Postgraduate Diploma
Animal Welfare in Fish Farming

tech technological university

Postgraduate Diploma
Animal Welfare in Fish Farming

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

Website: **www.techtitute.com/us/veterinary-medicine/postgraduate-diploma/postgraduate-diploma-animal-welfare-fish-farming**

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01
Introduction

This comprehensive program deals with all aspects of fish welfare. It studies the physiological response to stress in fish, which is, to some extent, different from that of other livestock species, and presents evidence on the ability of fish to perceive pain and fear. Both facts are of crucial importance to be able to determine the degree of welfare in fish and to ensure their level of welfare is not compromised.

"A complete and total update on animal welfare with the most complete and effective online program on the market"

Aquaculture is an important livestock activity. Fish farming has increased in recent decades, and policy makers, scientists and consumers are increasingly focused on the farming practices used and the welfare issues that come with them. How we define welfare in fish and how we can measure it is of particular relevance in the case of these animals. Scientific approaches to assessing fish welfare are continually evolving. Challenges include the great diversity of fish species and production systems, as well as the general paucity of scientific data in this field.

This Postgraduate Diploma examines the different production systems, either in inland water areas or in marine waters, as well as the different stages in fish rearing, from fry to adult. The effect of stocking density is an area of concern for welfare, which is complex, as it is affected by numerous interacting factors that are known to be species-specific.

Diet, feeding technique and management procedures have important effects on stress responses, subsequent stress tolerance, health and the occurrence of aggressive behavior. Strategies to reduce susceptibility to disease, minimize stress responses and avoid aggression are therefore vital.

The Postgraduate Diploma in Animal Welfare in Fish Farming is a new and up-to-date program that arises from the growing demand among veterinary professionals for specialized education in animal welfare to minimize animal suffering, since, nowadays, consumers demand not only healthier and safer food, but also food obtained through practices that ensure animal protection and welfare.

It addresses the concept of Animal Welfare, its evolution and applied ethology, one of the main welfare problems in all animal facilities.

It also covers animal ethics or bioethics as a differentiating element with respect to other similar training courses. Since this topic is usually included in philosophy programs, it is usually addressed very superficially in health sciences. This highly relevant ethical aspect today will be extensively discussed in depth throughout this Postgraduate Diploma in Animal Welfare on in Fish Farming.

The program will help veterinary professionals acquire specialized and up-to-date knowledge in the field of animal welfare, which is increasingly demanded by society, as conflicts between animal advocates and those in food production are the order of the day.

This **Postgraduate Diploma in Animal Welfare in Fish Farming** 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-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

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

"With a methodological design based on proven teaching techniques, this innovative program will take you through different teaching approaches to allow you to learn in a dynamic and effective way"

Our teaching staff is made up of professionals from different fields related to this specialty. That way we are sure to offer the training update we intend to provide. A multidisciplinary team of professionals trained and experienced in different environments, who will develop the theoretical knowledge in an efficient way, but, above all, will put at your service the practical knowledge derived from their own experience: one of the differential qualities of this training.

The efficiency of the methodological design of this Professional Master's Degree, enhances the student's understanding of the subject. 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 learning: 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.

A complete program that will allow you to acquire the most advanced knowledge in all the areas of intervention of a specialized veterinarian.

Our innovative telepractice concept will give you the opportunity to learn through an immersive experience, which will provide you with a faster integration and a much more realistic view of the contents: learning from an expert.
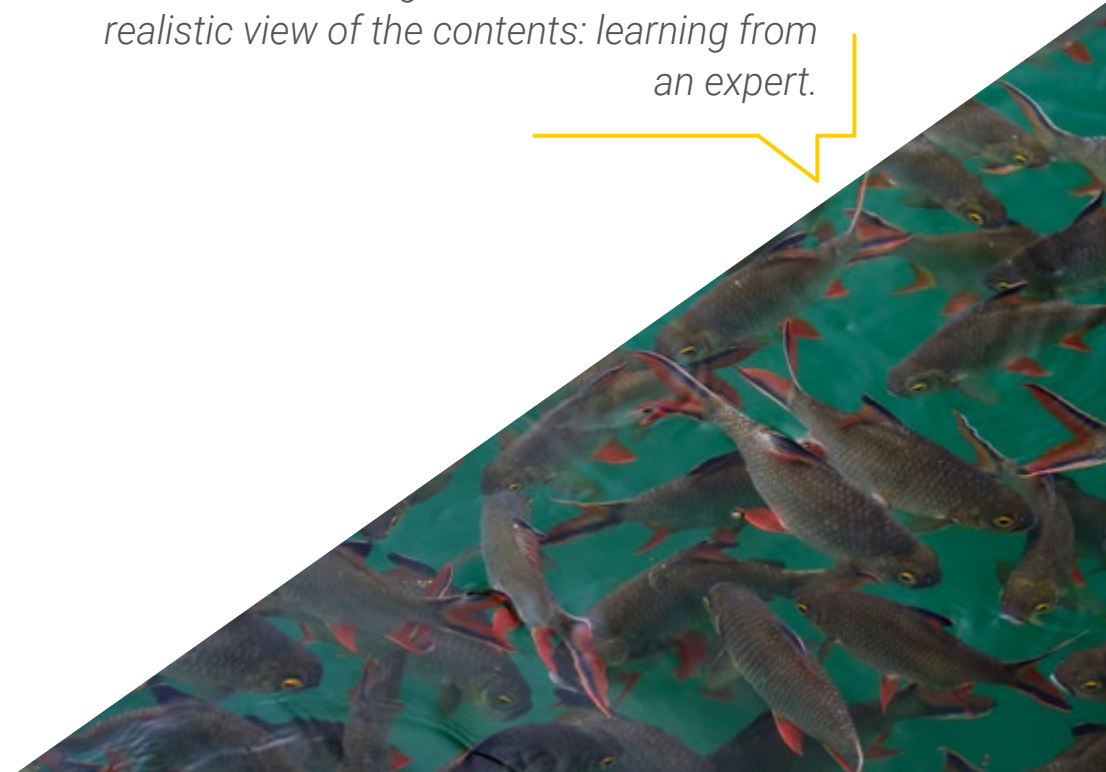
02
Objectives

Our objective is to create 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 materialized in helping professionals to reach a much higher level of competence and control. A goal that, in just a few months, you will be able to achieve, with a high intensity and effective training program.

"If your objective is to broaden your skill set to pave new ways toward success and development, this is the course for you: A training that aspires to excellence"

General Objectives

- Analyze the concept of animal welfare
- Examine human involvement in animal welfare
- Establish animal welfare assessment systems
- Analyze the ethical implications of the treatment of animals in society
- Substantiate the different ethical theories concerning animals
- Generate critical awareness of human responsibility toward animals
- Examine our role in animal welfare
- Compile all the information on implementing animal welfare regulations
- Define all the links involved in animal protection regulations
- Analyze the information on animal protection at the international level
- Develop the concept of "sentient being" in fishes
- Examine welfare assessment in fish farming
- Identify facility and management problems in fish welfare
- Understand welfare in aquarium fish

Specific Objectives

Module 1. Animal Welfare. Concepts and Evolution

- Examine the concept of Animal Welfare in all its implications
- Analyze the physiological stress response in animals and its quantification
- Develop the concepts of stress and acute and chronic stress responses
- Fundamentalize the concepts of "eustress" and "distress"
- Determine the Animal Welfare implications in this stress response
- Develop the concept of freedoms and needs to understand Animal Welfare
- Examine the concept of animal welfare assessment
- Specify current animal welfare assessment systems

Module 2. Animal Ethics

- Analyze the concept of animal ethics and bioethics in all its branches
- Provide a foundation for social, personal and professional ethics toward animals
- Examine the different ethical theories
- Develop the concept of animal status
- Identify the moral status that can be given to animals
- Substantiate animal integrity and hence animal abuse
- Introduce animal law and the Universal Declaration of Animal Rights
- Assess the role of human-animal relationships in welfare

Module 3. National and International Animal Protection Legislation

- Analyze the development of animal protection regulations in the European Union
- Develop animal protection regulations in livestock farms
- Detail animal protection regulations in transport and slaughtering
- Examine animal protection regulations for teaching and research purposes
- Identify international actors in the development of animal protection legislation
- Present animal welfare regulations in countries outside the European Union

Module 4. Animal Welfare in Fish Farming

- Define the physiological stress response in fish
- Analyze information on consciousness, pain and fear in fish
- Develop the most effective indicators to assess welfare in fish
- Examine measures of water quality and their implications for fish
- Discuss the main welfare issues in fish farming
- Establish the best management guidelines for fish to minimize suffering
- Examine the welfare of fish during capture in both farmed and commercial fisheries
- Determine the welfare of aquarium fish

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

Course Management

Within the concept of total quality of our program, we are proud to put at your disposal 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.

"

Our team of teachers, with expertise in Animal Welfare will help you succeed in your profession"

Management

Dr. De la Fuente Vázquez, Jesús

- Doctor in Veterinary Medicine, Complutense University, Madrid, 2003
- Master's Degree in Science in Pig Production, Aberdeen University, 1998
- Graduated in Veterinary Medicine, Complutense University, Madrid, 1997
- Assistant Professor in the Department of Animal Production, Faculty of Veterinary Medicine, UCM, since 2005
- Collaboration grant holder in teaching and research tasks, Department of Animal Production, Faculty of Veterinary Medicine, UCM, 1997
- European Social Fund predoctoral training fellow, Department of Agriculture, University of Aberdeen, 1998
- FPU predoctoral training grant, Universidad Complutense de Madrid, 1999-2002
- Three-month stay in the Department of Animal Science, Texas A&M University, 2001
- Contract Researcher in the Department of Food Technology, National Institute of Agricultural and Food Research and Technology, INIA, 2004
- Participation as a collaborating professor in more than 40 national and international courses on Animal Welfare
- Participated in more of 35 research articles in journals indexed in the Journal Citation Report
- Participation in more than 14 publicly and privately funded research projects
- Participation in ten book chapters and complete books
- Contribution in more than 60 communications to national and international congresses

Professors

Dr. Cabezas Albéniz, Almudena
- Doctor in Veterinary Medicine, Madrid Complutense University, 2017
- Master's Degree in Veterinary Science Research, Complutense University of Madrid, 2012
- Technical Agricultural Engineer, University School of Agricultural Engineering, Polytechnic University of Madrid, 2010
- Assistant Professor in the Department of Animal Production, Faculty of Veterinary Medicine, UCM, since 2016

Dr. Díaz Díaz-Chirón, María Teresa
- Doctor in Veterinary Medicine, Madrid Complutense University, 2002
- Graduated in Veterinary Medicine, Complutense University of Madrid, 1997
- Assistant Professor in the Department of Animal Production, Faculty of Veterinary Medicine, UCM, 2019-2020

Dr. González de Chavarri Echaniz, Elisabeth
- Doctor in Veterinary Medicine, Madrid Complutense University, 1991
- Graduated in Veterinary Medicine, Complutense University of Madrid, 1987
- Assistant Professor in the Department of Animal Production, Faculty of Veterinary Medicine, UCM, since 2004

Dr. Pérez Marcos, Concepción
- Doctor in Veterinary Medicine, Madrid Complutense University, 1986
- Graduated in Veterinary Medicine, Complutense University of Madrid, 1979
- Assistant Professor in the Department of Animal Physiology, Faculty of Veterinary Medicine, UCM, since 1987

Ms. Calero Alonso, Silvia
- Assistant Pharmacist at Plaza Santa Margarita and Mercedes Heras Peña Pharmacy Office, Madrid
- Degree in Pharmacy, University of La Laguna
- Master's Degree in Animal Production and Health, Complutense University and Polytechnic University, Madrid

"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"

04

Structure and Content

The contents have been developed by different experts, with a clear purpose: to ensure that our students acquire each and every one of the skills necessary 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.
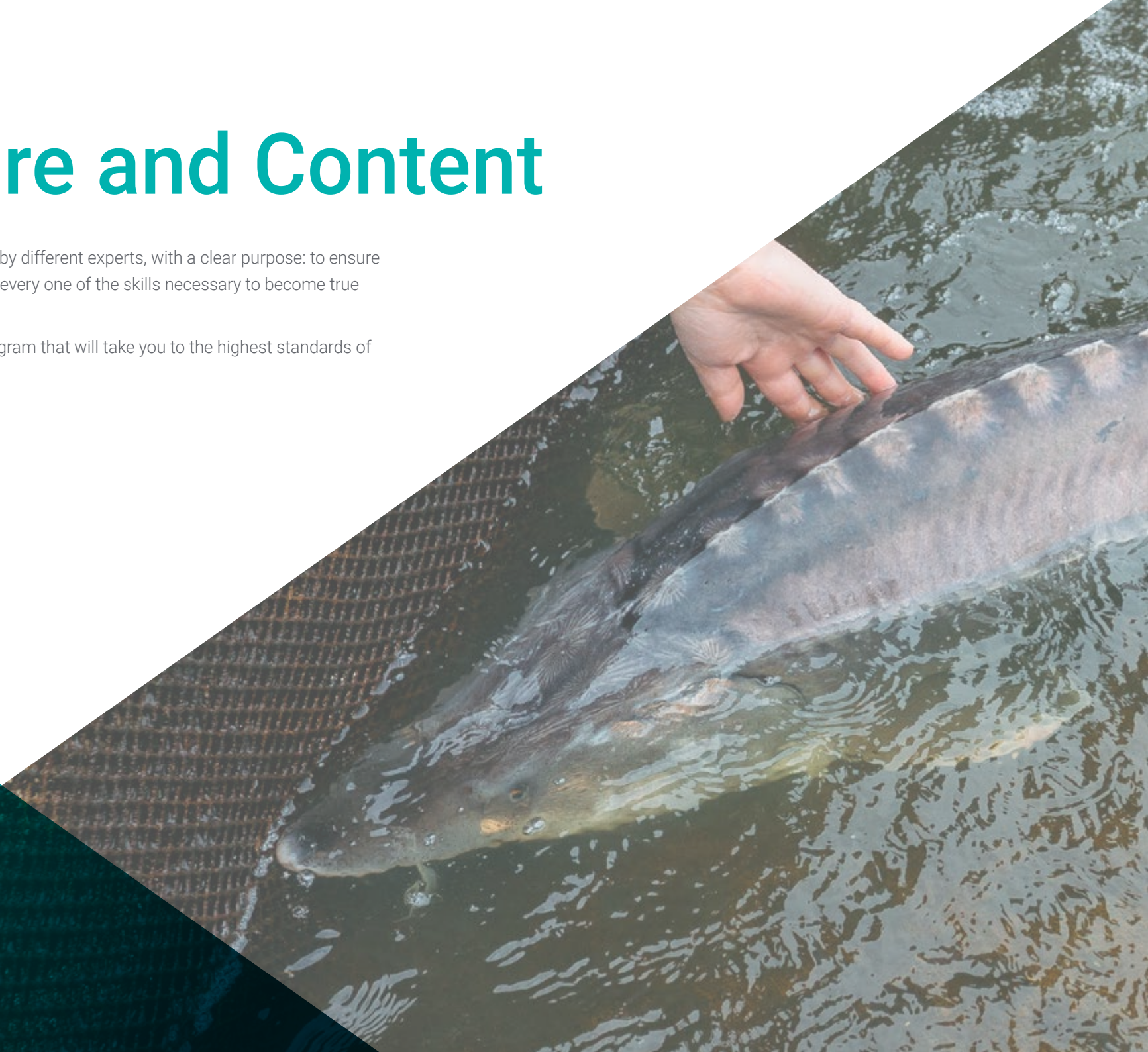
A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"

Module 1. Animal Welfare. Concepts and Evolution

3.7. Legislation on the Protection of Experimental Animals

　　3.7.1. European Parliament and Council 2010/63/EU Directive, 22 September 2010, on the Protection of Animals used for Scientific Purposes

　　3.7.2. Royal Decree 53/2013, February 1, Establishing the Basic Rules Applicable for the Protection of Animals used for Experimental and Other Scientific Purposes, including Teaching

　　3.7.3. Royal Decree 1386/2018, November 19, Amending Royal Decree 53/2013, February 1, Establishing the Basic Rules Applicable for the Protection of Animals used in Experimentation and Other Scientific Purposes, including Teaching

3.8. Legislation on the Protection of Animals used for Other Purposes

3.9. The Role of International Agencies in Animal Welfare

　　3.9.1. The Role of the Organization for Economic Co-Operation and Development (OECD)

　　3.9.2. The Role of Food and Agriculture Organization of the United Nations (FAO)

　　3.9.3. The Role of the World Organization for Animal Health (WOAH)

3.10. Animal Protection in Countries outside the European Union: North America, South America, Africa, Asia and Oceania

　　3.10.1. Animal Protection Regulations in the Americas

　　3.10.2. Animal Protection Regulations in Africa

　　3.10.3. Animal Protection Regulations in Asia

　　3.10.4. Animal Protection Regulations in Oceania

Module 4. Animal Welfare in Fish Farming

4.1. Physiological Stress Response in Fish

　　4.1.1. Stress Response in Fish

　　4.1.2. Detecting and Measuring Stress Response

　　4.1.3. Cortisol as a Stress Index

4.2. Consciousness in Fish

　　4.2.1. Fish Are Capable of Suffering

　　4.2.2. Basic Brain Organization of Teleost Fish

　　4.2.3. Cognitive Capacity and Behavior Modification

4.3. Pain and Fear in Fish

　　4.3.1. Sensitivity and Consciousness

　　4.3.2. Pain

　　4.3.3. Fear

4.4. Fish Welfare Indicators

　　4.4.1. Based on the Group

　　4.4.2. Based on the Individual

4.5. Water Quality and Fish Welfare

　　4.5.1. Dissolved Oxygen

　　4.5.2. Ammonia, Nitrates, Nitrites

　　4.5.3. Carbon Dioxide, Gas Oversaturation

　　4.5.4. Suspended Solids, Heavy Metals

　　4.5.5. Acidity, Alkalinity, Hardness, Temperature, Conductivity

　　4.5.6. Water Flow

4.6. Fish Welfare under Different Production Systems

　　4.6.1. Pond Aquaculture

　　4.6.2. Continuous Flow Systems

　　4.6.3. Semi-Closed Water Circuit Systems

　　4.6.4. Water Recirculation Systems

　　4.6.5. Net Cages

　　4.6.6. Offshore Culture Systems using Sea Cages

4.7. Fish Management and Welfare Implications

4.8. Fish Welfare Problems due to Animal Density

　　4.8.1. Animal Density in Cages

　　4.8.2. Animal Density in Tanks, Ponds and *Raceways*

　　4.8.3. Animal Density and behavior

　　4.8.4. Relation between Animal Density and Welfare

4.9. Welfare in Commercial Fishery Capture and Fish Farming

　　4.9.1. Stressors during Capture

　　4.9.2. Commercial Catching Methods: Trawling, Seining, Trammel Nets and Pots

　　4.9.3. Preparing for Capture, Crowding and Harvesting of Fish in Fish Farming

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

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.

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

What should a professional do in a given situation? 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 an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

With TECH you will 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, in an attempt to recreate the actual conditions in a 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 manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application

2. Learning is solidly translated into 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.

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.

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.

01 learning from evidence

02 relearning from evidence

03 testing

04 learning from an expert

05 neurocognitive context dependent learning

06 Von-Restorff effect

07 case based learning through storytelling

08 competencies testing (retesting)

At the forefront of world teaching, the Relearning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology more than 65,000 veterinarians have been trained with unprecedented success in all clinical specialties, regardless of the surgical load. Our teaching method is developed in a highly demanding environment, where the students have a high 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.

Latest Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current and procedures of veterinary techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.

Interactive Summaries

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

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

Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.

20%

15%

15%

3%

20%

17%

7%

3%

Expert-Led Case Studies and Case Analysis

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

Testing & Retesting

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

Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

Quick Action Guides

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

06

Certificate

The Postgraduate Certificate in Glaucoma in Dogs and Cats 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 Diploma in Animal Welfare Fish Farming** 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 Diploma** issued by **TECH Technological University** via tracked delivery*.

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

Title: **Postgraduate Diploma in Animal Welfare in Fish Farming**

Official Nº of hours: **600 h.**

tech technological university

Awards the following

DIPLOMA
to

Mr./Ms. _____, with identification number _____.
For having passed and accredited the following program

POSTGRADUATE DIPLOMA
in

Animal Welfare in Fish Farming

This is a qualification awarded by this University, equivalent to 600 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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