

# Postgraduate Certificate Software Programs for Wildlife Monitoring



## Postgraduate Certificate Software Programs for Wildlife Monitoring

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

Website: [www.techtute.com/us/veterinary-medicine/postgraduate-certificate/software-programs-wildlife-management](http://www.techtute.com/us/veterinary-medicine/postgraduate-certificate/software-programs-wildlife-management)

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# 01

# Introduction

Geographic information systems (GIS) are one of the rising technologies capable of analyzing and representing territorial information related to species distribution and field surveys. Using GIS software, even when implemented with additional resources (such as programming or statistics), it is possible to represent field data, analyze it methodologically, execute distribution simulations, evaluate territory suitability or predict the movement of individuals.

Likewise, it is necessary to have mapping data to visualize information related to a species, its distributions or natural environments. Cites, traces, and boundaries of Protected Natural Areas or natural resources are some of the key elements to visualize and manage species distribution information, which will be analyzed throughout the program.





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*Do not miss the opportunity to study this Postgraduate Certificate in Software Programs for Wildlife Monitoring at TECH. It's the perfect opportunity to stand out and advance your career”*

Unlike other training programs, the Postgraduate Certificate in Software Programs for Wildlife Monitoring approaches wildlife management from an interdisciplinary point of view.

Wildlife management covers a wide spectrum of lines of research and action, in addition to the study of health surveillance and disease control, which is usually the general line of study in similar programs. However, in the future, veterinary professionals will have to face other lines of work in biodiversity conservation, which are also extensively developed throughout the syllabus.

Nowadays, it is difficult to find a program like this one, which provides students with specialized information in the use of the most common software in daily practice. Today there are many computer tools available that are considered necessary and that facilitate and increase the level of quality of work, which are considered necessary.

Using GIS, it is possible to process and manage territorial data to represent results or interpret information on a large scale. In this way, it is, therefore, possible to plan in advance the lengths of a transect, plan territorial sampling points, analyze species richness and densities, combine environmental variables or model the most appropriate areas to geographically identify locations where a species can be found or reintroduced.

Species biology is not only based on theoretical knowledge, but also on spatial and geolocalized data. The only way to understand and visualize how species are distributed is by using Geographic Information Systems to represent and model the data.

This complete training program is designed by professors with the highest recognized degree of specialization, thus guaranteeing its quality in all aspects in wildlife, both clinical and scientific. A unique opportunity to specialize in an area where professional positions are in high demand, from the hands of outstanding professionals.

This **Postgraduate Certificate in Software Programs for Wildlife Monitoring** contains the most complete and up-to-date educational program on the market. The most important features include:

- » Case studies presented by experts in Wildlife
- » The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- » New developments in Wildlife Management
- » Practical exercises where the self-assessment process can be carried out to improve learning
- » Special emphasis on innovative methodologies in Wildlife Management
- » 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



*Study with TECH and learn the concepts associated with wildlife populations and the processes and interactions that take place”*

“ *This Postgraduate Certificate is the best investment you can make when selecting a refresher program in Software Programs for Wildlife Monitoring* ”

It includes, in its Teaching staff, Professionals belonging to the veterinary field, who pour into this training the experience of their work, in addition to recognized Specialists from Reference 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 specialization programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby the specialist must try to solve the different professional practice situations that arise throughout the program. For this, the professional will have the help of an innovative, interactive video system made by recognized and experienced experts in Wildlife.

*This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.*

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



# 02 Objectives

The Postgraduate Certificate in Software Programs for Wildlife Monitoring is designed to facilitate the performance of veterinary professionals with the latest advances and most innovative strategies to in the sector.



3D Map Widget







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*You will learn to analyze one of the main threats to biodiversity loss, i.e., invasive alien species, establishing the main lines of action to manage them”*



## General Objectives

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- » Understand the potential of geographic information systems (GIS) in the management of species distribution data, their environments and monitoring strategies
- » Manage QGIS software to manage field sampling data
- » Analyze the available territorial data to obtain strategic maps that fulfill specific functions in species management
- » Represent the available information and the processed results within GIS
- » Present the main computer tools used in Wildlife Management
- » Compile the statistical bases necessary to analyze data related to Wildlife Management
- » Evaluate Statistica software for statistical data analysis
- » Thoroughly examine distance sampling and its variants using Distance software





## Specific Objectives

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- » Understand the key functionalities offered by geographic information systems
- » Manage basic symbology and geoprocessing analysis tools in QGIS
- » Establish cartographic methodologies to manage territorial plots for species monitoring and analysis
- » Dump and represent field data linked to species using GIS
- » Manage QGIS plugins to virtually collect species distribution data
- » Create thematic maps to represent particular aspects of censuses or inventories, such as richness maps or effort maps
- » Analyze territorial variables in order to obtain species suitability maps that can be used for conservation purposes
- » Develop ecological corridors between natural areas in order to plan conservation routes for species migration
- » Understand the key concepts linked to field data collection in order to obtain correctly documented and technically feasible cartography
- » Develop the basic concepts necessary to carry out a correct statistical analysis from the data identification stage
- » Provide the fundamental skills to use statistical models in response to problems encountered
- » Assess the influence of covariates in establishing relationships of interest
- » Obtain reliable information on the conservation status of the populations under study
- » Assess population trends based on the statistical analyses carried out to make adequate decisions
- » Introduce the use of Distance software to properly import data obtained in the field
- » Establish the necessary parameters in the design and configuration of data analysis using Distance

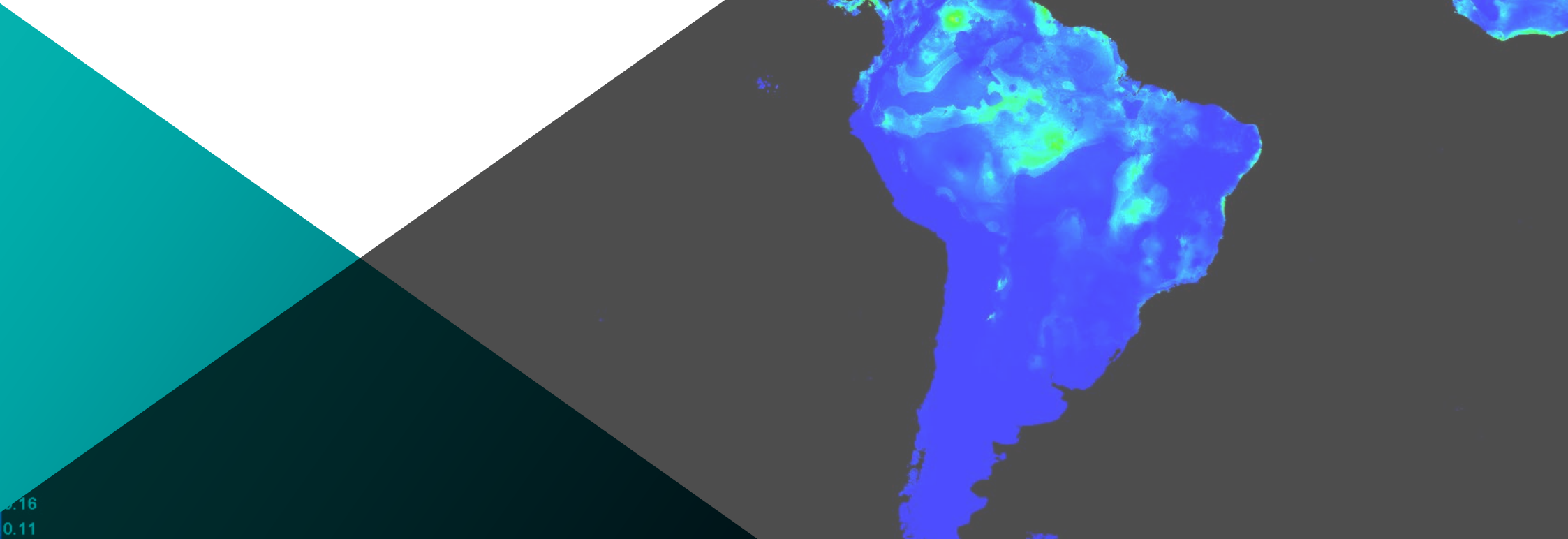


*Seize the opportunity and take the step to get up to speed with the latest developments in Software Programs for Wildlife Monitoring”*

03

# Course Management

The program's teaching staff includes leading experts in Software Programs for Wildlife Monitoring, who bring the experience of their work to this training program. Professionals of recognized prestige have joined forces to offer you this high-level training program.





“

*Our expert team of professors  
in Wildlife will help you achieve  
professional success”*

## Management



### Mr. Matellanes Ferreras, Roberto

- ♦ Degree in Environmental Sciences, Rey Juan Carlos University
- ♦ Master's Degree in Training Management Management and development of training plans, European University, Madrid
- ♦ Master's Degree in Big Data and Business Intelligence, Rey Juan Carlos University
- ♦ Course on Pedagogical Aptitude in Natural Sciences, Complutense University, Madrid
- ♦ Unmanned Aerial Vehicle Pilot, State Agency of Aviation Safety (AESA)
- ♦ Technician in Management of Protected Natural Spaces, Official College of Forestry Technical Engineers
- ♦ Technician in Environmental Impact Assessment, Polytechnic University, Madrid
- ♦ Professor of Geographic Information Systems applied to the conservation of species and protected natural areas
- ♦ Conservation and national biodiversity management projects linked to species and protected natural areas
- ♦ Management, documentation and monitoring of species distribution inventories
- ♦ Territorial analyses for the reintroduction of protected species
- ♦ Analysis of the conservation status of species linked to the Natura 2000 Network for European sexennial reports (Directive 92/43/EEC and Directive 79/409/EEC)
- ♦ Inventory management of national and international wetland natural areas

**Ms. Pérez Fernández, Marisa**

- ♦ Forestry Polytechnic University of Madrid
- ♦ Master's Degree in Integrated Quality, Environmental and Occupational Health and Safety Management Systems, OHSAS
- ♦ San Pablo CEU University
- ♦ 3rd Year, Degree in Mechanical Industrial Engineering UNED
- ♦ Teaching Experience: Forest management for biodiversity conservation, natural inventories, integrated management of the natural environment, sustainable game management Technical bases and Technical Hunting Plans
- ♦ Senior Technician in Environmental Assessment, Engineering and Environmental Quality Management TRAGSATEC
- ♦ Technical Assistant TECUM Project (Tackling Environmental Crimes through standardized Methodologies) B&S Europe
- ♦ Field instructor on the Forest Arsonist Profiling project Environmental and Urban Planning Prosecutor's Office General Prosecutor's Office of the State
- ♦ Environmental Technician SEPRONA Spanish Civil Guard Headquarters
- ♦ Environmental Work Management of the Fraga-Mequinenza Gas Pipeline ENDESA Gas Transporter IIMA CONSULTING FIRM

# 04

# Structure and Content

The content has been structured and designed by the best Professionals in Software Programs for Wildlife Monitoring, who have extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied, and diagnosed, and who have extensive knowledge of new technologies applied to veterinary medicine.







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*We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too"*

## Module 1. Spatial Management of Species using Geographic Information Systems in QGIS

- 1.1. Introduction to Geographic Information Systems (GIS)
  - 1.1.1. Introduction to Geographic Information Systems
  - 1.1.2. Mapping File Formats for Species Analysis
  - 1.1.3. Main Geoprocessing Analyses for Species Management
- 1.2. Reference Systems in Map Files
  - 1.2.1. The Importance of Reference Systems in the Visualization and Accuracy of Field Data Linked to Species Distribution
  - 1.2.2. Examples of Correct and Incorrect Data Management in Species Domains
- 1.3. QGIS Interface
  - 1.3.1. Introduction to QGIS
  - 1.3.2. Interface and Sections to be Analyzed and Data Display
- 1.4. Data Visualization and Display on QGIS
  - 1.4.1. Visualizing Mapping Data on QGIS
  - 1.4.2. Attribute Tables for Querying and Documenting Information
  - 1.4.3. Symbolism for Sample Representation
- 1.5. QGIS Plug-ins for Species Mapping and Analysis
  - 1.5.1. QGIS Plug-ins
  - 1.5.2. GBIF Plug-in
  - 1.5.3. Natusfera Plug-in
  - 1.5.4. Species Explorer Plug-in
  - 1.5.5. Citizen Science Platforms and Other Analysis Plug-ins
- 1.6. Cartographic Management of Sample Plots and Field Monitoring
  - 1.6.1. Geometric Planning of Sampling Plots and Grids
  - 1.6.2. Representation of Distribution Data, Sampling Data and Transects in the Field
- 1.7. Species Richness and Effort Maps
  - 1.7.1. Analysis of Species Richness Data
  - 1.7.2. Representation of Richness Maps
  - 1.7.3. Analysis of Effort Data
  - 1.7.4. Representation of Effort Maps

- 1.8. Practical Example: Multi-Criteria Analysis for Species Suitability Maps
  - 1.8.1. Introduction to the Use of Land Suitability Maps
  - 1.8.2. Analysis of Environmental Variables Linked to the Species
  - 1.8.3. Analysis of Suitability Values for the Variables
  - 1.8.4. Elaboration of Land Suitability Maps for Species
- 1.9. Creation of Ecological Corridors for Species Distribution
  - 1.9.1. Introduction to Spatial Connectivity Strategies to Create Ecological Corridors
  - 1.9.2. Resistance and Friction Maps vs. Suitability Maps
  - 1.9.3. Identification of Connectivity Points
  - 1.9.4. Development of Ecological Corridors for Species Distribution
- 1.10. Considerations for Field Data Collection
  - 1.10.1. Available Technologies
  - 1.10.2. Device Configuration prior to Data Collection
  - 1.10.3. Technical Considerations in Data Documentation
  - 1.10.4. Considerations according to the Scale of Work

## Module 2. Wildlife Management Software: Statistica and Distance

- 2.1. Statistica: Descriptive Statistics
  - 2.1.1. Introduction
  - 2.1.2. Statisticians
    - 2.1.2.1. Sample Size
    - 2.1.2.2. Media
    - 2.1.2.3. Fashion
    - 2.1.2.4. Standard Deviation
    - 2.1.2.5. Coefficient of Variation
    - 2.1.2.6. Variance
  - 2.1.3. Use in Statistica
- 2.2. Statistica: Probability and Statistical Significance
  - 2.2.1. Probability
  - 2.2.2. Statistical Significance
  - 2.2.3. Distributions
    - 2.2.3.1. Transformations

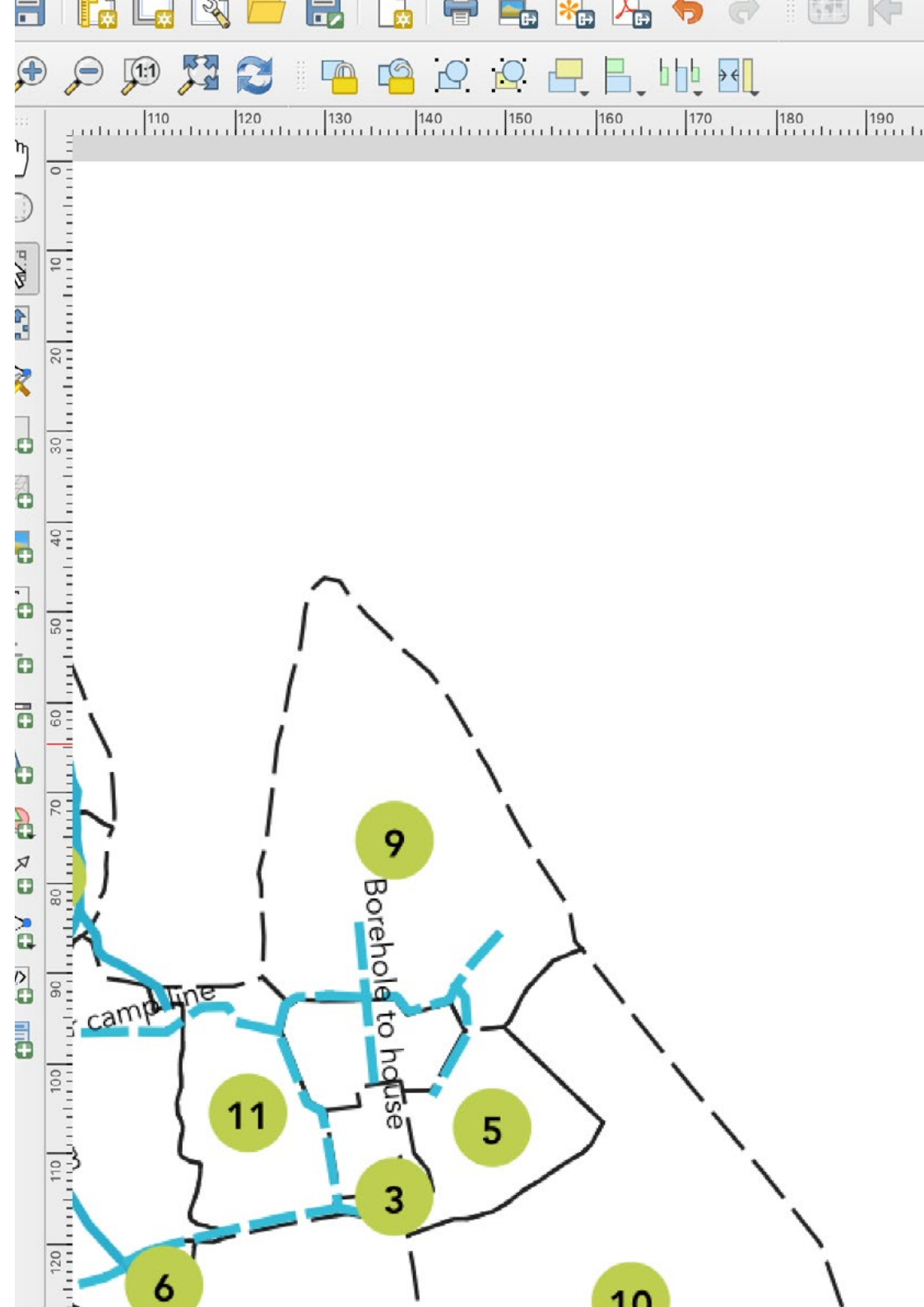


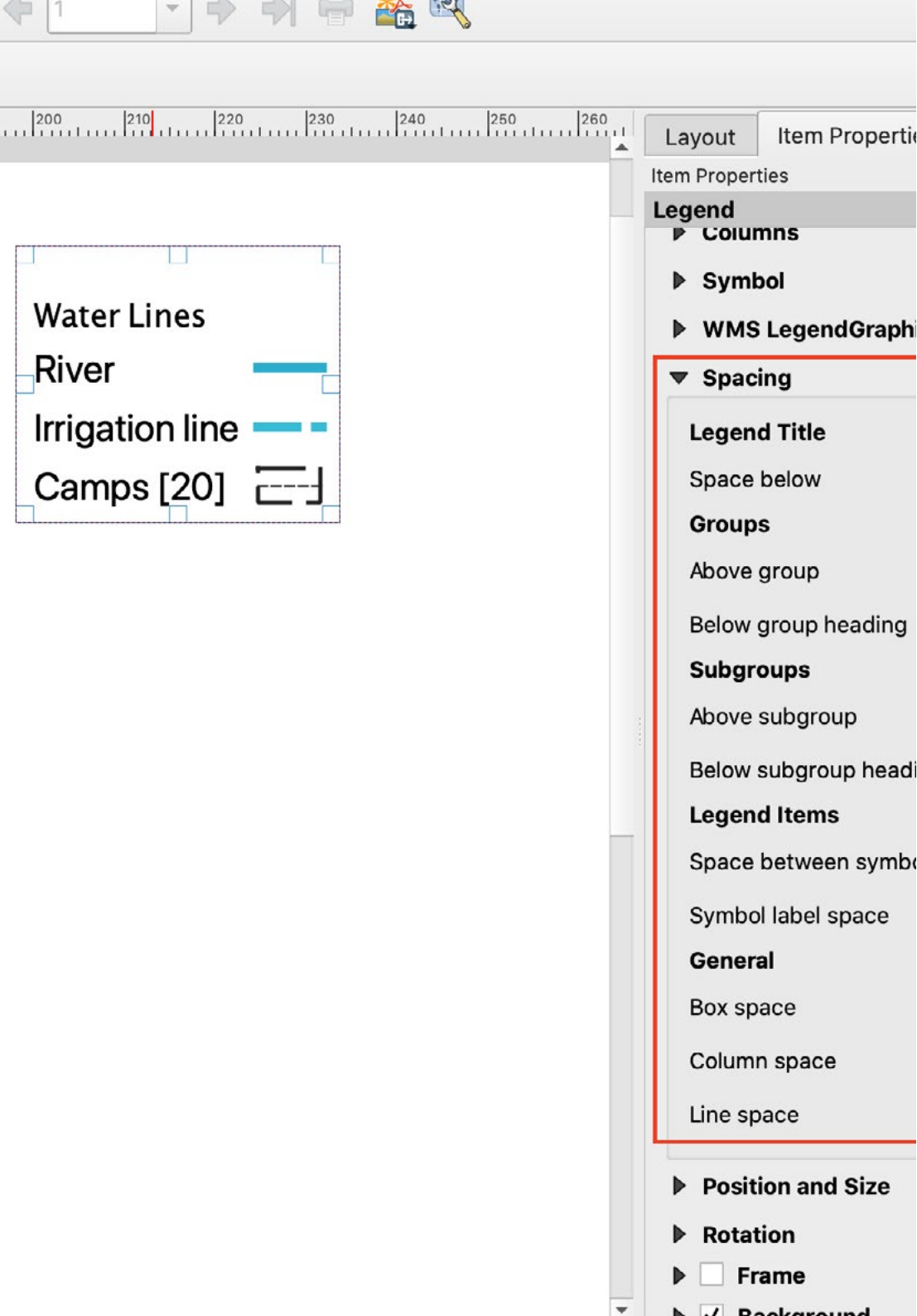
- 2.3. Statistica: Statistical Tests
  - 2.3.1. A Sample
    - 2.3.1.1. Chi-Squared
    - 2.3.1.2. Binomial
    - 2.3.1.3. Runs
  - 2.3.2. Two Related Samples
    - 2.3.2.1. Test
    - 2.3.2.2. Signs
    - 2.3.2.3. McNemar
  - 2.3.3. Two Independent Samples
    - 2.3.3.1. Mann-Whitney U Test
    - 2.3.3.2. Kolmoronov-Smirnov Test
    - 2.3.3.3. Moses Extreme Reactions Test
    - 2.3.3.4. Wald-Wolfowitz Runs Test
  - 2.3.4. Various Independent Samples
    - 2.3.4.1. Kruskal-Wallis H Test
    - 2.3.4.2. Median
  - 2.3.5. Various Related Samples
    - 2.3.5.1. Friedman
    - 2.3.5.2. Kendall W Test
    - 2.3.5.3. Cochran Q Test
- 2.4. Statistics: Regressions
  - 2.4.1. Linear Regression
  - 2.4.2. Assumptions
    - 2.4.2.1. Waste Analysis
    - 2.4.2.2. Absence of Collinearity
    - 2.4.2.3. Choosing the Number of Variables

- 2.5. Statistics: Analysis of Variance (ANOVA)
  - 2.5.1. Requirements
  - 2.5.2. Post-Hoc Test
  - 2.5.3. Models
    - 2.5.3.1. Fixed Effects
    - 2.5.3.2. Random Effects
    - 2.5.3.3. Mixed
  - 2.5.4. Fitted ANOVA
  - 2.5.5. Covariance Analysis
  - 2.5.6. ANOVA from Repeated Measures
- 2.6. Statistica: Data Import
  - 2.6.1. Data Import
  - 2.6.2. Data Entry
- 2.7. Statistics: Definition of Variables
  - 2.7.1. Qualitative
    - 2.7.1.1. Attributes
    - 2.7.1.2. Ordinal
  - 2.7.2. Quantitative
    - 2.7.2.1. Discrete
    - 2.7.2.2. Continuous
  - 2.7.3. Use in Statistica

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*This training will allow you to advance in your career in a comfortable way”*





- 2.8. Distance: Introduction
  - 2.8.1. Types of Transects
    - 2.8.1.1. Line Transect
    - 2.8.1.2. Point Transect
  - 2.8.2. Calculating Distances
    - 2.8.2.1. Radially
    - 2.8.2.2. Perpendicularly
  - 2.8.3. Objects
    - 2.8.3.1. Individual
    - 2.8.3.2. Clusters
  - 2.8.4. Detection Function
    - 2.8.4.1. Selection Criteria
    - 2.8.4.2. Key Functions
      - 2.8.4.2.1. Uniform
      - 2.8.4.2.2. Seminormal
      - 2.8.4.2.3. Negative Exponential
      - 2.8.4.2.4. Risk Rate
- 2.9. Distance: Approximation
  - 2.9.1. AIC
    - 2.9.1.1. Limitations
  - 2.9.2. Data Analysis
  - 2.9.3. Stratification
- 2.10. Distance: Example
  - 2.10.1. Data Entry
  - 2.10.2. Analysis Settings
  - 2.10.3. Truncation
  - 2.10.4. Data Grouping
  - 2.10.5. Stratification
  - 2.10.6. Validating Results

# 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 you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is 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, in an attempt to recreate the actual conditions in a veterinarian'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. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
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. The feeling that the effort invested is effective becomes a very important motivation for veterinarians, which translates into a greater interest in learning and an increase in the 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.



*Veterinarians 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 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high socio-economic profile and an average age of 43.5 years.

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



#### Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary 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 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 Software Programs for Wildlife Monitoring 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 Software Programs for Wildlife Monitoring** 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 Software Programs for Wildlife Monitoring**

Official N° of hours: **300 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 languages  
virtual classroom



## Postgraduate Certificate Software Programs for Wildlife Monitoring

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

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