

# Postgraduate Certificate

## Ruminant Nutrition and Feeding





## Postgraduate Certificate Ruminant Nutrition and Feeding

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

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

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01

# Introduction

Update your knowledge in Ruminant Nutrition and Feeding with this intensive program, meticulously designed by professionals of the sector who have deposited all their knowledge and experience in the development of this program.

A unique opportunity to specialize in a booming sector.





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*A Postgraduate Certificate that will enable you to work in Ruminant Nutrition and Feeding with the solvency of a high-level professional"*

The current world population estimated at 7.6 billion is expected to increase to 8.6 billion by 2030, and animal nutrition is one of the disciplines called upon to help solve the problem of producing sufficient and economical protein to feed this growing demand in an efficient and sustainable manner.

This Postgraduate Certificate in Ruminant Nutrition and Feeding develops the main aspects related to digestive physiology, nutrition and feeding of ruminants and their marked anatomical and physiological differences with respect to the other species studied. A specificity that allows them to have, as a main characteristic, the ability to take advantage of resources rich in fiber, such as pastures and forages, which have little nutritional value for non-ruminant species.

A high-value course designed for professionals to update and perfect their technical and practical knowledge in this sector. A complete and effective course that will propel you to a higher level of competence.

With an innovative format, this training allows participants to develop autonomous learning and optimal time management.

This **Postgraduate Certificate in Ruminant 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
- Intensely visual teaching system, supported by graphic and schematic contents, 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



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

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*Become one of the most demanded professionals of the moment: educate yourself with our Course in Ruminant Nutrition and Feeding"*

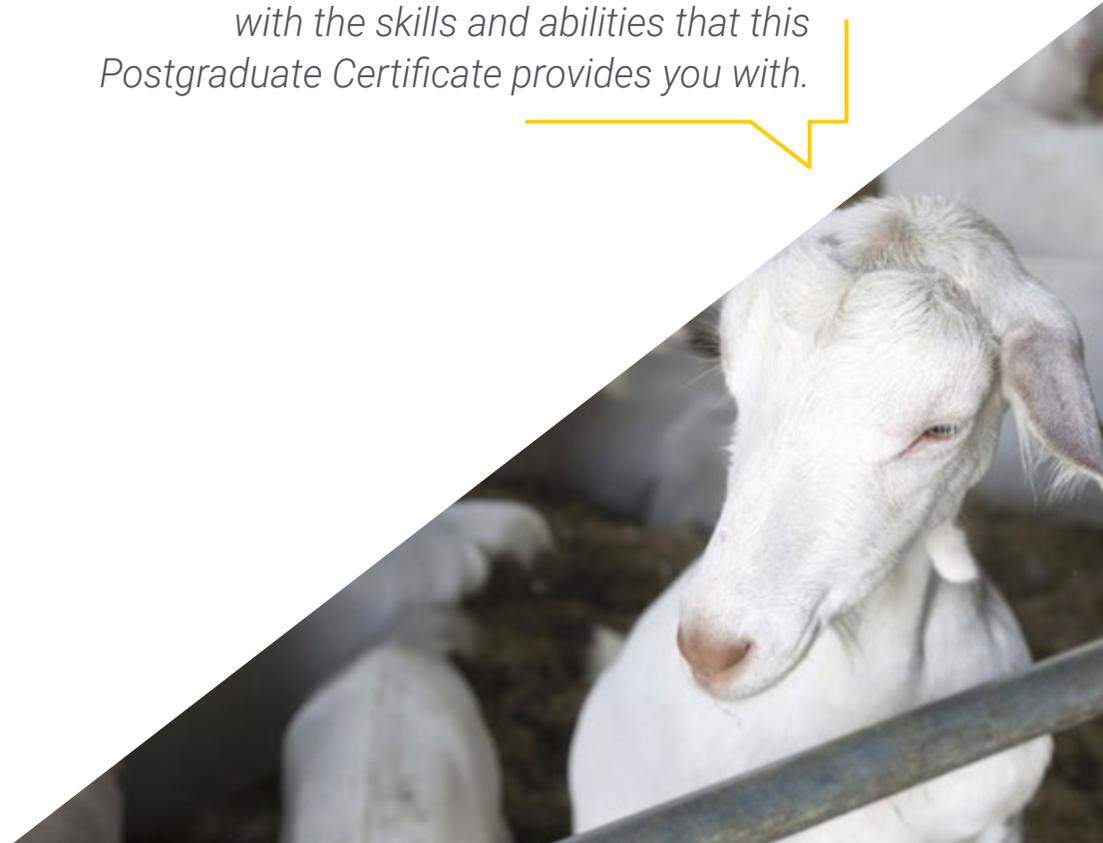
TECH's teaching staff is made up of professionals from different fields related to this specialty. That way, TECH ensures to offer students the educational program and updating intended. A multidisciplinary team of professionals prepared and experienced in different environments, who will cover the theoretical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

This mastery of the subject is complemented by the effectiveness of the methodology used in the design of this course. 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 conceives 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 have at your disposal a Virtual Campus available 24 hours a day and you will be able to download the material to consult it whenever you need it.*

*Become an expert and access the most demanded positions by standing out with the skills and abilities that this Postgraduate Certificate provides you with.*



# 02 Objectives

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





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*If your objective is to broaden your skill set to include new routes to success and development, this is the course for you: training 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 specialized theoretical and practical knowledge on the physiology of the digestive system of ruminants
- ♦ 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



## Specific Objectives

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- ♦ Analyze the digestive system of ruminants and their particular way of assimilating nutrients from fiber-rich foods
- ♦ Analyze the nutritional metabolism of ruminants, recognising their potential and their limitations
- ♦ Determine the nutritional requirements for the maintenance and production of the main ruminants of zootechnical interest
- ♦ Examine the main food resources for ruminants' nutrition, their main characteristics, their advantages and limitations
- ♦ Evaluate the main feeding strategies for ruminants according to the production context



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

03

# Course Management

Within the concept of total quality of the program, TECH is proud to offer 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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*A unique, key, and decisive training experience to boost your professional development"*

## 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, Anibal Enrique

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

### 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

**Dr. Sarmiento García, Ainhoa**

- ♦ Collaborative Researcher at the Faculty of Agricultural and Environmental Sciences and the Polytechnic School of Zamora
- ♦ 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 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 León
- ♦ 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

**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*
- ♦ Lecturer 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 Husbandry from Francisco de Paula Santander University

**Dr. Portillo Hoyos, Diana Paola**

- ♦ 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 of Colombia

**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 Fernández for Broilers and Pigs
- ♦ Master's Degree in Animals. Nutrition
- ♦ Zootechnician at the National University of Colombia



*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 the different experts of this course, with a clear purpose: to ensure that our students acquire each and every one of the skills they require to become true experts in this field.

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



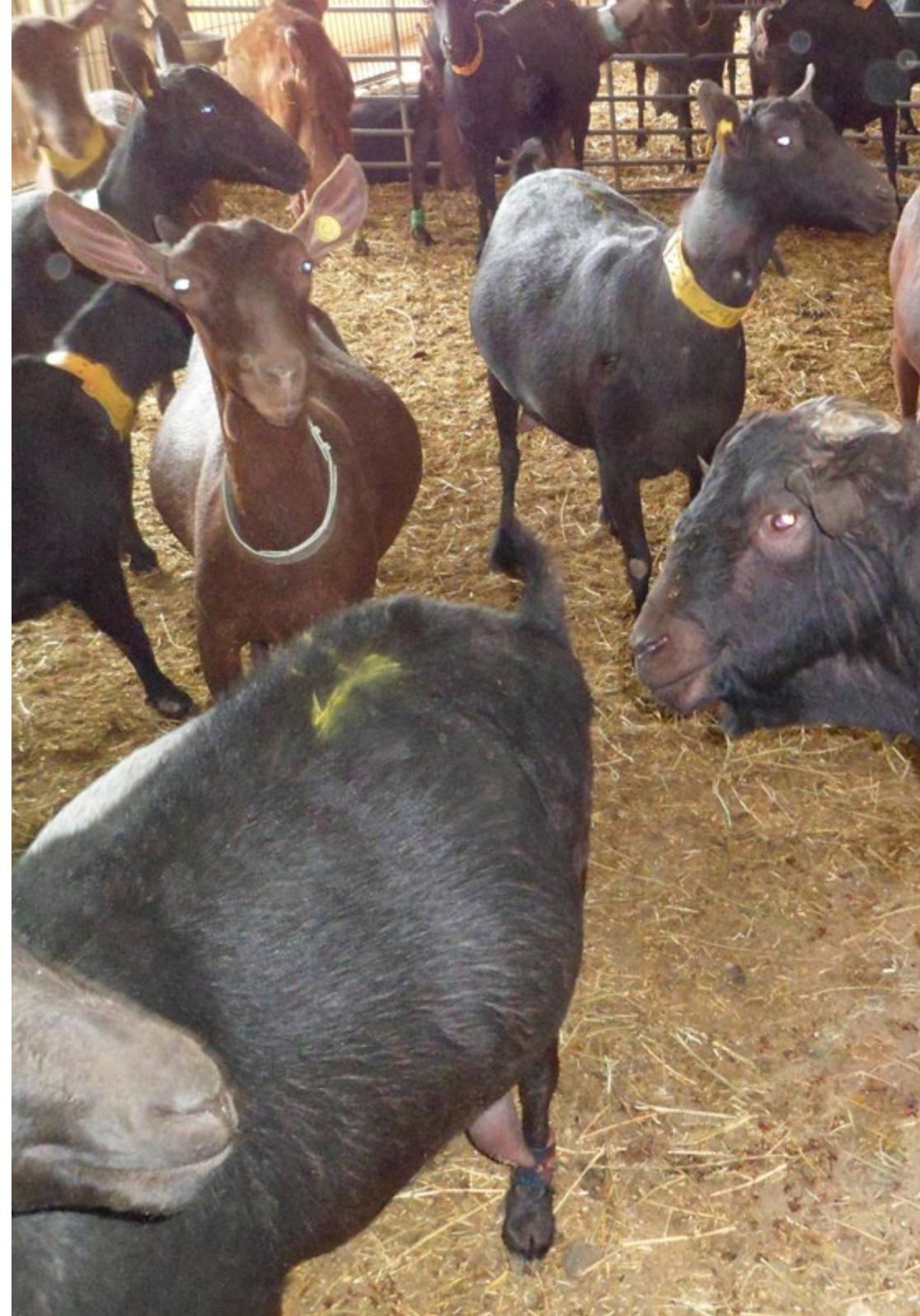


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*A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"*

## Module 1. Ruminant Nutrition and Feeding

- 1.1. Digestion and Ruminal Process in Bovines
  - 1.1.1. Anatomy of the Digestive System of a Ruminant
  - 1.1.2. Physiology and Importance of Rumination
  - 1.1.3. Ruminal Microorganisms and their Importance
  - 1.1.4. Digestion of Carbohydrates in Rumen
  - 1.1.5. Digestion of Fats in Rumen
  - 1.1.6. Digestion of Nitrogen Compounds in Rumen
- 1.2. Post-ruminal Digestion and Metabolism
  - 1.2.1. Post-ruminal Digestion of Carbohydrates, Lipids and Proteins
  - 1.2.2. Absorption of Nutrients in the Ruminant
  - 1.2.3. Metabolism of Carbohydrates, Lipids and Proteins in Ruminants
- 1.3. Protein Requirements
  - 1.3.1. Methodology for Protein Titration in Ruminants
  - 1.3.2. Maintenance Requirements
  - 1.3.3. Gestation Requirements
  - 1.3.4. Milk Production Requirements
  - 1.3.5. Growth Requirements
- 1.4. Energy Requirements
  - 1.4.1. Methodology of Energetic Valuation in Ruminants
  - 1.4.2. Maintenance Requirements
  - 1.4.3. Gestation Requirements
  - 1.4.4. Milk Production Requirements
  - 1.4.5. Growth Requirements
- 1.5. Fiber Requirements
  - 1.5.1. Fiber Valuation Methods
  - 1.5.2. Fiber Requirements for Maintaining Good Health and Production in Ruminants
- 1.6. Mineral and Vitamin Requirements
  - 1.6.1. Hydrosoluble Vitamins
  - 1.6.2. Liposoluble Vitamins
  - 1.6.3. Macrominerals
  - 1.6.4. Microminerals





- 1.7. Water, Requirements and Factors which Affect its Consumption
  - 1.7.1. Importance of Water in the Production of Ruminants
  - 1.7.2. Water Quality for Ruminants
  - 1.7.3. Water Requirements for Ruminants
- 1.8. Nutrition and Food in Lactating Ruminants
  - 1.8.1. Physiology of Esophageal Leakage
  - 1.8.2. Requirements in Lactating Ruminants
  - 1.8.3. Diet Design for Lactating Ruminants
- 1.9. Main Foods in Diets for Ruminants
  - 1.9.1. Fibrous Foods
  - 1.9.2. Energy Rich Foods
  - 1.9.3. Protein Rich Foods
  - 1.9.4. Vitamin Supplements
  - 1.9.5. Mineral Supplements
  - 1.9.6. Additives and Others
- 1.10. Dietary Formulation and Supplements for Bovines
  - 1.10.1. Requirement Calculations
  - 1.10.2. Ration Balancing Methods
  - 1.10.3. Dietary Formulation for Beef Cattle
  - 1.10.4. Dietary Formulation for Dairy Cattle
  - 1.10.5. Dietary Formulation for Sheep and Goats

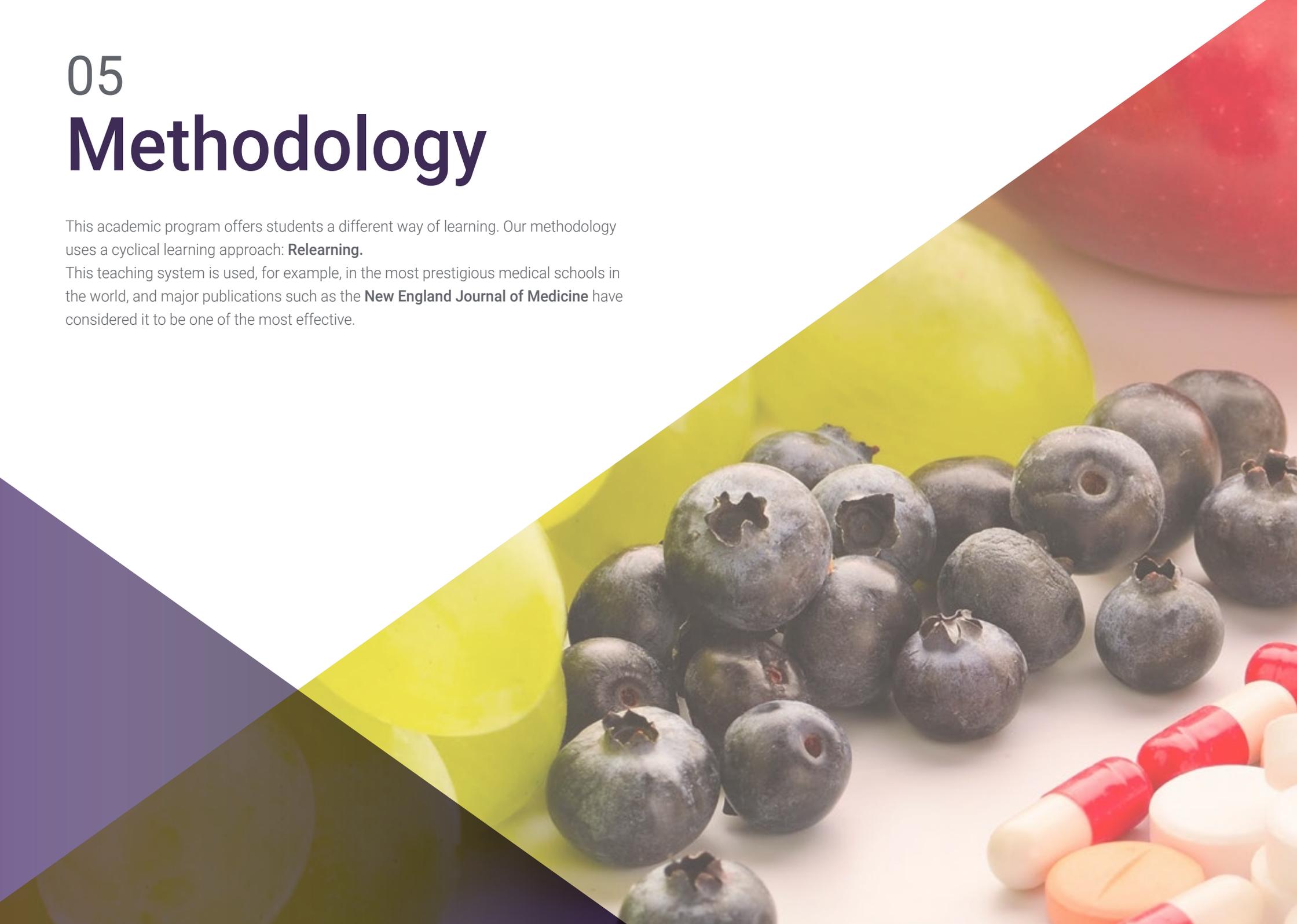


*A unique, key, and decisive educational experience to boost your professional development”*

# 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.





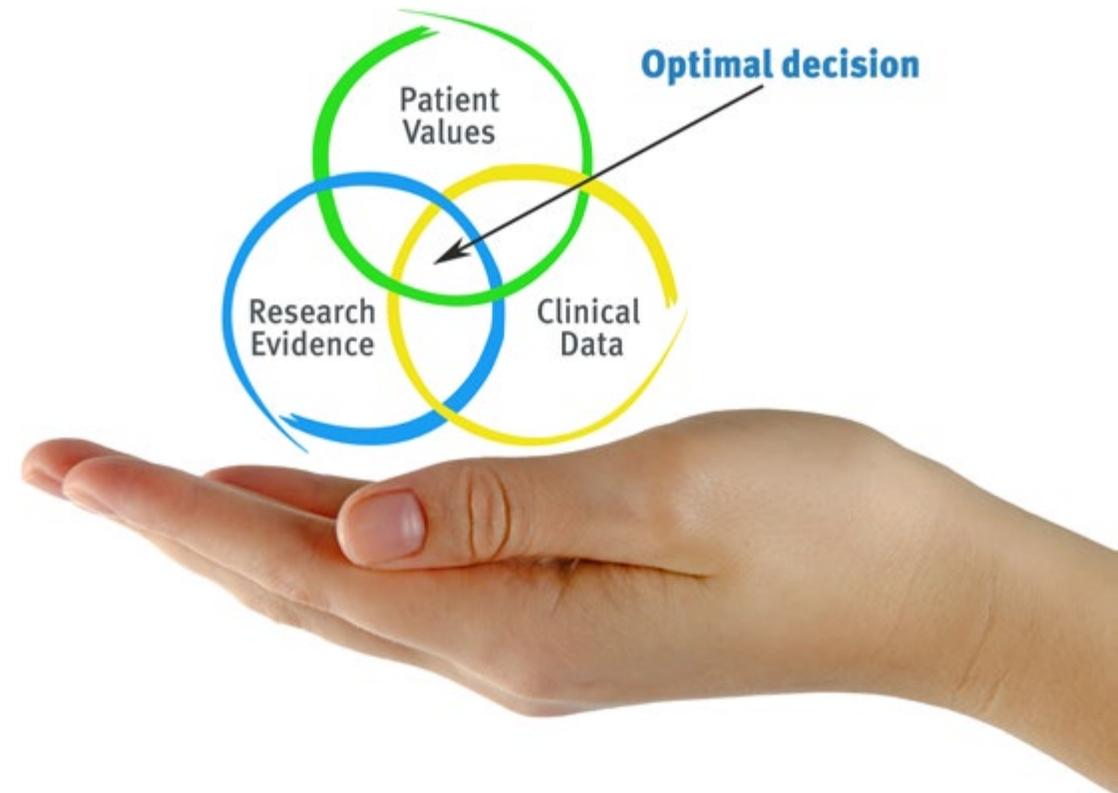
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*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## 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. Gervas, 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

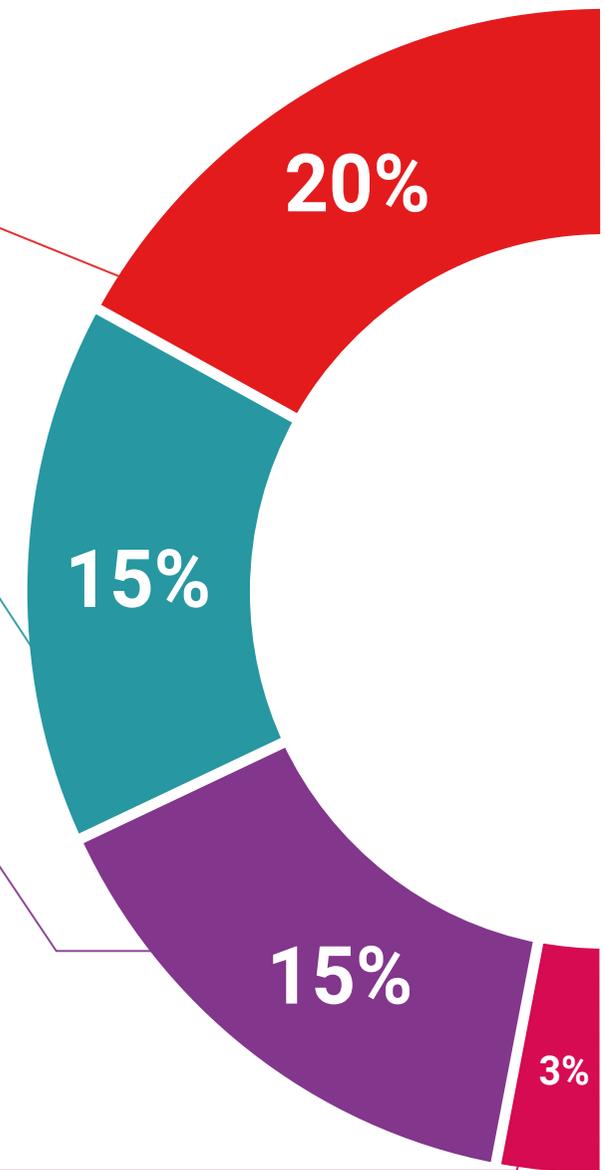
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

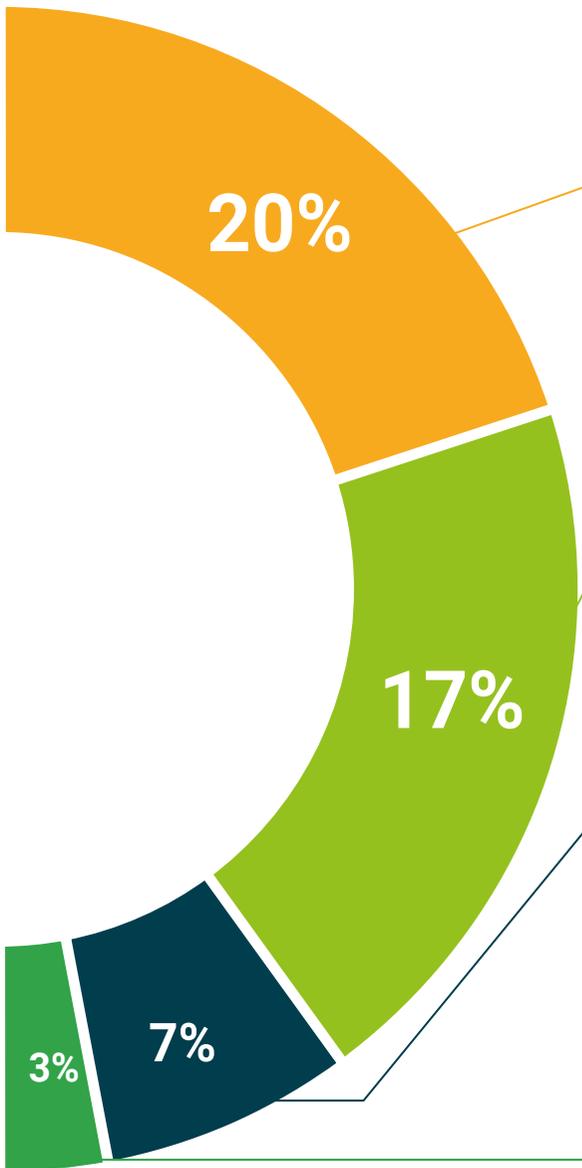
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



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





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*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 Certificate in Ruminant Nutrition and Feeding** 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 Certificate in Ruminant Nutrition and Feeding**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



\*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 Certificate

Ruminant Nutrition  
and Feeding

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# Postgraduate Certificate Ruminant Nutrition and Feeding

