# Postgraduate Diploma
## Evaluation of the Organoleptic Quality of Foods

**tech** global university

# tech global university

## Postgraduate Diploma
Evaluation of the
Organoleptic Quality
of Foods

- » Modality: **online**
- » Duration: **6 months**
- » Certificate: **TECH Global University**
- » Credits: **18 ECTS**
- » Schedule: **at your own pace**
- » Exams: **online**

Website: **www.techtitute.com/us/nutrition/postgraduate-diploma/postgraduate-diploma-evaluation-organoleptic-quality-foods**

# Index

# 01
# Introduction

It is scientifically proven that "we eat through our eyes", although other senses such as taste, touch or smell also influence the choice of a certain product. All this information is known at first hand by the food industry, which carries out organoleptic quality controls on its products, enabling them to differentiate themselves from other competitors. Analyses unknown to consumers, but of great interest to nutrition professionals who want to be aware of the latest developments in this field. Thus, this 100% online program, which will take the graduates to deepen over 6 months in the most recent scientific studies on the microbiology of food, their chemical or biochemical reactions and evaluation systems used in the present. All this with an updated content and elaborated by specialists in food technology.

*Thanks to this 100% online Postgraduate Diploma, you will be able to combine your work with an education that brings you closer to the latest developments in the field of food Organoleptics"*

The use of certain raw materials, the choice of additives or simply determining the long-term flavor of a food is determined by the results obtained through organoleptic evaluation. An analysis that makes the difference between the products that manufacturers launch on the market and those that the consumer finally chooses.

The human senses are key in this choice, so the knowledge of the professional nutritionists is essential to advise with their knowledge to companies in the sector or to establish the most attractive and healthy nutritional programs for their patients. A double aspect highly valued in recent years, which require a constant updating of knowledge. That is why TECH has designed this Postgraduate Diploma in Evaluation of the Organoleptic Quality of Foods, which will provide you with the latest information in this field.

To do this, the specialists have the most attractive and innovative content on the latest techniques used in food microbiology, microbiological analysis of food, the technological importance of water in industrial processes or advances in management systems, control and quality of products. The video summaries, detailed videos, diagrams or complementary readings will help students to enter in a much more dynamic way in this study plan developed by specialists in the field.

TECH offers the professional an opportunity to study a flexible university program that can be accessed at any time of the day from a computer or tablet with an Internet connection. In addition, the Relearning system will allow you to advance through the content in a much more natural way and even reduce the long hours of study.

This **Postgraduate Diploma in Evaluation of the Organoleptic Quality of Foods** 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 Food Technology

◆ Graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice

◆ Practical exercises where self-assessment can be used to improve learning

◆ Its special emphasis on innovative methodologies

◆ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments

◆ Content that is accessible from any fixed or portable device with an Internet connection

*TECH offers you the most advanced and innovative knowledge on the detection of fraud and adulteration of food products"*

"

*Delve whenever you want, from your computer, into the latest scientific evidence on the benefits of microorganisms in food"*

*An academic option with which you can delve into the current methods used for quality control and food authenticity.*

*A 100% online qualification that will take you in just 6 months to be up to date on Evaluation of the Organoleptic Quality of Foods.*

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

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

The design of this program focuses on Problem-Based Learning, by means of which the professionals must try to solve the different professional practice situations that are presented throughout the academic course. For this purpose, the students will be assisted by an innovative interactive video system created by renowned experts.

## 02
# Objectives

During the 6 months of this Postgraduate Diploma, the Nutrition professionals will receive the most relevant and current knowledge on the Evaluation of the Organoleptic Quality of Foods. This will allow them to be updated on the latest scientific evidence on the use of microorganisms in the field of food, the most recent technological processes used in the analysis of products or progress in quality control. In order to achieve these goals, they also have specialists in the field, who will solve any doubts that may arise about the syllabus.

*With this university qualification you will be aware of the latest techniques used for the evaluation and processing of foodstuffs"*

## General Objectives

- Know the mechanisms of food preservation and know how to prevent microbial spoilage of food
- Know how to identify and differentiate the main elements causing foodborne pathologies: microorganisms, toxins, viruses and parasites
- Understand the basis and principles of the methods used for quality control and authenticity of foods
- Identify the most important elements of a microbiology laboratory

*Thanks to this Postgraduate Diploma you will be up to date with the latest studies on the incorporation of additives to improve food texture"*
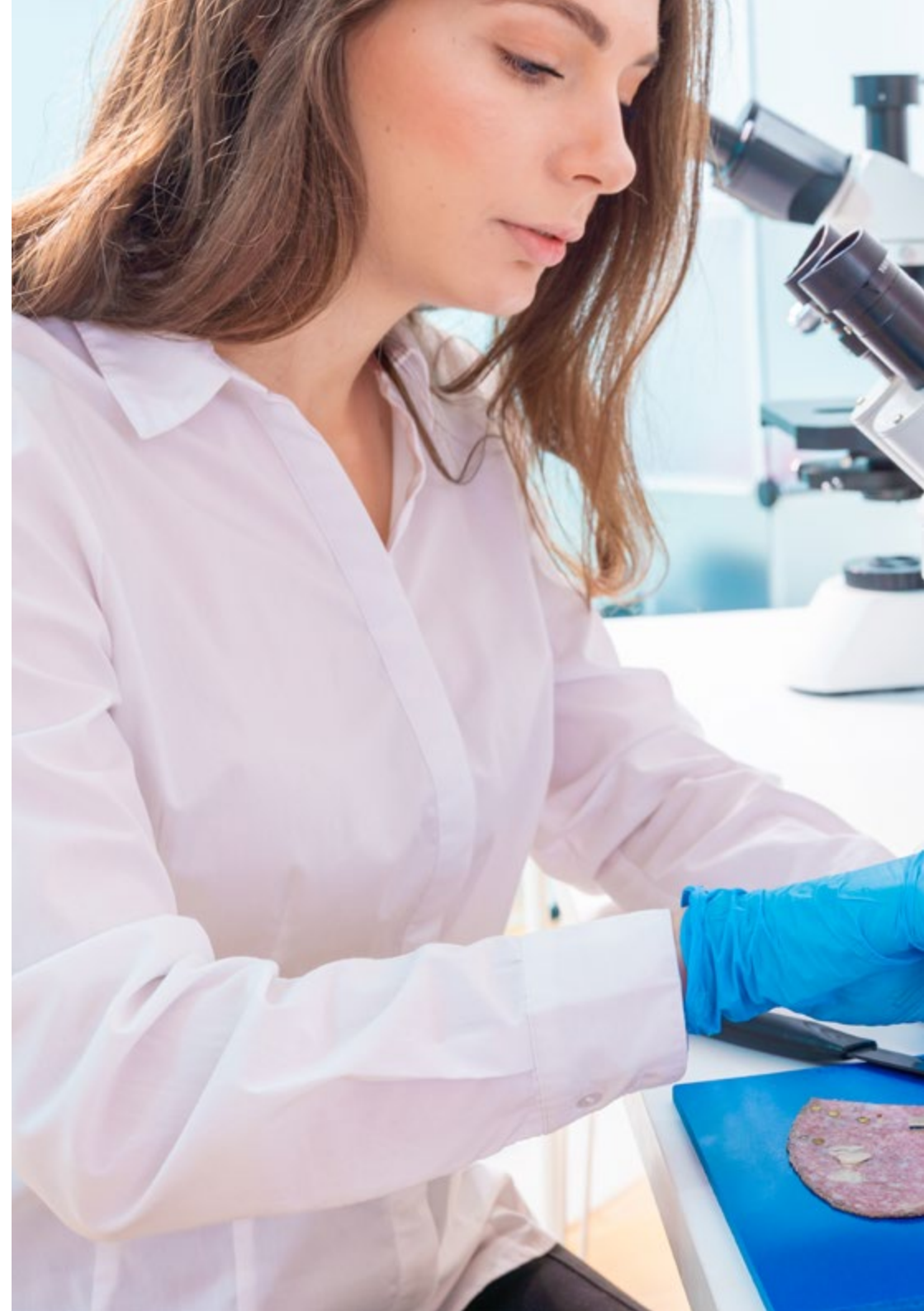
## Specific Objectives

### Module 1. Microbiology and Food Hygiene
- To know the main tranformative, pathogenic and beneficial microorganisms in food
- Establish the beneficial effects of microorganisms in the food field
- Identify and understand the most important elements of a microbiology laboratory
- Apply techniques for the detection of microorganisms in food

### Module 2. Food Biochemistry and Chemical
- Know, understand and use the principles of chemical and biochemical reactions of foods in an appropriate professional context
- Identify and use the principles of food components and their physicochemical, nutritional, functional and sensory properties
- Acquire skills and abilities in food analysis
- Ability to identify the problems associated with different foods and their processing, the different technological processes together with the transformations that the products may undergo during these processes

### Module 3. Analysis and Quality Control
- Recognize food components and their physicochemical, nutritional, functional and sensory properties
- Acquire and apply skills and abilities in food analysis during professional practice
- Develop and apply quality control and traceability mechanisms in the food chain
- Design and develop experimental tests to evaluate food and food processes

# 03
# Structure and Content

This Postgraduate Diploma has been designed to offer the specialist the latest scientific evidence on beneficial microorganisms in food, the advances in the techniques used for food analysis, as well as the use of additives in the improvement of food texture. All this, in addition, taking into account the safety and hygiene measures implemented in the sector. The multimedia content and case studies, elaborated by specialists in this field, will be very useful in this process of updating knowledge.

*The Relearning system, based on the reiteration of content, allows you to flow in a much more natural way through the microbiology and food hygiene of this program"*

## Module 1. Microbiology and Food Hygiene

1.1. Introduction to Food Microbiology
- 1.1.1. History of Food Microbiology
- 1.1.2. Microbial Diversity: Archaea and Bacteria
- 1.1.3. Phylogenetic Relationships Among Living Organisms
- 1.1.4. Microbial Classification and Nomenclature
- 1.1.5. Eukaryotic Microorganisms: Algae, Fungi and Protozoa
- 1.1.6. Virus

1.2. Introduction to Food Microbiology
- 1.2.1. Sterilization and Asepsis Methods
- 1.2.2. Culture Mediums: Liquid and Solid, Synthetic or Defined, Complex, Differential and Selective
- 1.2.3. Isolation of Pure Cultures
- 1.2.4. Microbial Growth in Discontinuous and Continuous Cultures
- 1.2.5. Influence of Environmental Factors on Growth
- 1.2.6. Optical Microscopy
- 1.2.7. Sample Preparation and Staining
- 1.2.8. Fluorescence Microscope
- 1.2.9. Transmission and Scanning Electron Microscopy

1.3. Microbial Metabolism
- 1.3.1. Ways of Obtaining Energy
- 1.3.2. Phototrophic, Chemolithotrophic and Chemorganotrophic microorganisms
- 1.3.3. Carbohydrate Catabolism
- 1.3.4. Degradation of Glucose to Pyruvate (Glycolysis, Pentose Phosphate Pathway and Entner-Doudoroff Pathway)
- 1.3.5. Lipid and Protein Catabolism
- 1.3.6. Fermentation
- 1.3.7. Types of Fermentation
- 1.3.8. Respiratory Metabolism: Aerobic Respiration and Anaerobic Respiration

1.4. Microbial Food Alterations
- 1.4.1. Microbial Ecology of Foods
- 1.4.2. Sources of Contamination of Vegetable Foods
- 1.4.3. Fecal Contamination and Cross Contamination
- 1.4.4. Factors Influencing Microbial Alteration
- 1.4.5. Microbial Metabolism in Food
- 1.4.6. Alteration Control and Preservation Methods

1.5. Foodborne Diseases of Microbial Origin
- 1.5.1. Foodborne Infections: Transmission and Epidemiology
- 1.5.2. Salmonellosis
- 1.5.3. Typhoid and Paratyphoid Fever
- 1.5.4. *Campylobacter* Enteritis
- 1.5.5. Bacillary Dysentery
- 1.5.6. Diarrhea Caused by Virulent *E. coli* Strains
- 1.5.7. Yersiniosis
- 1.5.8. Vibrio Infections

1.6. Diseases Caused by Foodborne Protozoa and Helminths
- 1.6.1. General Characteristics of Protozoa
- 1.6.2. Amoebic Dysentery
- 1.6.3. Giardiasis
- 1.6.4. Toxoplasmosis
- 1.6.5. Cryptosporidiosis
- 1.6.6. Microsporidiosis
- 1.6.7. Food-borne Helminths: Flatworms and Roundworms

1.7.    Viruses, Prions and Other Foodborne Biohazards

1.7.1.    General Properties of Viruses

1.7.2.    Composition and Structure of the Virion: Capsid and Nucleic Acid

1.7.3.    Virus Growth and Cultivation

1.7.4.    Virus Life Cycle ( Lytic Cycle): Phases of Adsorption, Penetration, Gene Expression and Replication, and Release

1.7.5.    Alternatives to the Lytic Cycle: Lysogeny in Bacteriophages, Latent Infections, Persistent Infections and Tumor Transformation in Animal Viruses

1.7.6.    Viroids, Virusoids and Prions

1.7.7.    Incidence of Foodborne Viruses

1.7.8.    Characteristics of Foodborne Viruses

1.7.9.    Hepatitis A

1.7.10.    Rotavirus

1.7.11.    Scombroid Poisoning

1.8.    Microbiological Analysis of Food

1.8.1.    Sampling and Sampling Techniques

1.8.2.    Reference Values

1.8.3.    Indicator Microorganisms

1.8.4.    Microbiological Counts

1.8.5.    Determination of Pathogenic Microorganisms

1.8.6.    Rapid Detection Techniques in Food Microbiology

1.8.7.    Molecular Techniques: Conventional PCR and real-time PCR

1.8.8.    Immunological Techniques

1.9.    Beneficial Microorganisms in Food

1.9.1.    Food Fermentation: The Role of Microorganisms in the Production of Foodstuffs

1.9.2.    Microorganisms as Food Supplements

1.9.3.    Natural Preservatives

1.9.4.    Biological Systems of Food Conservation

1.9.5.    Probiotic Bacteria

1.10.    Microbial Cell biological

1.10.1.    General Characteristics of Eukaryotic and Prokaryotic Cells

1.10.2.    The Prokaryotic Cell: Components Outside the Cell Wall: Glycocalyx and S-layer, Cell Wall, Plasma Membrane

1.10.3.    Flagella, Bacterial Mobility and Taxia

1.10.4.    Other Surface Structures, Fimbriae and Pilli

## Module 2. Food Biochemistry and Chemical

2.1.    Water in food

2.1.1.    Importance of water in food

2.1.1.1. Molecular structure and physicochemical properties

2.1.1.2. Concept of water activity

2.1.2.    Methods for determining water activity

2.1.3.    Sorption isotherms

2.1.4.    Molecular mobility of water

2.1.5.    State diagrams: phase transition in foodstuffs

2.1.6.    Technological importance of water in industrial processes

2.2.    Functional properties of carbohydrates

2.2.1.    Characteristics of carbohydrates in foods

2.2.2.    Functional properties of mono- and oligosaccharides

2.2.3.    Structure and properties of polysaccharides

2.2.3.1. Formation and stability of starch gels

2.2.3.2. Factors influencing the formation of starch gels

2.3.    Structural polysaccharides and their functions in foodstuffs

2.3.1.    Pectins Cellulose and other cell wall components

2.3.2.    Polysaccharides from marine algae

2.4.    Non-enzymatic and enzymatic browning

2.4.1.    General characteristics of non-enzymatic browning

2.4.2.    Non-enzymatic browning reactions

2.4.3.    Caramelization and Maillard's reaction

2.4.4.    Mechanisms and control of non-enzymatic browning

2.4.5.    Enzymatic browning reactions and measures to control it

2.5.    Carbohydrates in fruits and vegetables

2.5.1.    Metabolism of fruits and vegetables

2.5.2.    Biochemical reactions of carbohydrates in fruits and vegetables

2.5.3.    Control of post-harvest conditions: post-harvest treatment

2.6.    Functional properties of lipids

2.6.1.    Characteristics of food lipids

2.6.2.    Functional properties of lipids: formation of crystals and melting

2.6.3.    Formation and breaking of emulsions

2.6.4.    Functions of emulsifiers and HLB value

2.7.    Lipid modifications in foods

    2.7.1.    Main lipid modification reactions

        2.7.1.1. Lipolysis

        2.7.1.2. Autooxidation

        2.7.1.3. Enzymatic rancidity

        2.7.1.4. Chemical modifications of frying

    2.7.2.    Physico-chemical treatments of lipid modification

        2.7.2.1. Hydrogenation

        2.7.2.2. Transesterification

        2.7.2.3. Fractionation

2.8.    Functional properties of proteins and enzymes in food

    2.8.1.    Amino acid characteristics and protein structure in foodstuffs

    2.8.2.    Types of bonds in proteins. Functional properties

    2.8.3.    Effect of treatments on protein systems in breads, meats and milk

    2.8.4.    Types of food enzymes and applications

    2.8.5.    Immobilized enzymes and their use in the food industry

2.9.    Pigments present in food

    2.9.1.    General characteristics on food

    2.9.2.    Chemistry and biochemistry of myoglobin and hemoglobin

    2.9.3.    Effect of storage processing on meat color

    2.9.4.    Effect of processing on chlorophylls

    2.9.5.    Structure of carotenoids and anthocyanins

    2.9.6.    Color modifications in anthocyanins and chemical reactions involving them

    2.9.7.    Flavonoids

2.10.    General aspects of food additives

    2.10.1.    General concept of food additive

    2.10.2.    Criteria for the use of additives. Labeling of additives

    2.10.3.    Shelf-life extending additives

        2.10.3.1. Preservatives: sulfites and derivatives, nitrites, organic acids and derivatives, and antibiotics

    2.10.4.    Antioxidants and their characteristics

    2.10.5.    Additives that improve texture: Thickeners, gelling agents and stabilizers. Anti-caking agents. Flour treatment agents

## Module 3. Analysis and Quality Control

3.1.    Introduction to food analysis and control

    3.1.1.    Food quality. Concept of quality and its evaluation

    3.1.2.    Main food quality attributes

    3.1.3.    Quality Standards

    3.1.4.    Alterations in food quality

        3.1.4.1. Physical alterations

        3.1.4.2. Chemical alterations

        3.1.4.3. Biological alterations

    3.1.5.    Fraud and adulteration

3.2.    Food quality control techniques I

    3.2.1.    Food quality control. Concept. Traceability in quality control

    3.2.2.    Quality management, control and assurance systems

    3.2.3.    Statistical Methods Applied to Quality Control

    3.2.4.    Acceptance control at reception. Statistical Process Control

3.3.    Techniques in quality control II

    3.3.1.    Charts for quality control by variables and attributes

    3.3.2.    Quality assurance of final product

    3.3.3.    Bases and principles of the methods used for quality control and food authenticity

    3.3.4.    Molecular biology and immunology techniques

    3.3.5.    Compositional analysis. Sensory Analysis of Foods

3.4.    Food quality assessment I

    3.4.1.    Water content of foods. Importance of water in foods

        3.4.1.1. Analytical methods for water content determination

        3.4.1.2. Concept of water activity and its importance in foods

        3.4.1.3. Analytical methods for the determination of water activity

    3.4.2.    Carbohydrate content of foods. Carbohydrates in foods

        3.4.2.1. Importance of carbohydrates in foods

        3.4.2.2. Analytical methods for the determination of carbohydrates

    3.4.3.    Content of nitrogen compounds in foods. Nitrogen compounds in foods

        3.4.3.1. Importance of nitrogen compounds in foods

        3.4.3.2. Analytical methods for the determination of nitrogen compounds

*A university program that will show you the latest requirements for the food sector in the quality control of fruits and vegetables or the detection of transgenic corn"*

# 04
# 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.
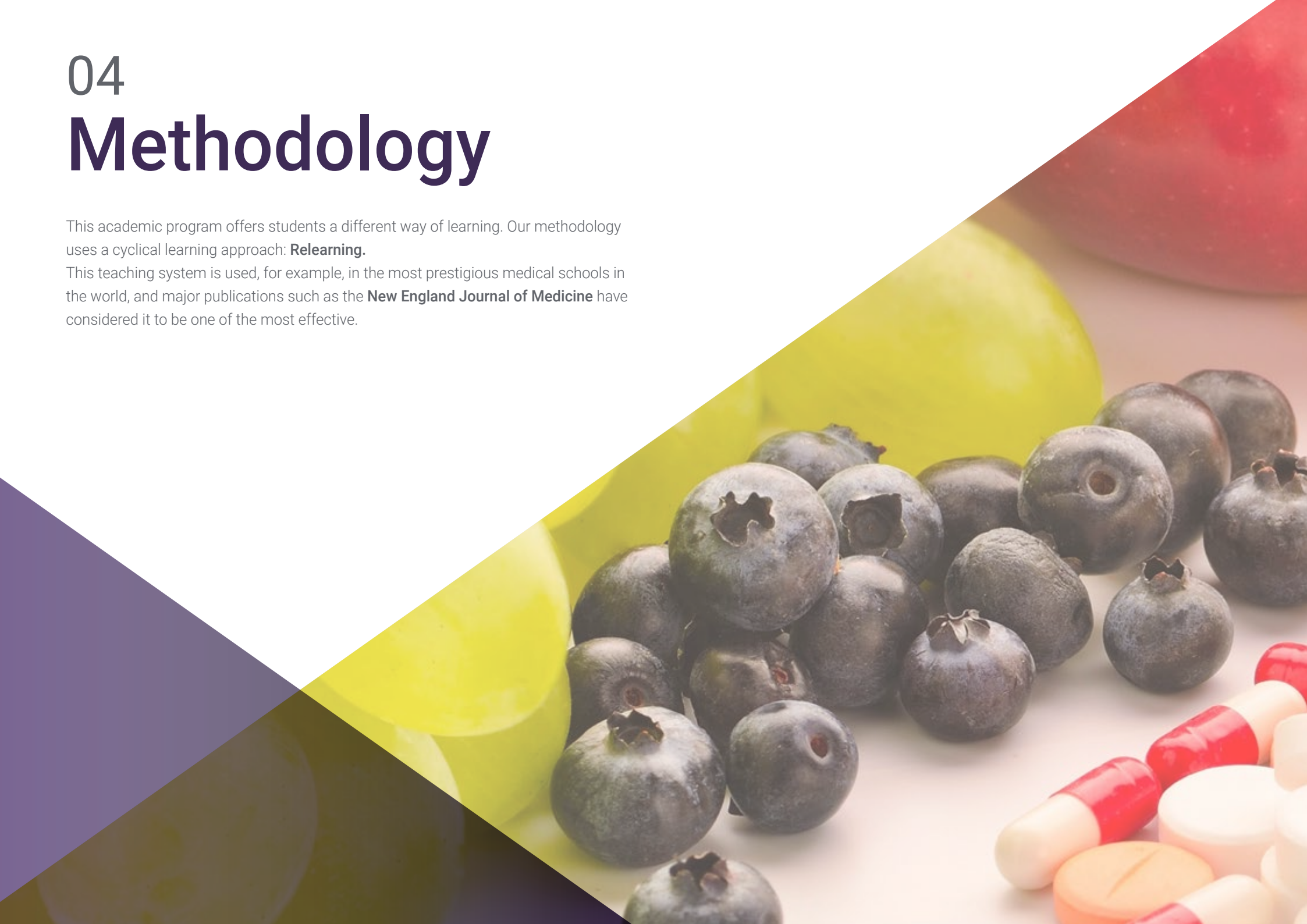
> "*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization*"

## At TECH we use the Case Method

In a given situation, what should a professional do? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH, nutritionists can 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, trying to recreate the real conditions of professional nutritional 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. Nutritionists who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.

2. Learning is solidly translated into practical skills that allow the nutritionist to better integrate knowledge into clinical practice.

3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.

4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.

## Relearning Methodology

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

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

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



01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

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 45,000 nutritionists have been trained with unprecedented success in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong 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.

### Nutrition Techniques and Procedures on Video

TECH brings students closer to the latest techniques, the latest educational advances and to the forefront of current nutritional counselling techniques and procedures. 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".
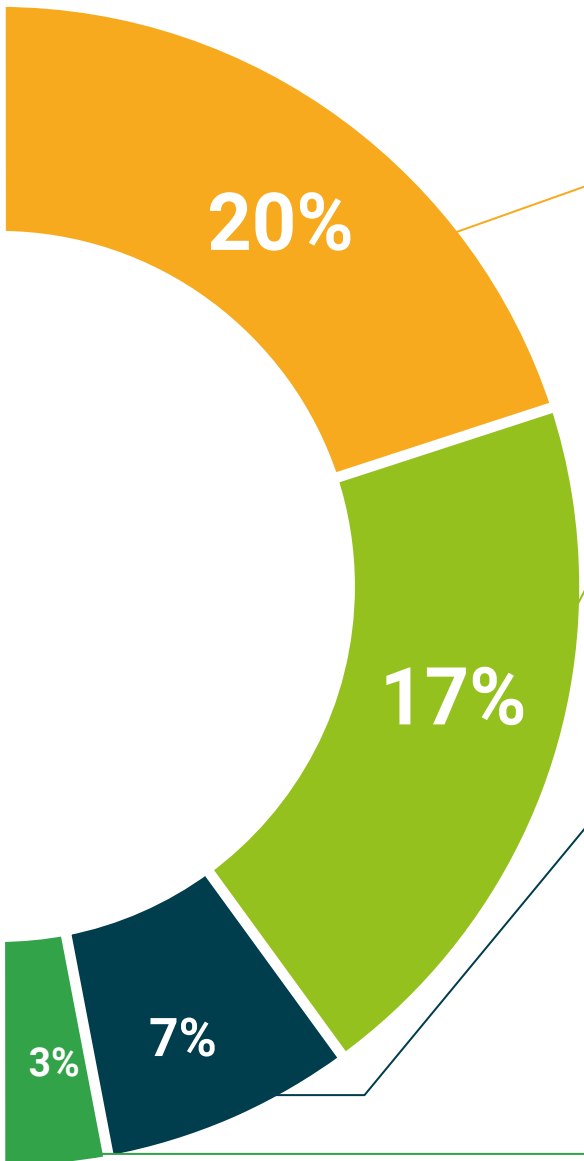
### Additional Reading

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.

**20%**

**15%**

**15%**

**3%**

**20%**

**17%**

**7%**

**3%**
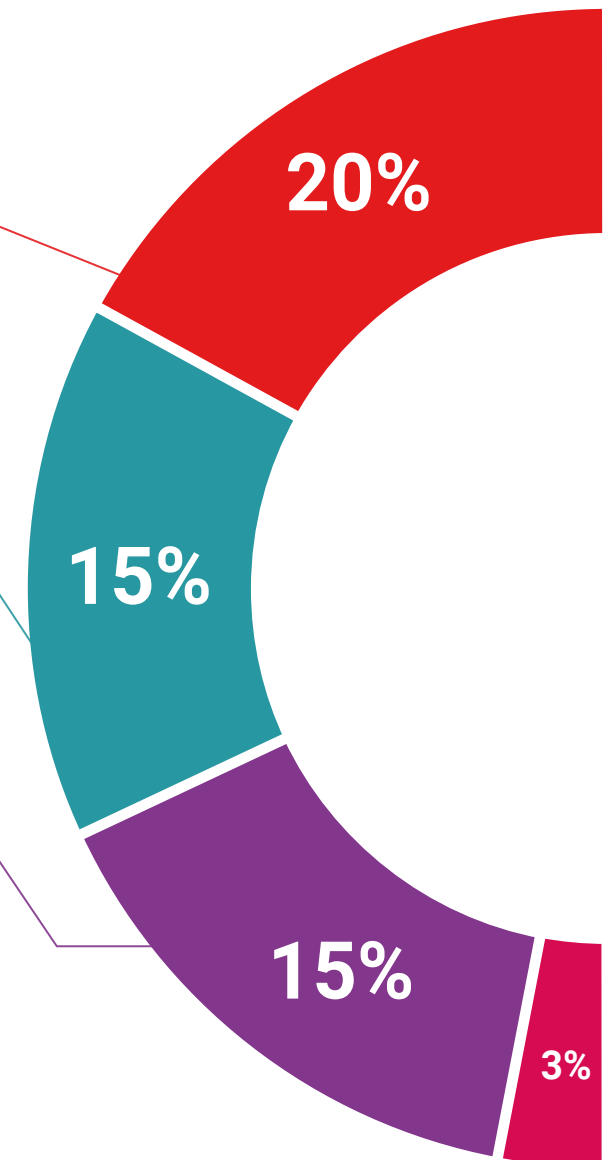
### Expert-Led Case Studies and Case Analysis

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.

# Certificate

The Postgraduate Diploma in Evaluation of the Organoleptic Quality of Foods guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Diploma issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Diploma in Evaluation of the Organoleptic Quality of Foods** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra (*official bulletin*). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Diploma in Evaluation of the Organoleptic Quality of Foods**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**

tech global university

Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

**Postgraduate Diploma in Evaluation of the Organoleptic Quality of Foods**

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

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 diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

## Postgraduate Diploma
### Evaluation of the Organoleptic Quality of Foods

» Modality: **online**
» Duration: **6 months**
» Certificate: **TECH Global University**
» Credits: **18 ECTS**
» Schedule: **at your own pace**
» Exams: **online**

# Postgraduate Diploma
## Evaluation of the Organoleptic Quality of Foods

tech global university