Postgraduate Certificate

Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants

tech technological university

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Postgraduate Certificate

Chemical Composition of Food and Quality of the Raw Materials for Ruminants and Non-Ruminants

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

Website: www.techtitute.com/in/veterinary-medicine/postgraduate-certificate/chemical-composition-food-quality-raw-materials-ruminants-non-ruminants

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01

Introduction

The demand for protein and energy from beef and dairy production is growing worldwide to improve human nutrition and health and the socio-economic development of the population. This new scenario makes it necessary for professionals involved in livestock activities to have the best possible training and updating. Specialized knowledge of the chemical composition of foods and the best utilization of foods is required to meet these growing demands.

This course is 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.

Become one of the most demanded professionals of the moment: train yourself with our Course in Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants".

This Course in Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants is unique given its level of specialization and the logical sequence of learning with which the content is arranged.

Its ultimate goal is to specialize and update professionals in the most advanced technical and scientific aspects of animal nutrition and feeding.

Knowledge that enables the entry, linkage and specialization in one of the most important sectors of animal production at present and with more labor demand and need for specialization.

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.

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

Join the elite, with this highly effective training training and open new paths to help you advance in your professional progress".

In short, it is an ambitious, broad, structured and interwoven proposal, which covers everything from the fundamental and relevant principles of nutrition to the manufacture of food. All this with the characteristics of a course of high scientific, teaching and technological level.

These are some of its most notable features:

- Latest technology in online teaching software.
- 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.
- Self-regulating learning: full compatibility with other occupations.
- Practical exercises for self-evaluation 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.

A course 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".

Our teaching staff is made up of professionals from different fields related to this specialty. In this way, we ensure that we provide you with the training update we are aiming for. 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 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 methodological design of this Expert. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your training.

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, we will use telepractice: with the help of an innovative interactive video system, and learning from an expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way

With a methodological design that relies on proven teaching techniques, this Course in Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants will take you through different teaching approaches to allow you to learn in a dynamic and effective way.

02

Objectives

Our objective is to train 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.

If your objective is to redirect your capacity towards new paths of success and development, this is your course: a training that aspires to excellence

General Objective

- 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 judgement to make the most appropriate decision in terms of differential costs, etc.diferenciales, 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

- Develop the most important concepts of Animals. Nutrition, taking into account the functions and effects of food in the digestion process in large and small livestock.
- Classify foods according to their origin and their nutritional characteristics.
- Design a balanced diet considering the nutritional requirements of the species and categories.
- Implement the procedures for manufacturing concentrates, guaranteeing the quality of the product to be used for feeding the different productive species.
- Apply nutrition and feeding strategies for the different productive species according to an annual program based on the herd's requirements.
- Evaluate the nutritional quality and impact on production systems (meat or milk) of different fresh, preserved and natural feed. These could be either in direct grazing or as forage reserves such as hay (rolls) or whole plant silage, with or without the addition of additives (Nutriliq, Smartfeed, etc.), Multi-Nutritional Blocks (MNB), Rumen Activator Supplements (RAS) or energy or protein concentrates.
- Develop the main chemical determinations that characterize a feed (concentrates, fresh forages, preserved forages and additives).

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

03

Course Management

For our course to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.

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. Sarmiento García, Ainhoa

- Phd in Science and Chemical Technology. (09/ 09.2017 / 2019) University of Salamanca,
- University Master's in Innovation of Biomedical Sciences and Health. (10- 10.2015 - 2016) University of León
- Degree in Veterinary Medicine. (09- 10.2015 - 2014) University of León

Professors

Dr. Fernández Mayer, Anibal Enrique

- PhD in Veterinary Science
- Postdoctorate of Veterinary Science, with a focus on: Animal Nutrition in Institute of Animal Science (IAS)
- Agricultural Engineer, National University of La Plata (1975-1979), Buenos Aires.

Lic. Ordoñez Gómez, Ciro Alberto

- Animal technician
- Master's Degree in Animals. Nutrition.
- University Professor in the area of animal nutrition with emphasis on ruminants.

Dr. Páez Bernal, Luis Ernesto

- PhD in Monogastric Nutrition and Production
- Doctor Scientiae in Zootechnics, Nutrition and Monogastric Production. Federal University of Viçosa (UFV), MG, Brazil. 2008, MSc in Zootechnics, Nutrition and Monogastric Production. Federal University of Viçosa (UFV), MG, Brazil. 2004
- Medical veterinary with a Master's Degree in Monogastric Nutrition and Production
- Lecturer

D. Portillo Hoyos, Diana Paola

- Professional Graduated from the National University of Colombia.

D. Rodríguez Patiño, Leonardo

- Animal technician with a Master's Degree in Veterinary Nutrition..

Dr. Sarmiento García, Ainhoa

- Phd in Science and Chemical Technology. (09/ 09.2017 / 2019) University of Salamanca,
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- Degree in Veterinary Medicine. (09- 10.2015 - 2014) University of León

04

Structure and Content

The contents of this training 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 necessary skills to become true experts in this field.

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

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

Module 1. Key Concepts of Raw Materials Used in Feeding Ruminants and Non-Ruminants

1.1. Introduction
- 1.1.2. Chemical Composition of Food
  - 1.1.2.1. Water and Dry Matter
  - 1.1.2.2. Organic Material and Minerals
  - 1.1.2.3. Protein Rich Foods
  - 1.1.2.4. Energy Rich Foods.
  - 1.1.2.5. Vitamins.
- 1.1.3. Vitamins.
  - 1.1.3.1. Winter Grains, Summer Grains and Pastures (Grasslands)
- 1.1.4. Conserved Forages:
  - 1.1.4.1. Silage, Hay and Other Types of Preserved Fodder (Haylage, Silage).
    - 1.1.4.1.1. Silages
    - 1.1.4.1.2. Hay and Haylage
- 1.1.5. Energy and Protein Concentrates
  - 1.1.5.1. Energy Compounds
  - 1.1.5.2. Protein Powders

1.2. Plant-Based By-products used in Feeding Ruminants and Non-Ruminants
- 1.2.1. Cereal Grains
  - 1.2.1.1. Corn
    - 1.2.1.1.1. Fine-ground Bran, Bran or Corn Bran
    - 1.2.1.1.2. Corn Gluten Feed and Corn Gluten Meal
      - 1.2.1.1.2.1. Corn Gluten Feed
      - 1.2.1.1.2.2. Corn Gluten Meal
  - 1.2.1.2. Sorghum Grain
  - 1.2.1.3. Oats, Barley and Wheat Grain.
    - 1.2.1.3.1. Oat Grain
    - 1.2.1.3.2. Barley Grain
    - 1.2.1.3.3. Wheat Grain
      - 1.2.1.3.3.1. Fine-ground Bran, Bran or Wheat Bran
- 1.2.2. By-products of Rice
  - 1.2.2.1. Fine-ground Bran or Rice Bran
- 1.2.3. Subproductos de Oleaginosas
  - 1.2.3.1. Cotton.
    - 1.2.3.1.1. Cotton Seed
    - 1.2.3.1.2. Cotton Flour
  - 1.2.3.2. Soya
    - 1.2.3.2.1. Soybeans
    - 1.2.3.2.2. Soybean Shell
    - 1.2.3.2.3. Soya Flour
  - 1.2.3.3. Sunflower.
    - 1.2.3.3.1. Sunflower Shell
    - 1.2.3.3.2. Sunflower Flour
- 1.2.4. Horticultural By-products.
  - 1.2.4.1. Salad Cucumber Crop Residue.
  - 1.2.4.2. Melon Crop Residue.
  - 1.2.4.3. Tomato Crop Residue

1.3. Animal-Based By-products used in Feeding Ruminants and Non-Ruminants
- 1.3.1. Dairy Industry.
  - 1.3.1.1. Serum Permeate
  - 1.3.1.2. Cheese Whey and Butter
- 1.3.2. Fishing Industry.
  - 1.3.2.1. Fish Flour
- 1.3.3. Meat Industry.
  - 1.3.3.1. Recycled Animal Fat
- 1.3.4. Poultry Production.
  - 1.3.4.1. Feather Flour
    - 1.3.4.1.1. Processes to Improve Digestibility
    - 1.3.4.1.2. Supply Methods
  - 1.3.4.2. Chicken/ Hen Litter (Chicken Manure)

1.4. Fats and Oils used in Feeding Ruminants and Non-Ruminants
- 1.4.1. Nutritional Values of Fats in the Feeding of Ruminants and Non-Ruminants

1.4.1.1. Sources and Types of Fat
1.4.1.1.1. Yellow Fat.
1.4.1.1.2. Tallow.
1.4.1.1.3. Mixed Fats.
1.4.1.1.4. Soap Extract and Other Sources of Fat
1.4.1.2. Factors Which Indicate the Digestibility in Ruminants and Non-Ruminants
1.4.1.2.1. Free Fatty Acids
1.4.1.2.2. Proportion of Saturated and Unsaturated Fatty Acids
1.4.1.2.3. Addition Method and Level of Inclusion.
1.4.1.2.4. Protected Fats.
1.4.1.2.4.1. Calcium Salts of Fatty Acids or Protected Soaps
1.4.1.2.4.2. Saturated Fats with Variable Degrees of Hydrogenation
1.4.1.3. Oils used in Feeding Ruminants and Non-Ruminants
1.4.1.3.1. African Palm Oil
1.4.1.3.2. Other Vegetable Oils

1.5. Probiotics, Prebiotics, Enzymes and Organic Acids in Feeding Ruminants and Non-Ruminants.
1.5.1. Characterization and Classification of Probiotics and Prebiotics.
1.5.1.1. Prebiotic.
1.5.1.1.1. Basifying Agents or Ruminal Buffers
1.5.1.1.2. Organic Acids: Malic and Fumaric Acid
1.5.1.1.3. Plant Extracts: Essential Oils.
1.5.1.1.4. Enzymes
1.5.1.2. Probiotic.
1.5.1.3. Symbiotics.
1.5.2. Mechanisms of Action and Productive Response
1.5.2.1. Effects on Young Animals
1.5.2.2. Effects on Adult Animals
1.5.3. Brewer's Yeast.
1.5.3.1. Reduction of Unpleasant Odors and Firm Stools
1.5.3.2. Effects on Growing and Finishing Animals
1.5.3.3. Effects on Lactating Cows
1.5.3.4. Effects on Lactating Sheep
1.5.3.5. Effects on Lactating Goats

1.6. Liquid Additives, Multinutritional Blocks and Rumen Activator Supplement for Ruminants
1.6.1. Characterictics of Liquid Energy, Protein and Mineral Additives.
1.6.2. Multinutritional Blocks (MNB) and Rumen Activator Supplement (RAS)
1.6.2.1. Procedure to Create MNB and RAS
1.6.2.1.1. Proportions of Ingredients and Chemical Composition of MNB and RAS.
1.6.2.1.1.1. Composition of "MNB" or "RAS" with "Smartfeed".
1.6.2.1.1.2. Composition of "MNB" or "RAS" with "Nutriliq 2050" (including Urea).
1.6.2.1.1.3. Composition of "MNB" or "RAS" with Glucose or Molasses"
1.6.2.1.1.4. Composition of the Salty Minerals of the MNB and RAS
1.6.2.2. Purpose of Each Ingredient
1.6.2.3. Differences Between the MNB and RAS
1.6.2.4. Forms of Supply and Consumption of BMN or SAR
1.6.2.5. Experimental Work.

1.7. Glycerol and Corn and Sorghum Starch for Ruminant and Non-Ruminant Feeds.
1.7.1. Glycerol.
1.7.1.1. Principal Characteristics of Glycerol
1.7.1.2. Chemical Composition of Glycerol for Animal Consumption
1.7.1.3. Productive Response.
1.7.1.4. Recommendations
1.7.2. Corn and Sorghum Starch
1.7.2.1. Chemical Composition
1.7.2.2. Dry or Wet Starch
1.7.2.3. Recommendations

1.8. Tannins, Saponins and Essential Oils in Ruminants
1.8.1. Effect on Ruminal Bacterias
1.8.2. Effects on Protozoa

1.8.3. Effects on Rumen Fungi
1.8.4. Effects on Methanogenic Bacteria
1.8.5. Effect on Secondary Metabolites of Plants
1.8.5.1. Effects on the Digestibility
1.8.5.2. Effects on the Parameters of Ruminal Fermentation
1.8.5.2.1. Volatile Fatty Acids(AGV)
1.8.5.2.2. Concentration of Ammonia
1.8.5.2.3. Production of Gas
1.8.5.2.4. Impacts on Rumen Degeneration and the Digestibility of DM and Cell Wall
1.8.5.2.5. Impacts on Rumen Degeneration and the Digestibility of Protein
1.8.5.2.6. Impacts on Digesta Transit Kinetics
1.8.5.3. Effects on Methanogenesis
1.8.6. Adaptations to Tannin Consumption
1.8.7. Positive Effects of Tannins on the Non-Animal Metabolism and Some of the Productive Results.

1.9. Mycotoxins and Contaminants in Concentrates and Forage Concentrates in both Ruminants and Non-Ruminants
1.9.1. Characteristics of Mycotoxins, Typology of Fungi and Favorable Conditions
1.9.2. Clinical Diagnosis of Mycotoxins, Symptomatology and Associated Diseases Affecting Ruminants and Non-Ruminants
1.9.2.1. Ruminants.
1.9.2.1.1. Sensitivity.
1.9.2.1.2. Some Symptomatologies.
1.9.2.1.3. Symptomatology Associated with Illnesses
1.9.2.1.4. Mycotoxins and Mycotoxicosis in Poultry and Swine. Symptomology and Associated Illnesses
1.9.2.1.4.1. Aflatoxins.
1.9.2.1.4.2. Ochratoxins.
1.9.2.1.4.3. T-2 and DAS
1.9.2.1.4.4. Fumonisin.
1.9.2.1.4.5. DON (vomitoxina)
1.9.2.2. Non-Ruminants.
1.9.2.2.1. Mycotoxins and Mycotoxicosis in Poultry and Swine. Symptomology and Associated Illnesses
1.9.2.2.1.1. Aflatoxins.

1.9.2.2.1.2. Ochratoxins.
1.9.2.2.1.3. Trichothecenes.
1.9.2.2.1.4. Zearalenone.
1.9.2.2.1.5. Fumonisins
1.9.2.2.2. Use of Mycotoxin-Absorbing Substances in Ruminant and Non-Ruminant Feeds.
1.9.3. Factors for the Development of Fungi and their Mycotoxins
1.9.3.1. In the Countryside
1.9.3.2. During Storage of the Concentrates
1.10. Analysis and Quality Control of the Ingredients used in Ruminants and Non- Ruminants.
1.10.1. Chemical Determinations.
1.10.1.1. Dry Matter (DM)
1.10.1.2. Organic Material (OM) and Minerals
1.10.1.3. Digestibility of Dry Matter
1.10.1.3.1. Direct Methods.
1.10.1.3.1.1. "In Vivo" Methods.
1.10.1.3.2. Indirect Methods.
1.10.1.3.2.1. "Different" Method.
1.10.1.3.2.2. Internal Markers.
1.10.1.3.2.2.1. Lignin
1.10.1.3.2.2.2. Silica.
1.10.1.3.2.2.3. Insoluble Organic Material in Acids
1.10.1.3.3. External Markers.
1.10.1.3.3.1. Dyed Food.
1.10.1.3.3.2. Chromic Oxide.
1.10.1.3.3.3. Rare Earth Elements
1.10.1.3.3.4. Mordant Chrome-Treated Fiber
1.10.1.3.3.5. Hydrosoluble Markers.
1.10.1.3.3.6. Alkanes.
1.10.1.3.4. "In Vitro" Methods.
1.10.1.3.4.1. "In Vitro" Digestibility of Dry Matter (DM).
1.10.1.3.4.2. Neutral Detergent Fiber (NDF)
1.10.1.3.4.3. "In Vitro" Digestibility of Neutral Detergent Fiber (NDF).
1.10.1.3.3.4. Acidic Detergent Fiber (ADF)
1.10.1.4. Protein
1.10.1.4.1. Crude Protein (Total Nitrogen, CP)
1.10.1.4.2. Soluble Crude Protein (SCP)
1.10.1.4.3. Neutral Detergent Fiber-Bound Nitrogen (ADIN)
1.10.1.5. Ethereal Extract (EE)
1.10.1.6. Water Soluble Carbohydrates (WSC)
1.10.1.7. Lignin, cellulose, hemicellulose and silica (LIG, CEL, HEM, SIL)
1.10.1.8. Tannin
1.10.1.9. PH in Silage Samples
1.10.1.10. Particle Sizes
1.10.2. Summary of Some Laboratory Techniques
1.10.2.1. Total Nitrogen (semi-micro kjeldahl)
1.10.2.2. "In Vitro" Digestibility (Tilley Terry Edited. Direct Acidification Method)
1.10.2.3. Neutral Detergent Fiber (NDF) (with ANKOM equipment)
1.10.2.4. Acidic Detergent Fiber (ADF) (with ANKOM equipment)
1.10.2.5. Soluble Non-Structural Carbohydrates (NSC) Antrona method, developed by A.J. Silva (Viscosa-Brasil)
1.10.2.6. Total Starch (Megazyme enzyme kit - AA/AMG) (AACC Method 76-12)

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

05

Methodology

This training provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

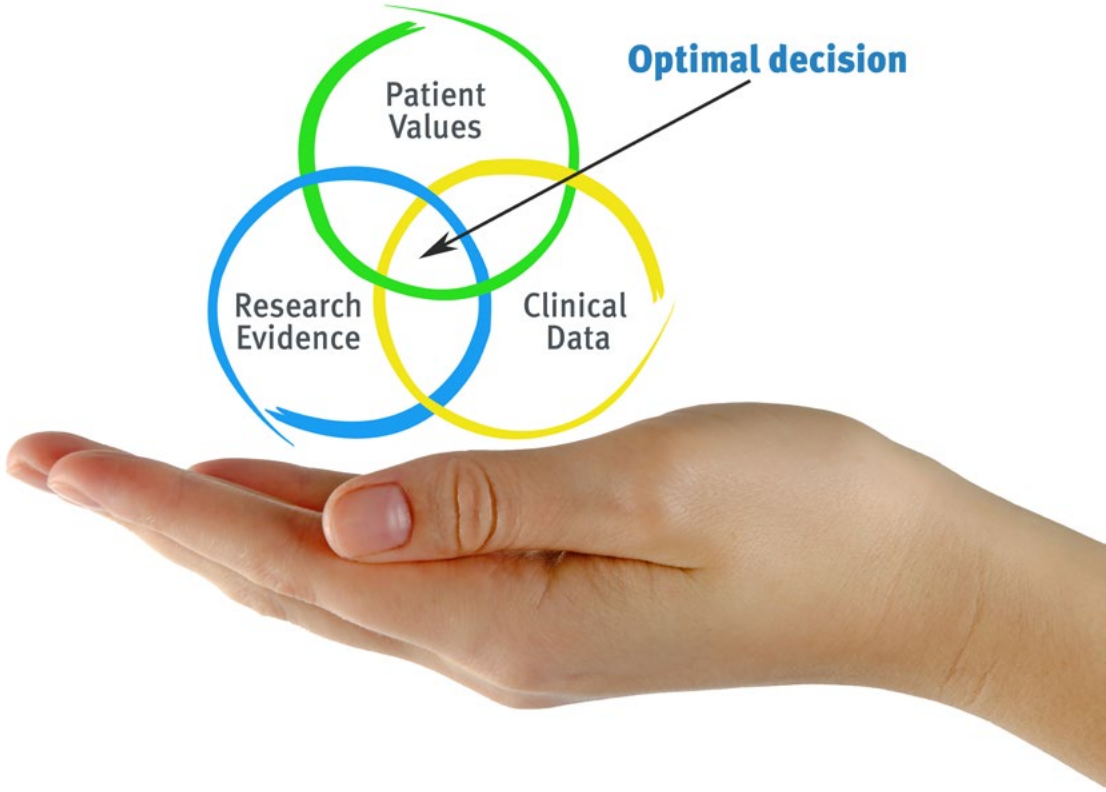
This teaching system is used in the most prestigious medical schools in the world, and major publications such as the ***New England Journal of Medicine*** have considered it to be one of the most effective.

Discover Re-learning, 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 clinical situation, what would you do? 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 abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you 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 potential or because of its uniqueness or rarity. It is essential that the case be based on current professional life, trying to recreate the real conditions in the Veterinarian's Professional Practice.

Did you know that this method was developed in 1912 at Harvard for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method.

The effectiveness of the method is justified by four fundamental achievements:

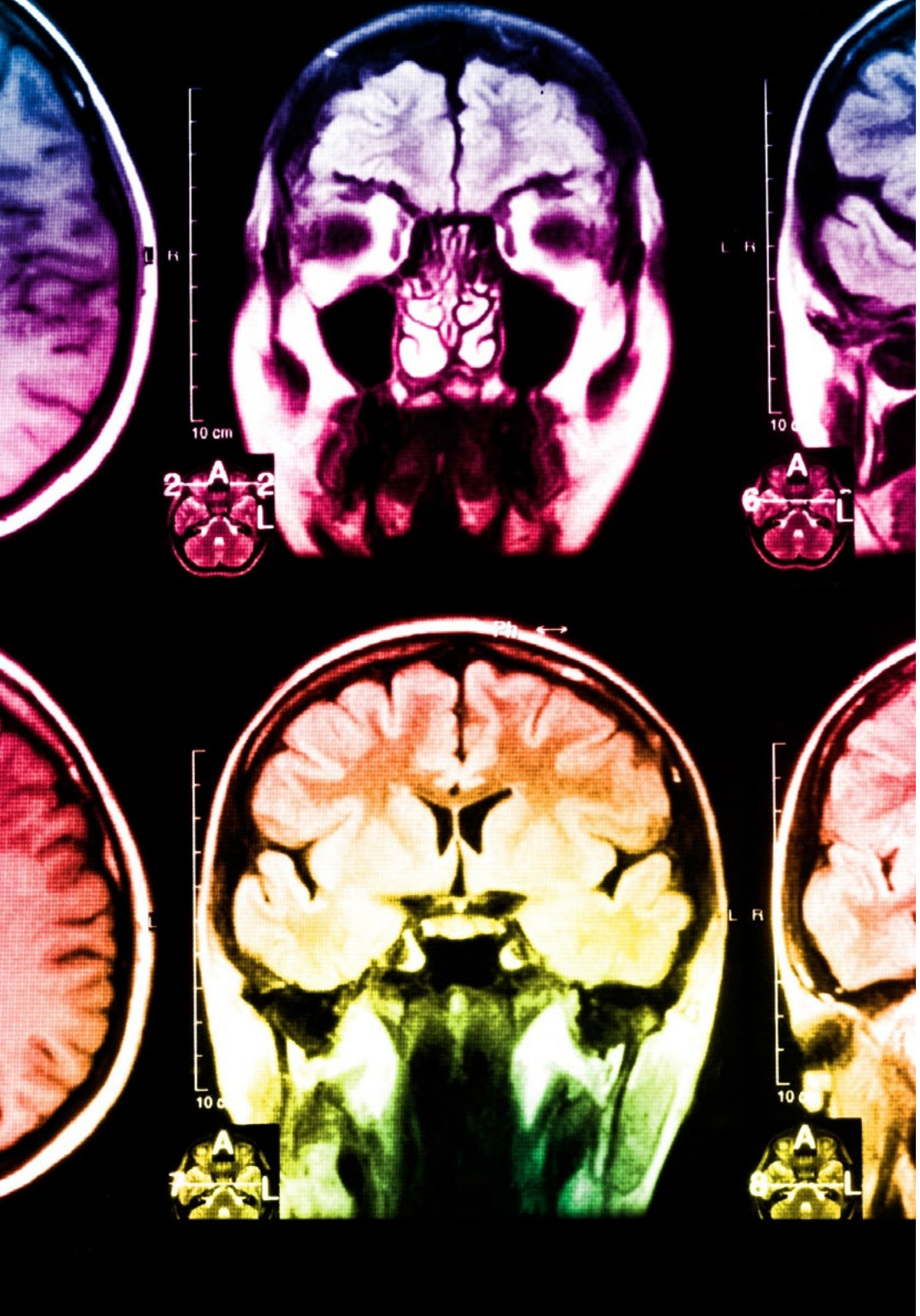
1. Veterinarians who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.
2. The learning process has a clear focus on practical skills that allow the student to 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.

Re-Learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

Our 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, which represent a real revolution with respect to simply studying and analyzing 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 Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best Spanish-speaking online university (Columbia University).

With this Methodology we have trained more than 65,000 veterinarians 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.

Re-learning 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 to success.

In our program, learning is not a linear process, but rather a spiral (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by our learning system is 8.01, according to the highest international standards.

In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

Latest Techniques and Procedures on Video

We bring you closer to the latest Techniques, to the latest Educational Advances, to the forefront of current Veterinary Techniques and Procedures. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.

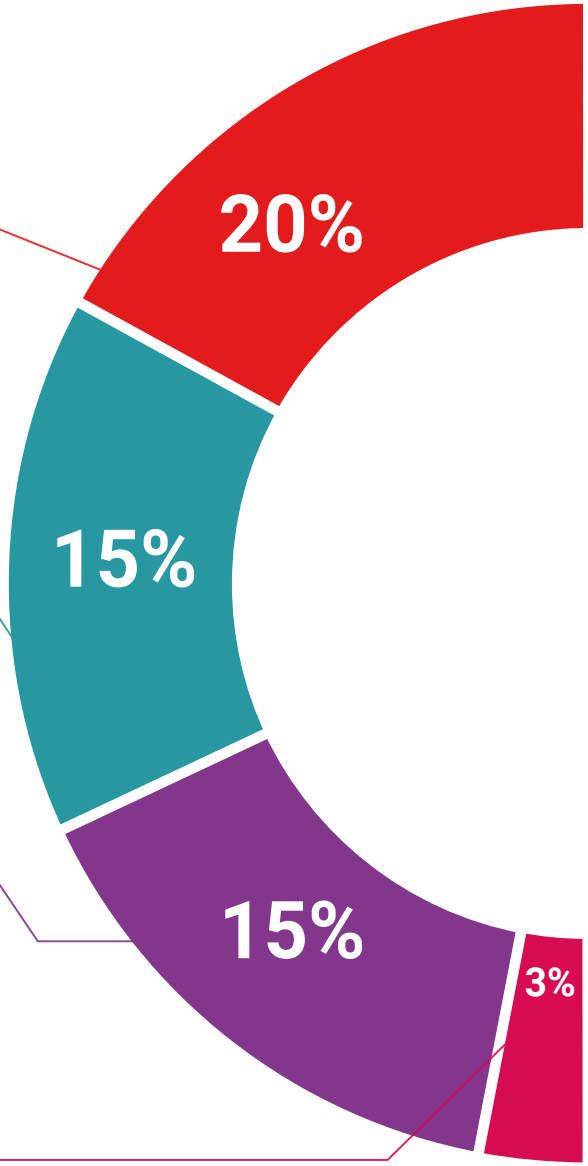
Interactive Summaries

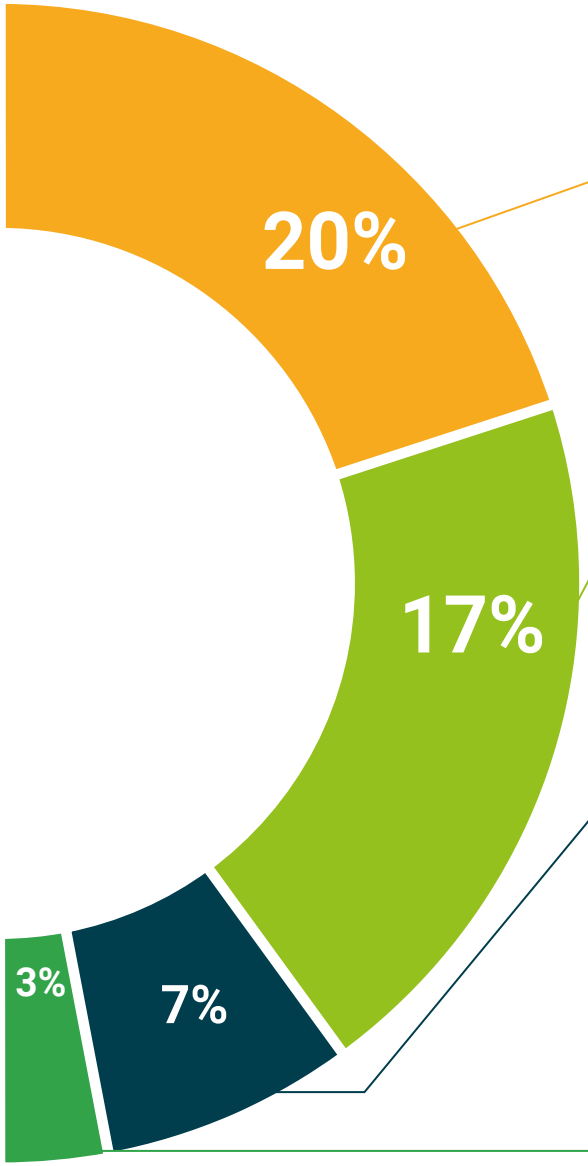
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This unique multimedia content presentation training system was awarded by Microsoft as a "European Success Story".

Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.





Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

Testing & Re-testing

We periodically evaluate and re-evaluate your knowledge throughout the program, through assessment and self-assessment activities and exercises: so that you can see how you are achieving your 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 our future difficult decisions.

Quick Action Guides

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.

06

Certificate

Through a different and stimulating learning experience, you will be able to acquire the necessary skills to take a big step in your training. An opportunity to progress, with the support and monitoring of a modern and specialized university, which will propel you to another professional level.

Include in your training a Course in Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants: a highly qualified added value for any professional in this area".

This **Postgraduate Certificate in Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Certificate in Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants**

ECTS: **6**

Official Number of Hours: **150**


tech technological university

Awards the following

CERTIFICATE

to

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

For having passed and accredited the following program

POSTGRADUATE CERTIFICATE

in

Chemical Composition of Food and Quality of the Raw Materials for Ruminants and Non-Ruminants

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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

June 17, 2020

Tere Guevara Navarro

Dean

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

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

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Postgraduate Certificate

Chemical Composition of Food and Quality of the Raw Materials for Ruminants and Non-Ruminants

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

Postgraduate Certificate

Chemical Composition of Feeds and Quality of Raw Materials for Ruminants and Non-Ruminants

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