

# Postgraduate Certificate Biostatistics for Nursing



## Postgraduate Certificate Biostatistics for Nursing

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/nursing/postgraduate-certificate/biostatistics-nursing](http://www.techtitute.com/us/nursing/postgraduate-certificate/biostatistics-nursing)

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# 01

# Introduction

The use of statistics in Clinical Trials allows the investigator to reach reasonable and accurate conclusions from the information collected, and to probe decisions when certainties are scarce. For this reason, statistics are key to preventing errors and biases in health research. In order to enable nurses who wish to specialize in this field, TECH has created this high-level academic program on Biostatistics, in which they will find the most relevant information on this subject.



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*A high academic level program in which you will find the most up-to-date information on Biostatistics. And all this at TECH Technological University”*

The Postgraduate Certificate in Biostatistics for Nursing aims to elevate students' knowledge to the academic elite so that they can achieve both educational and professional excellence. A boost to their career that they will only get with effort and study at the height of a superior center like TECH.

In this case, the program belongs to the branch of management and monitoring of Clinical Trials, which has a large team of professionals willing to provide all their knowledge to our students. For this reason, TECH has designed this specific Postgraduate Certificate on Biostatistics, since it is a field that requires a high degree of specialization.

Statistics play an important role in any clinical trial, from the design, conduct, analysis and reporting, in terms of controlling and minimizing bias and confounding factors, as well as measuring random errors. All this makes nursing professionals who decide to specialize in this field, demand quality education with which to expand their knowledge in the field.

This Postgraduate Certificate aims to increase the skills and specialized knowledge of students so that they have a methodological basis in statistics applied to Clinical Trials. Therefore, it includes the main techniques, procedures and statistical methodology to be used in the elaboration of protocols, analysis plans and reports of Clinical Trials.

In addition, the health professional will also be able to acquire specialized knowledge in reading and writing articles and protocols with a critical attitude, and will have an essential basis to approach the study of more complex techniques.

This **Postgraduate Certificate in Biostatistics for Nursing** contains the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ The development of case studies presented by experts in Biostatistics
- ♦ 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
- ♦ New developments in Biostatistics
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Special emphasis on innovative methodologies in Biostatistics
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection work
- ♦ Content that is accessible from any fixed or portable device with an internet connection



*Study Biostatistics with us, and specialize until you achieve excellence in this field"*

“

*This Postgraduate Certificate is the best investment you can make in the selection of a refresher program for two reasons: in addition to updating your knowledge in Biostatistics, you will obtain a Postgraduate Certificate endorsed by TECH Technological University”*

The teaching staff includes professionals from the health sector, who bring their experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

The design of this program focuses on problem-based learning, by means of which the healthcare professional must try to solve the different professional practice situations that arise throughout the academic program. To do so, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in the field of Biostatistics.

*In this Postgraduate Certificate you will find the best educational material with virtual lessons. So don't think twice and join us.*

*This 100% online Postgraduate Certificate will allow you to balance your studies with your professional work while increasing your knowledge in this field.*



# 02 Objectives

The Postgraduate Certificate in Biostatistics for Nursing is designed to facilitate the activity of the research professional with the latest advances in the field.





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*Thanks to this Postgraduate Certificate  
you will be able to improve your skills  
as a researcher”*



## General Objectives

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- ♦ Develop knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context
- ♦ Apply the acquired knowledge and resolution skills in the development of protocols
- ♦ Structure statistical methods and techniques
- ♦ Communicate and transmit statistical results through the preparation of different types of reports, using terminology specific to the fields of application
- ♦ Compile, identify and select sources of public biomedical information, from international agencies and scientific organizations, on the study and dynamics of populations
- ♦ Analyze the scientific method and work on skills in the handling of information sources, bibliography, protocol elaboration and other aspects considered necessary for the design, execution and critical assessment
- ♦ Demonstrate logical thinking and structured reasoning in determining the appropriate statistical technique





## Specific Objectives

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- ◆ Identify and incorporate in the advanced mathematical model, which represents the experimental situation, those random factors involved in a high-level biosanitary study
- ◆ Design, collect and clean a data set for subsequent statistical analysis
- ◆ Identify the appropriate method for determining the sample size
- ◆ Distinguish between different types of studies and choose the most appropriate type of design according to the research objective
- ◆ Communicate and transmit statistical results correctly, through the preparation of reports
- ◆ Acquire an ethical and social commitment

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*Make the most of this opportunity and take the step to get up to date on the latest developments in Biostatistics for Nursing”*

03

# Course Management

The program's teaching staff includes leading experts in research and health, who bring the experience of their work to this educational program. Additionally, other recognized experts participate in its design and preparation, completing the program in an interdisciplinary manner.





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*Study under the guidance of leading professionals  
with extensive research experience”*

## Management



### Dr. Gallego Lago, Vicente

- Military pharmacist at HMC Gómez Ulla
- Doctoral studies with the qualification of Outstanding
- Degree in Pharmacy, Complutense University of Madrid with a diploma for obtaining an Honorary Degree
- Resident Internal Pharmacist Examination (F.I.R) obtaining the No. 1 in this selective test
- Resident Internal Pharmacist (F.I.R) of the Pharmacy Service of the "12 de Octubre Hospital

## Professors

### Ms. Martín-Arriscado Arroba, Cristina

- ♦ Member of the Drug Research Ethics Committee of the 12 de Octubre University Hospital
- ♦ Biostatistics at the Research and Scientific Support Unit of the 12 de Octubre University Hospital (i+12) and the Clinical Research Units and Clinical Trials Platform (SCReN)

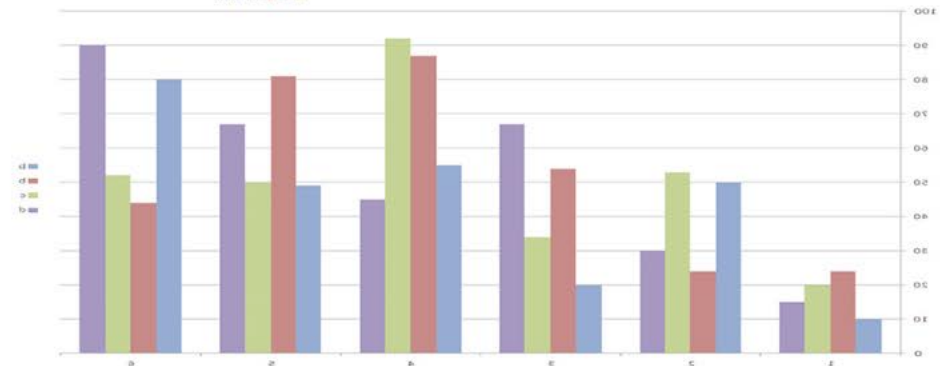
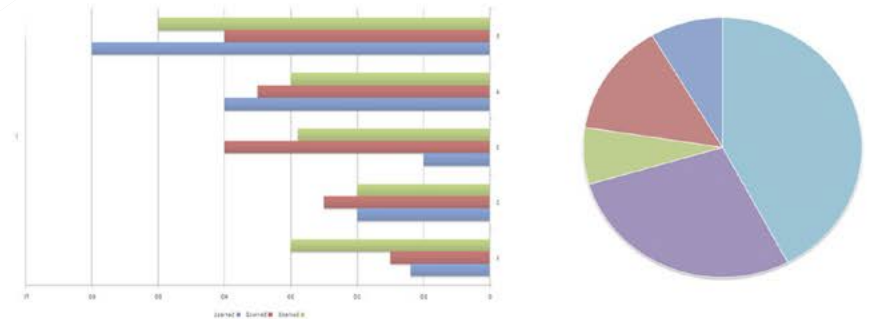
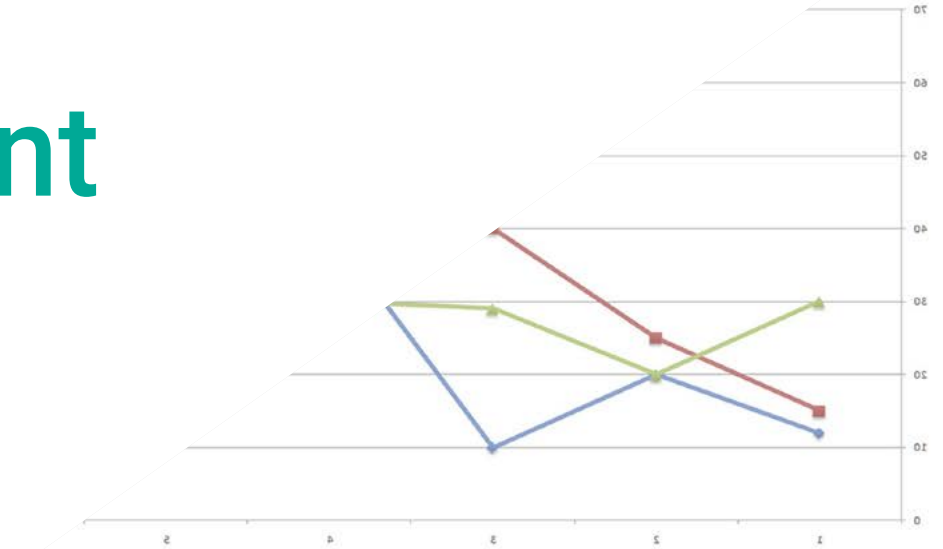
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*A path to achieve education and professional growth that will propel you towards a greater level of competitiveness in the employment market”*

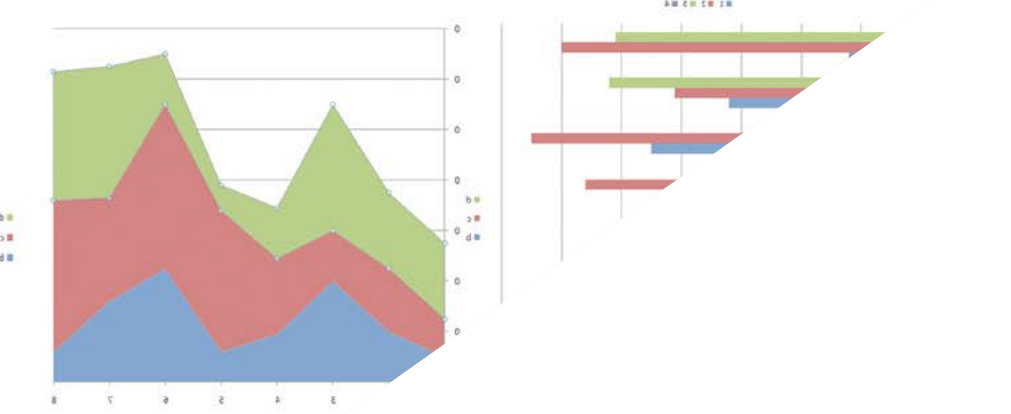
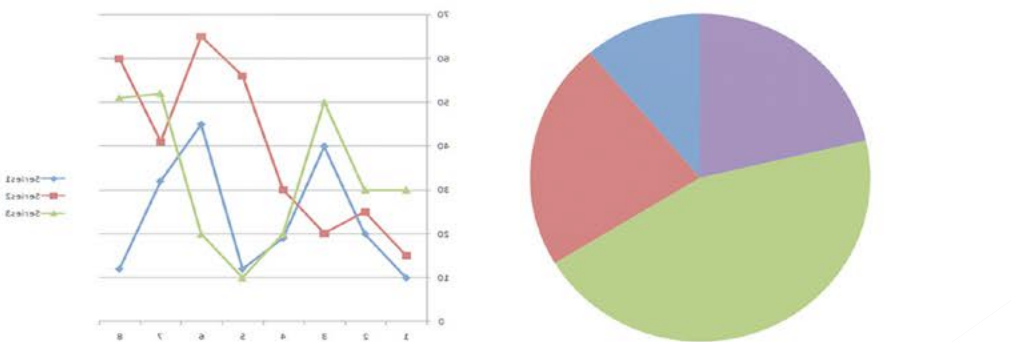
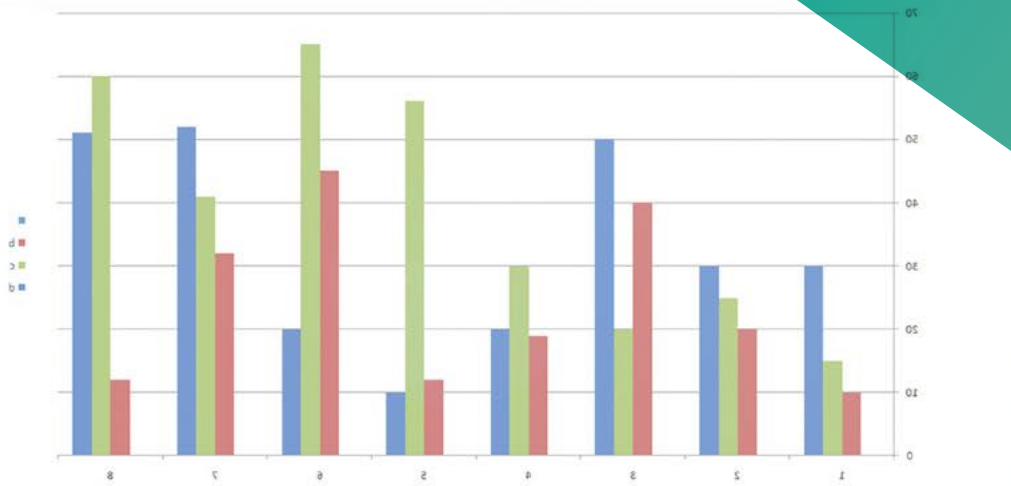
# 04

# Structure and Content

The structure of the contents has been designed by the best professionals in research and health, with an extensive background and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with extensive mastery of new technologies.







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*This Postgraduate Certificate contains the most complete and up-to-date scientific program on the market”*

## Module 1. Biostatistics

- 1.1. Study Design
  - 1.1.1. Research Question
  - 1.1.2. Population to Analyze
  - 1.1.3. Classification
    - 1.1.3.1. Comparison between Groups
    - 1.1.3.2. Maintenance of the Described Conditions
    - 1.1.3.3. Assignment to Treatment Group
    - 1.1.3.4. Degree of Masking
    - 1.1.3.5. Modality of Intervention
    - 1.1.3.6. Centers Involved
- 1.2. Types of Randomized Clinical Trials: Validity and Biases
  - 1.2.1. Types of Clinical Trials
    - 1.2.1.1. Superiority Study
    - 1.2.1.2. Equivalence or Bioequivalence Study
    - 1.2.1.3. Non-Inferiority Study
  - 1.2.2. Analysis and Validity of Results
    - 1.2.2.1. Internal Validity
    - 1.2.2.2. External Validity
  - 1.2.3. Biases
    - 1.2.3.1. Selection
    - 1.2.3.2. Measurement
    - 1.2.3.3. Confusion
- 1.3. Sample Size Protocol Deviations
  - 1.3.1. Parameters Used
  - 1.3.2. Protocol Justification
  - 1.3.3. Protocol Deviations
- 1.4. Methodology
  - 1.4.1. Missing Data Handling
  - 1.4.2. Statistical Methods
    - 1.4.2.1. Description of Data
    - 1.4.2.2. Survival
    - 1.4.2.3. Logistic Regression
    - 1.4.2.4. Mixed Models
    - 1.4.2.5. Sensitivity Analysis
    - 1.4.2.6. Multiplicity Analysis
- 1.5. When Does the Statistician Become Part of the Project
  - 1.5.1. Statistician Role
  - 1.5.2. Points of the Protocol to be Reviewed and Described by the Statistician
    - 1.5.2.1. Study Design
    - 1.5.2.2. The Primary and Secondary Objectives of the Study
    - 1.5.2.3. Sample Size Calculation
    - 1.5.2.4. Variables
    - 1.5.2.5. Statistical Justification
    - 1.5.2.6. Material and Methods used to Study the Objectives of the Study
- 1.6. CRD Design
  - 1.6.1. Information Gathering Variables Dictionary
  - 1.6.2. Variables and Data Entry
  - 1.6.3. Database Security, Testing and Debugging
- 1.7. Statistical Analysis Plan
  - 1.7.1. What is a Statistical Analysis Plan?
  - 1.7.2. When to Perform the Statistical Analysis Plan
  - 1.7.3. Statistical Analysis Plan Parts
- 1.8. Intermediate Analysis
  - 1.8.1. Reasons for an Early Stopping of a Clinical Trial
  - 1.8.2. Implications of Early Termination of a Clinical Trial
  - 1.8.3. Statistical Designs
- 1.9. Final Analysis
  - 1.9.1. Final Report Criteria
  - 1.9.2. Plan Deviations
  - 1.9.3. Guidelines for the Elaboration of the Final Report of a Clinical Trial
- 1.10. Statistical Review of a Protocol
  - 1.10.1. Checklist
  - 1.10.2. Frequent Errors in the Review of a Protocol



# 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.





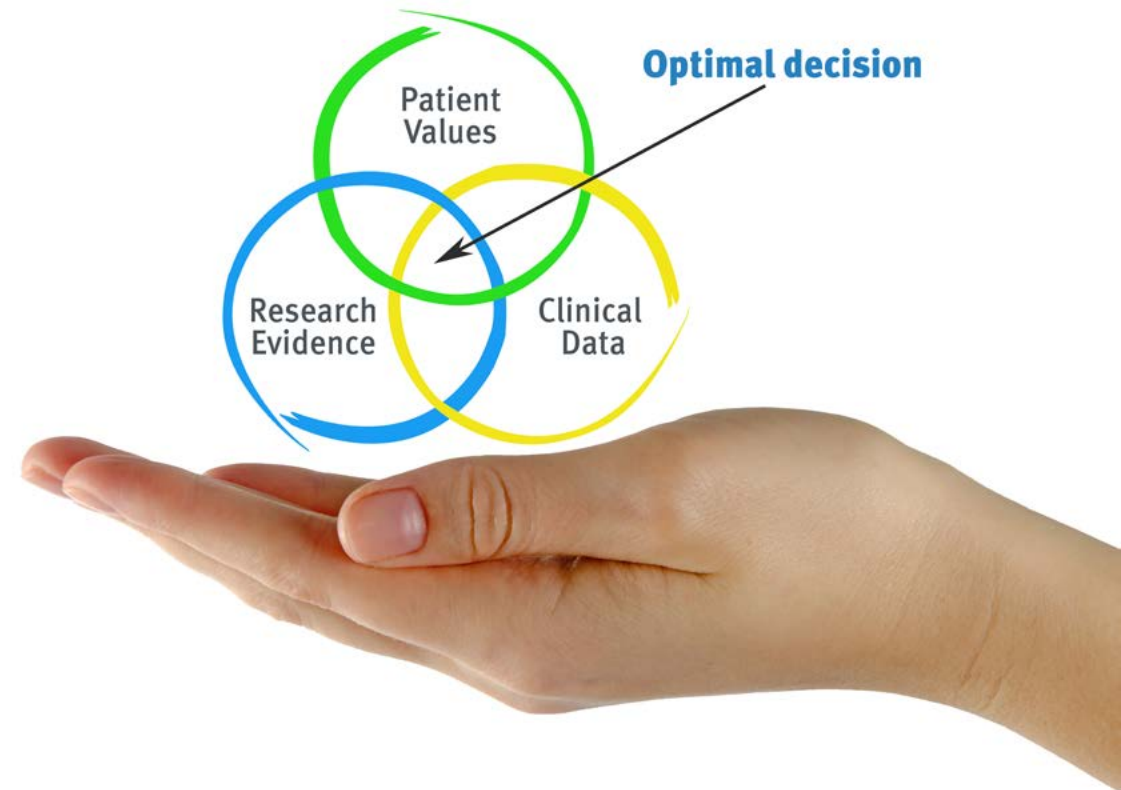
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH Nursing School we use the Case Method

In a given situation, what should a professional do? 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. Nurses learn better, faster, and more sustainably over time.

*With TECH, nurses can experience a learning methodology 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, in an attempt to recreate the real conditions in professional nursing 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. Nurses 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 nursing professional to better integrate knowledge acquisition into the hospital setting or primary care.
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 case studies with a 100% online learning system based on repetition combining a minimum of 8 different elements in each lesson, which is a real revolution compared to the simple study and analysis of cases.



*The nurse 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 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 we have trained more than 175,000 nurses with unprecedented success in all specialities regardless of practical workload. 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 really 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.



### Nursing 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 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 them as many times as you want.



### 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 suggesting that observing third-party experts can be useful.

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 Biostatistics for Nursing guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





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

This **Postgraduate Certificate in Biostatistics for Nursing** contains 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.

Title: **Postgraduate Certificate in Biostatistics for Nursing**

Official N° of Hours: **150 h.**



\*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 innovation  
knowledge present  
development language  
virtual classroom



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