

# Professional Master's Degree Veterinary Food Safety





## Professional Master's Degree Veterinary Food Safety

Course Modality: Online

Duration: 12 months

Certificate: TECH Technological University

Official N° of hours: 1,500 h.

Website: [www.techtute.com/veterinary-medicine/professional-masters-degree/professional-masters-degree-veterinary-food-safety](http://www.techtute.com/veterinary-medicine/professional-masters-degree/professional-masters-degree-veterinary-food-safety)

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# 01

# Introduction

The final objective of this program in Veterinary Food Safety is to specialize the professional to ensure food safety from primary production, processes and products, supporting environmental sustainability and the development of the food sector as a whole from a global point of view of quality, food safety and the management of R&D&I projects.







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*Learn from real cases with this highly effective training program and open new paths to your professional progress”*

The Professional Master's Degree in Veterinary Food Safety at TECH Technological University is the most complete among the master's degrees offered at universities at this time because it is aimed at the comprehensive management of food safety. Therefore, it covers all the necessary aspects to achieve a complete specialization, demanded by professionals in the food sector.

The teachers of this program are university professors and professionals from various disciplines in primary production, the use of analytical and instrumental techniques for quality control, the prevention of accidental and intentional contamination and fraud, traceability, and regulatory certification schemes in Food Safety.

The Professional Master's Degree in Veterinary Food Safety is based on a triple thematic structure: Quality, Food Safety and Research and Development (R&D&I). In other words, it contains a scientific-technical part, a quality and safety management part and a third part, focused on research and development of innovation projects, supported by the guarantee of food safety, quality assurance and sustainability in its production and the necessary food safety at a global level.

This program has been designed to respond to the demand of diverse professional profiles and professional disciplines such as basic sciences, experimental sciences and engineering, social sciences and the field of new technologies. In addition, it is focused on understanding and learning technical, management and project execution competencies, as well as the development of skills required by a competitive, innovative and modern food sector.

Students of the Professional Master's Degree in Veterinary Food Safety will complete their specialization from a comprehensive perspective and training, both in product processes and, globally, in the certification of food safety in the food sector, starting from primary production and food processing, applicable legislation and regulations, quality management to ensure food safety, to the integration in research projects, in the development of new products, their coordination and implementation.

It is an educational project committed to training high quality professionals. A program designed by professionals specialized in each specific subject who face new challenges every day.

This **Professional Master's Degree in Veterinary Food Safety** 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 Veterinary Food Safety
- ◆ The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ◆ New developments in veterinary food safety
- ◆ Practical exercises where self-assessment can be used to improve learning
- ◆ Special emphasis on innovative methodologies in veterinary food safety
- ◆ 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 be taught by experts in food legislation and quality and safety regulations, who will guide you through the entire training process"*

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*If your objective is to broaden your skill set to include new paths of success and development, this is your Professional Master's Degree: a specialization that aspires to excellence"*

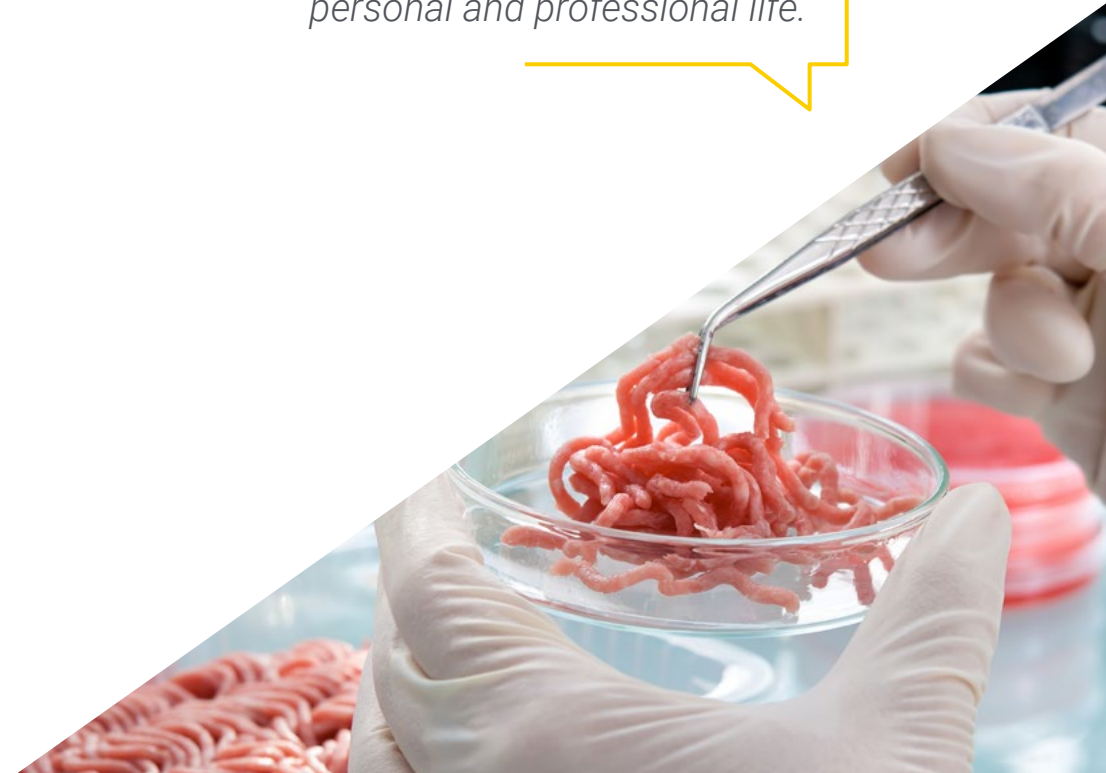
It includes, in its teaching staff, professionals belonging to the field of veterinary food safety, who pour into this training the experience of their work, in addition to recognized specialists from reference societies and prestigious universities.

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 training programmed to train in real situations.

This program is designed around Problem-Based Learning, where the specialist must try to solve the different professional practice situations that arise during the course. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in food safety with extensive experience.

*This training will provide you with the personal and professional skills necessary to become an expert in veterinary food safety.*

*Thanks to its online modality, you will be able to train wherever and whenever you want, being able to combine your personal and professional life.*



# Objectives

The Professional Master's Degree in Veterinary Food Safety is oriented to facilitate the performance of the professional with the latest advances in the sector, giving them a level of competence that will be essential for their professional development. Undoubtedly, a program of great didactic interest that will mark a before and after in your training.







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*This is the best option to learn about the latest advances in food safety”*



## General Objectives

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- ◆ Develop the basis for good hygiene and traceability practices in the production of raw materials
- ◆ Specify the applicable regulations concerning primary animal production, as well as the internal audit and certification systems
- ◆ Recognize the consumer's right to purchase safe, healthy and safe food
- ◆ Define sustainable development objectives
- ◆ Examine the regulations and standards for food laboratories and define their role in food safety
- ◆ Analyze food safety regulations and standards applicable to raw materials and products in food laboratories
- ◆ Analyze the fundamentals, requirements, regulations and main tools used in the traceability of the different points of the food chain
- ◆ Analyze the system for establishing a relationship between the food product and the origin of its components, the manufacturing process and distribution
- ◆ Evaluate food industry processes to identify those items that do not meet specific requirements to ensure food safety and consumer health
- ◆ Develop the basis for the application of the different phases of the traceability system in food sector companies
- ◆ Fundamentals of the most important food safety concepts
- ◆ Define the concept of risk and risk assessment
- ◆ Apply these principles to the development of a safety management plan
- ◆ Concretize the principles of the HACCP plan
- ◆ Define the principles of a certification process
- ◆ Develop the concept of best practice certification
- ◆ Analyze the main international certification models for food safety management in the food industry
- ◆ Analyze the advantages of digitalization in the currently established food safety and quality management processes
- ◆ Develop specialized knowledge of the different commercial platforms and internal IT tools for process management
- ◆ Define the importance of a migration process from a traditional to a digital system in Food Safety and Quality Management
- ◆ Establish strategies for the digitalization of protocols and documents related to the management of different Food Quality and Safety processes
- ◆ Determine critical control points
- ◆ Availability of tools for validation of CCPs



- ◆ Analyze the concepts of Process Monitoring, Verification and Validation
- ◆ Improve management of incidents, complaints and internal audits
- ◆ Establish R&D&I systems that enable the development of new foods and ingredients, especially in food safety issues, so that they can address research, development and innovation in this field
- ◆ Develop knowledge that provides a basis or opportunity for the development and/or application of ideas, in a research context, including reflections on the responsibilities linked to the application of their developments
- ◆ Determine the functioning of R&D&I systems in the field of new product and process development in the food environment
- ◆ Analyze the R&D&I system and the use of tools for planning, management, evaluation, protection of results and dissemination of food R&D&I
- ◆ Develop knowledge that provides a basis or opportunity for the development and/or implementation of ideas, in a research and development context that allows to take the results to the productive sector





## Specific Objectives

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### Module 1. Traceability of Raw Materials and Consumables

- Establish the basic principles of food safety
- Compile the reference databases on applicable food safety regulations
- Develop relevant aspects in the production of food of animal origin and its derivatives
- Establish the basis for animal welfare from breeding to slaughter
- Examine the types of vegetable crops and the regulations applicable to each of them
- Specify the mechanisms for internal auditing and certification of primary production
- Analyze foods of differentiated quality and the certification system for these products
- Assess the impact of the agri-food industry on the environment
- Examine the contribution of this industry to the sustainable development goals





## Module 2. Analytical and Instrumental Techniques in Process and Product Quality Control

- ♦ Establish the quality characteristics to be met by raw materials, intermediate and finished products according to their origin, prior to their laboratory analysis
- ♦ Develop the relevant methodology for product conformity, taking into account the applicable requirements considered by the regulations and standards
- ♦ Define the most appropriate methodology for food quality assessment: integrity analysis and characterization, including the detection of biotic or abiotic food contaminants that may pose a health risk to consumers
- ♦ Describe food sampling depending on source, use and characteristics or specifications
- ♦ Identify and recognize the analytical techniques used in food and manage an adequate quality control
- ♦ Describe the main agri-food contaminants and learn about the application of analytical techniques by observing the sector to which they belong
- ♦ Outline the process for identifying and ensuring the safety of raw materials, processed foods and the suitability of water in the production of safe products for food and feed

### **Module 3. Logistics and Batch Traceability**

- ♦ Define the Background of Logistics and Traceability
- ♦ Examine the different types of traceability and scope of application
- ♦ Analyze the principles, requirements and measures of food legislation in the context of traceability
- ♦ Establishing the scope of application of traceability in its mandatory nature
- ♦ Analyze the different traceability and lot identification systems
- ♦ Identify and define the responsibility of the different actors in the food chain in terms of traceability
- ♦ Describe the structure and implementation of a traceability plan
- ♦ Identify and discover the main tools for the identification of batches
- ♦ Establish procedures for locating, immobilizing and recalling products in case of incidents
- ♦ Identify, analyze and explain the logistics process at each point of the food chain

### **Module 4. Food Safety Management**

- ♦ Analyze the Main Types of Hazards Associated with Food
- ♦ Evaluate and apply the principle of risk and risk analysis in food safety
- ♦ Identify the prerequisites and previous steps for the implementation of a safety management plan
- ♦ Establish the main hazards associated with food according to their physical, chemical or biological nature, and some of the methods used for their control
- ♦ Apply these principles to the development of a safety management plan
- ♦ Specify the methods to evaluate the efficiency of a critical point and of the safety management plan

### **Module 5. Food Safety Certifications for the Food Industry**

- ♦ Establish the General Requirements for Certification
- ♦ Identify the different types of Good Practices (GxP) required in a food safety management system and their certification
- ♦ Develop the structure of the ISO and ISO 17025 international standards
- ♦ Define the characteristics, structure and scope of the main global food safety certification systems

### **Module 6. Digitization of the Quality Management System**

- ♦ Examine the quality standards and food norms in force for the digitization of the different international reference bodies
- ♦ Identify the main commercial software and internal IT strategies that enable the management of specific food safety and quality processes
- ♦ Establish appropriate strategies for the transfer of traditional quality management processes to digital platforms
- ♦ Define the key points of the digitization process of a Hazard Analysis and Critical Control Point (HACCP) program
- ♦ Analyze alternatives for the implementation of prerequisite programs (PPR), HACCP plans and monitoring of standardized operating programs (SOP)
- ♦ Analyze the most appropriate protocols and strategies for digitization in risk communication
- ♦ Develop mechanisms for digitalizing the management of internal audits, recording corrective actions and monitoring continuous improvement programs

### Module 7. Validation of New Methodologies and Processes

- ◆ Know the main differences between control points and critical control points
- ◆ Develop prerequisite programs and management charts to ensure food safety
- ◆ Apply internal audits, complaints or internal incidents as tools for the validation of control processes
- ◆ Review process validation methods
- ◆ Differentiate and specify the differences between monitoring, verification and validation activities within the HACCP system
- ◆ Demonstrate resolution capability with root cause analysis and implementation of corrective actions for complaint or nonconformity management
- ◆ Assess the management of internal audits as a tool for improving the HACCP plan

### Module 8. R&D&I of Novel Foods and Ingredients

- ◆ Establish new trends in food technologies that give rise to the development of a line of research and implementation of new products in the market
- ◆ Establish the fundamentals of the most innovative technologies that require research and development work to understand their potential for use in the production of new foods and ingredients
- ◆ Design research and development protocols for the incorporation of functional ingredients to a base food, taking into account its techno-functional properties, as well as the technological process involved in its elaboration
- ◆ Compile new trends in food technologies that will lead to the development of a line of research and implementation of new products in the market
- ◆ Apply research and development methodologies to evaluate the functionality, bioavailability and bioaccessibility of novel foods and ingredients

### Module 9. Development, Coordination and Execution of R&D&I Projects

- ◆ Establish R&D&I systems that enable the development of novel foods and ingredients especially in food safety issues, so that they can address research, development and innovation in the field of novel foods and ingredients
- ◆ Compile the sources of financing for R&D&I activities in the development of new food products that allow different innovation strategies in the food industry to be addressed
- ◆ Analyze the forms of access to public and private sources of information in the scientific-technical, economic and legal fields for the planning of an R&D&I project
- ◆ Develop methodologies for project planning and management, control reporting and monitoring of results
- ◆ Evaluate the technology transfer systems that allow the transfer of R&D&I results to the productive environment
- ◆ Analyze the implementation of projects once their documentation stage has been completed



*This program has the best educational material, which will provide you with contextual knowledge that will facilitate your learning”*

# 03 Skills

This Professional Master's Degree in Veterinary Food Safety has been created as a highly skilled training for veterinary professionals. It brings together a compendium of innovative knowledge that will provide you with the right competencies and skills to achieve professional success. After passing the evaluations, the professional will have acquired the necessary skills for a quality practice based on the most innovative didactic methodology.







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*This program will provide you with the personal and professional skills necessary to become an expert in Food Safety in the veterinary field"*



## General Skills

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- Use good hygienic practices in food production
- Know the current regulations to be used by food laboratories
- Elaborate and control that the food produced meets all food guarantees
- Ensure the safety of all processes involved in food production
- Controlling food industry procedures

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





## Specific Skills

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- ◆ Know the applicable food safety regulations and apply them in each production process
- ◆ Protecting animal welfare, from breeding to slaughter
- ◆ Understanding the impact of the food industry on the environment and promoting sustainable development
- ◆ Know the quality characteristics that all foods must meet prior to laboratory analysis.
- ◆ Apply the appropriate techniques for quality control, following the most accurate methodologies
- ◆ Ensuring the quality of products to be consumed by humans and animals
- ◆ Identify all the processes related to the traceability of a product and analyze the different systems related to this field
- ◆ Locate and recall all products that have incidents
- ◆ Know the logistic process at each point of the food chain
- ◆ Know the fundamentals of food law and food security policy
- ◆ Know the types of responsibility of the people involved in the food chain and the types of crime that can occur
- ◆ Identify hazards associated with food and analyze them
- ◆ Controlling this type of hazards
- ◆ Know the different food safety certification systems
- ◆ Perform the work according to safety certificates
- ◆ Identify food quality standards, commercial software and IT strategies to make food as safe as possible
- ◆ Digitize risk communication processes
- ◆ Control the whole process of elaboration of the products, taking into account the control points
- ◆ Monitor, verify and validate the entire production process
- ◆ Conduct internal audits
- ◆ Research the creation of new products
- ◆ Design research protocols, using new technologies
- ◆ Using R&D&I systems to develop new foods
- ◆ Access to scientific, economic and legal information sources to develop new products

04

# Course Management

The program includes in its teaching staff leading experts in Veterinary Food Quality and Safety who bring their work experience to this training. Additionally, other recognized experts participate in its design and preparation, completing the program in an interdisciplinary manner.







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*An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed”*

## Management



### Dr. Limón Garduza, Rocío Ivonne

- ♦ PhD in Agricultural Chemistry and Bromatology (Autonomous University of Madrid)
- ♦ Master's Degree in Food Biotechnology (MBTA) (University of Oviedo)
- ♦ Food Engineer, Bachelor's Degree in Food Science, and Technology (CYTA)
- ♦ Expert in Food Quality Management ISO 22000
- ♦ Specialist in Food Quality and Safety, Mercamadrid Training Center (CFM)

## Professors

### Ms. Andrés Castillo, Alcira Rosa

- ♦ Researcher. GenObIACM Project. Group UCM
- ♦ IRYCIS R&C Institute for Health Research U. Endothelium and MCM
- ♦ Coordinator E.C. with pharmaceuticals and foodstuffs
- ♦ Data Manager for Clinical Trials with DM2 drugs
- ♦ Degree in Marketing. UADE
- ♦ University Expert in Nutrition and Dietetics with CV Risk Factors and DM. UNED.
- ♦ Food Traceability Course. USAL Foundation

### Dr. Colina Coca, Clara

- ♦ D. in Nutrition, Food Science and Technology
- ♦ Master's Degree in Food Quality and Safety: APPCC Systems
- ♦ Postgraduate in Sports Nutrition
- ♦ Collaborating professor at the UOC. Since 2018

**Ms. Escandell Clapés, Erica**

- ♦ Bachelor's Degree in Food Science and Technology. (University of Vic)
- ♦ Master's Degree in Food Development and Innovation
- ♦ Diploma in Human Nutrition and Dietetics
- ♦ Head of the Food Quality and Safety Department of the meat industry SUBIRATS GROUP (2015 - present)

**Ms. Montes Luna, María Fe**

- ♦ Agricultural engineer specializing in the food industry - University of Córdoba (1998-2003)
- ♦ Consultant and food safety auditor, with international experience in consulting and first, second and third party audits under the protocols of BRC, IFS, FSSC 22000 and ISO 22.000

**Dr. Velderrain Rodríguez, Gustavo Rubén**

- ♦ D. in Science. Center for Research in Food and Development, A.C. (CIAD)
- ♦ Member of the National System of Researchers of CONACyT (Mexico)

**Dr. Moreno Fernández, Silvia**

- ♦ PhD in Food Science (Universidad Autónoma de Madrid)
- ♦ Degree in Biology from the Complutense University of Madrid. Specialized in the development of novel foods and the treatment of by-products from the food industry
- ♦ Postdoctoral Researcher. Autonomous University of Madrid. Since 2019

**Dr. Rendueles de la Vega, Manuel**

- ♦ D. in Chemical Engineering, Professor of Chemical Engineering (University of Oviedo)
- ♦ Coordinator of the Master's Degree in Food Biotechnology at the University of Oviedo since 2013
- ♦ Principal investigator in three projects of the National R&D Plan. Since 2004

**Ms. Aranda Rodrigo, Eloísa**

- ♦ Degree in Food Science and Technology
- ♦ It develops its activity in the food production environment, with laboratory analysis of water and food
- ♦ Training in Quality Management Systems, BRC, IFS and ISO 22000 Food Safety
- ♦ Experience in audits under ISO 9001 and ISO 17025 protocols

**Dr. Martínez López, Sara**

- ♦ D. in Pharmacy (Universidad Complutense de Madrid)
- ♦ Degree in Chemistry (University of Murcia)
- ♦ Assistant Professor of Nutrition and Food Technology at the European University of Madrid
- ♦ Researcher in the research group "Microbiota, Food and Health". European University of Madrid

05

# Structure and Content

The content structure has been designed by the best professionals in the sector, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with extensive knowledge of new technologies applied to food safety.







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*This Professional Master's Degree in Veterinary Food Safety contains the most complete and up-to-date scientific program on the market”*

## Module 1. Traceability of Raw Materials and Consumables

- 1.1. Basic Principles of Food Safety
  - 1.1.1. Main Objectives of Food Safety
  - 1.1.2. Basic Concepts
  - 1.1.3. Traceability Concept and Application in the Food Industry
- 1.2. General Hygiene Plan
  - 1.2.1. Basic Concepts
  - 1.2.2. Types of General Hygiene Plans
- 1.3. Primary Animal Food Production
  - 1.3.1. Basic Aspects and Animal Welfare
  - 1.3.2. Breeding and Feeding
  - 1.3.3. Transport of Live Animals
  - 1.3.4. Animal Slaughter
- 1.4. Primary Production of Animal Derivatives. Distribution of Raw Materials
  - 1.4.1. Milk Production
  - 1.4.2. Poultry Production
  - 1.4.3. Distribution of Raw Materials of Animal Origin
- 1.5. Primary Production of Plant-Based Foodstuffs
  - 1.5.1. Basic Aspects
  - 1.5.2. Types of Vegetable Crops
  - 1.5.3. Other Agricultural Products
- 1.6. Good Practices in Plant Production. Use of Phytosanitary Products
  - 1.6.1. Sources of Contamination of Vegetable Foods
  - 1.6.2. Transport of Raw Materials of Plant Origin and Risk Prevention
  - 1.6.3. Use of Phytosanitary Products
- 1.7. Water in the Agri-Food Industry
  - 1.7.1. Livestock
  - 1.7.2. Agriculture
  - 1.7.3. Aquaculture
  - 1.7.4. Water for Human Consumption in Industry

- 1.8. Audit and Certification of Primary Production
  - 1.8.1. Official Control Audit Systems
  - 1.8.2. Food Certifications
- 1.9. Foods of Differentiated Quality
  - 1.9.1. Protected Designation of Origin (PDO)
  - 1.9.2. Protected Geographical Indication (PGI)
  - 1.9.3. Traditional Specialty Guaranteed (TSG)
  - 1.9.4. Optional Quality Terms
  - 1.9.5. Use of Plant Varieties and Animal Breeds
  - 1.9.6. Organic Agriculture and Livestock
- 1.10. Food Industry and Environment
  - 1.10.1. Sustainable Development Goals (SDGs)
  - 1.10.2. Solutions Proposed by the Agri-Food Industry
  - 1.10.3. Genetically Modified Organisms as a Path to Sustainable Development

## Module 2. Analytical and Instrumental Techniques in Process and Product Quality Control

- 2.1. Laboratory Types, Regulations and Standards
  - 2.1.1. Reference Laboratories
    - 2.1.1.1. European Reference Laboratory
  - 2.1.2. Food Laboratory
  - 2.1.3. Regulations and Standards Applicable to Laboratories (ISO/IEC 17025)
    - 2.1.3.1. General Requirements for Laboratory Competence
    - 2.1.3.2. Equipment Testing and Calibration
    - 2.1.3.3. Implementation and Validation of Analytical Methods
- 2.2. Official Control of the Agri-Food Chain
  - 2.2.2. Competent Authorities
  - 2.2.3. Legal Support for Official Control





- 2.3. Official Methods of Food Analysis
  - 2.3.1. Methods of Animal Feed Analysis
  - 2.3.2. Water Analysis Methods
    - 2.3.2.1. Sampling Frequencies According to Type of Industry
  - 2.3.3. Methods of Analysis of Cereals
  - 2.3.4. Methods of Analysis of Fertilizers, Residues of Phytosanitary and Veterinary Products
  - 2.3.5. Methods of Analysis of Food Products
  - 2.3.6. Methods of Analysis of Meat Products
  - 2.3.7. Fat Analysis Methods
  - 2.3.8. Methods of Analysis of Dairy Products
  - 2.3.9. Methods of Analysis of Wines, Juices and Musts
  - 2.3.10. Methods of Analysis of Fishery Products
- 2.4. On-Site Analytical Techniques for Fresh Food Receiving, Processing and Finished Product
  - 2.4.1. In Food Handling
    - 2.4.1.1. Analysis of Environments and Surfaces
    - 2.4.1.2. Handler Analysis
    - 2.4.1.3. Equipment Analysis
  - 2.4.2. Analysis of Fresh Feed and Finished Product
    - 2.4.2.1. Product Data Sheets
    - 2.4.2.2. visual Inspection
    - 2.4.2.3. Color Charts
    - 2.4.2.4. Organoleptic Evaluation According to Food Type
  - 2.4.3. Basic Physicochemical Analysis
    - 2.4.3.1. Determination of Maturity Index in Fruit
    - 2.4.3.2. Firmness
    - 2.4.3.3. Brix Degrees
- 2.5. Nutritional Analysis Techniques
  - 2.5.1. Protein Determination
  - 2.5.2. Determination of Carbohydrates
  - 2.5.3. Determination of Fats
  - 2.5.4. Ash Determination

- 2.6. Microbiological and Physicochemical Food Analysis Techniques
  - 2.6.1. Preparation Techniques: Fundamentals, Instrumentation and Application in Food Processing
  - 2.6.2. Microbiological Analysis
    - 2.6.2.1. Handling and Treatment of Samples for Microbiological Analysis
  - 2.6.3. Physical-Chemical Analysis
    - 2.6.3.1. Handling and Treatment of Samples for Physical-Chemical Analysis
- 2.7. Instrumental Techniques in Food Analysis
  - 2.7.1. Characterization, Quality Indexes and Product Conformity
    - 2.7.1.1. Food Safety/Food Integrity
  - 2.7.2. Analysis of Residues of Prohibited Substances in Food
    - 2.7.2.1. Organic and Inorganic Waste
    - 2.7.2.2. Heavy Metals
    - 2.7.2.3. Additives
  - 2.7.3. Analysis of Adulterant Substances in Foodstuffs
    - 2.7.3.1. Milk
    - 2.7.3.2. Wine
    - 2.7.3.3. Honey
- 2.8. Analytical Techniques Used in GMOs and Novel Foods
  - 2.8.1. Concept
  - 2.8.2. Detection Techniques
- 2.9. Emerging Analytical Techniques to Prevent Food Fraud
  - 2.9.1. Food Fraud
  - 2.9.2. Food Authenticity
- 2.10. Issuance of Certificates of Analysis
  - 2.10.1. In the Food Industry
    - 2.10.1.1. Internal Reporting
    - 2.10.1.2. Report to Customers and Suppliers
    - 2.10.1.3. Bromatological Expertise
  - 2.10.2. In Reference Laboratories
  - 2.10.3. In Food Laboratories
  - 2.10.4. In Arbitration Laboratories
  - 2.10.5. Reptiles

### Module 3. Logistics and Batch Traceability

- 3.1. Introduction to Traceability
  - 3.1.1. Background to the Traceability System
  - 3.1.2. Traceability Concept
  - 3.1.3. Types of Traceability
  - 3.1.4. Information Systems
  - 3.1.5. Advantages of Traceability
- 3.2. Implementation of the Traceability Plan
  - 3.2.1. Introduction
  - 3.2.2. Previous Stages
  - 3.2.3. Traceability Plan
  - 3.2.4. Product Identification System
  - 3.2.5. System Test Methods
- 3.3. Product Identification Tools
  - 3.3.1. Hand Tools
  - 3.3.2. Automated Tools
    - 3.3.2.1. EAN Bar Code
    - 3.3.2.2. RFID/// EPC
  - 3.3.3. Records
    - 3.3.3.1. Registration Identification of Raw Materials and other Materials
    - 3.3.3.2. Registration of Food Processing
    - 3.3.3.3. Final Product Identification Record
    - 3.3.3.4. Recording of the Results of Checks Performed
    - 3.3.3.5. Record Keeping Period
- 3.4. Incident Management, Product Recall and Reclamation and Customer Complaints
  - 3.4.1. Incident Management Plan
  - 3.4.2. Manage Customer Complaints
- 3.5. Supply Chain
  - 3.5.1. Definition
  - 3.5.2. Supply Chain Steps
  - 3.5.3. Supply Chain Trends



- 3.6. Logistics
  - 3.6.1. The Logistical Process
  - 3.6.2. Supply Chain vs. Logistics
  - 3.6.3. Containers
  - 3.6.4. Packaging
- 3.7. Modes and means of Transportation
  - 3.7.1. Transportation Concept
  - 3.7.2. Modes of Transport, Advantages and Disadvantages
- 3.8. Food Product Logistics
  - 3.8.1. Cold Chain
  - 3.8.2. Perishable Products
  - 3.8.3. Non-Perishable Products

## Module 4. Food Safety Management

- 4.1. Food Safety Principles and Management
  - 4.1.1. The Concept of Danger
  - 4.1.2. The Concept of Risk
  - 4.1.3. Risk Evaluation
  - 4.1.4. Food Safety and Its Management Based on Risk Assessment
- 4.2. Physical Hazards
  - 4.2.1. Concepts and Considerations on Physical Hazards in Foods
  - 4.2.2. Physical Hazard Control Methods
- 4.3. Chemical Hazards
  - 4.3.1. Concepts and Considerations on Chemical Hazards in Foods
  - 4.3.2. Chemical Hazards Naturally Occurring in Food
  - 4.3.3. Hazards Associated with Chemicals Intentionally Added to Foods
  - 4.3.4. Incidentally or Unintentionally Added Chemical Hazards
  - 4.3.5. Chemical Hazard Control Methods
  - 4.3.6. Allergens in Food
  - 4.3.7. Allergen Control in the Food Industry
- 4.4. Biological Hazards
  - 4.4.1. Concepts and Considerations of Biological Hazards in Foods
  - 4.4.2. Microbial Hazards
  - 4.4.3. Non-Microbial Biological Hazards
  - 4.4.4. Biological Hazard Control Methods
- 4.5. Good Manufacturing Practices Program (GMP)
  - 4.5.1. Buenas Prácticas de Fabricación (GMP)
  - 4.5.2. Background on GMP
  - 4.5.3. Scope of GMPAI
  - 4.5.4. GMPs in a Safety Management System
- 4.6. Standard Operating Procedure for Sanitation (SSOP)
  - 4.6.1. Sanitary Systems in the Food Industry
  - 4.6.2. Scope of SSOPs
  - 4.6.3. Structure of a SSOP
  - 4.6.4. SSOPs in a Safety Management System
- 4.7. The Hazard Analysis and Critical Control Point (HACCP) Plan
  - 4.7.1. Hazard Analysis and Critical Control Points (HACCP)
  - 4.7.2. Background of HACCP
  - 4.7.3. HACCP Prerequisites
  - 4.7.4. The 5 Preliminary Steps to HACCP Implementation
- 4.8. The 7 Steps of Hazard and Critical Control Point (HACCP) Plan Implementation
  - 4.8.1. Risk Analysis
  - 4.8.2. Identification of Critical Control Points
  - 4.8.3. Establishment of Critical Limits
  - 4.8.4. Establishment of Monitoring Procedures
  - 4.8.5. Implementation of Corrective Actions
  - 4.8.6. Establishment of Verification Procedures
  - 4.8.7. Record Keeping and Documentation System
- 4.9. Evaluation of the Efficiency of the Hazard and Critical Control Point Plan (HACCP) System
  - 4.9.1. Evaluation of the Efficiency of a CCP
  - 4.9.2. Overall Evaluation of the Efficiency of the HACCP Plan
  - 4.9.3. Use and Management of Records to Evaluate the Efficiency of the HACCP Plan
- 4.10. Hazard and Critical Control Point Plan (HACCP) System Variants Based on Risk Systems
  - 4.10.1. VACCP or Vulnerability Assessment and Critical Control Points (VACCP) Plan
  - 4.10.2. TACCP or Threat Assessment Critical Control Points (Threat Assessment Critical Control Points)
  - 4.10.3. HARPC or Hazard Analysis & Risk-Based Preventive Controls (HARPC)

## Module 5. Food Safety Certifications for the Food Industry

- 5.1. Principles of Certification
  - 5.1.1. The Certification Concept
  - 5.1.2. The Certifying Agencies
  - 5.1.3. General Outline of a Certification Process
  - 5.1.4. Management of a Certification and Re-certification Program
  - 5.1.5. Management System Before and After Certification
- 5.2. Good Practice Certifications
  - 5.2.1. Good Manufacturing Practice (GMP) certification
  - 5.2.2. The case of GMP for food supplements
  - 5.2.3. Certification of Good Practices for Primary Production
  - 5.2.4. Other Good Practice Programs (GxP)
- 5.3. ISO 17025 Certification
  - 5.3.1. The ISO Standards Scheme
  - 5.3.2. ISO 17025 System Overview
  - 5.3.3. ISO 17025 Certification
  - 5.3.4. The Role of ISO 17025 Certification in Food Safety Management
- 5.4. ISO 22000 Certification
  - 5.4.1. Medical history
  - 5.4.2. Structure of the ISO 22000 Standard
  - 5.4.3. Scope of ISO 22000 Certification
- 5.5. GFSI Initiative and the Global GAP and Global Markets Program
  - 5.5.1. The GFSI (Global Food Safety Initiative) Global Food Safety System
  - 5.5.2. Global GAP Program Structure
  - 5.5.3. Scope of Global GAP Certification
  - 5.5.4. Structure of the Global Markets Program
  - 5.5.5. Scope of the Global Markets Program Certification
  - 5.5.6. Relationship of Global GAP and Global Markets with Other Certifications
- 5.6. SQF Certification (Safe Quality Food)
  - 5.6.1. SQF Program Structure
  - 5.6.2. Scope of SQF Certification
  - 5.6.3. Relationship of SQF With Other Certifications



- 5.7. BRC Certification (British Retail Consortium)
  - 5.7.1. BRC Program Structure
  - 5.7.2. Scope of BRC Certification
  - 5.7.3. Relationship of BRC With Other Certifications
- 5.8. IFS Certification
  - 5.8.1. IFS Program Structure
  - 5.8.2. Scope of IFS Certification
  - 5.8.3. Relationship of IFS With Other Certifications
- 5.9. Certification FSSC 22000 (Food Safety System Certification 22000)
  - 5.9.1. Background of the FSSC 22000 Program
  - 5.9.2. FSSC 22000 Program Structure
  - 5.9.3. Scope of FSSC 22000 Certification
- 5.10. Food Defence Programs
  - 5.10.1. The Concept of Food Defence
  - 5.10.2. Scope of a Food Defence Program
  - 5.10.3. Tools and Programs for Implementing a Food Defence Program
- 6.5. Digitization of Pre-requisite Programs (PPR) in the Food Industry - Migration from Traditional to Digital Systems
  - 6.5.1. Primary Production Processes
    - 6.5.1.1. Good Hygiene Practices (GHP)
    - 6.5.1.2. Good Manufacturing Practices (GMP)
  - 6.5.2. Strategic Processes
  - 6.5.3. Operational Processes
  - 6.5.4. Support Processes
- 6.6. Platforms for Monitoring "Standard Operating Procedures (SOPs)"
  - 6.6.1. Training of Personnel in the Documentation of Specific SOPs
  - 6.6.2. Channels of Communication and Monitoring of SOP Documentation
- 6.7. Protocols for Document Management and Communication Between Departments
  - 6.7.1. Traceability Document Management
    - 6.7.1.1. Procurement Protocols
    - 6.7.1.2. Traceability of Raw Material Receipt Protocols
    - 6.7.1.3. Traceability of Warehouse Protocols
    - 6.7.1.4. Process Area Protocols
    - 6.7.1.5. Traceability of Hygiene Protocols
    - 6.7.1.6. Product Quality Protocols
  - 6.7.2. Implementation of Alternative Communication Channels
    - 6.7.2.1. Use of Storage Clouds and Restricted Access Folders
    - 6.7.2.2. Coding of Documents for Data Protection

## Module 6. Digitization of the Quality Management System

- 6.1. Quality Standards and Risk Analysis in the Food Industry
  - 6.1.1. Current Food Safety and Quality Standards
  - 6.1.2. Main Risk Factors in Food Products
- 6.2. The "Age of digitization" and Its Influence on Global Food Safety Systems
  - 6.2.1. Codex Alimentarius Global Food Safety Initiative
  - 6.2.2. Hazard Analysis and Critical Control Point (HACCP)
  - 6.2.3. ISO 22000
- 6.3. Commercial Software for Food Safety Management
  - 6.3.1. Use of Smart Devices
  - 6.3.2. Business Software for Specific Management Processes
- 6.4. Establishment of Digital Platforms for the Integration of a Team Responsible for the Development of the HACCP Program
  - 6.4.1. Stage 1. Preparation and Planning
  - 6.4.2. Stage 2. Implementation of Prerequisite Programs for Hazards and Critical Control Points of the HACCP program
  - 6.4.3. Stage 3. Execution of the Plan
  - 6.4.4. Stage 4. HACCP Verification and Maintenance
- 6.8. Digital Documentation and Protocols for Audits and Onspections
  - 6.8.1. Management of Internal Audits
  - 6.8.2. Record of Corrective Actions
  - 6.8.3. Application of the "Deming cycle"
  - 6.8.4. Management of Continuous Improvement Programs
- 6.9. Strategies for Proper Risk Communication
  - 6.9.1. Risk Management and Communication Protocols
  - 6.9.2. Effective Communication Strategies
  - 6.9.3. Public Information and Use of Social Networks
- 6.10. Case Studies of Digitization and Its Advantages in Reducing Risks in the Food Industry
  - 6.10.1. Food Safety Risks
  - 6.10.2. Food Fraud Risks
  - 6.10.3. Food Defence Risks

## Module 7. Validation of New Methodologies and Processes

- 7.1. Critical Control Points
  - 7.1.1. Significant Hazards
  - 7.1.2. Prerequisite Programs
  - 7.1.3. Critical Control Point Management Chart
- 7.2. Verification of a Self-Control System
  - 7.2.1. Internal Audits
  - 7.2.2. Review of Historical Records and Trends
  - 7.2.3. Customer Complaints
  - 7.2.4. Detection of Internal Incidents
- 7.3. Monitoring, Validation and Verification of Control Points
  - 7.3.1. Surveillance or Monitoring Techniques
  - 7.3.2. Validation of Controls
  - 7.3.3. Efficiency Verification
- 7.4. Validation of Processes and Methods
  - 7.4.1. Documentary Support
  - 7.4.2. Validation of Analytical Techniques
  - 7.4.3. Validation Sampling Plan
  - 7.4.4. Method Bias and Accuracy
  - 7.4.5. Determining Uncertainty
- 7.5. Validation Methods
  - 7.5.1. Method Validation Stages
  - 7.5.2. Types of Validation Processes, Approaches
  - 7.5.3. Validation Reports, Summary of Data Obtained
- 7.6. Incident and Deviation Management
  - 7.6.1. Formation of the Work Team
  - 7.6.2. Description of the Problem
  - 7.6.3. Root Cause Determination
  - 7.6.4. Corrective and Preventive Actions
  - 7.6.5. Efficiency Verification
- 7.7. Root Cause Analysis and Its Methods
  - 7.7.1. Causal Analysis: Qualitative Methods
    - 7.7.1.1. Tree Causes Root
    - 7.7.1.2. Why
    - 7.7.1.3. Cause Effect
    - 7.7.1.4. Ishikawa Diagram
  - 7.7.2. Cause Analysis: Quantitative Methods
    - 7.7.2.1. Data Collection Data Model
    - 7.7.2.2. Pareto Chart
    - 7.7.2.3. Scatter Plots
    - 7.7.2.4. Histograms
- 7.8. Claims Management
  - 7.8.1. Claim Data Collection
  - 7.8.2. Investigation and Action
  - 7.8.3. Preparation of Technical Report
  - 7.8.4. Claims Trend Analysis
- 7.9. Internal Audits of the Self-Control System
  - 7.9.1. Competent Auditors
  - 7.9.2. Audit Program and Plan
  - 7.9.3. Scope of the Audit
  - 7.9.4. Reference Documents
- 7.10. Execution of Internal Audits
  - 7.10.1. Opening Meeting
  - 7.10.2. System Evaluation
  - 7.10.3. Deviations from Internal Audits
  - 7.10.4. Closing Meeting
  - 7.10.5. Evaluation and Monitoring of the Effectiveness of Deviation Closure



## Module 8. R&D&I of Novel Foods and Ingredients

- 8.1. New Trends in Food Product Processing
  - 8.1.1. Design of Functional Foods Aimed at Improving Specific Physiological Functions
  - 8.1.2. Innovation and New Trends in the Design of Functional Foods and Nutraceuticals
- 8.2. Technologies and Tools for Isolation, Enrichment, and Purification of Functional Ingredients from Different Starting Materials
  - 8.2.1. Chemical Properties
  - 8.2.2. Sensory Properties
- 8.3. Procedures and Equipment for the Incorporation of Functional Ingredients into the Base Feed
  - 8.3.1. Formulation of Functional Foods According to Their Chemical and Sensory Properties, Caloric Value, etc.
  - 8.3.2. Stabilization of Bioactive Ingredients from Formulation
  - 8.3.3. Dosage
- 8.4. Gastronomy Research
  - 8.4.1. Texture
  - 8.4.2. Viscosity and Flavor. Thickeners Used in Nouvelle Cuisine
  - 8.4.3. Gelling Agents
  - 8.4.4. Emulsions
- 8.5. Innovation and New Trends in the Design of Functional Foods and Nutraceuticals
  - 8.5.1. Design of Functional Foods Aimed at Improving Specific Physiological Functions
  - 8.5.2. Practical Applications of Functional Food Design
- 8.6. Specific Formulation of Bioactive Compounds
  - 8.6.1. Flavonoid Transformation in the Formulation of Functional Foods
  - 8.6.2. Bioavailability Studies of Phenolic Compounds
  - 8.6.3. Antioxidants in the Formulation of Functional Foods
  - 8.6.4. Preservation of Antioxidant Stability in Functional Food Design
- 8.7. Design of Low-Sugar and Low-Fat Products
  - 8.7.1. Development of Low-Sugar Products
  - 8.7.2. Low fat Products
  - 8.7.3. Strategies for the Synthesis of Structured Lipids

- 8.8. Processes for the Development of New Food Ingredients
  - 8.8.1. Advanced Processes for Obtaining Food Ingredients with Industrial Application: Micronization and Microencapsulation Technologies
  - 8.8.2. Supercritical and Clean Technologies
  - 8.8.3. Enzymatic Technology for the Production of Novel Food Ingredients
  - 8.8.4. Biotechnological Production of Novel Food Ingredients
- 8.9. New Food Ingredients of Plant and Animal Origin
  - 8.9.1. Trends in R&D&I Developments in New Ingredients
  - 8.9.2. Applications of Plant-Based Ingredients
  - 8.9.3. Applications of Ingredients of Animal Origin
- 8.10. Research and Improvement of Labeling and Preservation Systems
  - 8.10.1. Labeling Requirements
  - 8.10.2. New Conservation Systems
  - 8.10.3. Validation of Health Claims

## Module 9. Development, Coordination and Execution of R&D&I Projects

- 9.1. Innovation and Competitiveness in the Food Industry
  - 9.1.1. Analysis of the Food Sector
  - 9.1.2. Innovation in Processes, Products and Management
  - 9.1.3. Regulatory Conditions for the Marketing of Novel Foods
- 9.2. R+D+I Projects
  - 9.2.1. R&D&I Aid Programs
  - 9.2.2. Types of Projects
  - 9.2.3. Types of Financing
  - 9.2.4. Project Evaluation, Monitoring and Control
- 9.3. Scientific and Technological Production
  - 9.3.1. Publication, Dissemination and Diffusion of Research Results
  - 9.3.2. Basic Research/Applied Research
  - 9.3.3. Private Sources of Information

- 9.4. Technology Transfer
  - 9.4.1. Protection of Industrial Property. Patents
  - 9.4.2. Regulatory Constraints on Transfers in the Food Sector
  - 9.4.3. European Food Safety Authority (EFSA)
  - 9.4.4. Food and Drug Administration (FDA)
- 9.5. Planning of R&D&I Projects
  - 9.5.1. Work Decomposition Scheme
  - 9.5.2. Resource Allocation
  - 9.5.3. Priority of Tasks
  - 9.5.4. Gantt Chart Method
  - 9.5.5. Digitally Supported Planning Methods and Systems
- 9.6. Documentary Development of R&D&I Projects
  - 9.6.1. Prior Studies
  - 9.6.2. Delivery of Progress Reports
  - 9.6.3. Development of the Project Report
- 9.7. Project Execution
  - 9.7.1. Checklist
  - 9.7.2. Deliverables
  - 9.7.3. Project Progress Control
- 9.8. Project Delivery and Validation
  - 9.8.1. ISO Standards for the Management of R&D&I Projects
  - 9.8.2. Completion of the Project Phase
  - 9.8.3. Analysis of Results and Feasibility
- 9.9. Implementation of R&D&I Projects Developed by the Company
  - 9.9.1. Purchase Management
  - 9.9.2. Supplier Validation
  - 9.9.3. Project Validation and Verification





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*A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"*



06

# Methodology

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

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







“

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

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program 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.





07

# Certificate

The Professional Master's Degree in Veterinary Food Safety guarantees, in addition to the most rigorous and up-to-date training, access to a Professional Master's Degree issued by TECH Technological University.





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*Successfully complete this training  
and receive your university degree  
without travel or laborious paperwork”*

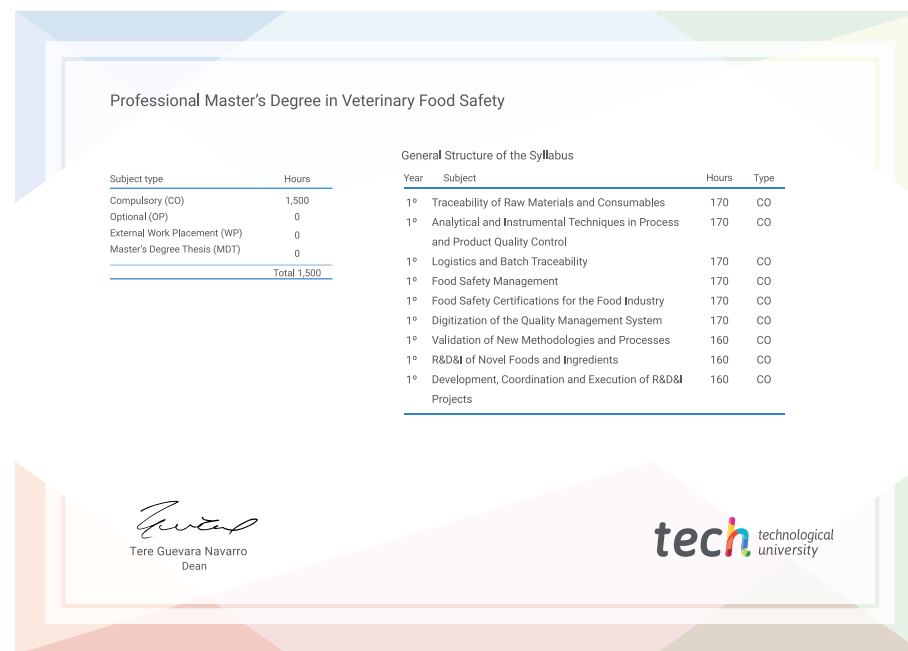
This **Professional Master's Degree in Veterinary Food Safety** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Professional Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Professional Master's Degree in Veterinary Food Safety**

Official N° of hours: **1,500 h.**



\*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.

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



## Professional Master's Degree

Veterinary Food Safety

Course Modality: Online

Duration: 12 months

Certificate: TECH Technological University

Official N° of hours: 1,500 h.

# Professional Master's Degree Veterinary Food Safety

