Master's Degree
Aquaculture

tech global university

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Master's Degree
Aquaculture

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Website: www.techtitute.com/us/veterinary-medicine/master-degree/master-aquaculture

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01

Introduction

The increase in the world's population and the rise in consumption of healthier foods, such as fish and seafood, have led to the need to increase the production of these foods. However, the seas and oceans are not unlimited, so fishing has a series of restrictions and recommendations that must be complied with in order to favor the environment and maintain the species. It is in this context that Aquaculture production acquires great importance, since it allows satisfying demand without damaging the ecosystem. In this program, we offer you the most complete specialization in the market on Aquaculture, so that you can train yourself in this sector with a great future projection.

The increase in population, worldwide, requires new advances in breeding and cultivation systems, to ensure food supply"

Current UN forecasts predict an increase in the world's population of around two billion more people by the year 2050. This increase in the population will lead to the necessary development of breeding and cultivation systems that can guarantee food supply to all continents. Likewise, the environmental factor will lead to the emergence of new technologies that will allow this increase in production, while respecting all the parameters for the protection of the natural environment.

The aquaculture sector has been developing and implementing improvements for years, mainly due to the fact that traditional fishing in the usual fishing grounds is not able to meet the current demand for aquaculture products, as it has to respect the closed periods and catch quotas established by the authorities. These factors have resulted in the steady development and progress of the aquaculture industry.

This Master's Degree in Aquaculture offers specific and specialized training, as well as necessary in these times, to be able to face the challenges that arise in the near future. The main objective of this program is to provide the professional of this sector with the necessary tools for a better optimization of resources.

All the teachers in the program have extensive experience, both at university and high school level, as well as a professional background that qualifies them for the development of the topics, in which each one is an expert. This guarantees a teaching team that is up to date with the latest developments in its field, and with the capacity to transmit specialized knowledge.

The training program covers the most important aspects of daily practice in this sector, so that the goal of improving all parameters leading to production optimization is within the reach of the student. It also brings together the greatest variability of examples and possibilities, so that it reliably approximates the complexity of the sector, which has a wide diversity of production models, making it necessary to have a global vision of it.

This Master's Degree provides students with specialized tools and skills to successfully develop their professional activity in the broad environment of Aquaculture, working on key competencies such as knowledge of the reality and daily practice of the professional, and developing responsibility in the monitoring and supervision of their work, as well as communication skills within the essential teamwork.

This **Master's Degree in Aquaculture** contains the most complete and up-to-date scientific program on the market. The most important features include:

- The development of case studies, presented by experts in Aquaculture
- The graphic, schematic and eminently practical contents, with which they are conceived, provide scientific and practical information on those disciplines that are essential for professional practice
- The latest developments in Aquaculture
- Practical exercises where self-assessment can be used to improve learning
- Its special emphasis on innovative methodologies 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, which will allow you to face the future challenges of Aquaculture"

With this intensive program, you will learn which measures are necessary to keep crops safe"

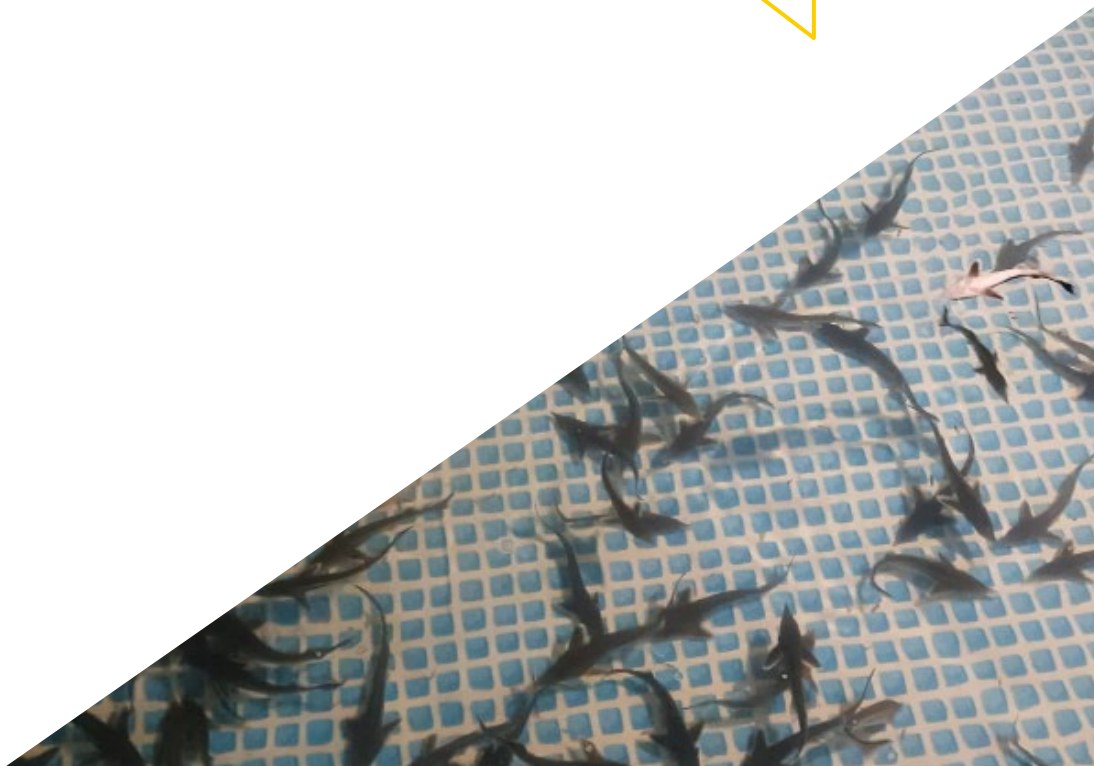
You will examine the causes of alterations of vital physiological elements, with the help of prestigious professionals.

This 100% online Master's Degree will allow you to combine your studies with your professional work, while increasing your knowledge in this field.

It includes, in its teaching staff, professionals from the veterinary field, who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and universities.

Its multimedia content, developed with the latest educational technology, will allow the professional a situated and contextual learning, that is to say, a simulated environment that will provide an immersive specialization, programmed to train in real situations.

The design of this program is based on Problem-Based Learning, by means of which the specialist must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system, developed by renowned and experienced Aquaculture experts.



02

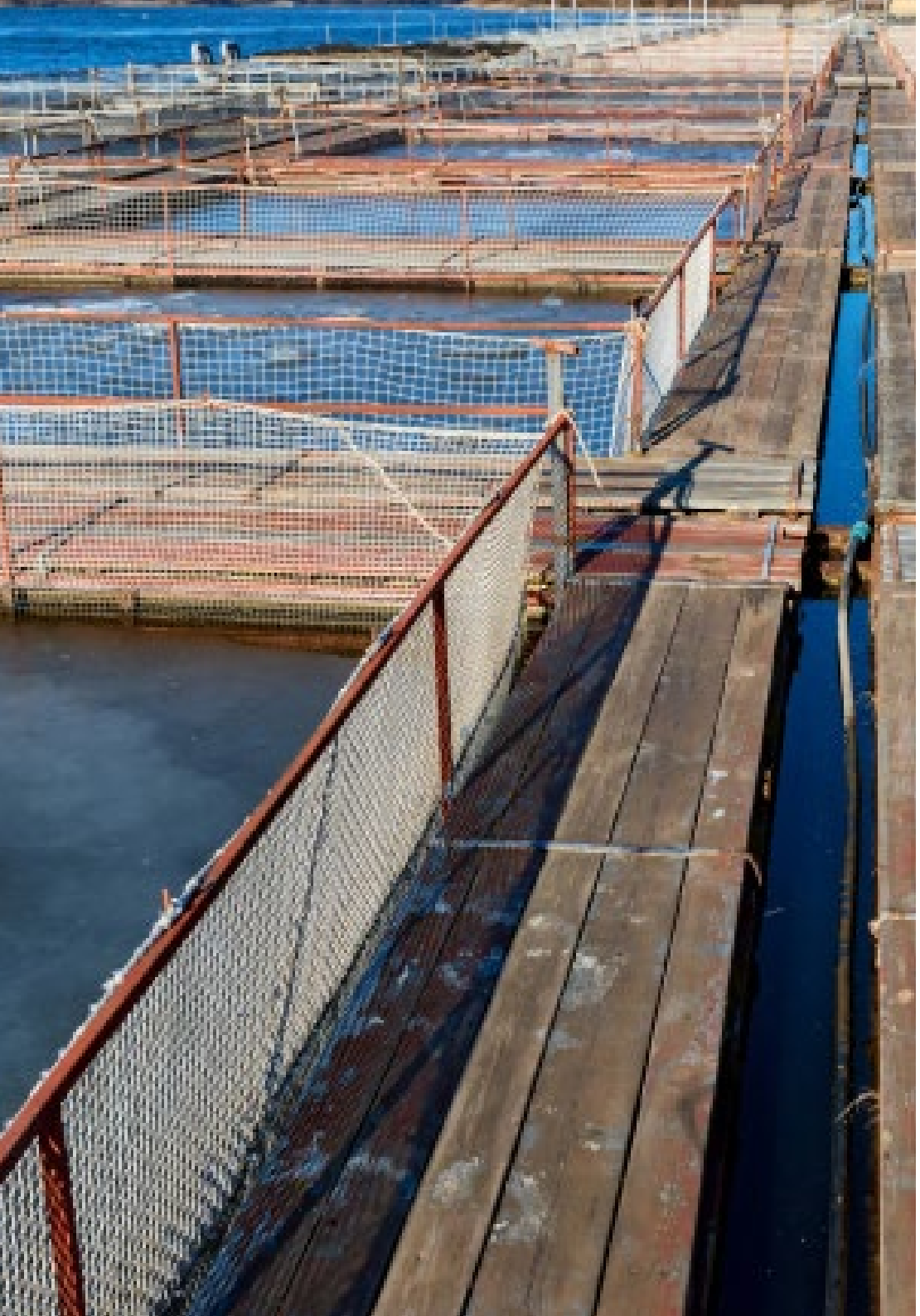
Objectives

The Master's Degree in Aquaculture is oriented to facilitate the performance of the professional dedicated to veterinary medicine, with the latest advances and newest treatments in the sector.

Throughout these months you will learn to analyze more intensively the different methods of reproduction in Aquaculture"

General Objectives

- Examine the different types of Aquaculture
- Generate specialized knowledge on the criteria and parameters that determine a quality environment in which to implement an Aquaculture culture
- Specify what measures are necessary to keep crops secure
- Generate specialized knowledge on the fundamentals of genetic improvement in Aquaculture
- Generate specialized knowledge of the different physiological processes that occur in Aquaculture species
- Specify the different processes of exchange with the environment of animal and plant species used in Aquaculture
- Examine the causes of alterations of vital physiological elements
- Determine the main causes of stress and implement the most effective solutions for its elimination
- Examine the nutritional requirements of aquatic crops
- Master the formulation techniques of different types of feed for aquaculture cultures
- Generate specialized, quality food knowledge to select the most appropriate raw materials
- Analyze the intestinal microbiota of aquatic species to obtain better crop yields
- Analyze the reproductive processes of the different species used in Aquaculture
- Determine the factors associated with reproductive processes in Aquaculture
- Develop the most important concepts in artificial fertilization
- Analyze in a more intensive way the different methods of reproduction
- Generate specialized knowledge on algae reproduction
- Analyze the genetic characteristics of aquaculture species
- Develop the study of the most innovative molecular technology applied to aquaculture
- Evaluate future applications of biotechnology in aquaculture species
- Analyze the contribution of Aquaculture to biodiversity conservation
- Improve the hygienic-sanitary planning of an Aquaculture facility
- Increase the capacity to anticipate possible pathological outbreaks
- Generate specialized knowledge on the main pathogens
- Develop advanced knowledge for the diagnosis and treatment of diseases
- Examine the needs for the correct design of an Aquaculture facility
- Generate specialized knowledge to carry out a correct choice of the facilities
- Implement facility management improvements
- Establish the necessary knowledge for a good maintenance of the facilities
- Improve the characteristics of health plans
- Examine the regulations governing Aquaculture, its legislation and the rights and obligations it generates
- Analyze and assess the organization and functions of the main international organizations in the sector
- Determine the contribution of national and international organizations, entities and societies to the progressive and sustainable development of Aquaculture worldwide
- Quantitative and qualitative assessment of the Aquaculture activity
- Analyze the basis of viability in Aquaculture



- Identify the general financial bases in Aquaculture
- Report the income statement in a company
- Identify the economic flows in an Aquaculture company
- Examine equity and financial concepts
- Analyze the details of the different Aquaculture crops
- Analyze the differences that can be observed between the different types of Aquaculture crops
- Examine the different systems used within the existing variety of Aquaculture cultures
- Determine the different quality criteria to be followed in the different products obtained within this wide-ranging practice of Aquaculture

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

Specific Objectives

Module 1. Aquaculture Production

- Analyze the history and evolution of aquaculture production for a better understanding of its current situation
- Examine the different criteria that determine water quality in Aquaculture
- Determine the parameters that determine water quality in Aquaculture
- Analyze the different types of crops that exist and the most frequent production systems in them.
- Examine the different biosecurity measures existing within the different types of cultures
- Generate specialized knowledge on the different genetic resources that can be used to achieve culture improvement
- Establish the processes for handling and management of waste in Aquaculture
- Develop expertise in ways to control, manage and minimize the pollution produced by this activity

Module 2. Advanced Physiology of Aquaculture Species Fish, molluscs, crustaceans and algae

- Determine the physiological mechanism of action of the sensory organs
- Generate specialized knowledge on the relationship between oxygen uptake processes and the mechanisms of the cardiovascular system
- Delve into 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 the methods to solve them
- Determine more specifically the physiological processes in algae

Module 3. Nutrition in Aquaculture Farms

- Determine the nutritional requirements of fish, crustaceans and molluscs
- Manage the practical formulation of food for different life stages, such as the larval stage, fattening stage and reproductive stage
- Analyze the digestibility of key food components
- Establish the relevant aspects of the different forms of presentation of feed for Aquaculture cultures
- Generate specialized knowledge on the supply of minerals, vitamins and other additives
- Analyze the advantages and possible disadvantages derived from the use and misuse of probiotics
- Examine live feed cultures and their use in Aquaculture

Module 4. Species Reproduction in Aquaculture

- Specify the physiological mechanism of action of the reproductive organs
- Generate specialized knowledge on hormone regulation in reproductive processes
- Determine the importance of sex determination and differentiation
- Analyze the effectiveness of environmental control on reproduction
- Determine the most commonly used fertilization methods
- Generate specialized knowledge on reproductive processes in algae
- Determine the usefulness of cryopreservation in breeding farms
- Examine the importance of diet and endocrine disruptors on reproductive processes

Module 5. Biotechnology and Genetics in Aquaculture

- Analyze the progressive innovation of aquaculture through selection and biotechnology
- Establish the genetic characteristics of Aquaculture species
- Analyze cloning techniques of Aquaculture species and their applications
- Determine the genetic selection techniques, crossbreeding, reproductive biotechnology and breeding programs present in the management of Aquaculture species
- Examine structural genomics and possible applications in Aquaculture
- Analyze functional genomics and possible applications in Aquaculture
- Evaluate the possibilities of transgenesis and gene editing in Aquaculture species

Module 6. Pathology Most frequent diseases and disorders in Aquaculture

- 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 specific treatment for different pathologies
- Correct nutritional deficits in Aquaculture farms more efficiently
- Achieve better solutions to solve non-infectious pathologies
- Determine a biosafety protocol to reduce the risk of disease occurrence

Module 7. Aquaculture Facilities Types, design and management

- Designing facilities and water flow on inland farms
- Establish methods for oxygenation and aeration of water
- Develop specialized knowledge on the relationship between natural elements (wind, waves and currents) and marine facilities
- Increase management and organizational capacity according to the operation's objective
- Modernize facility maintenance plans
- Carry out a correct waste management
- Plan the final commercialization of the product

Module 8. Aquaculture Sector Regulations

- Establish the formal and material sources that generate the Aquaculture regulatory standards
- Select the regulations applicable to the geographical environment
- Determine the main policies and frameworks that promote the development of Aquaculture
- Examine the rights and duties deriving from the legal framework that regulates social, economic and labor conditions
- Enhance the use of resources and opportunities offered by official organizations in Aquaculture
- Analyze the importance of the activity of companies, foundations and entities that promote research, technological development and innovation projects in Aquaculture
- Generate capacity to adapt to new economic, legislative, technical and technological situations that may arise

Module 9. Structure and Economic Management

- Identify the techniques of economic-financial analysis
- Present and develop the concepts related to feasibility
- Define the rules of economic analysis
- Establish the foundations of financial analysis
- Identify the main economic and financial ratios to be considered
- Assess these ratios in the Aquaculture field
- Establish the equity parameters
- Generate the economic-financial debate in Aquaculture

Module 10. Aquaculture Culture Models

- Examine the production systems used in inland Aquaculture
- Analyze culture patterns of different inland species
- Determine the production systems used in marine Aquaculture
- Analyze the culture patterns of different marine species
- Examine the production systems used in ornamental Aquaculture
- Analyze culture patterns of different ornamental species
- Determine the details and differences between different fish species in order to take them into account in their culture methods
- Develop the most relevant aspects of other types of Aquaculture models, such as live feed culture

03

Skills

After passing the assessments of the Master's Degree in Aquaculture, the professional will have acquired the necessary skills for a quality and up-to-date praxis based on the most innovative didactic methodology.

This program will enable you to acquire the skills you need to be more effective in your daily work"

General Skills

- Develop specialized knowledge to improve their capacity in the management of any field related to the Aquaculture sector
- Know the most advanced tools in the field of Aquaculture and know how to apply them in their daily practice
- Assume important responsibilities in the field of Aquaculture
- Develop research and teaching capacity in the Aquaculture sector

Take the step to get up to date on the most relevant aspects of Aquaculture"

Specific Skills

- Know the criteria that determine water quality in Aquaculture and know how to manage these facilities to minimize pollution
- Know the physiology of Aquaculture species in order to carry out the most appropriate processes for each one
- Design the most appropriate diets for each species, taking into account the nutritional requirements of each one, depending on whether they are fish, crustaceans or molluscs
- Know the reproductive procedures of each species and perform the different breeding and rearing tasks
- Apply the latest developments in the field of biotechnology and genetics to Aquaculture
- Identify the most frequent pathologies that occur in aquifer-breeding species
- In-depth knowledge of aquifer facilities and their proper management
- Know the main regulations on the subject and apply them in the development of daily work in the facilities
- Know how to carry out the economic management of aquifer installations
- Know the most appropriate culture models for each species and know how to carry them out in daily practice

04

Course Management

The program includes in its teaching staff leading experts in Aquaculture, who bring to this training the experience of their work. 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 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

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
- Course "Trainer of Trainers", Antonio de Nebrija University
- Teacher in the Degree in Veterinary Medicine, Alfonso X el Sabio University (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, 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 APPCC Company for the training of food handlers
- Teacher of the course of Veterinary Technical Assistant, in Grupo INN, giving classes during the course 18/19 (Talavera de la Reina)
- Her professional career began with field work in the field of large animal production
- After working in animal health and sanitary inspection, she began to focus on the field of teaching
- At present, she combines her teaching work at the University with higher technical classes and field activities within the veterinary field
- During her professional career, she have taken a large number of continuing education and specialization courses
- Stays at the Minimal Invasive Surgery Center Jesús Usón (JUMISC) in Cáceres
- She was also a student intern at the Department of Medicine of the Faculty of Veterinary Medicine at the UEX

Professors

Ms. García-Atance Fatjó, María Asunción

- Degree in Veterinary Medicine, Complutense University of Madrid in 1994 Presentation of her thesis, obtaining the Degree in 1995
- Currently working on her doctorate, expected date of dissertation defence: 2020/2021
- Collaborator in the teaching of the subjects; Genetics and Breeding and Health between 1998 and 2005 in the degree of Veterinary Medicine at the Complutense University of Madrid
- Teaching and research staff at the Complutense University of Madrid
- Associate professor at the Alfonso X el Sabio University in the Veterinary degree since 2012, being currently the coordinator of the subjects; Genetics and Breeding and Teacher of Ethnology, Animal Production, and tutored practices

Mr. López Ruano, Gregorio

- Law Degree from the University of Extremadura, June 2000
- Occupational trainer Department of Labor of the Regional Government of Extremadura
- Trainer of trainers in e-learning. Online Training Institute - Plan Avanza
- Social Responsibility, Crisis and Labor Reform. International University of Andalusia
- Teacher of Secondary Education specializing in Business Administration, Ministry of Education, Culture, and Sports of the Junta de Castilla-la Mancha (since 2017)

Ms. Játiva Miralles, Lucía

- Degree in Veterinary Medicine, University of Murcia
- Pedagogical Aptitude course, 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"
- Practical course on parasitology of wild ruminants in captivity. CSIC. Experimental Station of Arid Zones of Almeria.
- Teacher in Secondary Education for the Education Council of the Community of Madrid. Since 2017
- Field technician with livestock sanitation tasks for the company Vaersa, in the province of Alicante. 2015

Ms. Gonzáles-Gallego, Isabel

- Technical support to the Ministry of Agriculture and Fisheries, Food and Environment in the process of environmental assessment of projects, plans and programs.
- Degree in Marine Sciences, University of Alicante
- Master's Degree in Environmental Management, CEU Cardenal Herrera

05

Structure and Content

The structure of the contents has been designed by the best professionals in the Aquaculture sector, with an extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied and diagnosed, and with a wide mastery of new technologies applied to veterinary medicine.

With this program, you will obtain specialized knowledge about the criteria and parameters that determine a quality environment in which to implement an Aquaculture culture"

Module 1 Aquaculture Production

1.1. Aquaculture
- 1.1.1. History
- 1.1.2. Types of Aquaculture According to the Organism to be Cultured
- 1.1.3. Types of Aquaculture According to Location
- 1.1.4. Aquaculture in Micro-Reservoirs
- 1.1.5. Recirculation Systems in Aquaculture

1.2. Water Quality
- 1.2.1. Water in Aquaculture
- 1.2.2. Physical Properties of Water
- 1.2.3. Water Quality Criteria
- 1.2.4. Measurements

1.3. Water Quality Parameters in Aquaculture Cultures
- 1.3.1. Physical Parameters
- 1.3.2. Chemical Parameters
- 1.3.3. Biological Parameters

1.4. Types of Aquaculture
- 1.4.1. Fish Farming
- 1.4.2. Bivalve Mollusc Culture
- 1.4.3. Crustacean Culture

1.5. Live Food Culture
- 1.5.1. Importance of Live Food
- 1.5.2. Use of Microalgae as Live Feed
- 1.5.3. Rotifers as Live Food
- 1.5.4. Artemia as Live Food
- 1.5.5. Other Organisms used as Live Food

1.6. Aquaponics
- 1.6.1. Introduction
- 1.6.2. Aquaponic Recirculation Systems
- 1.6.3. Design of Aquaponic Recirculating Aquaponics System
- 1.6.4. Species used in this Type of System

1.7. Biosecurity in Aquaculture Farms
- 1.7.1. Biosecurity
- 1.7.2. Measures to Reduce the Risk of Pathogen Incursion
- 1.7.3. Measures to Reduce the Risk of Pathogen Spread

1.8. Prophylaxis and Vaccination in Aquaculture
- 1.8.1. Immunology
- 1.8.2. Vaccination as a Preventive Measure
- 1.8.3. Types of Vaccines and Routes of Administration in Aquaculture

1.9. Handling and Waste Management in Aquaculture
- 1.9.1. Waste Management
- 1.9.2. Waste Characteristics
- 1.9.3. Waste Storage

1.10. Aquaculture as a Source of Pollution and Pollution Prevention
- 1.10.1. Inland Aquaculture as a Source of Pollution
- 1.10.2. Marine Aquaculture as a Source of Pollution
- 1.10.3. Other types of Aquaculture as a Source of Pollution
- 1.10.4. Prevention of Water Pollution in Inland Aquaculture Activity
- 1.10.5. Prevention of Water Pollution in Marine Aquaculture Activity
- 1.10.6. Prevention of Water Pollution in Other Aquaculture Activities

Module 2 Advanced Physiology of Aquaculture Species. Fish, molluscs, crustaceans and Algae

2.1. Sensory System I
- 2.1.1. Vision
- 2.1.2. Hearing and Balance
- 2.1.3. Cutaneous Sensors
- 2.1.4. Behaviour

2.2. Sensory System II
- 2.2.1. Nociception
- 2.2.2. Chemoreceptors
- 2.2.3. Special Adaptations

2.3. Cardiovascular System of Aquaculture Species
- 2.3.1. Blood. General Characteristics and Composition
- 2.3.2. Cardiac Cells
- 2.3.3. Extrinsic and Intrinsic Control Mechanisms

2.4. Metabolisms of the Species used in Aquaculture
- 2.4.1. Digestion and Assimilation
- 2.4.2. Physiological Processes in the Physiological Metabolism of Carbohydrates
- 2.4.3. Physiological Processes in Physiological Lipid Metabolism
- 2.4.4. Physiological Processes in Physiological Protein Metabolism
- 2.4.5. Transport of Substances at Intestinal Level

2.5. Oxygen Uptake
- 2.5.1. Respiratory Chemoreceptors
- 2.5.2. Gill Structure
- 2.5.3. Extrabranchial Receptors

2.6. Osmotic and Ionic Balance
- 2.6.1. Introduction
- 2.6.2. Na+/Cl- Equilibrium
- 2.6.3. Acid-base Equilibrium
- 2.6.4. K+ Secretion

2.7. Stress in Aquaculture Facilities
- 2.7.1. Definition and Concepts
- 2.7.2. Consequences of Stress
- 2.7.3. Thermal Stress
- 2.7.4. Social Stress
- 2.7.5. Handling Stress

2.8. Endocrine System
- 2.8.1. General Considerations
- 2.8.2. Pituitary and Endocrine Organs
- 2.8.3. Hypothalamus-Pituitary-Thyroid Axis
- 2.8.4. Endocrine Disruptors

2.9. Physiology of the Skin and Locomotion Anatomophysiology
- 2.9.1. Skin Tissue Structure
- 2.9.2. Bone-cartilaginous Physiology
- 2.9.3. Muscle
- 2.9.4. Physiological Aspects of Locomotion
- 2.9.5. Buoyancy

2.10. Applied Algal Physiology
- 2.10.1. General Structure Types
- 2.10.2. Cell Morphology
- 2.10.3. Associated Structures
- 2.10.4. Internal Structure
- 2.10.5. Movement of Algae
- 2.10.6. Nutrition
- 2.10.7. Photoreceptor System
- 2.10.8. Photosynthesis
- 2.10.9. Interaction of Algae in Biological Cycles

Module 3 Nutrition in Aquaculture Farms

3.1. Nutritional Requirements of Aquatic Organisms
- 3.1.1. Nutritional Requirements of Fish
- 3.1.2. Nutritional Requirements of Crustaceans
- 3.1.3. Nutritional Requirements of Molluscs

3.2. Practical Feed Formulation
- 3.2.1. Larval Feed Formulation
- 3.2.2. Feed Formulation for Fattening
- 3.2.3. Feed Formulation for Reproductive Stage

3.3. Feed Quality and Raw Material Selection
- 3.3.1. Proteins
- 3.3.2. Amino Acids
- 3.3.3. Carbohydrates
- 3.3.4. Lipids

3.4. Digestibility of Food Components
- 3.4.1. Protein
- 3.4.2. Amino Acids
- 3.4.3. Carbohydrates
- 3.4.4. Lipids

3.5. Forms of Presentation of Feed for Aquaculture Cultures
- 3.5.1. Floating Feeds
- 3.5.2. Pelletized
- 3.5.3. Expanded
- 3.5.4. Extruded

3.6. Supply of Minerals, Vitamins and Other Additives
- 3.6.1. Minerals
- 3.6.2. Vitamins
- 3.6.3. Other Additives

3.7. Intestinal Microbiota
- 3.7.1. The Importance of Microbiota
- 3.7.2. Microbiota Composition
- 3.7.3. Factors influencing the Composition of the Microbiota

3.8. Use of Probiotics in Aquaculture
- 3.8.1. Probiotics
- 3.8.2. Beneficial Effects of Probiotics
- 3.8.3. Immune Response to the Intestinal Microbiota
- 3.8.4. Organisms Considered as Probiotics
- 3.8.5. Some Problems Associated with the Misuse of Probiotics

3.9. Live Feeding: Probiotics and Prebiotics
- 3.9.1. Bacterial Aspects of Live Feeding
- 3.9.2. Bacterial Control in Live Feed Cultures
- 3.9.3. Live Feed Enrichment and Microbial Implications
- 3.9.4. Probiotics in Live Feed Production
- 3.9.5. Prebiotics and Symbiotic in Live Feeds

3.10. Antinutritional Factors and Toxins in Feeds
- 3.10.1. Thiaminase
- 3.10.2. Avidin
- 3.10.3. Protease Inhibitors
- 3.10.4. Lectins
- 3.10.5. Phytoestrogens and Phytosterols
- 3.10.6. Phytic Acid
- 3.10.7. Glucosinolates
- 3.10.8. Saponins
- 3.10.9. Alkaloids
- 3.10.10. Mycotoxins

Module 4 Species Reproduction in Aquaculture

4.1. Reproduction in Aquaculture Species
- 4.1.1. Important Concepts
- 4.1.2. Types of Reproductive Systems
- 4.1.3. Sexual Behavior

4.2. Sex Determination and Differentiation in Aquaculture Species
- 4.2.1. Concept
- 4.2.2. Genotypic Sex Determination
- 4.2.3. Environmental Sex Determination
- 4.2.4. Sexual Differentiation

4.3. Reproductive Physiology I. Males
- 4.3.1. Physiology and Maturation
- 4.3.2. Spermatogenesis
- 4.3.3. Testicular Hormones

4.4. Reproductive Physiology II Females
- 4.4.1. Physiology and Maturation
- 4.4.2. Ovogenesis
- 4.4.3. Ovarian Hormones

4.5. Hormonal Regulation of Reproduction in Aquaculture
- 4.5.1. Regulation of Blood Levels
- 4.5.2. Thyroid Receptors
- 4.5.3. Thyroid Structures
- 4.5.4. Thyroid Hormone and Reproduction

4.6. Artificial Fertilization in Aquaculture
- 4.6.1. Physiological Changes During the Fertilization Process
- 4.6.2. Gamete Collection
- 4.6.3. Fertilization
- 4.6.4. Incubation
- 4.6.5. Types of Chromosome Manipulation

4.7. Environmental Control of Reproduction in Aquaculture Facilities
- 4.7.1. Photoperiod
- 4.7.2. Temperature
- 4.7.3. Aquaculture Application
- 4.7.4. Control of Sexual Maturation

4.8. Cryopreservation
- 4.8.1. Concepts and Objectives
- 4.8.2. Semen Cryopreservation
- 4.8.3. Oocyte Cryopreservation
- 4.8.4. Embryo Cryopreservation

4.9. Diet and Endocrine Disruptors in Reproduction
- 4.9.1. Effects of Different Food Components
- 4.9.2. Level of Intake and its Consequences
- 4.9.3. Concept of Endocrine Disruptor
- 4.9.4. Actions of Endocrine Disruptors

4.10. Algae Reproduction
- 4.10.1. Reproductive Physiological Characteristics
- 4.10.2. Life Cycle of Algae
- 4.10.3. Types of Reproduction
- 4.10.4. Storage and Conservation

Module 5 Biotechnology and Genetics in Aquaculture

5.1. Biotechnology, Genetics and Selective Breeding in Aquaculture
- 5.1.1. History of Selection in Aquaculture Species
- 5.1.2. History of Biotechnological Applications in Aquaculture Species

5.2. Genetics Applied to Aquaculture Species
- 5.2.1. Qualitative Traits
- 5.2.2. Phenotypic Variation and Environmental Influence
- 5.2.3. Size, Population and Inbreeding
- 5.2.4. Population Genetics: Genetic Drift and its Effects

5.3. Cloning and Related Techniques in Aquaculture Species
- 5.3.1. Gynogenesis
- 5.3.2. Androgenesis
- 5.3.3. Cloned Populations
- 5.3.4. Cloning by Nuclear Transfer

5.4. Crossing Strategies
- 5.4.1. Intraspecific Crossing
- 5.4.2. Interspecific Hybridization

5.5. Genetic Selection: Breeding Programs
- 5.5.1. Bases of Genetic Selection
- 5.5.2. Response to Selection
- 5.5.3. Individual and Family Selection
- 5.5.4. Correlated Traits Indirect Selection

5.6. Reproductive Biotechnology in Aquaculture Species
- 5.6.1. Polyploidy and Xenogenesis
- 5.6.2. Sex Reversal and Breeding

5.7. Aquaculture Structural Genomics
- 5.7.1. Molecular Markers and Mapping: Localization of Genes
- 5.7.2. Marker-Assisted Selection

5.8. Aquaculture Functional Genomics
- 5.8.1. Gene Expression
- 5.8.2. Implication of Expression in Productive and Physiological Traits
- 5.8.3. Proteomics and Applications

5.9. Gene Transfer and Gene Editing
- 5.9.1. Generation of Transgenic Individuals
- 5.9.2. Productive Applications of Transgenic Individuals
- 5.9.3. Biosafety in the Use of Transgenic Individuals
- 5.9.4. Applications of Gene Editing in Aquaculture

5.10. Conservation of Genetic Resources of Aquaculture Species
- 5.10.1. Maintenance of Diversity and Ecosystems: Contribution of Aquaculture
- 5.10.2. Genetic Resource Banks in Aquaculture

Module 6 Pathology. Most Frequent Diseases and Alterations in Aquaculture

6.1. Pathology in Aquaculture
- 6.1.1. Important Concepts
- 6.1.2. Importance of the Immune System
- 6.1.3. Infectious Diseases
- 6.1.4. Parasitic Diseases
- 6.1.5. Nutritional Diseases
- 6.1.6. Other Causes of Illness

6.2. Bacterial Diseases I
- 6.2.1. General Symptoms. Methods of Diagnosis and Treatment
- 6.2.2. Flavobacteria
- 6.2.3. Enterobacteriaceae
- 6.2.4. Aeromonas
- 6.2.5. Pseudomonas

6.3. Bacterial Diseases II
- 6.3.1. Mycobacteria
- 6.3.2. Photobacteria
- 6.3.3. Flexibacteria
- 6.3.4. Chlamydia
- 6.3.5. Other Bacteria

6.4. Fungal Diseases
- 6.4.1. General Symptoms Methods of Diagnosis and Treatment
- 6.4.2. Oomycetes
- 6.4.3. Chytridiomycetes
- 6.4.4. Zygomycetes
- 6.4.5. Deuteromycetes

6.5. Viral Diseases I
- 6.5.1. Symptoms, Diagnostic Methods, and Treatment
- 6.5.2. Notifiable Viral Diseases (NDD)
- 6.5.3. Epizootic Hematopoietic Necrosis
- 6.5.4. Infectious Hematopoietic Necrosis
- 6.5.5. Viral Hemorrhagic Septicemia
- 6.5.6. Infectious Pancreatic Necrosis

6.6. Viral Diseases II
- 6.6.1. Infectious Salmon Anemia
- 6.6.2. Koi Herpesvirus
- 6.6.3. Encephalopathy and Viral Retinopathy
- 6.6.4. Lymphocystis
- 6.6.5. Pancreatic and Sleeping Diseases
- 6.6.6. Other Viral Diseases

6.7. Parasitic diseases
- 6.7.1. Symptoms, Diagnostic Methods and Treatment
- 6.7.2. Protists
- 6.7.3. Metazoans

6.8. Nutritional Diseases
- 6.8.1. Important Considerations in the Relationship Between Nutrition and its Pathologies
- 6.8.2. Causes of Starvation
- 6.8.3. Protein, Lipid and Carbohydrate Deficiencies
- 6.8.4. Vitamin Deficiency
- 6.8.5. Mineral Deficiency
- 6.8.6. Toxins and Their Effects on Food

6.9. Neoplasms
- 6.9.1. Importance of Neoplastic Processes
- 6.9.2. Tumors of Epithelial Origin
- 6.9.3. Tumors of Mesenchymal Origin
- 6.9.4. Hematopoietic Tumors
- 6.9.5. Other Tumor Processes

6.10. Other Non-Infectious Diseases
- 6.10.1. Trauma Lesions
- 6.10.2. Heat Stress Disease
- 6.10.3. Social Stress Pathologies
- 6.10.4. Gas Bubble Disease
- 6.10.5. Irritants
- 6.10.6. Physical Deformations
- 6.10.7. Genetic Alterations
- 6.10.8. Diseases Caused by Algae

Module 7 Aquaculture Facilities. Types, design and management

7.1. General Characteristics of the Different Types of Facilities
- 7.1.1. Inland Aquaculture Production
- 7.1.2. Structures of a Inland Facility
- 7.1.3. Location of Facilities
- 7.1.4. Marine Aquaculture Production
- 7.1.5. Structures of a Marine Facility
- 7.1.6. Location of Facilities
- 7.1.7. Ornamental Aquaculture Production

7.2. Terrestrial Facilities Water
- 7.2.1. Water Catchment
- 7.2.2. Pumping Systems
- 7.2.3. Recirculating Systems
- 7.2.4. Water Distribution
- 7.2.5. Ponds Water Circulation in Ponds

7.3. Filtration and Oxygenation in Terrestrial Installations
- 7.3.1. Filtration Methods
- 7.3.2. Biofiltration
- 7.3.3. Water Aeration
- 7.3.4. Water Oxygenation. Oxygen Requirements

7.4. Marine Installations
- 7.4.1. Important Aspects
- 7.4.2. Types of Marine Pens
- 7.4.3. Currents, Wind and Waves
- 7.4.4. Stress on Marine Installations

7.5. Management and Organization in the Different Types of Facilities
- 7.5.1. Fattening Facilities
- 7.5.2. Reproduction Facilities
- 7.5.3. Pre-Fattening Facilities
- 7.5.4. Ornamental Species Facilities

7.6. Maintenance of Facilities
- 7.6.1. Water Pipelines
- 7.6.2. Aeration and Oxygenation Systems
- 7.6.3. Feeding System
- 7.6.4. Auxiliary Structures

7.7. Growth
- 7.7.1. Use of Batches
- 7.7.2. Biomass
- 7.7.3. Establishment of the Number of Ponds per Batch
- 7.7.4. Splits and Classification
- 7.7.5. Growth Monitoring

7.8. Casualty Control
- 7.8.1. Sanitary Plan
- 7.8.2. Leaks
- 7.8.3. Casualties. Causes

7.9. Marketing of the Final Product
- 7.9.1. Sales Planning
- 7.9.2. Slaughtering and Processing
- 7.9.3. Product Quality and Traceability
- 7.9.4. Marketing

7.10. Aquaculture and Sustainable Development
- 7.10.1. Use of Wild Stocks
- 7.10.2. Organic Matter in Effluents
- 7.10.3. Contagion by Pathogens
- 7.10.4. Use of Medication and its Residues
- 7.10.5. Food Residues
- 7.10.6. Effects on the Environment and Local Fauna

Module 8 Aquaculture Sector Regulations

8.1. Legal Framework for Aquaculture
- 8.1.1. Aquaculture
- 8.1.2. Legal Certainty and the Degree of Regulatory Development
- 8.1.3. Legal Regime
- 8.1.4. Scope of Regulation

8.2. Regulations Related to Aquaculture
- 8.2.1. Specific Regulations
- 8.2.2. Regulations of General Application
- 8.2.3. Environmental Regulations
- 8.2.4. Animal Health Regulations
- 8.2.5. Hygienic-Sanitary Regulations
- 8.2.6. Marketing Regulations
- 8.2.7. Other Regulations Involved

8.3. Regulation of Aquaculture in the European Union
- 8.3.1. European Aquaculture
- 8.3.2. The Strategy for the Sustainable Development of European Aquaculture
- 8.3.3. The Strategic Guidelines for the Sustainable Development of EU Aquaculture
- 8.3.4. Resolutions of the European Parliament

8.4. International Organizations
- 8.4.1. European Union
- 8.4.2. World Trade Organization (WTO)
- 8.4.3. World Health Organisation (WHO)
- 8.4.4. World Organization for Animal Health (OIE)
- 8.4.5. International Council for the Exploration of the Sea

8.5. Food and Agriculture Organization of the United Nations (FAO)
- 8.5.1. Food and Agriculture Organization of the United Nations (FAO)
- 8.5.2. The FAO and Aquaculture
- 8.5.3. Committee on Fisheries (COFI)
- 8.5.4. COFI Aquaculture Subcommittee
- 8.5.5. The Code of Conduct for Responsible Fishing

8.6. International Entities and Partnerships
- 8.6.1. World Aquaculture Society
- 8.6.2. Other Aquaculture Societies and Organizations

Module 9 Structure and Economic Management

9.1. Introduction
- 9.1.1. Capture Production
- 9.1.2. Aquaculture Production
- 9.1.3. Initial Conclusions

9.2. The Quantitative and Qualitative importance of Aquaculture in the World
- 9.2.1. Introduction
- 9.2.2. The Evolution of World Aquaculture
- 9.2.3. Aquaculture Location
- 9.2.4. Its Quantitative and Qualitative Perspectives
- 9.2.5. Initial Conclusions
- 9.3.1. Introduction
- 9.3.2. What is meant by Viability?
- 9.3.3. Types of Viability
- 9.3.4. The Conditional Viability of the Investment
- 9.3.5. Initial Conclusions

9.4. Finance in the Aquaculture Company
- 9.4.1. Introduction
- 9.4.2. Sources of Financing: Their Interest
- 9.4.3. The Policy and Cost of Indebtedness
- 9.4.4. Structure and Sources of Indebtedness
- 9.4.5. Self-Financing
- 9.4.6. Initial Conclusions

9.5. The Profit and Loss Account and Economic Flows in the Aquaculture Company
- 9.5.1. Introduction
- 9.5.2. Results Research
- 9.5.3. Economic and Financial Cash Flows
- 9.5.4. The Added Value
- 9.5.5. Initial Conclusions

9.6. The Equity and Financial Analysis of the Aquaculture Company
- 9.6.1. Introduction
- 9.6.2. Prerequisites
- 9.6.3. Arrangement of the Balance Sheet
- 9.6.4. Analysis of the Development of the Balance Sheet
- 9.6.5. Ad Hoc Conclusions

9.7. Economic Ratios to Be Considered in Aquaculture
- 9.7.1. Introduction
- 9.7.2. The Relative Value of Ratios
- 9.7.3. Types of Ratios
- 9.7.4. Ratios to Evaluate Profitability
- 9.7.5. Ratios to Evaluate Liquidity
- 9.7.6. Ratios to Evaluate Indebtedness
- 9.7.7. Initial Conclusions

9.8. Economic Analysis in Aquaculture
- 9.8.1. Introduction
- 9.8.2. Structure and Operationality of Accounting Accounts
- 9.8.3. Asset and Liability Accounts
- 9.8.4. Difference Accounts
- 9.8.5. Profit and Loss Accounts
- 9.8.6. The Checks
- 9.8.7. Complementary Considerations

Module 10 Aquaculture Farming Models

10.1. Inland Models I
- 10.1.1. Cyprinid Farming
- 10.1.2. Tilapia Farming

10.2. Inland Models II
- 10.2.1. Trout Farming
- 10.2.2. Salmon Farming

10.3. Marine Aquaculture Models I
- 10.3.1. Sea Bream Farming
- 10.3.2. Sea Bass Farming

10.4. Marine Aquaculture Models II
- 10.4.1. Turbot Farming
- 10.4.2. Tuna Farming

10.5. Mollusc Aquaculture Models
- 10.5.1. Clam Farming
- 10.5.2. Mussel Farming

10.6. Crustacean Aquaculture Models
- 10.6.1. Shrimp Farming
- 10.6.2. Shrimp Farming

10.7. Ornamental Aquaculture Farming Models. Freshwater Species I
- 10.7.1. Viviparous Farming
- 10.7.2. South American Cichlids Farming
- 10.7.3. African Cichlids Farming

10.8. Ornamental Aquaculture Farming Models. Freshwater Species II
- 10.8.1. African Cichlids Farming
- 10.8.2. Discus Fish Farming
- 10.8.3. Koi Farming
- 10.8.4. Farming of Other Freshwater Species

10.9. Models of Ornamental Aquaculture. Saltwater Species
- 10.9.1. Clownfish Farming
- 10.9.2. Paracanthurus Hepatus Farming
- 10.9.3. Pterapogon Kauderni Farming
- 10.9.4. Macro and Microalgae Cultivation

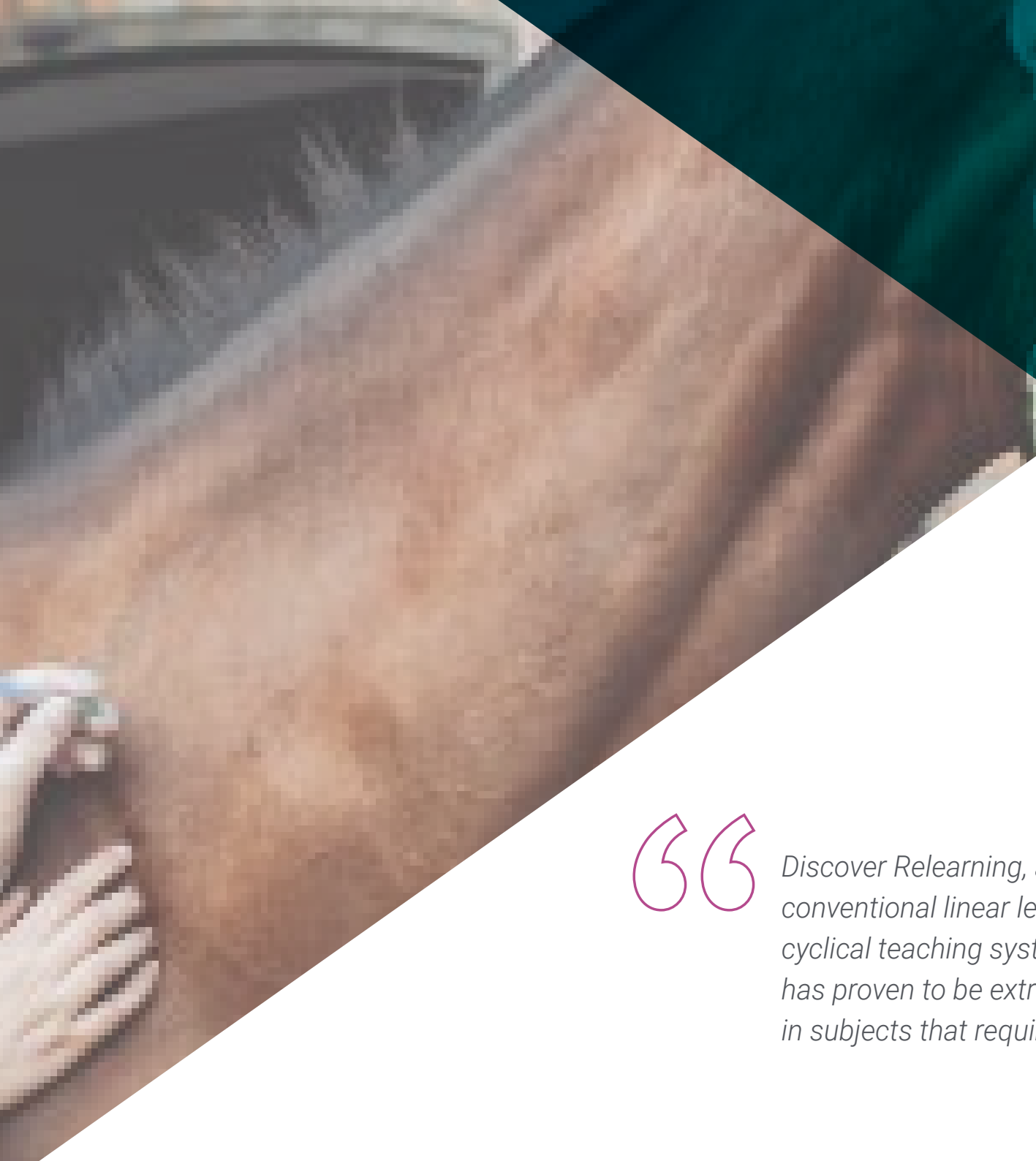
10.10. Other Aquaculture Farming Models
- 10.10.1. Microalgae Cultivation
- 10.10.2. Macroalgae Cultivation
- 10.10.3. Live Food Farming

This training will enable you to advance your career, quickly and efficiently"

06

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:

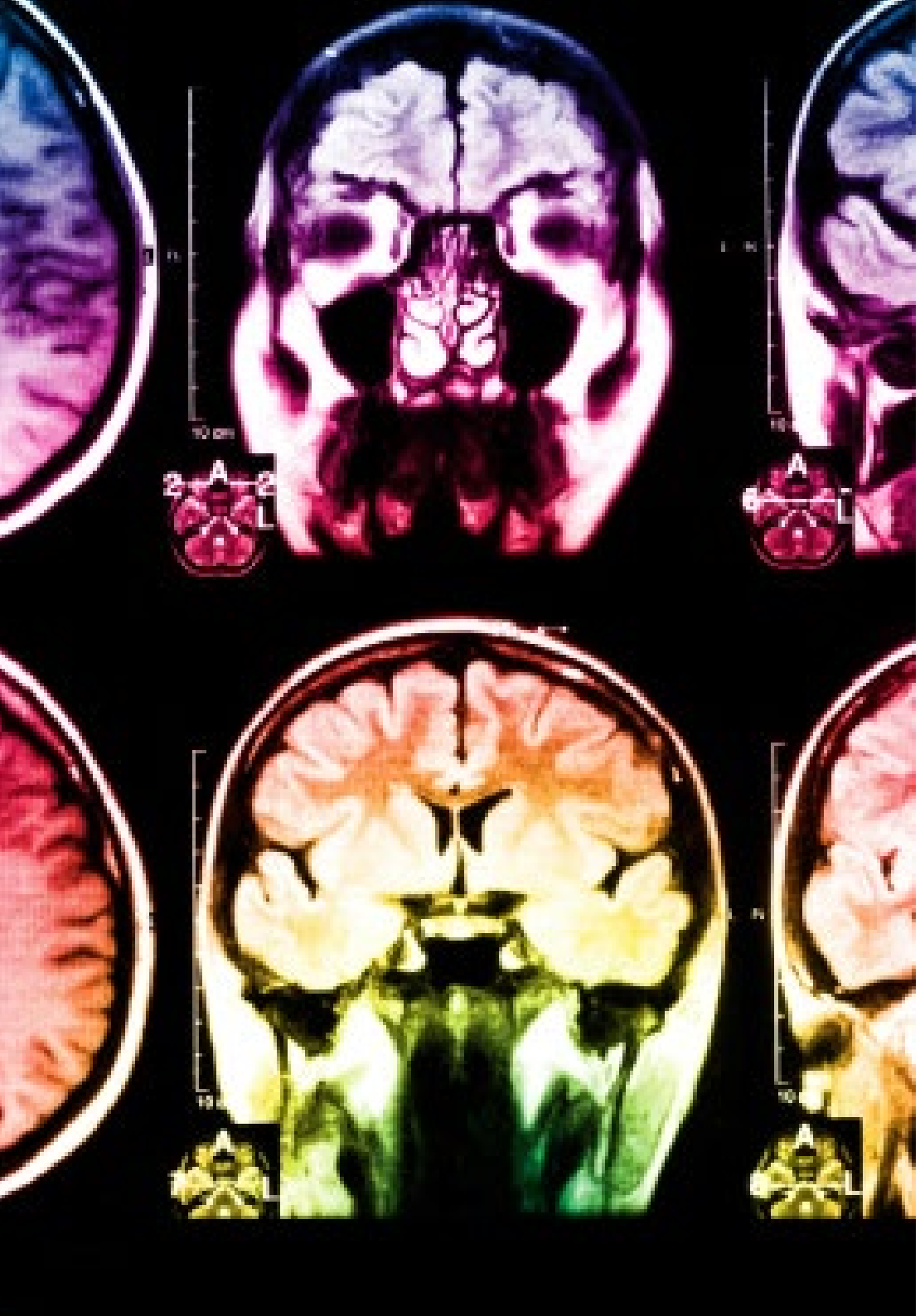
1. Veterinarians who follow this method not only manage to assimilate concepts, but also develop their mental capacity through exercises to evaluate real situations and knowledge application
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real 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.



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.

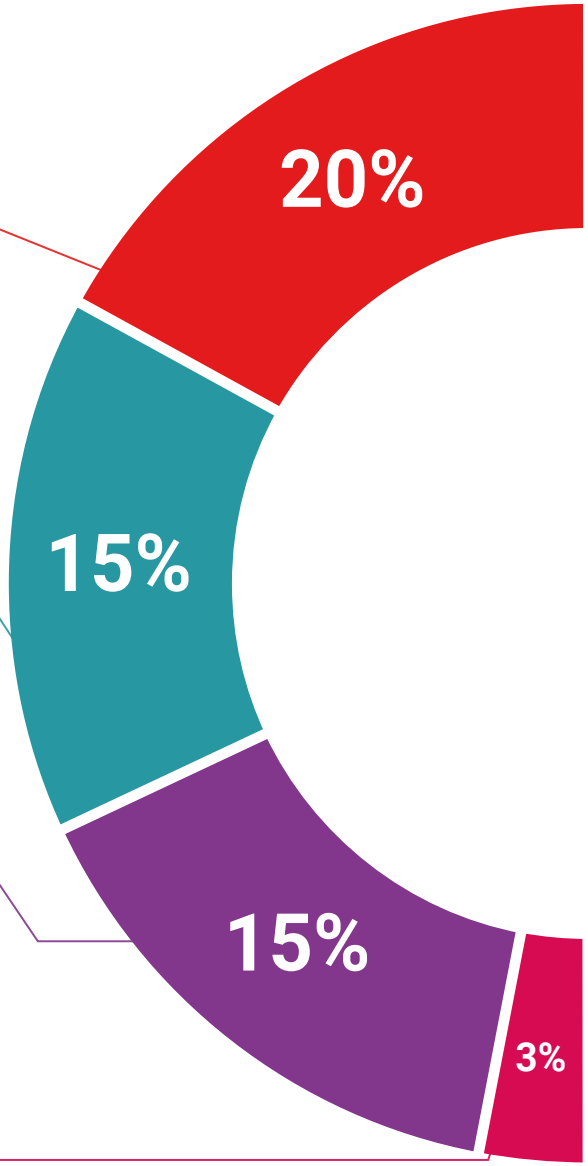
Interactive Summaries

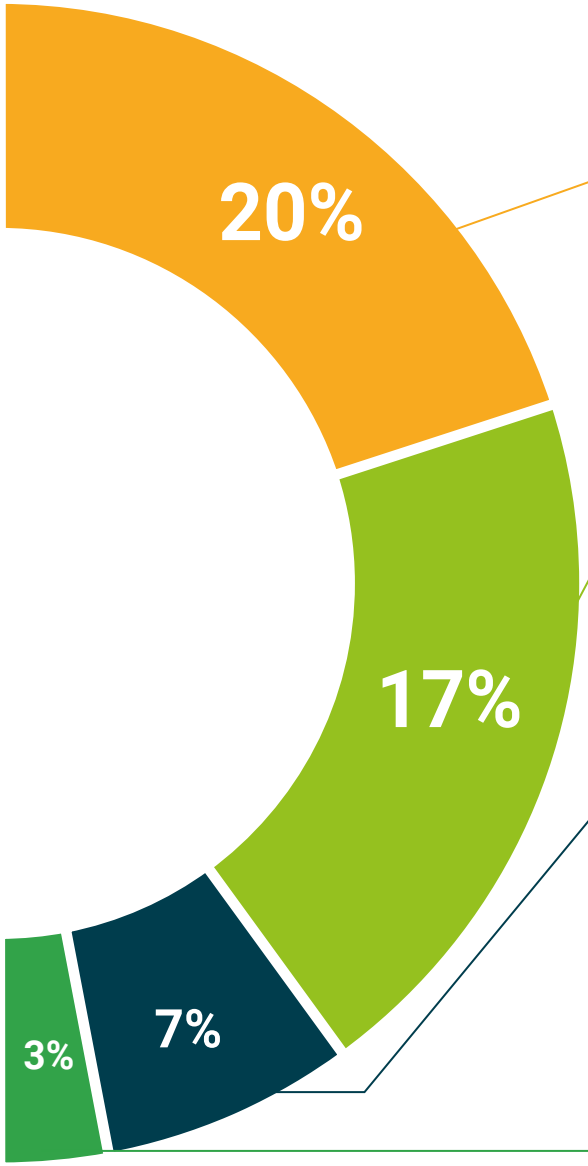
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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.





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.

07

Certificate

The Master's Degree in Aquaculture guarantees students, in addition to the most rigorous and updated education, access to a Master's Degree 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 **Master's Degree diploma 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: **Master's Degree in Aquaculture**

Modality: **online**

Duration: **12 months**

Accreditation: **60 ECTS**


tech global university

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

Master's Degree in Aquaculture

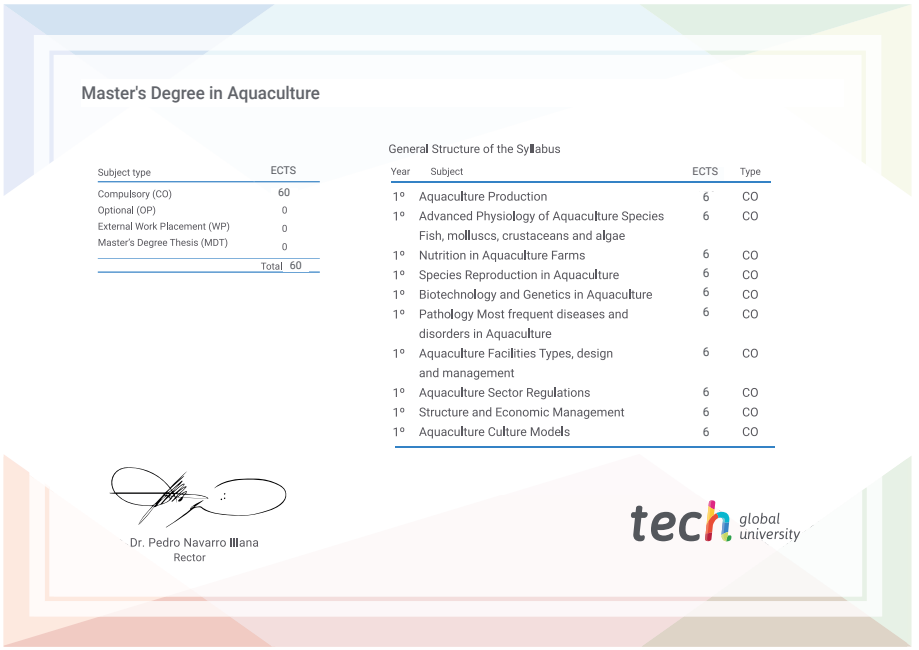
This is a program of 1,500 hours of duration equivalent to 60 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

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
Chancellor

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


Master's Degree in Aquaculture

Subject type	ECTS
Compulsory (CO)	60
Optional (OP)	0
External Work Placement (WP)	0
Master's Degree Thesis (MDT)	0
Total	60

General Structure of the Syllabus

Year	Subject	ECTS	Type
1º	Aquaculture Production	6	CO
1º	Advanced Physiology of Aquaculture Species Fish, molluscs, crustaceans and algae	6	CO
1º	Nutrition in Aquaculture Farms	6	CO
1º	Species Reproduction in Aquaculture	6	CO
1º	Biotechnology and Genetics in Aquaculture	6	CO
1º	Pathology Most frequent diseases and disorders in Aquaculture	6	CO
1º	Aquaculture Facilities Types, design and management	6	CO
1º	Aquaculture Sector Regulations	6	CO
1º	Structure and Economic Management	6	CO
1º	Aquaculture Culture Models	6	CO

Dr. Pedro Navarro Illana
Rector

tech global university

*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.

tech global university

Master's Degree
Aquaculture

- Modality: **online**
- Duration: **12 months**
- Certificate: **TECH Global University**
- Credits: **60 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

Master's Degree
Aquaculture

tech global university