

# Postgraduate Certificate

## Animal Nutrition and Feeding





## Postgraduate Certificate Animal Nutrition and Feeding

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

Website: [www.techtute.com/us/nutrition/postgraduate-certificate/animal-nutrition-feeding](http://www.techtute.com/us/nutrition/postgraduate-certificate/animal-nutrition-feeding)

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# 01

# Introduction

With an innovative format, this training allows nutritionists to develop autonomous learning and optimal management of their time in animal Animal Nutrition and Feeding.

A unique program, designed by professionals in the sector, which stands out for its high scientific rigor.





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*Become one of the most demanded professionals of the moment: Educate yourself yourself with our Postgraduate Certificate in Animal Nutrition and Feeding”*

This Postgraduate Certificate in Animal Nutrition and Feeding is unique given its level of specialization and the logical sequence of learning with which the content is ordered.

The study of animal nutrition is based on two fundamental pillars: animals and food. Therefore, nutrition is conceived as a set of interrelated phenomena through which a living organism assimilates food and uses it to carry out different processes, such as growing, repairing and maintaining tissues or manufacturing products.

This Postgraduate Certificate is designed for professional nutritionists to update and improve their technical and practical knowledge in this sector. A complete and effective Postgraduate Certificate that will propel The to the highest level of skill.

An ambitious, broad, structured and intertwined proposal, which covers everything from the fundamental and relevant principles of nutrition to the manufacture of food. All this with the characteristics of a Postgraduate Certificate of high scientific, teaching and technological level.



*Join the elite with this highly effective educational program and open new paths to your professional progress"*

This **Postgraduate Certificate in Animal Nutrition and Feeding** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The latest technology in online teaching software
- A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- Practical cases presented by practising experts
- State-of-the-art interactive video systems
- Teaching supported by telepractice
- Continuous updating and recycling systems
- Autonomous learning: full compatibility with other occupations
- Practical exercises for self-assessment and learning verification
- Support groups and educational synergies: questions to the expert, debate and knowledge forums
- Communication with the teacher and individual reflection work
- Content that is accessible from any fixed or portable device with an Internet connection
- Supplementary documentation databases are permanently available, even after the course

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*A Postgraduate Certificate that will enable you to work in the sectors of food production for or with animal origin, with the solvency of a high-level professional”*

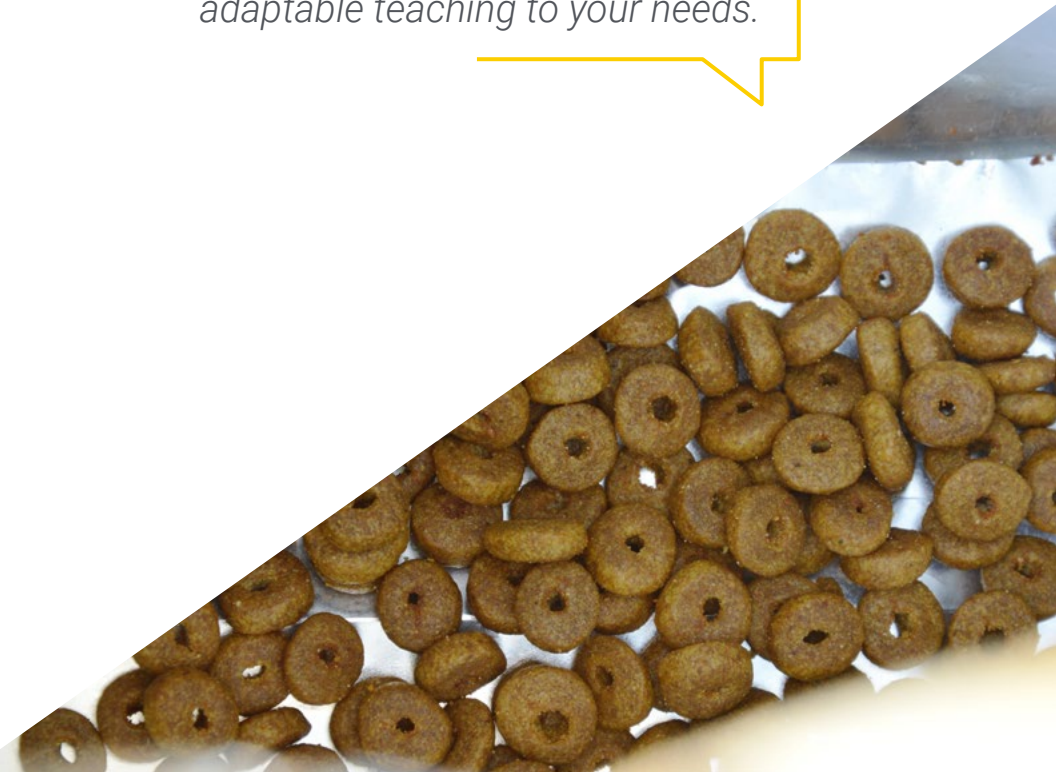
TECH's teaching staff is made up of professionals from different fields related to this specialty. That way, TECH ensures to offer students the educational program and updating intended. A multidisciplinary team of professionals trained and experienced in different environments, who will cover the theoretical knowledge in an efficient way, but, above all, will bring the practical knowledge from their own experience to the course: one of the differential qualities of this program.

This mastery of the subject is complemented by the effectiveness of the methodological design of this Postgraduate Certificate. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. In this way, our students will be able to study with a range of convenient and versatile multimedia tools that will give them the operability they need during the program.

The design of this program is based on Problem-Based Learning: an approach that views learning as a highly practical process. To achieve this remotely, telepractice will be used: with the help of an innovative system of interactive videos, and Learning from an Expert they will be able to acquire the knowledge as if they were facing the case they are learning in real time. A concept that will allow students to integrate and memorize what they have learnt in a more realistic and permanent way.

*You will be able to download all the content to any electronic device from the Virtual Campus and consult it whenever you need it, even without an Internet connection.*

*TECH seeks to project your professional career without neglecting other areas of your life, so it offers a flexible and adaptable teaching to your needs.*



# 02 Objectives

The objective is to enable highly qualified professionals for work experience. This objective is complemented, moreover, in a global manner, by the promotion of a human development that lays the foundations for a better society. This objective is materialized in helping medical professionals to access a much higher level of competence and control. A goal you will easily achieve with a course of high intensity and precision.





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*If your goal is to reorient your capacity towards new paths of success and development, this is the course for you: a program that aspires to excellence"*



## General Objectives

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- Determine the properties, use and metabolic transformations of nutrients in relation to the nutritional needs of an animal
- Provide clear and practical tools so that the professional can identify and classify the different foods that are available in the region and have better elements of judgment to make the most appropriate decision in terms of differential costs, etc
- Propose a series of technical arguments which allow for a better quality of diet and nutrition and therefore, improve the end produce (meat or milk)
- Analyze the different raw material components with both positive and negative effects on Animals. Nutrition and how animals use them for the production of animal protein
- Identify and understand the different levels of digestibility for each of the various nutritional components according to their origin
- To analyze the key aspects for the design and creation of diets (food) aimed at achieving the maximum utilization of nutrients by animals intended for animal protein production
- Provide specialized training on the nutritional requirements for the two main species of pigs to be used in animal protein production
- Develop specialized understanding of the nutritional requirements of the porcine species and the different feeding strategies needed in order to guarantee that they reach the expected welfare and production standards according to their production stage
- Provide practical, theoretical and specialized knowledge on the physiology of canine and feline digestive systems
- Analyze the digestive system of ruminants and their particular way of assimilating nutrients from fiber-rich foods
- Analyze the main additive groups used in the food production industry, focused on ensuring the quality and performance of different food products
- Analyze, in a clear way, how the complete animal feed manufacturing process is developed: the phases and processes which feed undergoes to guarantee its nutritional composition, quality and safety



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



## Specific Objectives

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- ◆ Develop the most relevant concepts of Animal Nutrition and Feeding
- ◆ Determine how digestive systems are formed and the differences between animal species (monogastrics and ruminants)
- ◆ Analyze the functionality, metabolism and differences between the digestive systems of different species
- ◆ Establish the different nutritional components of the raw materials used in food production and their function within animal nutrition
- ◆ Determine how the nutrients are used by different animal species
- ◆ Compare and contrast the digestive systems of the main species of zotechnical interest
- ◆ Identify the different nutritional components of the raw materials used in feed production and their function within animal nutrition
- ◆ Examine the analyses used to determine the composition of different feeds
- ◆ Develop the variables and units used to estimate the nutritional intake and requirements
- ◆ Determine how to measure the energy content of foods and their expressions

03

# Course Management

Within the concept of total quality of the Postgraduate Certificate, TECH is proud to offer you a teaching staff of the highest level, chosen for their proven experience. Professionals from different areas and fields of expertise that make up a complete multidisciplinary team. A unique opportunity to learn from the best.





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*Take the step to get up to date on the latest developments in Animal Nutrition and Feeding"*

## Management



### Dr. Cuello Ocampo, Carlos Julio

- ♦ Technical Director at Huvepharma in Latin America
- ♦ Degree in Veterinary Medicine from the National University of Colombia
- ♦ Professional Master's Degree in Animal Production with emphasis on Monogastric Nutrition at the Universidad Nacional de Colombia
- ♦ Postgraduate Certificate in Ration Formulation for Productive Species at the University of Applied and Environmental Sciences UDCA

## Professors

### Dr. Fernández Mayer, Aníbal Enrique

- ♦ Academic researcher at the Institute of Animal Science of the University of Havana (INTA)
- ♦ Specialist and Private Advisor in Milk Production
- ♦ Technician Specialized in Animal Production at the Bordenave Agricultural Experimental Station
- ♦ Agricultural Engineer from the University of Nacional de la Plata
- ♦ Veterinary Doctor from the La Habana Agricultural University

### Mr. Ordoñez Gómez, Ciro Alberto

- ♦ Researcher Specialized in Animal Nutrition
- ♦ Author of the book Glycerin and biodiesel by-products: alternative energy for poultry and swine feed
- ♦ Teacher in the area of Animal Nutrition and Feeding at the Francisco de Paula Santander University
- ♦ Master's Degree in Animal Production at the Francisco de Paula Santander University
- ♦ Degree in Animal Science from Francisco de Paula Santander University

**Dr. Sarmiento García, Ainhoa**

- ♦ Collaborative Researcher at the Faculty of Agricultural and Environmental Sciences and the Polytechnic School of Zamora
- ♦ Collaborative researcher at the Faculty of Agricultural and Environmental Sciences and the Polytechnic School of Zamora at the University of Salamanca
- ♦ Research Director at Entogreen
- ♦ Reviewer of scientific articles in Iranian Journal of Applied Science
- ♦ Veterinarian in charge of the Nutrition Department at Casaseca Livestock
- ♦ Veterinary Clinic in El Parque in Zamora
- ♦ Associate Professor at the Faculty of Agricultural Sciences of the University of Salamanca
- ♦ Degree in Veterinary Medicine from the University of Leon
- ♦ PhD. in Chemical Science and Technology from the University of Salamanca
- ♦ Master's Degree in Innovation in Biomedical and Health Sciences by the University of León

**Dr. Rodríguez Patiño, Leonardo**

- ♦ Technical Manager at Avícola Fernandez (poultry company)
- ♦ Nutritionist at Grupo Casa Grande
- ♦ Nutritionist at Unicol
- ♦ Technical-Commercial Consultant at PREMEX
- ♦ Nutritionist at Corporación Fernandez SA
- ♦ Master's Degree in Animals. Nutrition
- ♦ Zootechnician at the National University of Colombia

**Dr. Portillo Hoyos, Diana Paola**

- ♦ Animal technician
- ♦ Zootechnician at Dog Home Veterinary Clinic
- ♦ Zootechnician at Productos Lácteos San Andrés
- ♦ Expert researcher in Animal Production
- ♦ Co-author of several books on veterenary
- ♦ Zootechnician at the National University Colombia

**Dr. Páez Bernal, Luis Ernesto**

- ♦ Commercial Director at BIALTEC, a company dedicated to efficient and sustainable animal nutrition
- ♦ Doctor in Nutrition and Monogastric Production from Viçosa Federal University
- ♦ Bachelor's Degree in Veterinary from the National University of Colombia
- ♦ Master's Degree in Zootechnics from Viçosa Federal University
- ♦ Lecturer



*An impressive teaching staff, prepared by professionals from different areas of expertise, will be your teachers during your specialization: a unique occasion not to be missed"*

# 04

# Structure and Content

The contents of this program have been developed by different experts in this subject, with a clear purpose: to ensure that students acquire each and every one of the skills necessary to become true experts in this field. each and every one of the necessary skills to become true experts in this subject.

A complete and well-structured program that will take you to the highest standards of quality and success.







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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"*

## Module 1. Introduction to Animal Nutrition and Feeding

- 1.1. Nutrition and Animal Food. Concepts
  - 1.1.1. Introduction to the Concepts of Nutrition and Food
  - 1.1.2. Nutrients: Definition and Characteristics
  - 1.1.3. Importance of Animal Nutrition
- 1.2. Digestive Systems and Food Adaptation
  - 1.2.1. Digestive System and the Digestion Process in Birds
  - 1.2.2. Digestive System and the Digestion Process in Pigs
  - 1.2.3. Digestive System and the Digestion Process in Ruminants
  - 1.2.4. Digestive System and the Digestion Process in Fish (aquatic poikilotherms)
  - 1.2.5. Gastrointestinal Functionality in Animal Nutrition and Health
- 1.3. Digestive System in Ruminants
  - 1.3.1. The Rumen as a Source of Nutrients
  - 1.3.2. Ruminal Physiology
  - 1.3.3. The Digestion Process in Ruminants
  - 1.3.4. Volatile Fatty Acids
  - 1.3.5. Protein of Bacterial Origin
- 1.4. Measurements of Nutritional Value of Foods and Evaluation Methods
  - 1.4.1. Characterization of Context
  - 1.4.2. Physical and Chemical Characterization
  - 1.4.3. Obtaining Information on the Composition of Nutrients
  - 1.4.4. Weende Proximate Analysis
  - 1.4.5. Van Soest Analysis
    - 1.4.5.1. Analysis using Specialized Analytical Methods
    - 1.4.5.2. Heat Meter Pump
    - 1.4.5.3. Amino Acid Analysis
    - 1.4.5.4. Atomic Absorption Spectrophotometry
    - 1.4.5.5. Automated Analysis Equipment
    - 1.4.5.6. Biological and Nutritional Characterization
- 1.5. Forms of Food Energy
  - 1.5.1. Forms of Energy Expression
  - 1.5.2. Gross Energy
  - 1.5.3. Digestive Energy



- 1.5.4. Metabolizable Energy
- 1.5.5. Net Energy
- 1.5.6. Calculation of Values (EB-ED-EM-EN) according to the NRC and ARC systems
- 1.6. Energy Content of Food Ingredients
  - 1.6.1. Energy sources
  - 1.6.2. Energy and Consumption
  - 1.6.3. Energy Balance
  - 1.6.4. Energetic Density
- 1.7. Protein and Amino Acid Content of Food Ingredients
  - 1.7.1. Animal Protein Functions
  - 1.7.2. Protein Food Resources
    - 1.7.2.1. Plant Sources- Oilseeds
    - 1.7.2.2. Plant Sources- Legumes
    - 1.7.2.3. Animal Sources
- 1.8. Protein Quality and Digestibility
  - 1.8.1. Protein Quality
    - 1.8.1.1. Amino Acid Profile
  - 1.8.2. Digestibility
    - 1.8.2.1. Apparent Digestibility
    - 1.8.2.2. Real Digestibility
    - 1.8.2.3. Nitrogen Balance
    - 1.8.2.4. Biological Value
    - 1.8.2.5. Net Usage of Protein
    - 1.8.2.6. Protein Efficiency Ratio or Rate
    - 1.8.2.7. Chemical Score
    - 1.8.2.8. Protein Digestion
- 1.9. Other Important Nutrients in Veterinary Nutrition
  - 1.9.1. Minerals and Microminerals
    - 1.9.1.1. Classification, Functions, General Requirements
    - 1.9.1.2. Principal minerals: Calcium, Phosphorous, Magnesium, Sodium
    - 1.9.1.3. Microminerals: Cobalt, Iodine
  - 1.9.2. Vitamins
  - 1.9.3. Fibre
  - 1.9.4. Water:
- 1.10. Nomenclature and Classification of Foods (NRC)
  - 1.10.1. Forage or Dry Roughage
  - 1.10.2. Forage or Fresh Coarse Feed
  - 1.10.3. Silage
  - 1.10.4. Concentrated Energy
  - 1.10.5. Protein Concentrate
  - 1.10.6. Mineral Supplement
  - 1.10.7. Vitamin Supplement
  - 1.10.8. Non- nutritious Additives

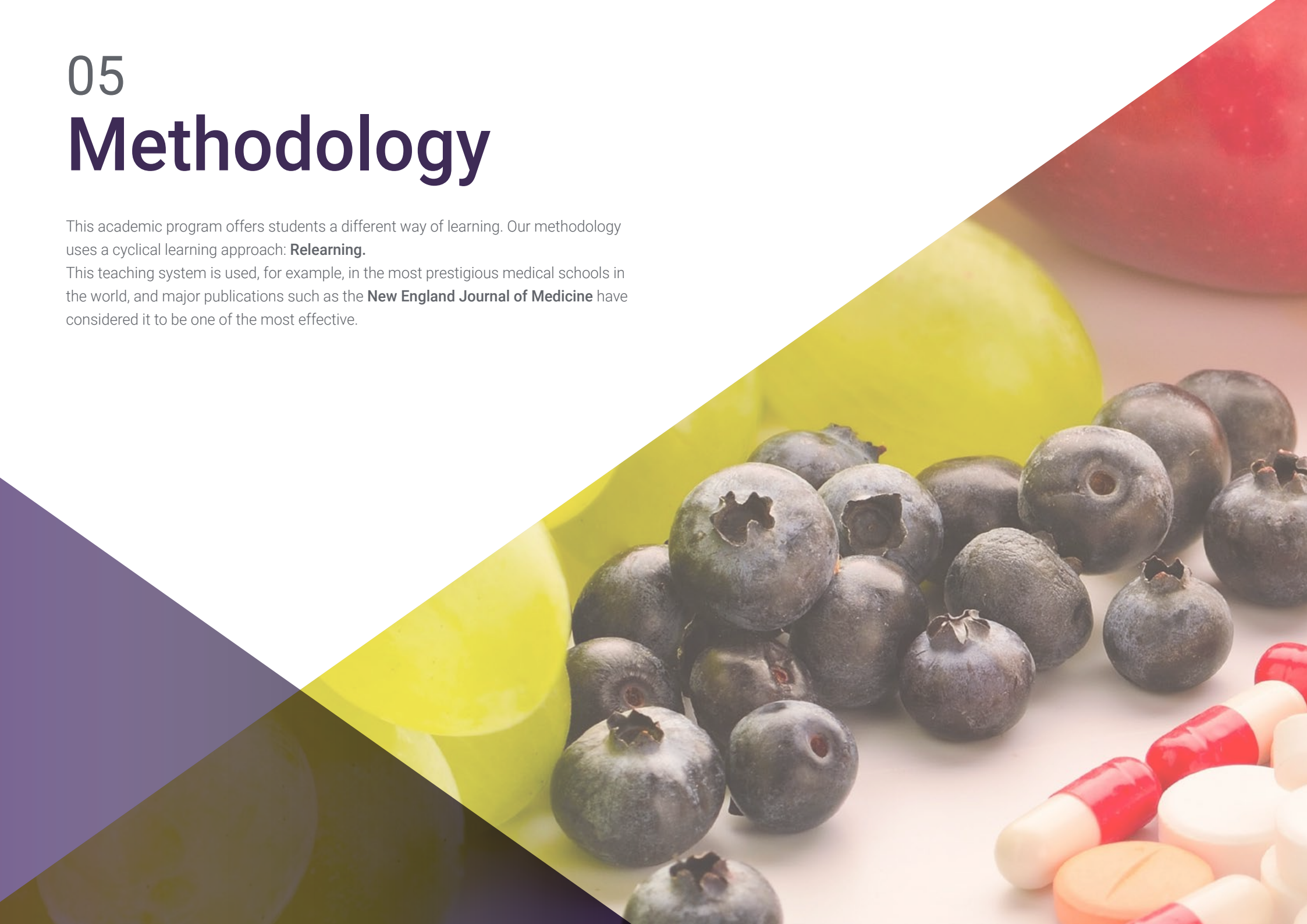


*This program will allow you to advance in your career in a seamless way"*

# 05 Methodology

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

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





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

## At TECH we use the Case Method

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.

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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. 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.*





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

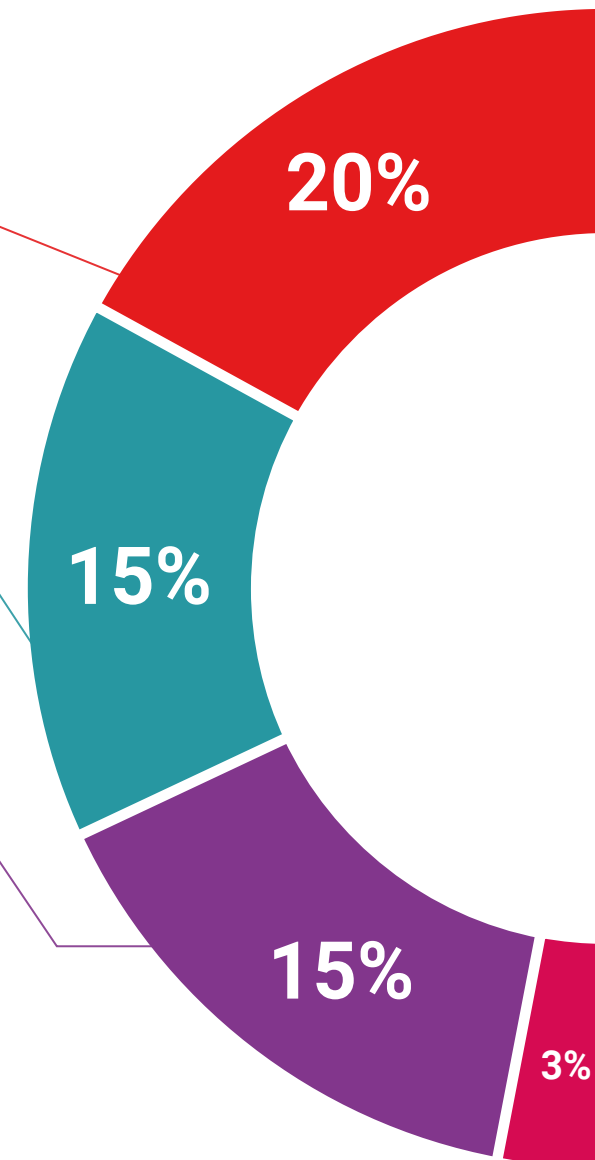
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.  
Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



# 06 Certificate

The Postgraduate Certificate in Animal Nutrition and Feeding guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.





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

This **Postgraduate Certificate in Animal Nutrition and Feeding** contains the most complete and up-to-date scientific on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Certificate in Animal Nutrition and Feeding**

Official N° of Hours: **150 h.**



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



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