Postgraduate Diploma
Wildlife Mapping and Potential Distribution Models

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Postgraduate Diploma
Wildlife Mapping and Potential Distribution Models

Course Modality: **Online**

Duration: **6 months.**

Certificate: **TECH Technological University**

Official Nº of Hours: **450 h.**

Website: **www.techtitute.com/in/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-wildlife-mapping-potential-distribution-models**

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01

Introduction

Sometimes, the territory or the information available on the species is partial or incomplete, requiring the use of modeling to identify viable areas where a species can be found or where it could best adapt to new territorial scenarios.

Likewise, it is necessary to have mapping data to visualize information related to the species, their distributions or natural environments. Cites, traces, 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 this training program.

Do not miss the opportunity to study this Postgraduate Diploma in Wildlife Mapping and Potential Distribution Models with us. It's the perfect opportunity to stand out and advance your career"

Unlike other programs, the Postgraduate Diploma in Wildlife Mapping and Potential Distribution Models 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 education 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.

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 Diploma in Wildlife Mapping and Potential Distribution Models** contains the most complete and up-to-date scientific 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 work
- Content that is accessible from any fixed or portable device with an Internet connection

Train at TECH and learn the concepts associated with wildlife populations and the processes and interactions that take place"

This Postgraduate Diploma is the best investment you can make when selecting a refresher program in Wildlife Mapping and Potential Distribution Models"

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

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

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.

02

Objectives

The Postgraduate Diploma in Wildlife Mapping and Potential Distribution Models is designed to facilitate the performance of veterinary professionals with the latest advances and most innovative procedures in the sector.

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

- Determine the official resources that yield species distribution information
- Examine the resources available to characterize potential habitats where species are distributed
- Introduce the different portals that provide species conservation data and identify or interpret each type of data
- Learn more about the formats and types of data and files offered by these portals
- 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
- Know the cartographic requirements to manage Maxent
- Manage using Maxent working software
- Identify the program's input and output file formats
- Interpret modeling results

Specific Objectives

Module 1. Resources to Acquire and Analyze Data on Species Distribution, Natural Areas and Environmental Habitat Variables

- Access official conservation data on species included in the European Natura 2000 Network through their official databases or Natura 2000 Standard Data Forms
- Consult conservation data and species distribution mapping through public and private organizations and institutions portals
- Warn of the potential offered by citizen science as a resource or documentary source for acquiring and sharing species distribution data and monitoring over time
- Learn about and explore portals to download information on species distribution linked to citizen science
- Identify land uses and networks of protected natural areas worldwide that may support or harbor species
- Consult and acquire, from official websites, descriptive digital models of the physical and biological environment of species, such as climatic data, physical data or territorial morphology, for further geographical analysis of potential distributions

Module 2. Spatial Management of Species using Geographic Information Systems in QGIS

- 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 mapping

Module 3. Potential Species Distribution Modeling with Maxent

- Recognize the specific input file formats supported by the program so the model works correctly
- Correctly produce quality mapping of territorial variables to run a model
- Correctly cite the coordinate structure of species distribution to run a model
- Understand the different types of models generated by Maxent
- Model the potential distribution of species, both in present and future time
- Interpret the data, graphs, and visual maps provided by Maxent as a result of spatial data analysis
- Represent and interpret the resulting data through a GIS such as QGIS

03

Course Management

The program includes in its teaching staff leading experts in Wildlife Mapping and Potential Distribution Models, who bring their work experience to this training program. Renowned professionals have joined forces to offer you this high-level 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 Since 2006
- 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 Wildlife Mapping and Potential Distribution Models, 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.

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. Resources to Acquire and Analyze Data on Species Distribution, Natural Areas and Environmental Habitat Variables

1.1. International Union for Conservation of Nature and Natural Resources (UICN)
- 1.1.1. Species Data and Distribution
- 1.1.2. Tools Available to Analyze Species Distribution Data

1.2. Global Biodiversity Information Facility (GBIF)
- 1.2.1. Species Data and Distribution
- 1.2.2. Tools Available to Analyze Species Distribution Data

1.3. e-BIRD
- 1.3.1. Citizen Science in Global Massive Species Data Management
- 1.3.2. Data and Distribution of Avifauna from Citizen Science

1.4. MammalNet
- 1.4.1. Data and Monitoring of Mammals from Citizen Science

1.5. Ocean Biodiversity Information System (OBIS)
- 1.5.1. Species Distribution Data of Marine Species

1.6. Species and Habitats included in Natura 2000
- 1.6.1. Distribution Mapping of Natura 2000 Sites
- 1.6.2. Documentary Databases of Species, Habitats and Official Ecological Information
- 1.6.3. Monitoring Distribution, Pressures, Threats and Conservation Status through Official Sexennial Reports

1.7. World Network of Protected Natural Spaces
- 1.7.1. Protected Planet in Territorial Species Management

1.8. Natural Environments and Land Use
- 1.8.1. Corine Land Cover (CLC) Land Uses
- 1.8.2. Global Land Cover (GLC) of the European Space Agency for the Identification of Natural Environments
- 1.8.3. Land Resources linked to Forest Environments
- 1.8.4. Land Resources linked to Wetlands

1.9. Bio-Climatic Environmental Variables for Species Habitat Modeling
- 1.9.1. World Clim
- 1.9.2. Bio-Oracle
- 1.9.3. Terra Climate
- 1.9.4. ERA5 Land
- 1.9.5. Global Weather

1.10. Morphological Environmental Variables for Species Habitat Modeling
- 1.10.1. Digital Elevation Models
- 1.10.2. Digital Terrain Models

Module 2. Spatial Management of Species using Geographic Information Systems in QGIS

2.1. Introduction to Geographic Information Systems (GIS)
- 2.1.1. Introduction to Geographic Information Systems
- 2.1.2. Mapping File Formats for Species Analysis
- 2.1.3. Main Geoprocessing Analyses for Species Management

2.2. Reference Systems in Map Files
- 2.2.1. The Importance of Reference Systems in the Visualization and Accuracy of Field Data Linked to Species Distribution
- 2.2.2. Examples of Correct and Incorrect Data Management in Species Domains

2.3. QGIS Interface
- 2.3.1. Introduction to QGIS
- 2.3.2. Interface and Sections to be Analyzed and Data Display

2.4. Data Visualization and Display on QGIS
- 2.4.1. Visualizing Mapping Data on QGIS
- 2.4.2. Attribute Tables for Querying and Documenting Information
- 2.4.3. Symbolism for Sample Representation

2.5. QGIS Plug-ins for Species Mapping and Analysis
- 2.5.1. QGIS Plug-ins
- 2.5.2. GBIF Plug-in
- 2.5.3. Natusfera Plug-in
- 2.5.4. Species Explorer Plug-in
- 2.5.5. Citizen Science Platforms and Other Analysis Plug-ins

2.6. Cartographic Management of Sample Plots and Field Monitoring
- 2.6.1. Geometric Planning of Sampling Plots and Grids
- 2.6.2. Representation of Distribution Data, Sampling Data and Transects in the Field

2.7. Species Richness and Effort Maps
- 2.7.1. Analysis of Species Richness Data
- 2.7.2. Representation of Richness Maps
- 2.7.3. Analysis of Effort Data
- 2.7.4. Representation of Effort Maps

2.8. Practical Example: Multi-Criteria Analysis for Species Suitability Maps
- 2.8.1. Introduction to the Use of Land Suitability Maps
- 2.8.2. Analysis of Environmental Variables Linked to the Species
- 2.8.3. Analysis of Suitability Values for the Variables
- 2.8.4. Elaboration of Land Suitability Maps for Species

2.9. Creation of Ecological Corridors for Species Distribution
- 2.9.1. Introduction to Spatial Connectivity Strategies to Create Ecological Corridors
- 2.9.2. Resistance and Friction Maps vs. Suitability Maps
- 2.9.3. Identification of Connectivity Points
- 2.9.4. Development of Ecological Corridors for Species Distribution

2.10. Considerations for Field Data Collection
- 2.10.1. Available Technologies
- 2.10.2. Device Configuration prior to Data Collection
- 2.10.3. Technical Considerations in Data Documentation
- 2.10.4. Considerations according to the Scale of Work

Module 3. Potential Species Distribution Modeling with Maxent

3.1. Maxent and Predictive Models
- 3.1.1. Introduction to Maxent
- 3.1.2. Species Distribution Analysis File Formats

3.2. Prediction Analysis Mapping
- 3.2.1. Species Distribution Coordinates
- 3.2.2. Environmental Variables for Species Analysis

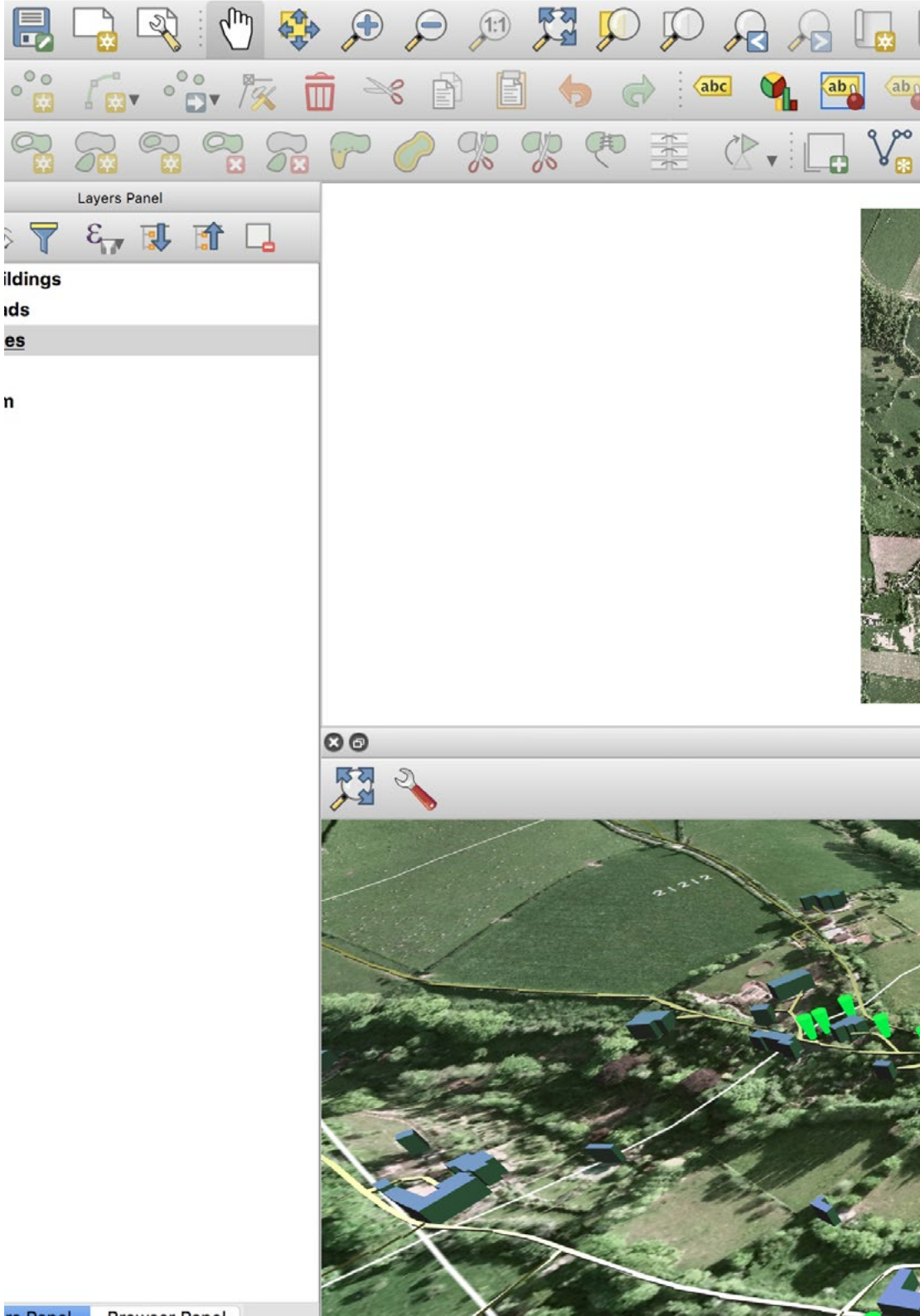
3.3. Cartographic Resources for Species Modeling
- 3.3.1. Baseline Data for Modeling
- 3.3.2. Resources to Obtain Territorial Environmental Variables
- 3.3.3. Resources to Obtain Species Distribution Data
- 3.3.4. Strategies to Convert Data to Maxent Required Formats

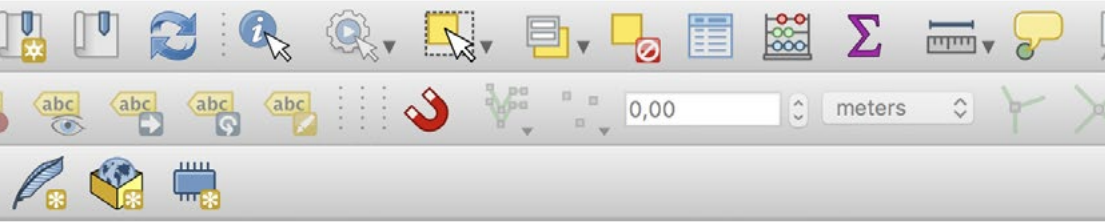
3.4. Format Restrictions and Limitations in Species Modeling Input Data
- 3.4.1. Format Standardization for Species Distribution Coordinates
- 3.4.2. Raster Format Standardization for Species-Dependent Territorial Variables

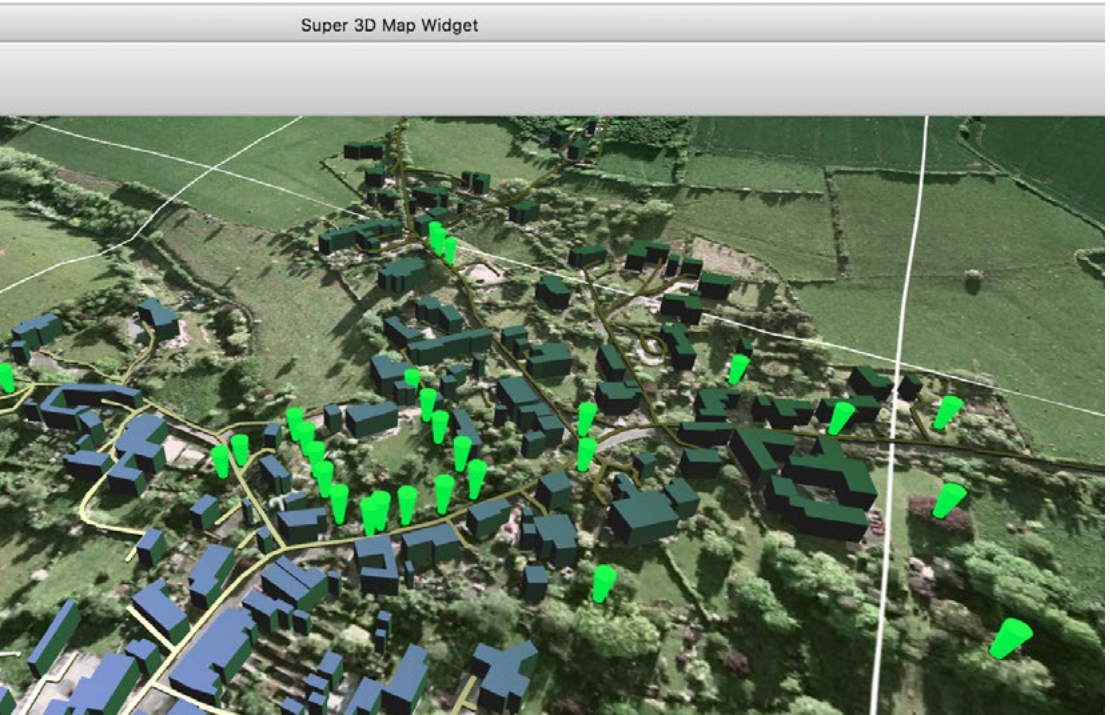
3.5. Maxent Management Interface for Species Distribution Modeling
- 3.5.1. Data Entry Sections and Program Configuration
- 3.5.2. Main Errors to Avoid during Modeling

3.6. Modeling Options
- 3.6.1. Logistic Model
- 3.6.2. Cumulative Model
- 3.6.3. Raw Model
- 3.6.4. Modeling under Future Scenarios

3.7. Potential Modeling with Variables and Distribution Data
- 3.7.1. Species Distribution Coordinates
- 3.7.2. Species-Dependent Raster Variables
- 3.7.3. Generation of Potential Species Distribution Models







3.8. Maxent Data Simulation and Display
- 3.8.1. Omission/Commission
- 3.8.2. Variable Contribution
- 3.8.3. Response Curves
- 3.8.4. Resulting Distribution Maps
- 3.8.5. Supplementary Analytical Data
- 3.8.6. Data Validation and Testing

3.9. Future Predictions for Territorial Change Scenarios
- 3.9.1. Future Environmental Variables
- 3.9.2. Future Scenario Modeling

3.10. Display and Interpretation of Models in QGIS
- 3.10.1. Importing Results in QGIS
- 3.10.2. Symbology and Visualization of Results in QGIS

This program will allow you to advance in your career comfortably"

05

Methodology

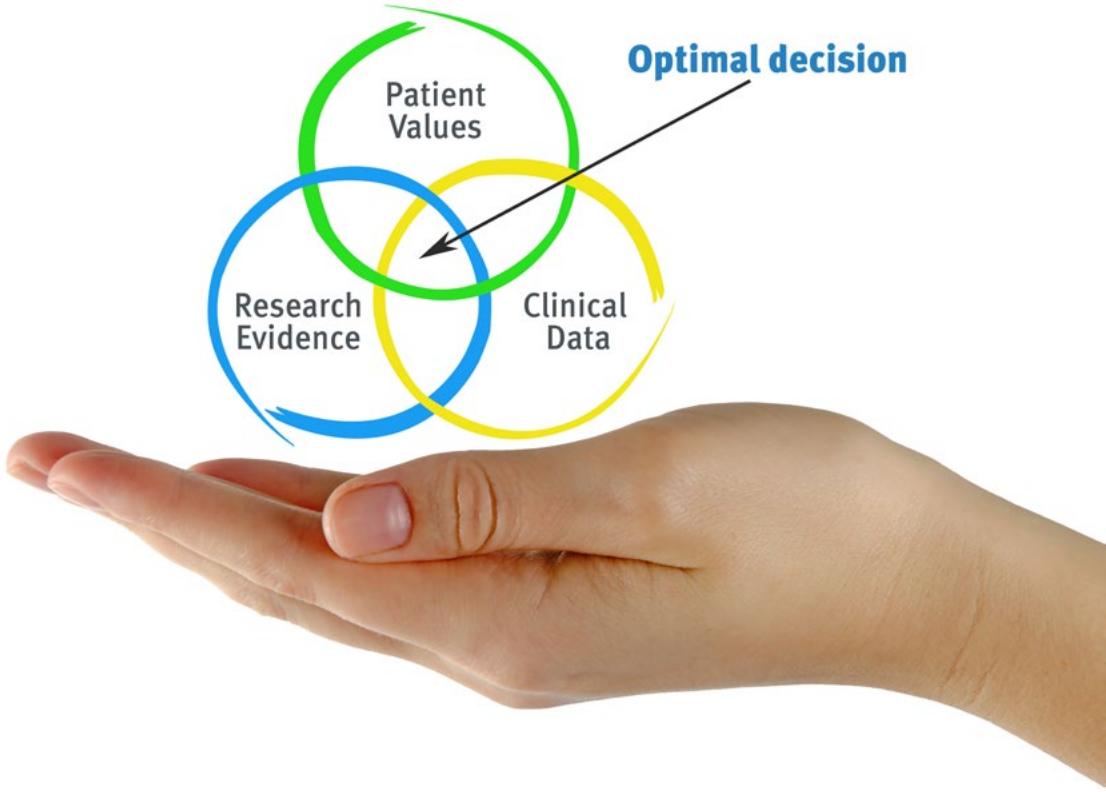
This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning.**
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.

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.

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:

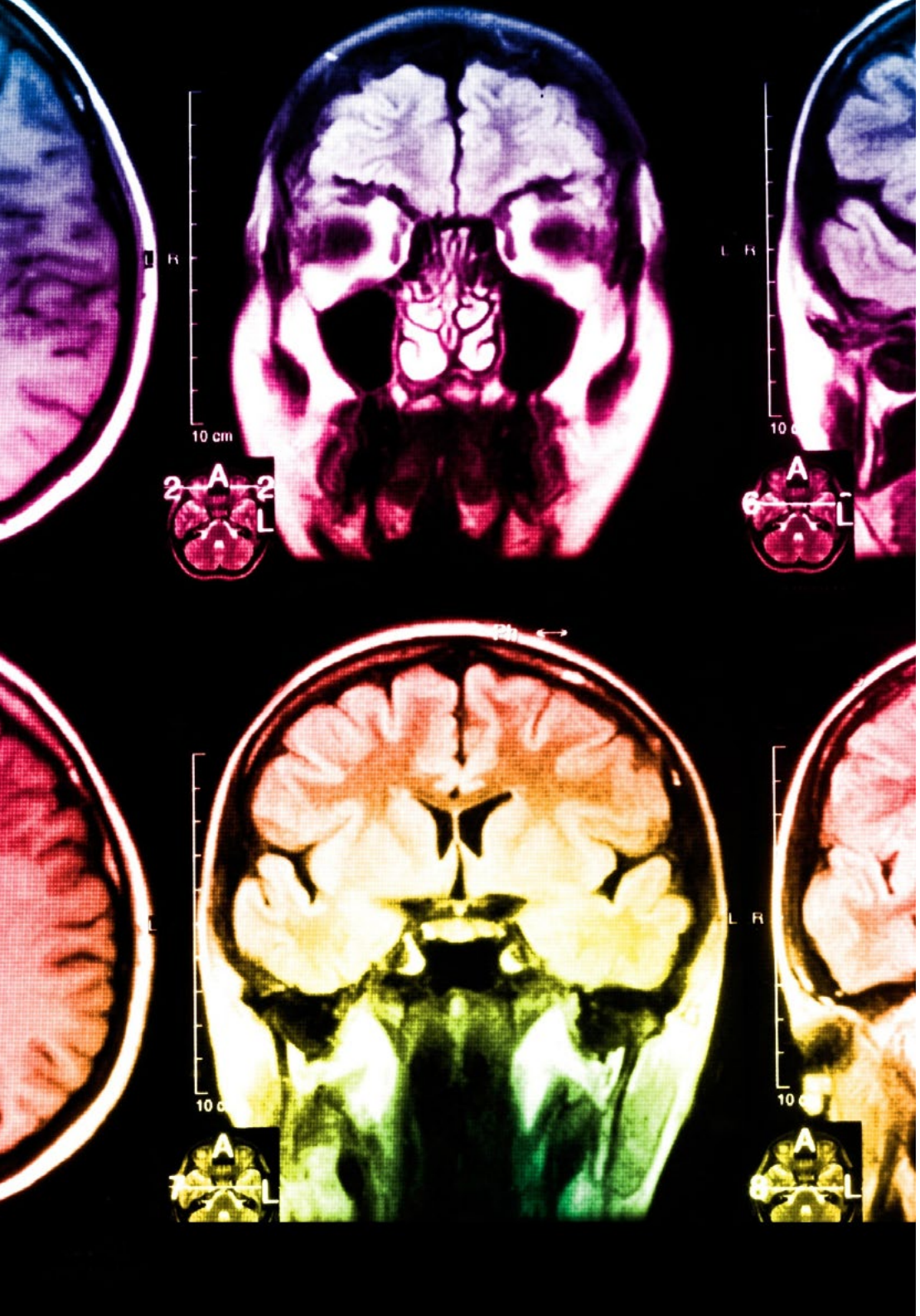
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real 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.

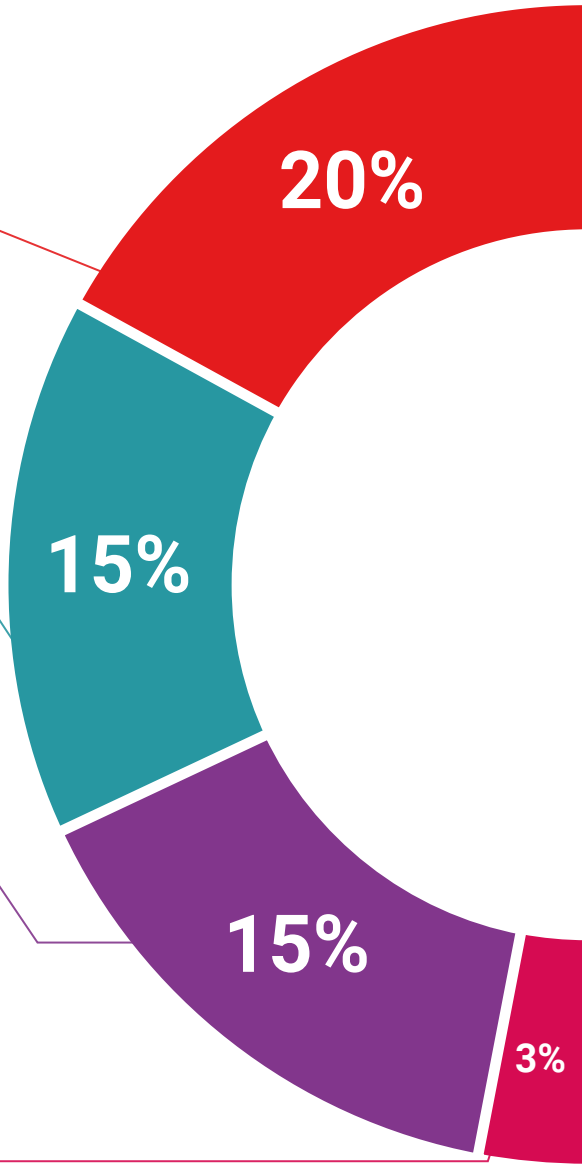
Interactive Summaries

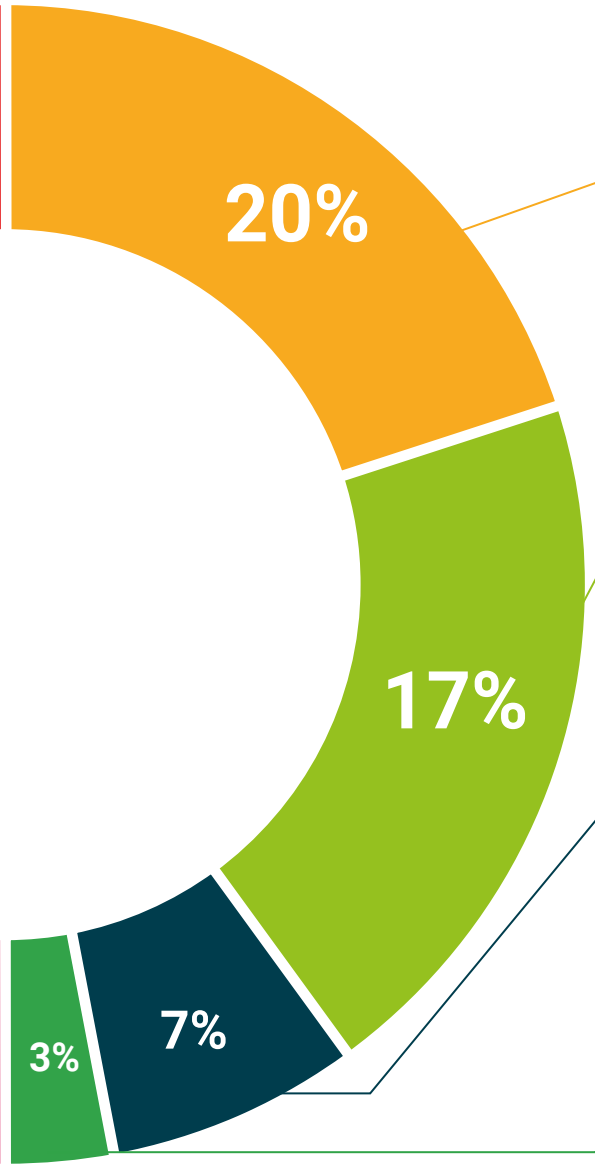
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 Diploma in Wildlife Mapping and Potential Distribution Models guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma 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 Diploma in Wildlife Mapping and Potential Distribution Models** 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 Diploma** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Postgraduate Diploma in Wildlife Mapping and Potential Distribution Models**

Official Number of Hours: **450 h.**


tech technological university

Awards the following

CERTIFICATE

to

Mr./Ms. _____, with identification number _____.

For having passed and accredited the following program

POSTGRADUATE DIPLOMA

in

Wildlife Mapping and Potential Distribution Models

This is a qualification awarded by this University, equivalent to 450 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

Tere Guevara Navarro

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

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

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