Postgraduate Certificate
Pathology in Aquaculture

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Postgraduate Certificate
Pathology in Aquaculture

- Modality: **online**
- Duration: **12 weeks**
- Certificate: **TECH Global University**
- Credits: **12 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/veterinary-medicine/postgraduate-certificate/pathology-aquaculture

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01

Introduction

Pathological alterations in aquaculture production can be a real headache for those responsible, so proper prevention to avoid the appearance or action of pathogens is essential in any production model. If you want to specialize in this field, do not hesitate and enroll in our high quality teaching and educational course.

Global population growth requires new advances in breeding and farming systems to ensure an adequate food supply"

Specialized knowledge of the physiological workings of the different systems and apparatus that make up the anatomy of aquaculture species is essential, not only to make the right decisions during the management and administration of an aquaculture facility, but also in the correct design of the facilities for this productive activity.

In this regard, developing a precise and specialized knowledge of how aquaculture species relate to the environment in which they are in, how they obtain from it the elements necessary for their survival and development, and how they transform the food provided into nutrients vital for their growth is the basis for the chosen production model to be successful.

Likewise, special attention must be paid to pathological alterations in aquaculture production, for which it is essential to maintain adequate hygienic, food and environmental conditions, since most pathogens benefit from situations of animal stress.

The most common pathologies in aquaculture include infectious agents of the most common groups, such as bacterial, viral, fungal and parasitic pathogens. Not all species are affected in the same way by the same pathogens, so specialized knowledge about the main causes of diseases in each of these species is necessary It is important to bear in mind that some of these pathologies are notifiable diseases and must be reported to the competent authorities. But there are also other types of disorders caused by dietary errors, neoplasms, stress or irritants.

This Postgraduate Certificate provides students with specialized tools and skills to successfully develop their professional activity in the wider aquaculture environment, works on key competencies such as knowledge of the reality and daily practice of the professional, and it further promotes responsibility in the monitoring and supervision of their work, as well as communication skills through essential teamwork. In addition, as it is an online Postgraduate Certificate, the student is not constrained by fixed timetables or the need to move to another physical location, but can access the contents at any time of the day, balancing his or her work or personal life with their academic life.

This **Postgraduate Certificate in Pathology in Aquaculture** contains the most complete and up-to-date educational program on the market. The most important features of the program include:

- Practical cases studies are presented by experts in Aquaculture
- The graphic, schematic, and eminently practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice.
- New developments in Aquaculture Pathologies
- Practical exercises where self-assessment can be used to improve learning.
- Special emphasis is placed on innovative methodologies in the treatment of pathologies in Aquaculture
- 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

Immerse yourself in this high-quality educational training-program, which will allow you to face the future challenges in Pathology in Aquaculture"

This Postgraduate Certificate is the best investment you can make in selecting a refresher program to bring your knowledge of Pathology in Aquaculture up to date"

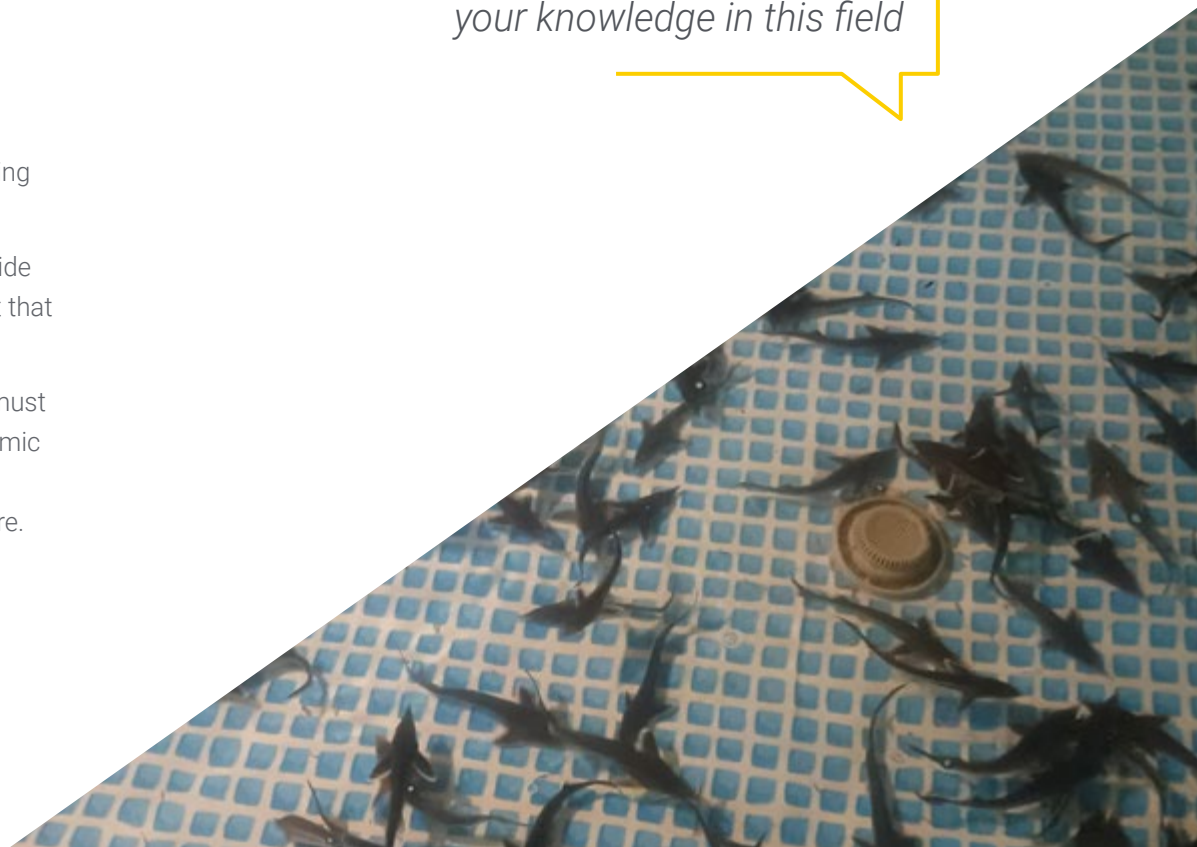
This training comes with the best didactic material, providing you with a contextual approach that will facilitate your learning

This 100% online course will allow you to combine your studies with your professional work while expanding your knowledge in this field

Its teaching staff includes professionals from the veterinary field, who bring the experience of their work to this training, as well as recognised specialists from leading societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive training programmed to train in real situations.

This program is designed around Problem Based Learning, whereby the specialist must try to solve the different professional practice situations that arise during the academic year. To this end, the professional will be assisted by an innovative interactive video system developed by renowned and experienced experts in Pathology in Aquaculture.



02

Objectives

The Postgraduate Certificate in Pathology in Aquaculture is designed to facilitate the performance of the veterinary professional with the latest advances and most innovative procedures in the sector.

Our goal is to achieve academic excellence and to help you achieve professional success as well"

General Objectives

- To generate specialized knowledge of the different Physiological Processes that occur in Aquaculture Species
- Determine the different processes of exchange with the environment of animal and plant species used in aquaculture.
- To examine the Causes of Alterations of Vital Physiological Elements
- Determine the main causes of stress and implement the most effective solutions for its elimination.
- Improve the Hygienic-sanitary Planning of an Aquaculture Facility
- Increase the capacity to anticipate possible Pathological Outbreaks
- Generate specialized knowledge on the main Pathogenic Agents
- Develop advanced knowledge for the Diagnosis and Treatment of Diseases

Make the most of the opportunity and take the step to get up to date on the latest developments in Pathology in Aquaculture"

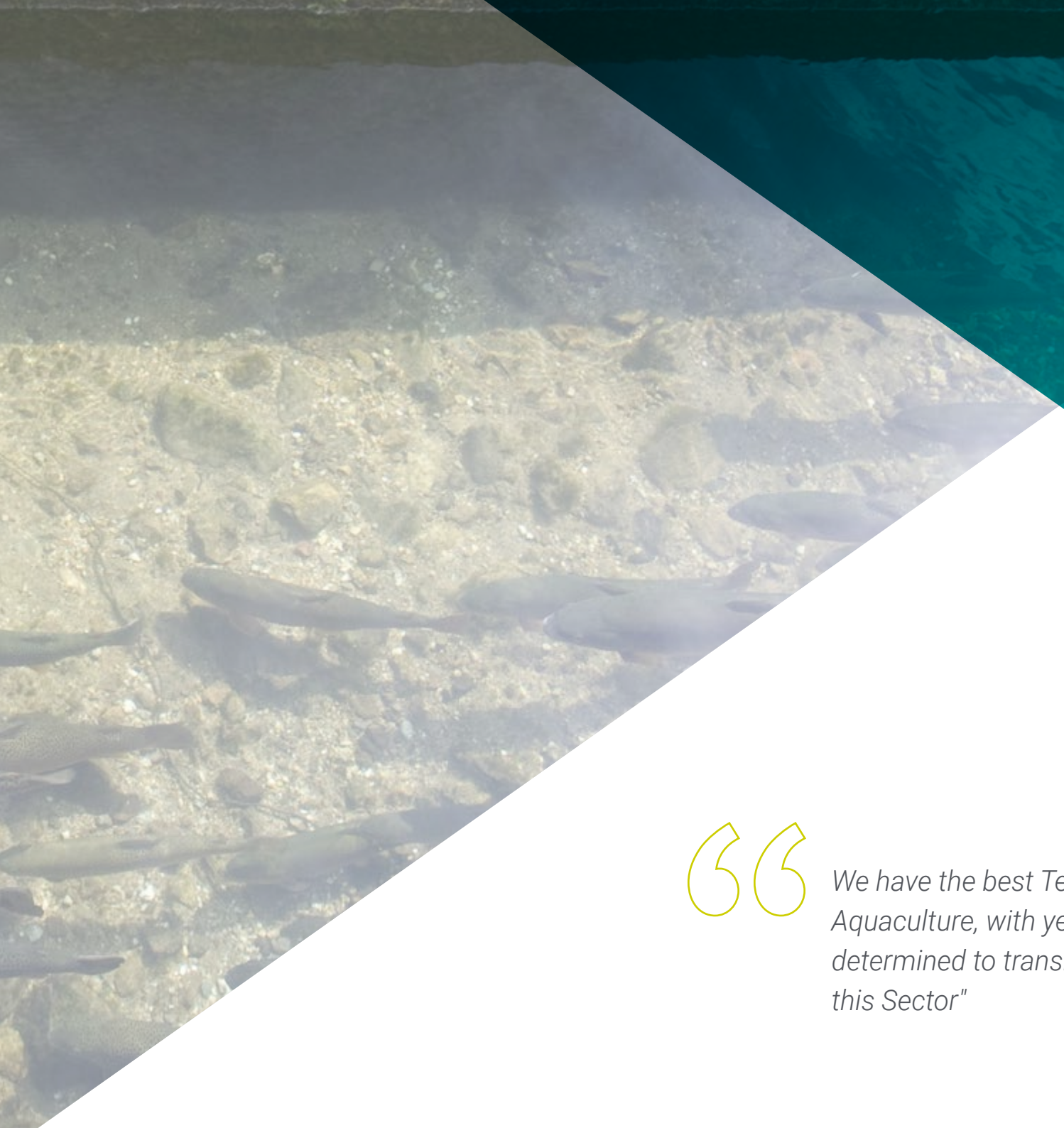
Specific Objectives

- Determine the Physiological Mechanism of Action of Sensory Organs
- Generate specialized Knowledge on the relationship between Oxygen Uptake Processes and the Mechanisms of the Cardiovascular System
- Deepen in the Metabolic Processes and their Results
- Determine the Importance of Osmotic and Ionic Balances
- Establish the importance of the Endocrine System in the control of other Physiological Functions
- Analyze the causes of Stress and Methods of dealing with them
- Determine more Specifically the Physiological Processes in Algae
- Examine the Symptoms Specific to each Pathogenic Agent
- Analyze the most Frequent Infectious Diseases in the most Common Species
- Develop the Functioning of the Immune System in Susceptible Production Species
- Generate Specialized Knowledge to carry out a specific Treatment for the Different Pathologies
- Correct Nutritional Deficits in Aquaculture Farms more Efficiently
- Achieve Better Solutions to Solve Non-infectious Pathologies
- Determine a Biosecurity Protocol to Reduce the Risk of Disease Occurrence

03

Course Management

The program's Teaching Staff includes leading experts in Aquaculture who contribute their vast work Experience to this training Program. They are World-renowned Professionals from different Countries with proven Theoretical and Practical Professional Experience.



We have the best Teaching Team in the field of Aquaculture, with years of experience and who are determined to transmit all their knowledge about this Sector"

Management

Mr. Gracia Rodríguez, José Joaquín

- Degree in Veterinary Medicine from the University of Murcia.
- Diploma in Aquaculture Specialization. Polytechnic University of Valencia
- Advanced Ichthyopathology Course
- International Congress on Sustainable Aquaculture
- Certificate in Pedagogical Aptitude University of Extremadura
- Attendance at the AVEPA Continuing Education Conference
- Teacher in Higher Vocational Training Degrees in the Sanitary Branch
- Training in Biosecurity and Pathology in the Ornamental Aquaculture Sector
- Speaker at National Congresses and Courses on Ornamental Aquaculture
- Training Courses for Livestock Farmers on Safety and Regulations in the Transport of Animals.
- Food Handler Courses for Companies and Individuals.
- Consultant in Ichthyopathology for several companies in the Aquaculture Sector
- Technical Director in the Ornamental Aquaculture Industry
- Coordination of Projects in Maintenance of Wild Species and Water Quality
- Projects in Natural Parks for the Control of Allochthonous Ichthyofauna
- Projects for the Recovery of Native Crayfish
- Carrying out Wildlife Species Censuses
- Coordination of livestock Sanitation Campaigns in Castilla-La Mancha
- Veterinarian in a Breeding and Genetic Improvement Company in the Rabbit Breeding Sector

Management

Ms. Herrero Iglesias, Alicia Cristina

- Degree in Veterinary Medicine from the University of Extremadura.
- Master's Degree in Secondary Education, International University of La Rioja
- Course "Animal Welfare in Livestock Production" organized by the Official College of Veterinarians of Madrid, in collaboration with the Faculty of Veterinary Medicine UCM and the Ministry of Environment and Land Management of the Community of Madrid
- Occupational Trainer, given by the INESEM Postgraduate Training Center.
- "Trainer of Trainers" Course given by the University Antonio de Nebrija .
- Teacher in the Degree in Veterinary Medicine, University of Alfonso X el Sabio (Madrid)
- Since February 2012 she has been Teaching "Ethnology and Veterinary Business Management" and "Animal Production"
- From the Academic Year 2016-2017 to the present, she has been teaching Hematological Analysis Techniques and Immunological Diagnostic Techniques for the 2nd year of the Formative Cycle of Higher Degree of Clinical and Biomedical Laboratory in Opesa (Madrid)
- Secondary School Teacher Cristóbal Colón School (Talavera de la Reina) Academic Year 18/19
- Veterinary Trainer in the Alonso Herrero HACCP Company for the Training of Food Handlers

Professors

Ms. Játiva Miralles, Lucía

- Degree in Veterinary Medicine from the University of Murcia.
- Certificate in Pedagogical Aptitude University of Extremadura
- Attendance at the AVEPA Continuing Education Conference
- II AMURVAC Annual Meeting: Ophthalmology, Exotics, and Neurology
- III Conference on Veterinary Emergencies: Ophthalmologic, Hematologic, and Oncologic Emergencies. Emergencies in Exotic Animals
- VII VEDEMA Course: Marine Mammals "Clinic and Biology"

04

Structure and Content

The structure of the content has been designed by the best Professionals in the Aquaculture Sector, with extensive Experience and Recognized Prestige in the Profession, backed by the volume of cases Reviewed, Studied, and Diagnosed, and with extensive knowledge of New Technologies applied to Veterinary Medicine.

We have the most complete and up-to-date academic program in the market. We strive for excellence and for you to achieve it too"

Module 1. Advanced Physiology of Aquaculture Species. Fish, Molluscs, Crustaceans, and Algae

1.1. Sensory System I
- 1.1.1. Vision
- 1.1.2. Hearing and Balance
- 1.1.3. Cutaneous Sensors
- 1.1.4. Behaviour

1.2. Sensory System II
- 1.2.1. Nociception
- 1.2.2. Chemoreceptors
- 1.2.3. Special Adaptations

1.3. Cardiovascular System of Aquaculture Species
- 1.3.1. Blood. General Characteristics and Composition
- 1.3.2. Cardiac Cells
- 1.3.3. Extrinsic and Intrinsic Control Mechanisms

1.4. Metabolisms of the Species used in Aquaculture
- 1.4.1. Digestion and Assimilation
- 1.4.2. Physiological Processes in the Physiological Metabolism of Carbohydrates
- 1.4.3. Physiological Processes in Physiological Lipid Metabolism
- 1.4.4. Physiological Processes in Physiological Protein Metabolism
- 1.4.5. Transport of Substances at Intestinal Level

1.5. Oxygen Uptake
- 1.5.1. Respiratory Chemoreceptors
- 1.5.2. Gill Structure
- 1.5.3. Extrabranchial Receptors

1.6. Osmotic and Ionic Balance
- 1.6.1. Introduction
- 1.6.2. Na+/Cl- Equilibrium
- 1.6.3. Acid-- Base Balance
- 1.6.4. K+ Secretion

1.7. Stress in Aquaculture Facilities
- 1.7.1. Definition and Concepts
- 1.7.2. Consequences of Stress
- 1.7.3. Thermal Stress
- 1.7.4. Social Stress
- 1.7.5. Handling Stress

1.8. Endocrine System
- 1.8.1. General Considerations
- 1.8.2. Pituitary and Endocrine Organs
- 1.8.3. Hypothalamus-Pituitary-Thyroid Axis
- 1.8.4. Endocrine Disruptors

1.9. Physiology of the Skin and Locomotion Anatomophysiology
- 1.9.1. Skin Tissue Structure
- 1.9.2. Bone-cartilaginous Physiology
- 1.9.3. Muscle
- 1.9.4. Physiological Aspects of Locomotion
- 1.9.5. Buoyancy

1.10. Applied Algal Physiology
- 1.10.1. General Structure Types
- 1.10.2. Cell Morphology
- 1.10.3. Associated Structures
- 1.10.4. Internal Structure
- 1.10.5. Movement of Algae
- 1.10.6. Nutrition
- 1.10.7. Photoreceptor System
- 1.10.8. Photosynthesis
- 1.10.9. Interaction of Algae in Biological Cycles

Module 2. Pathology Most common Diseases and Disorders in Aquaculture

2.1. Pathology in Aquaculture
- 2.1.1. Important Concepts
- 2.1.2. Importance of the Immune System
- 2.1.3. Infectious Diseases
- 2.1.4. Parasitic diseases
- 2.1.5. Nutritional Diseases
- 2.1.6. Other causes of Illness

2.2. Bacterial Diseases I
- 2.2.1. General Symptoms Methods of Diagnosis and Treatment
- 2.2.2. Flavobacteria
- 2.2.3. Enterobacteriaceae
- 2.2.4. Aeromonas
- 2.2.5. Pseudomonas

2.3. Bacterial Diseases II
- 2.3.1. Mycobacteria
- 2.3.2. Photobacteria
- 2.3.3. Flexibacteria
- 2.3.4. Chlamydia
- 2.3.5. Other Bacteria

2.4. Fungal Diseases
- 2.4.1. General Symptoms Methods of Diagnosis and Treatment
- 2.4.2. Oomycetes
- 2.4.3. Chytridiomycetes
- 2.4.4. Zygomycetes
- 2.4.5. Deuteromycetes

2.5. Viral Diseases I
- 2.5.1. Symptoms, Diagnostic Methods, and Treatment
- 2.5.2. Notifiable Viral Diseases (NDD)
- 2.5.3. Epizootic Hematopoietic Necrosis
- 2.5.4. Infectious Hematopoietic Necrosis
- 2.5.5. Viral Hemorrhagic Septicemia
- 2.5.6. Infectious Pancreatic Necrosis

2.6. Viral Diseases II
- 2.6.1. Infectious Salmon Anemia
- 2.6.2. Koi Herpes.
- 2.6.3. Encephalopathy and Viral Retinopathy
- 2.6.4. Lymphocystis
- 2.6.5. Pancreatic and Sleeping Diseases
- 2.6.6. Other Viral Diseases

2.7. Parasitic diseases
- 2.7.1. Symptoms. Methods of Diagnosis and Treatment
- 2.7.2. Protists
- 2.7.3. Metazoans

2.8. Nutritional Diseases
- 2.8.1. Important considerations in the relationship between Nutrition and its Pathologies
- 2.8.2. Causes of Starvation
- 2.8.3. Protein, Lipid, and Carbohydrate Deficiencies
- 2.8.4. Vitamin Deficiency
- 2.8.5. Mineral Deficiency
- 2.8.6. Toxins and their effects on Food

2.9. Neoplasms
- 2.9.1. Importance of Neoplastic Processes
- 2.9.2. Tumors of Epithelial Origin
- 2.9.3. Tumors of Mesenchymal Origin
- 2.9.4. Hematopoietic Tumors
- 2.9.5. Other Tumor Processes

2.10. Other Non-infectious Diseases
- 2.10.1. Trauma Lesions
- 2.10.2. Heat Stress Disease
- 2.10.3. Social Stress Pathologies
- 2.10.4. Gas Bubble Disease
- 2.10.5. Irritants
- 2.10.6. Physical Deformations
- 2.10.7. Genetic Alterations
- 2.10.8. Diseases caused by Algae

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

05

Methodology

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

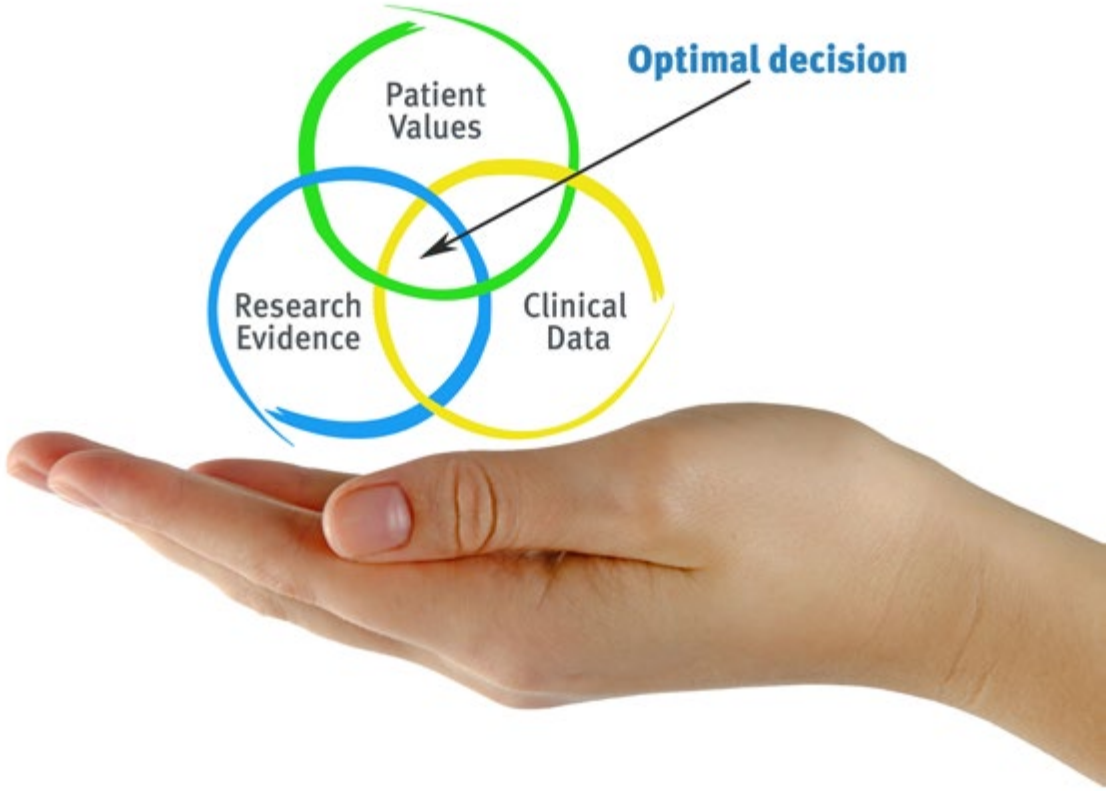
This teaching system is used in the most prestigious medical schools in the world, and major publications such as the ***New England Journal of Medicine*** have considered it to be one of the most effective.

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:

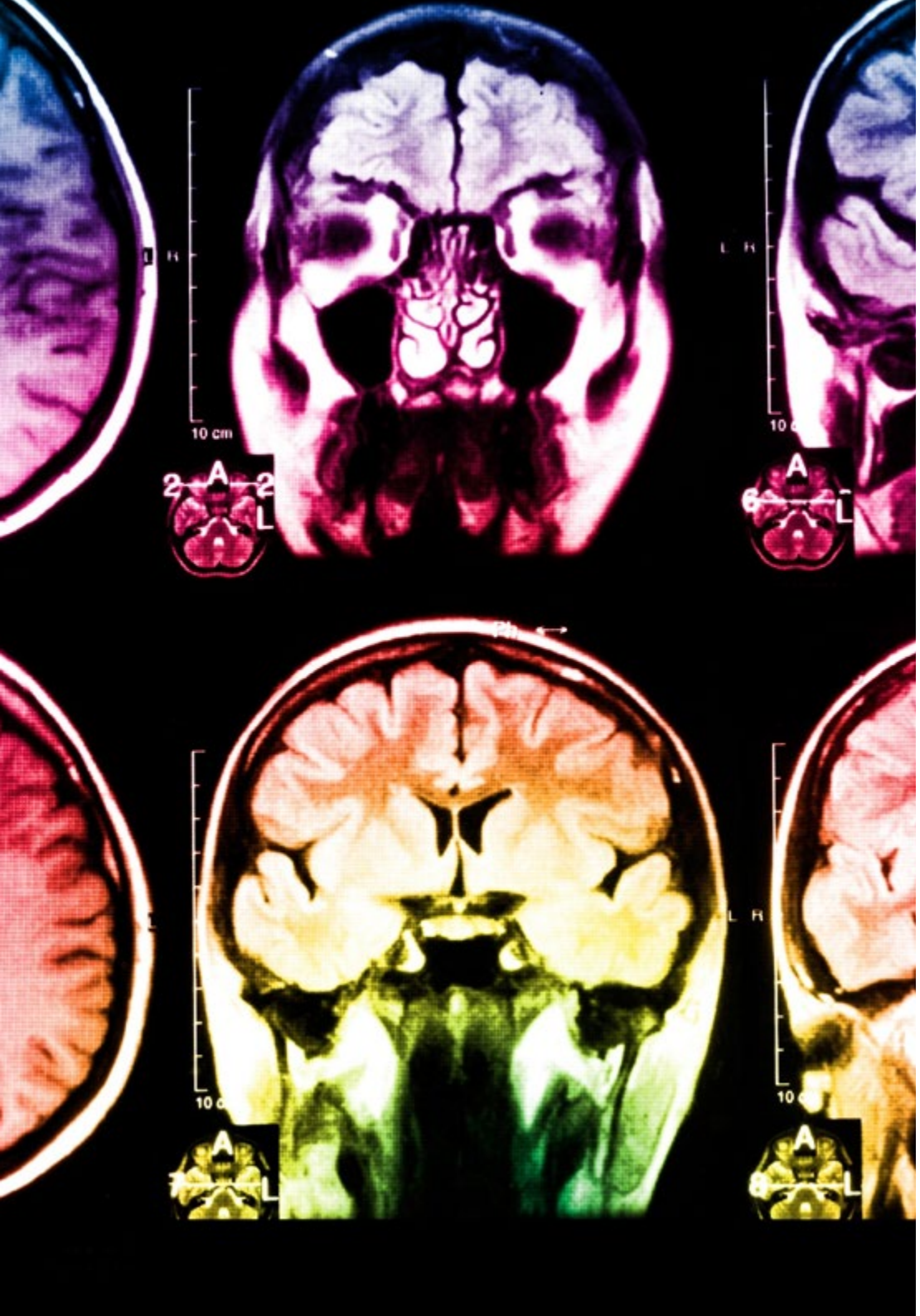
1. Veterinarians who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity through exercises to evaluate real situations and the application of knowledge.
2. The learning process has a clear focus on practical skills that allow the student to 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 didactic content is created by the very specialists who will teach the course, making it both specific and practical.

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.

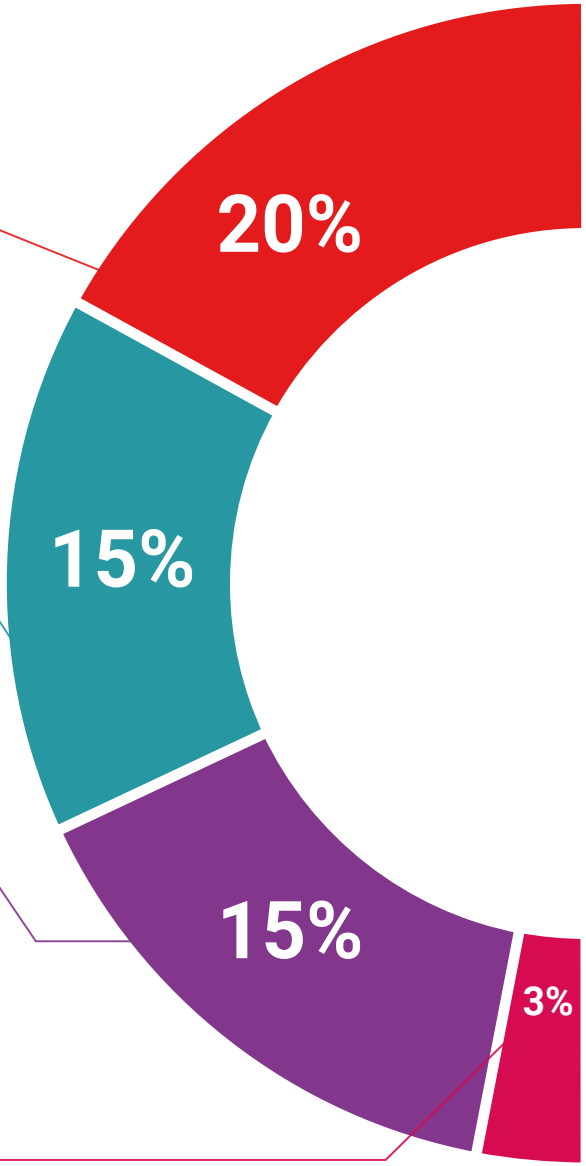
Interactive Summaries

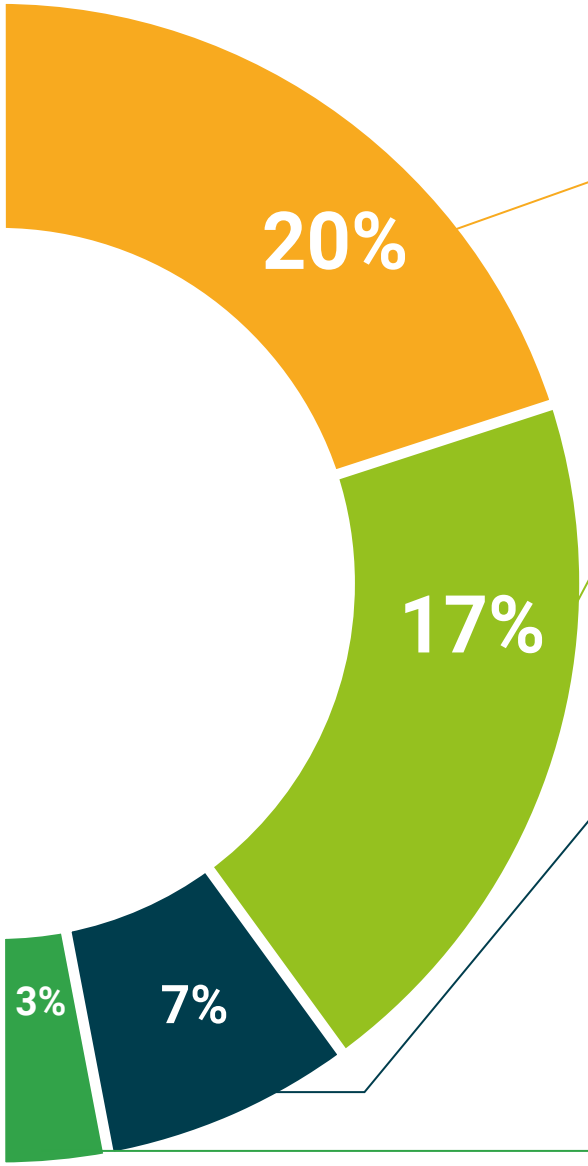
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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 & Retesting

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

The Postgraduate Certificate in Pathology in Aquaculture guarantees you, in addition to the most rigorous and up to date training, access to a Postgraduate Certificate issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Certificate in Pathology in Aquaculture** 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 Pathology in Aquaculture**

Modality: **online**

Duration: **12 weeks**

Accreditation: **12 ECTS**


tech global university

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

Postgraduate Certificate in Pathology in Aquaculture

This is a program of 360 hours of duration equivalent to 12 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.

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