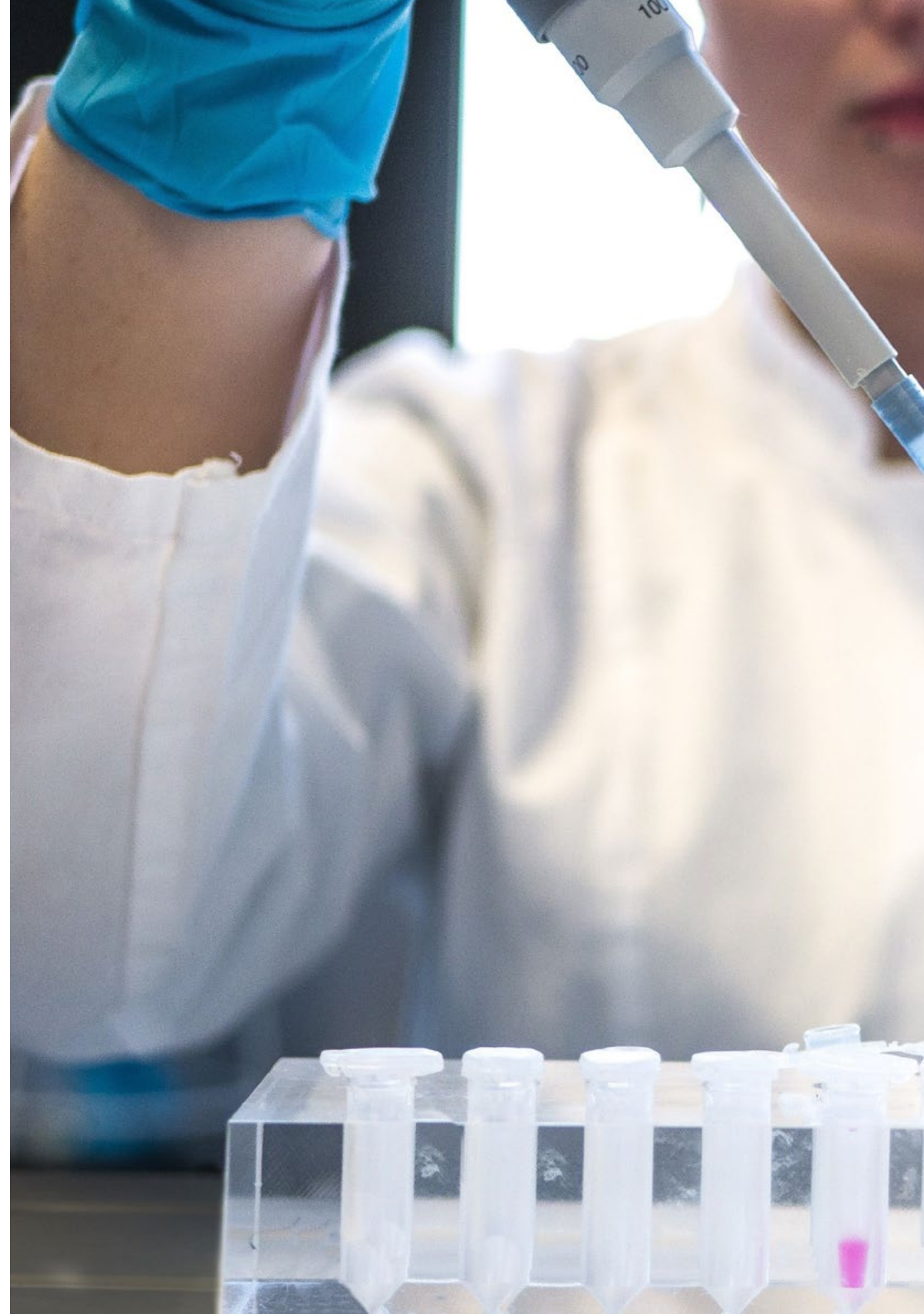


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*Position yourself as a reference professional in the field of Epidemiology and Public Health, thanks to TECH's innovative Relearning methodology”*

## Module 1. Research Methodology in Epidemiology

- 1.1. Biostatistics: Univariate, Bivariate and Multivariate Analysis
  - 1.1.1. Types of Variables
  - 1.1.2. Normality Study of a Distribution. Parametric and Non-parametric
  - 1.1.3. Dependent and Independent Variables. Confounding Factors
  - 1.1.4. Identification of the Necessary Statistical Tests
- 1.2. Models and Methods in Multivariate Statistics of Dependence and Interdependence: Statistical Inference Standardization and Prediction Multiple Linear Regression Regression and Cluster Analysis
  - 1.2.1. Multivariate Models
  - 1.2.2. Multivariate Models: Multiple Linear Regression
  - 1.2.3. Cluster Analysis
- 1.3. Models and Methods in Multivariate Structural Statistics: Logistic Regression, Poisson Regression, Survival Analysis and Longitudinal Data. Kaplan-Meier and Log-Rank Statistics
  - 1.3.1. Multivariate Models: Logistic Regression
  - 1.3.2. Kaplan-Meier and Log-Rank Survival Analysis
  - 1.3.3. Poisson Regression
- 1.4. Incidence and Prevalence Models in Public Health
  - 1.4.1. Incidence Studies
  - 1.4.2. Prevalence Studies
  - 1.4.3. Risk Analysis
- 1.5. Computer Software: Advanced Statistical Analysis with SPSS Package
  - 1.5.1. Statistical Packages: R®, STATA® and Epidat®
  - 1.5.2. Use of the SPSS® Package
  - 1.5.3. Interpretation of the Results of Statistical Analysis Performed by SPSS® and Evidence-based Decision Making
  - 1.5.4. Effective Communication of Statistical Findings to Specialized and Non-Specialized Audiences







- 1.6. Qualitative Methodology Applied to Public Health: Theoretical, Conceptual, and Ethical Aspects
  - 1.6.1. Qualitative Evaluation Applied to Public Health
  - 1.6.2. Techniques of Qualitative Research Applied to Public Health
  - 1.6.3. Collection, Analysis and Interpretation of Qualitative Data in Public Health Studies: Validity, Reliability and Generalization of the Results
  - 1.6.4. Ethical Principles: Protection of Participants' Confidentiality and Management of Potential Ethical Conflicts
  - 1.6.5. Integration of the Qualitative Perspective in the Planning, Implementation, and Evaluation of Public Health Programs and Policies: Design of Effective Interventions Focused on the Needs of the Population
- 1.7. Design and Phases of Qualitative Research in Public Health. Sampling Designs
  - 1.7.1. Design and Phases of Qualitative Research
  - 1.7.2. Sampling
  - 1.7.3. Elaboration and Justification of the Data Collection Instruments
  - 1.7.4. Data Analysis Process
  - 1.7.5. Establishment and Justification of the Validity and Reliability Criteria of the Investigation
  - 1.7.6. Design and Justification of the Plan for Communication and Dissemination of the Results
- 1.8. Designs of Interest for Public Health Information Collection Techniques
  - 1.8.1. Sampling
  - 1.8.2. Surveys Survey Design
  - 1.8.3. Validation of Questionnaires
- 1.9. Analysis and Interpretation of Results Digital Analysis of Qualitative Data
  - 1.9.1. Text Analysis Software
  - 1.9.2. Data Visualization Software
  - 1.9.3. QDA (Qualitative Data Analysis) Software
  - 1.9.4. Artificial Intelligence Applied to Qualitative Studies
- 1.10. Evaluation, Rigor and Ethics in Qualitative Research in Public Health
  - 1.10.1. Ethical Principles of Research
  - 1.10.2. International Legislation and Regulations
  - 1.10.3. Health Care Ethics Committee

05

# Methodology

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

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



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*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. 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 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.

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Relearning Methodology

At TECH we enhance the case method with the best 100% online teaching methodology available: Relearning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.

*Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*





At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

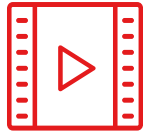
*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### Interactive Summaries

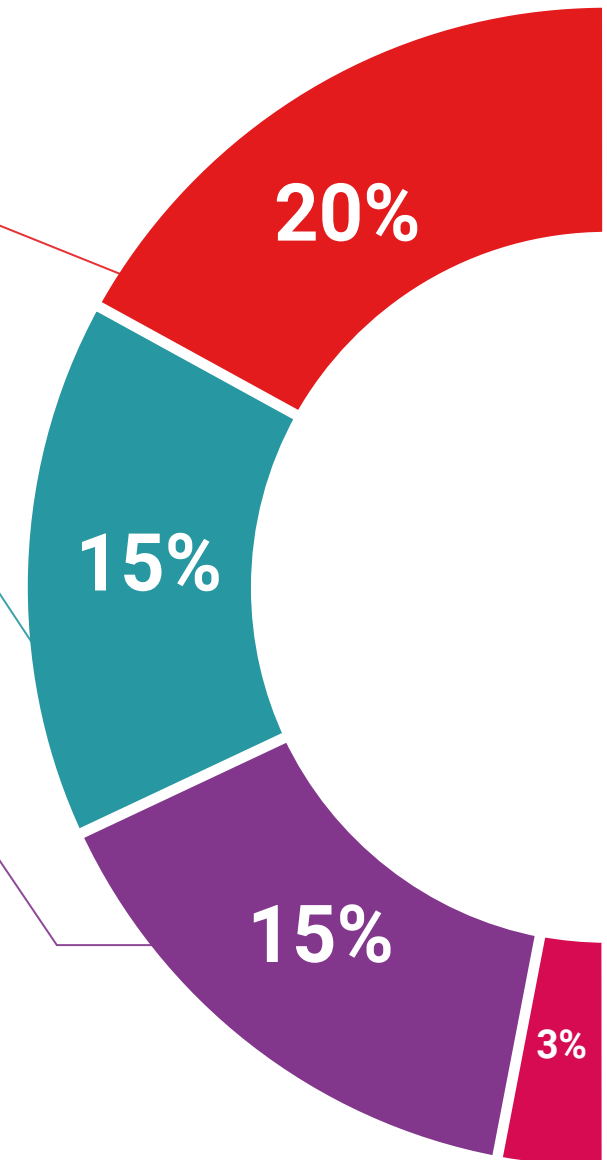
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

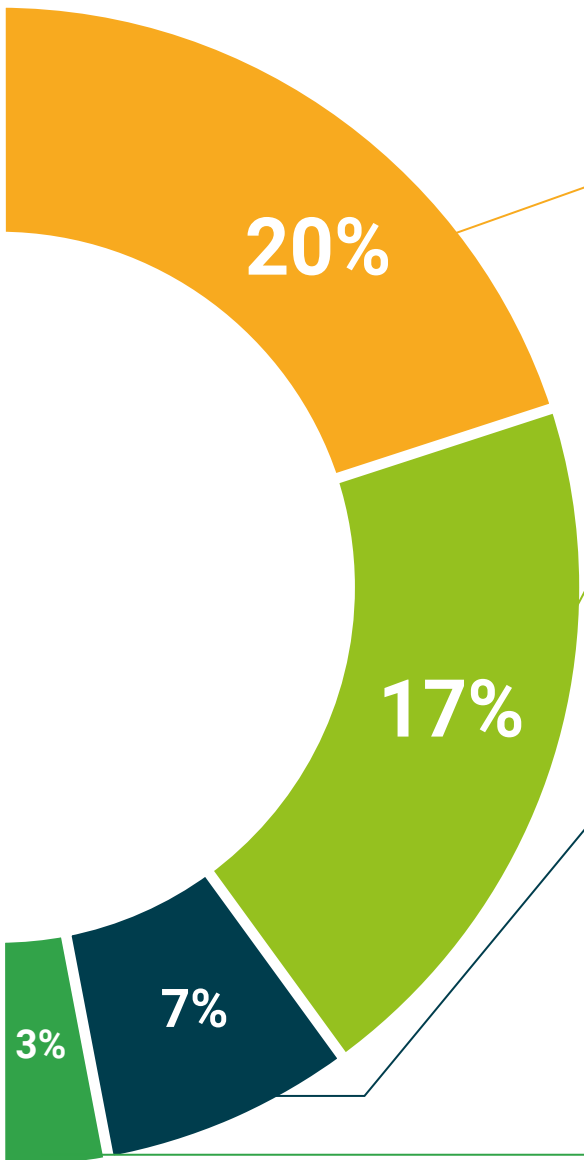
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





**Expert-Led Case Studies and Case Analysis**

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



**Testing & Retesting**

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



**Classes**

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



**Quick Action Guides**

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.





# 06 Certificate

The Postgraduate Certificate in Research Methodology in Public Health Epidemiology guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*



This **Postgraduate Certificate in Research Methodology in Public Health Epidemiology** contains the most complete and up-to-date 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.

Title: **Postgraduate Certificate in Research Methodology in Public Health Epidemiology**

Modality: **online**

Duration: **6 weeks**



\*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.

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



**Postgraduate Certificate**  
Research Methodology in Public  
Health Epidemiology

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

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Research Methodology in Public  
Health Epidemiology

