

# Hybrid Professional Master's Degree Veterinary Ophthalmology in Small Animals





## Hybrid Professional Master's Degree Veterinary Ophthalmology in Small Animals

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/pk/veterinary-medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-veterinary-ophthalmology-small-animals](http://www.techtute.com/pk/veterinary-medicine/hybrid-professional-master-degree/hybrid-professional-master-degree-veterinary-ophthalmology-small-animals)

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# 01

# Introduction

Ocular problems in small animals are very frequent. Although their origin can derive from multiple causes (congenital, infectious, as a result of trauma, etc.), the arduous and specialized assistance is of great importance to try to save the eye, as well as to avoid comorbidities that seriously affect the health and quality of life of the veterinary patient. For this reason, TECH has developed a multidisciplinary program through which specialists will be able to catch up on the latest developments related to animal ophthalmology, focusing on the main techniques of examination, diagnosis and treatment. It is a program that combines the best 100% online theoretical content with a practical stay in a reference clinic, so that the graduate can not only update their knowledge, but also improve their surgical skills and management of glaucoma, systemic diseases, cataracts and many other pathologies in an active way, participating in the day to day of the veterinary center.





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*TECH presents this program as a unique opportunity for veterinarians like you, who are looking to get up to date in ophthalmology through a program of the highest level”*

The social advances that have occurred in the last decade have generated an increasing respect for animals, especially in the domestic sphere, thanks to which, people are increasingly concerned about the health and welfare of their pets. That is why, when they perceive that their companion has changed its behavior, they go concerned to the veterinarian's office in search of help. In many cases, these alterations in the pet's behavior are usually related to eye problems, many of which do not present themselves with easily identifiable signs. Additionally, these conditions can cause pain, itching and partial or total loss of sight, so specialized assistance is essential to avoid suffering to the animal, as well as to prevent associated comorbidities.

The advances that have been made in this field have allowed specialists to intervene effectively in many cases through therapeutic, surgical and pharmacological techniques that are increasingly effective and beneficial for the different species. In order for veterinarians to be updated on these developments, TECH and its specialized team in Veterinary Ophthalmology has developed this complete and multidisciplinary Hybrid Professional Master's Degree, a program that combines in 12 months, theory and practice to offer an academic experience of the highest level. Students will initially have access to 1,500 hours of the best diverse content, presented in a convenient 100% online format, with which they will be able to delve into the advances in embryology, anatomy and ocular physiology, as well as the most common diseases in this field. Additionally, you will work intensively on updating your knowledge in relation to the different eyelid, conjunctival, corneal and crystalline surgeries, knowing in detail the latest intervention techniques, their recommendations and their short and long term benefits.

However, the strong point of the program lies in the 120 hours of practical training that the specialist will be able to carry out in a reference clinical center. Once the theoretical period is over, they will become part of a team of professionals in the veterinary field, with whom they will work actively to improve their skills. During this period, they will be accompanied by an assistant specialist who will ensure they get the most out of this experience. In this way, they will be able to perfect their skills in a guaranteed way, mastering the most avant-garde and innovative clinical tools, as well as the most effective diagnostic and ophthalmologic treatment strategies in the veterinary sector today.

This **Hybrid Professional Master's Degree in Veterinary Ophthalmology in Small Animals** contains the most complete and up-to-date scientific program on the market.

The most important features include:

- ♦ Development of more than 100 clinical cases presented by veterinary professionals, animal ophthalmology experts and university professors with extensive experience in the management of small species
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Comprehensive systematized action plans for the main pathologies in animal Ophthalmology
- ♦ Presentation of practical workshops on procedures diagnosis, and treatment techniques
- ♦ An algorithm-based interactive learning system for decision-making in the clinical situations presented throughout the course
- ♦ Practical clinical guides on approaching different pathologies in small animals
- ♦ With a special emphasis on evidence-based veterinary medicine and veterinary research methodologies
- ♦ All this will be complemented by 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
- ♦ Furthermore, you will be able to carry out a clinical internship in one of the best veterinary centers

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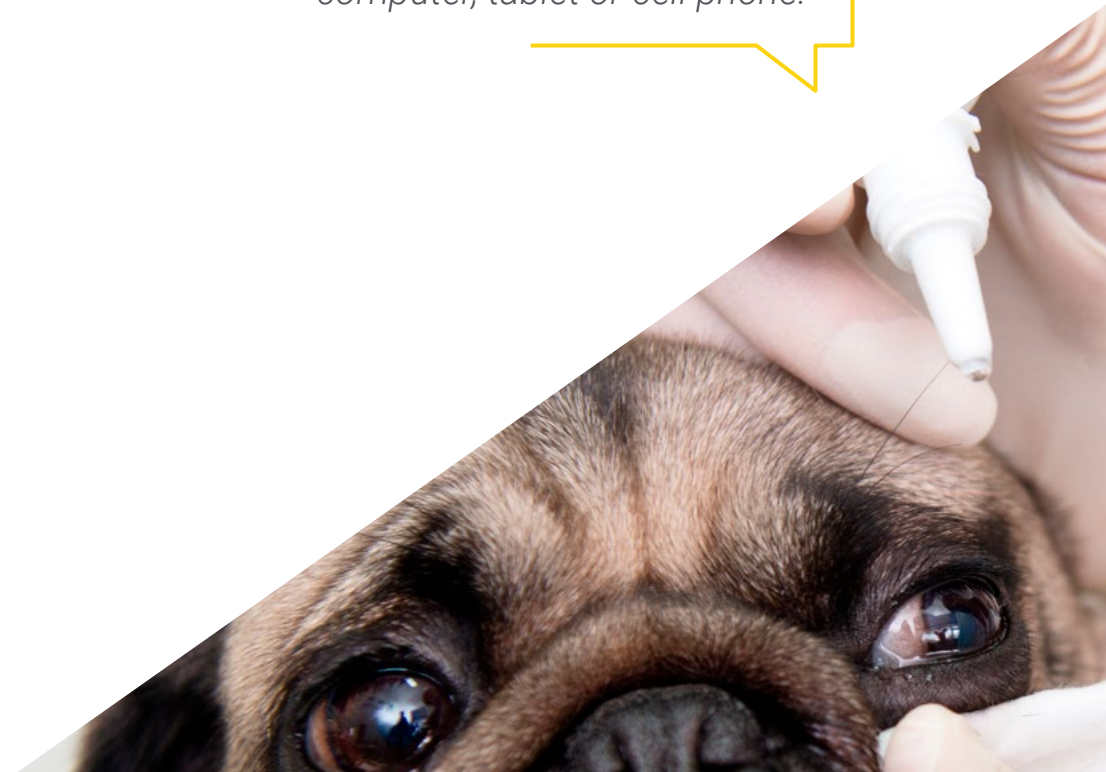
*A complete and comprehensive program that combines 1,500 hours of the best theoretical and additional content and 120 of practical stay in a veterinary clinical center of reference on the international scene”*

In this proposal for a Hybrid Professional Master's Degree, the program is aimed at updating veterinary professionals who work in Ophthalmology units, and who require a high level of qualification. The contents are based on the latest scientific evidence, and oriented in a didactic way to integrate the theoretical knowledge in veterinary practice, and the theoretical-practical elements will facilitate the updating of knowledge and will enable the decision making in the management of the animal.

Thanks to its multimedia content elaborated with the latest educational technology, they will allow the veterinary professional to take a situated and contextual learning, that is to say, a simulated environment that will provide an immersive learning programmed to train in real situations. This program is designed around Problem-Based Learning, whereby the professional must try to solve the different professional practice situations that arise throughout the program. For this purpose, the student will be assisted by an innovative interactive video system created by renowned experts.

*A program that includes the latest and updated information on eyelid surgery in the nasolacrimal system, so you can update your practice with TECH and its team of veterinary experts.*

*You can access the content of the Virtual Campus from any device with internet connection, whether computer, tablet or cell phone.*



02

# Why Study this Hybrid Professional Master's Degree?

The continuous research that has been carried out in the field of veterinary ophthalmology has allowed the development of increasingly specialized and effective guidelines for the approach to the different pathologies related to the eyes and their correct functioning. For this reason, and with the aim of providing the professional in this sector with the opportunity to update their practice in a complete way and through a theoretical-practical model of the latest generation, TECH has launched this Hybrid Professional Master's Degree. Therefore, the graduate will achieve even the most demanding goals in a field in continuous growth, motivated, in addition, by the respect and concern that is increasingly represented in society towards animals.





A close-up photograph of a microscope lens, showing the circular opening and the internal glass elements. The lens is the central focus of the image, with a blurred background. The image is partially obscured by a teal diagonal overlay on the right side of the page.

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*A unique opportunity to implement the most innovative surgical and veterinary strategies to your practice through an academic experience that will mark a before and after in your career”*

### 1. Updating from the latest technology available

TECH is a pioneer in the entire university market for offering innovative programs that use the latest technology to bring graduates closer to their goals through a comfortable, flexible experience adapted to their needs. The same applies to internships. The specialist will have access to the best resources related to veterinary surgical equipment, which will help them to implement its management in their practice, mastering, in addition, its most complex techniques.

### 2. Gaining In-Depth Knowledge from the Experience of Top Specialists

During both the theoretical and practical periods, the specialist will have the support of a team of top-level professionals, whose experience will help them to get the most out of this Hybrid Professional Master's Degree. They will serve as a guide to learn in detail the most recommended clinical guidelines and strategies for each case, as well as a series of unique tips and tricks to which you will only have access through this academic experience.

### 3. Entering First-Class Clinical Environments

During the 3 weeks of the internship program, the graduate will be able to deal with hundreds of different cases, all of them related to different pathologies in the ophthalmological area in small animals. Therefore, they will be able to update their practice through the use of the best clinical strategies, both in situations that occur regularly and in more complex and, therefore, less frequent ones.





#### 4. Combining the Best Theory with State-of-the-Art Practice

This type of program perfectly combines 1,500 hours of theory with 120 hours of practice, giving the graduate the opportunity to update their practice in a comprehensive manner and through the improvement of their skills. In this way, in less than a year they will have achieved all the objectives initially set, offering a veterinary service of the highest level in the area of Ophthalmology in Small Animals.

#### 5. Expanding the Boundaries of Knowledge

The enrollment of this Hybrid Professional Master's Degree will provide the graduate with access to the most innovative and comprehensive internationalized contents. In this way, they will be able to update his practice in different parts of the world, but with the guarantee of being able to practice wherever they want, thanks to the mastery of the most avant-garde clinical, diagnostic and therapeutic guidelines of the current ophthalmologic practice in the Veterinary area.

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*You will have full practical immersion  
at the center of your choice"*

# 03

## Objectives

Veterinary Ophthalmology is a highly demanded area within the clinical animal care based on the very high margin of affection that congenital and acquired eye diseases have, especially in pets, and how it affects their quality of life. For this reason, TECH has developed a complete program through which the specialist will be able to keep up to date with the latest developments in this field, allowing them to update their practice based on the latest scientific advances in diagnosis and treatment, as well as on animal anatomy and pharmacology applicable to small species.





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*If your goals include getting up to date on congenital and acquired ophthalmologic pathologies in small animals, this program is perfect for you. Don't let it pass you by”*



## General Objective

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- This Hybrid Professional Master's Degree in Veterinary Ophthalmology in Small Animals has been developed in order to provide the graduate with a solid and updated basis on ocular anatomy, as well as to establish a correct chronology of the embryology of the eye. In this way, they will be able to carry out an analysis of vision in different species based on the latest developments in the veterinary clinical sector. Additionally, they will be able to delve into the latest advances related to the types of drugs and their routes of administration to optimize their effect



*A program designed for you to achieve even your most ambitious veterinary goals through 12 months of multidisciplinary academic experience based on the latest developments in the industry"*





## Specific Objectives

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### Module 1. Embryology, anatomy, physiology of vision and pharmacology

- ◆ Lay a solid foundation in ocular anatomy
- ◆ Develop different points of embryology and therefore determine congenital pathologies
- ◆ Determine the differences in the physiology of vision in the different species
- ◆ Examine the process by which images are formed and the properties of the optical systems of the eyeball
- ◆ Evaluate the different therapeutic options according to ocular pharmacology and determine the correct route of administration
- ◆ Compile the anesthetic drugs for ophthalmologic use and know how to use them according to the diagnostic test or surgery to be performed

### Module 2. Ophthalmologic examination and complementary tests

- ◆ Optimize the collection of data from the patient's anamnesis, as well as from the basic examination tests
- ◆ Demonstrate the uses and information that the correct use of the slit lamp offers us
- ◆ Evaluate the advantages and disadvantages of direct and indirect ophthalmoscopy
- ◆ Establish the basis for the correct use of tonometry and gonioscopy
- ◆ Analyze the different possibilities for anterior and posterior segment imaging for the objective follow-up of our patients' lesions
- ◆ Determine the basics of diagnostic imaging
- ◆ Examine the drugs for specific exploratory procedures

### **Module 3. Diseases and surgery of the eyelids and nasolacrimal system**

- ♦ Determine the different methods of exploration and establish diagnostic protocols
- ♦ Identify advances in the approach to orbital and eyelid surgery
- ♦ Incorporate new developments in diagnosis and treatment
- ♦ Examine pathophysiology
- ♦ Develop specialized knowledge on congenital and acquired pathologies
- ♦ Generate skills for the surgical approach to the orbit and eyelids

### **Module 4. Diseases and surgery of the conjunctiva, nictitating membrane and orbit**

- ♦ Examine the normal anatomy and function of the conjunctiva and lacrimal system
- ♦ Determine the most common clinical signs
- ♦ Analyze the different diagnostic methods and establish protocols
- ♦ Generate diagnostic knowledge of tear film examination
- ♦ Develop the different pathologies related to tear film alterations
- ♦ Present the latest surgical techniques for the resolution of pathologies affecting the nictitating membrane
- ♦ Generate specialized knowledge of the different medical and surgical treatments of the lacrimal system

### **Module 5. Corneal diseases and surgery**

- ♦ Analyze physiologic corneal repair mechanisms
- ♦ Accurately recognize changes in color, rims and visual "exture" characteristic of each corneal pathologic response
- ♦ Classify and categorize corneal ulcers
- ♦ Develop the general and specific treatment principles for each type of corneal ulcer
- ♦ Describe the different corneal surgical techniques and evaluate their advantages and disadvantages
- ♦ Compile and elaborate on the most common non-ulcerative corneal pathologies in dogs and cats
- ♦ Identify the various corneal manifestations of systemic diseases
- ♦ Present the different neoplasms of corneal localization
- ♦ Develop the pathologies that can affect the sclera and their treatment

### **Module 6. Lens diseases and surgery**

- ♦ Identify advances in the approach to cataract surgery
- ♦ Compile the basics of setting up an operating room for microsurgery
- ♦ Identify the use of different drugs for intraocular surgery
- ♦ Offer tips for the management of intraoperative, preoperative and postoperative complications of lens surgery



**Module 7. Diseases and surgery of the uvea and retina**

- ♦ Determine the structures involved in uveal inflammation
- ♦ Analyze the involvement of systemic diseases and uveal involvement
- ♦ Develop a diagnostic plan based on the uveal changes observed in the patient
- ♦ Review the ophthalmologic examination for the diagnosis of anterior uveitis
- ♦ Discuss how to localize the primary involvement of the uveal abnormality
- ♦ Determine whether the disease is ophthalmologic or systemic
- ♦ Establish the differential diagnosis according to systemic and ocular clinical signs
- ♦ Propose possible complementary tests according to the established differential diagnosis
- ♦ Present and establish a treatment plan to deal with uveal disease in our patient
- ♦ Establish a possible protocol for retinal lesions secondary to systemic conditions
- ♦ Discern whether the problem is retinal or neurological in a blind eye

**Module 8. Ophthalmology of exotic animals**

- ♦ Delve into the ocular anatomical characteristics of different exotic species
- ♦ Analyze the most appropriate exploratory methods for each species
- ♦ Generate a base of the ocular anatomical characteristics to be able to discern even the most subtle symptoms that may be causing a pathology
- ♦ Present the different therapeutic approaches in order to propose the most appropriate for the species
- ♦ Generate skills for the surgical approach of the different species

**Module 9. Glaucoma**

- ♦ Examine the different types of glaucoma, as well as intraocular fluid dynamics
- ♦ Optimize the use of diagnostic tools such as tonometry and gonioscopy to obtain key data for further treatment
- ♦ Analyze the effect of elevated intraocular pressure on the different intraocular structures

**Module 10. Systemic Diseases**

- ♦ Recognize ocular signs related to systemic disease
- ♦ Describe systemic diseases commonly encountered in small species
- ♦ Establish a diagnostic plan



*Delve into the theory of major relevance in this field, subsequently applying it in a real work environment”*

# 04 Skills

The design of the syllabus of this Hybrid Professional Master's Degree has been carried out in such a way that, in addition to updating their knowledge in relation to Veterinary Ophthalmology, the graduate will be able to improve their professional skills in a guaranteed way, implementing the most innovative and effective clinical guidelines and strategies of the current environment. It is a dynamic and avant-garde program that includes the evaluation and management techniques that have had the best results to date. However, the strong point of the program lies in the possibility of applying everything developed in the theoretical section in the internship program, polishing those skills you need and raising to the highest level those you have already mastered.





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*You will work intensively on updating your knowledge based on the latest developments in Veterinary Ophthalmology, which you will then be able to put into practice during your stay at the clinic”*



## General Skills

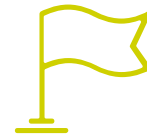
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- Provide the veterinarian with specialized knowledge on the pathologies and the latest therapeutic alternatives in ophthalmology in small animals
- Know in depth the process of embryonic development and its implication in the origin of the eyeball
- Deepening in ophthalmologic conditions and learning and perfecting specific and advanced diagnostic protocols, will allow the student to establish the most appropriate medical and/or surgical treatment in their daily practice

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*A unique and ideal opportunity to update you in diagnostic imaging and to perfect your skills in the extensive handling of the most sophisticated clinical equipment”*





## Specific Skills

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- ◆ Provide the student with a solid base on animal anatomy
- ◆ Know the different anesthetic drugs and their ophthalmologic use
- ◆ Know how to evaluate the advantages and disadvantages of direct and indirect ophthalmoscopy
- ◆ Know the basics of diagnostic imaging
- ◆ Develop specialized knowledge on congenital and acquired pathologies
- ◆ Know the advances in the approach to orbital and eyelid surgery
- ◆ Acquire specialized knowledge in the diagnosis and medical-surgical treatment of the conjunctiva and lacrimal system
- ◆ Know how to classify and categorize corneal ulcers
- ◆ Know the different neoplasms of corneal location
- ◆ Know how to put into practice a serial and methodical examination of the ocular fundus
- ◆ Know how to distinguish between the most appropriate exploratory methods for each species
- ◆ Be able to optimize the use of diagnostic tools such as Tonometry and Gonioscopy to obtain key data for subsequent treatment
- ◆ Be able to elaborate a diagnostic plan
- ◆ Know the systemic diseases commonly found in small species

# 05

# Course Management

One of TECH's maxims is to include in its programs the best faculty, composed of professionals of the highest level in relation to the area in which the training is based. Therefore, for this Hybrid Professional Master's Degree a team of specialists in the veterinary field specializing in Veterinary Ophthalmology in Small Animals has been selected. Additionally, as they are active workers, they know in detail the most innovative and effective clinical, diagnostic and therapeutic strategies, which they will undoubtedly share with all graduates who access this program.





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*A faculty of the highest level will guide you through this academic experience so that you can get the most out of the course”*

## International Guest Director

Dr. Caryn Plummer is a true international reference in the field of Veterinary Medicine. Her research interests include corneal wound healing, glaucoma and other aspects of clinical ophthalmology in animals. She has also developed different models of diseases that afflict the eyesight of pets.

The lectures of this expert are widely recognized and expected in the academic framework, developing many of these in the United States, the University of Copenhagen and other parts of the world. She is also a member of the School of Veterinary Medicine at the University of Florida.

Other lines in which this expert has completed her professional development are Pharmacology and the use of medical devices through administration and ocular penetration. In the same way, she has deepened her knowledge in Equine Corneal Disease, Primary Open Angle Glaucoma in the Dog and other immune-mediated pathologies. In turn, Plummer has ventured into the application of new surgical techniques for the healing of corneal wounds, facial reconstruction of animal eyelids and the prolapse of nictitating glands. On these topics he has published a large number of articles in leading journals such as Veterinary ophthalmology and American journal of veterinary research.

Dr. Plummer's professional development has also been intensive and regular. Her specialization in Veterinary Ophthalmology was developed at the University of Florida. She also completed her advanced education in Small Animal Medicine and Surgery at Michigan State University.

On the other hand, this scientist has received several awards, among them the Clinical Researcher of the Year Award, granted by the Florida Veterinary Medical Association. She is also the author of Gelatt's classic textbook Veterinary Ophthalmology and an associate editor.





## Dr. Plummer, Caryn

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- Research Fellow in Veterinary Ophthalmology at the University of Florida
- Veterinary Ophthalmologist specialized in Glaucoma and Corneal Disease in Small Animals.
- Founder and Secretary/Treasurer of the International Consortium for Equine Ophthalmology
- Treasurer of the Consortium for Animal Vision Foundation
- Author of the classic Gelatt textbook Veterinary Ophthalmology
- Diplomate of the American College of Veterinary Ophthalmology
- Residency in Comparative Ophthalmology at the University of Florida
- Practical Instruction in Veterinary Medicine at the University of Michigan
- BA degree from Yale University
- Member of the Florida Veterinary Medical Association



*Thanks to TECH, you will be able to learn with the best professionals in the world"*

## Management



### Dr. Fernández Más, Uxue

- Head of the Ophthalmology Service of the Vidavet Group
- Veterinary Ophthalmologist in the IVO
- Veterinarian in Internal Medicine, Surgery and Ophthalmology at the Vidavet Veterinary Center
- Emergency Veterinarian at the Sagrada Familia Veterinary Clinic
- Degree in Medicine and Surgery of Small Animals and Companion Animals at the University of Zaragoza
- Postgraduate in Veterinary Ophthalmology at the Autonomous University of Barcelona
- Professor in Introductory Courses in Veterinary Ophthalmology for the Vidavet Group
- Presentations at SEOVET, ECVO and AVEPA GTA congresses
- Member of SEOVET, Ophthalmology Group of AVEPA

## Professors

### Dr. Ojeda Porcar, Ana Belén

- General Veterinarian Specialist in Ophthalmology in Small Animals
- General Veterinarian and Ophthalmology Surgery Consultations in the Veterinary Center La Vall Castellón
- Graduated in Veterinary Medicine at CEU Cardenal Herrera University
- Postgraduate in Ophthalmology in Small Animals by CEU Cardenal Herrera University
- Basic course in Soft Tissue Surgery in Small Animals

### Dr. Gómez Guajardo, Magda Berenice

- Professional veterinarian at the Eye Clinic Veterinary Hospital
- Degree in Veterinary Medicine from the Autonomous University of Nuevo León
- Diploma from the Latin American College of Veterinary Ophthalmology
- Advanced Corneal Surgical Techniques and Instrumentation, 43rd Annual Scientific Meeting of The American College of Veterinary Ophthalmology
- Ophthalmology Refresher Course. Glaucoma, Challenges and singularities

**Dr. Torres Caballero, María Dolores**

- ♦ Head of the Ophthalmology Service at the Montjuic Veterinary Hospital Barcelona
- ♦ Head of the Ophthalmology Service at AniCura Ars Veterinaria Hospital Veterinari
- ♦ Itinerant Ophthalmology Service of Barcelona
- ♦ Degree in Veterinary Medicine from the University of Córdoba
- ♦ University Diploma in Experimental Microsurgery from the Faculty of Medicine of the University of Paris
- ♦ University Diploma in Electrophysiology of Vision at the University of Paris
- ♦ European Residency ECVO at the Autonomous University of Barcelona
- ♦ Course of Advanced Studies in Veterinary Ophthalmology Toulouse, France
- ♦ Teaching in Specialization Courses in Veterinary Ophthalmology
- ♦ Presentation of Training Courses for General Veterinarians in different locations in the Iberian Peninsula
- ♦ Member of the Spanish Society of Veterinary Ophthalmology

**Dr. Simó Vesperinas, María**

- ♦ Emergency Veterinarian at the Vets Now Emergency Hospital Manchester
- ♦ Veterinarian in General Medicine at Canis Veterinary Hospital Girona, Spain
- ♦ Stays at Texas A&M Veterinary Medical Teaching Hospital
- ♦ Graduated in Veterinary Medicine at the Autonomous University of Barcelona
- ♦ Practical course of Microsurgery in Corneal Pathology at the Institute of Ocular Microsurgery (IMO)
- ♦ Veterinary Ophthalmology Congress “ocular manifestations of systemic diseases” held at the Institute of Ocular Microsurgery (IMO)
- ♦ Postgraduate in Veterinary Ophthalmology by British Small Animal Veterinary Association

**Dr. Simó Domenech, Francisco José**

- ♦ Medical Director and Creator in the Veterinary Ophthalmological Institute (IVO)
- ♦ Veterinary Ophthalmologist at Long Island Veterinary Specialists New York
- ♦ Collaboration with the R&D Department of Alcon Laboratories El Masnou, Spain
- ♦ Collaborations in the experimental center of Harlan Laboratories
- ♦ Degree in Veterinary from the University of Zaragoza
- ♦ Postgraduate degree in Veterinary Ophthalmology from the Autonomous University of Barcelona
- ♦ Residencies at the Veterinary Faculty of Toulouse, with Dr. Marc Simon in Paris and at the Ophthalmology Service of Long Island Veterinary Specialists in New York
- ♦ Accredited by the Association of Spanish Veterinarians Specialists in Small Animals (AVEPA) as a Specialist in Veterinary Ophthalmology
- ♦ Member of the Spanish Society of Veterinary Ophthalmology (SEOVET)

**Dr. Iaquinandi Murtagh, Agustina**

- ♦ Veterinarian at the Iaquinandi Veterinary Ophthalmology Center
- ♦ Laboratory of Retinal Neurochemistry and Experimental Ophthalmology, Department of Human Biochemistry at the Faculty of Medicine CEFYBO, UBA CONICET Paraguay
- ♦ Graduated from the Faculty of Veterinary Sciences as Veterinarian Medical Doctor from the National University of La Plata
- ♦ Course on Equine and Companion Animal Ophthalmology
- ♦ Postgraduate Course in Veterinary Ophthalmology, organized by the Department of Animal Medicine and Surgery of the of Animal Medicine and Surgery of the Autonomous University of Barcelona
- ♦ Theoretical and Practical Improvement Course in Ocular Ultrasound by the Argentine Society of Ophthalmology (SAO)

**Dr. Martínez Gassent, María**

- ◆ Clinical Veterinarian in the Ophthalmology Service at AniCura Ars Veterinaria Veterinary Hospital
- ◆ Specialty Internship in the Ophthalmology Service at AniCura Ars Veterinaria Veterinary Hospital
- ◆ Self-employed, creator and General Veterinarian at Nomavet Veterinary Clinic Valencia
- ◆ Collaborating Professor in the Department of Animal Medicine and Surgery at the CEU Cardenal Herrera University
- ◆ Degree in Veterinary Medicine from CEU Cardenal Herrera University
- ◆ Postgraduate Diploma in Surgery and Anesthesia of Small Animals from the Autonomous University of Barcelona
- ◆ Postgraduate Course in Ocular Surgery and Pathology at the Autonomous University of Barcelona
- ◆ Basic Science Course in Veterinary Ophthalmology at the University of North Carolina



**Dr. Sánchez López, Susana**

- ◆ Veterinary Ophthalmologist
- ◆ Veterinary Ophthalmologist in AniCura Aitana Veterinary Hospital
- ◆ Veterinary Ophthalmologist and Internist at the Bulevar Veterinary Clinic
- ◆ Veterinarian at Ciudad de los Ángeles Veterinary Clinic
- ◆ Veterinarian at Virgen de los Llanos Clinic Albacete, Spain
- ◆ University Lecturer
- ◆ Degree in Veterinary Medicine from the University of Murcia
- ◆ Postgraduate in Small Animal Ophthalmology by CEU Cardenal Herrera University
- ◆ Postgraduate in Internal Medicine of Small Animals by Improve International
- ◆ Internship in Veterinary Ophthalmology at the University of Murcia
- ◆ Veterinary Ophthalmology Internship at the Veterinary Ophthalmological Institute (IVO)
- ◆ General Practitioner Certificate in Small Medicine by Improve International
- ◆ Member of Seovet, active participation with the presentation of papers at the congress

# 06

## Educational Plan

The theoretical, practical and additional content of this Hybrid Professional Master's Degree has been developed by the teaching team following the quality guidelines that define and differentiate TECH. Thanks to this, it has been possible to create a new, comprehensive and complete syllabus, perfect for the veterinary specialist to catch up on the latest advances made in the field of small animal ophthalmology. Additionally, thanks to its 100% online format, you will be able to take this part of the program from wherever and whenever you want, without schedules or face-to-face classes and through any device with Internet connection.



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*You will have access to hundreds of hours of the best theoretical and additional material, so that you can delve in a personalized way into the aspects of the syllabus that interest you most”*

## Module 1. Embryology, Anatomy, Vision Physiology and Pharmacology

- 1.1. Embryology: Ocular Development
  - 1.1.1. Development of the Eyeball and Appendages
    - 1.1.1.1. Eyelids and Nasolacrimal System
    - 1.1.1.2. Conjunctiva and Nictitating Membrane
    - 1.1.1.3. Extraocular Muscles
  - 1.1.2. Anterior Segment Development
    - 1.1.2.1. Cornea
    - 1.1.2.2. Iridocorneal Angle
    - 1.1.2.3. Iris
    - 1.1.2.4. Lens
  - 1.1.3. Posterior Segment Development
    - 1.1.3.1. Sclera
    - 1.1.3.2. Choroid
    - 1.1.3.3. Vitreous humor
    - 1.1.3.4. Retina
    - 1.1.3.5. Optic Nerve
    - 1.1.3.6. Tapetum
- 1.2. Developmental Ocular Anomalies
  - 1.2.1. Developmental Ocular Anomalies
    - 1.2.1.1. Cyclopia and Syenophthalmia
    - 1.2.1.2. Microphthalmia and Anophthalmia
    - 1.2.1.3. Palpebral Alterations
    - 1.2.1.4. Dermoids
    - 1.2.1.5. Anterior Segment Dysgenesis
    - 1.2.1.6. Alterations of the Iris, Choroid and Sclera
    - 1.2.1.7. Congenital Cataracts
    - 1.2.1.8. Congenital Glaucoma
    - 1.2.1.9. Persistence of Hyperplastic Primary Vitreous Persistence of Hyperplastic Tunica Vasculosa Lentis
    - 1.2.1.10. Retinal Dysplasia
    - 1.2.1.11. Optic Nerve Disorders
- 1.3. Ocular Anatomy
  - 1.3.1. Orbit
  - 1.3.2. Extraocular Muscles and Orbital Fat
  - 1.3.3. Eyeball
- 1.4. Vascular Anatomy
  - 1.4.1. Vascular Anatomy
  - 1.4.2. Neuroanatomy
- 1.5. Physiology
  - 1.5.1. Tear Film
  - 1.5.2. Physiology of Aqueous Humor
  - 1.5.3. Blood-aqueous Barrier
  - 1.5.4. Intraocular Pressure
- 1.6. Physiology of Vision
  - 1.6.1. Sensitivity to Light
  - 1.6.2. Sensitivity to Motion
  - 1.6.3. Visual field
  - 1.6.4. Visual acuity
  - 1.6.5. Color Vision
- 1.7. Administration of Ophthalmologic Drugs
  - 1.7.1. Routes of Administration of Ophthalmologic Drugs
  - 1.7.2. Potentiation of Pharmacotherapy
  - 1.7.3. Pharmacological Injections
- 1.8. Anti-inflammatory, Antimicrobial and IOP Control Drugs
  - 1.8.1. Anti-inflammatory Drugs
    - 1.8.1.1. Glucocorticoids
    - 1.8.1.2. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)
    - 1.8.1.3. Other Immunosuppressive Agents
  - 1.8.2. Antimicrobial Agents
    - 1.8.2.1. Antibiotics
    - 1.8.2.2. Antimycotics
    - 1.8.2.3. Antivirals
    - 1.8.2.4. Disinfectants





- 1.8.3. Pio Control Drugs:
  - 1.8.3.1. Carbonic Anhydrase Inhibitors
  - 1.8.3.2. Prostaglandins
  - 1.8.3.3. Miotics. Cholinergic Drugs
  - 1.8.3.4. Adrenergic Drugs
- 1.9. Choligeric, Midriatic and Anesthetic Drugs
  - 1.9.1. Cholinergic Drugs
  - 1.9.2. Midriatic Drugs
  - 1.9.3. Anesthetic Drugs

## Module 2. Ophthalmologic Examination and Complementary Tests

- 2.1. Ophthalmologic examination
  - 2.1.1. Remote Ophthalmologic Examination
  - 2.1.2. Medical History
  - 2.1.3. Methods of Fastening
  - 2.1.4. Basic Instruments for Ophthalmologic Examination
- 2.2. Direct and Indirect Ophthalmoscopy
  - 2.2.1. Direct Examination
    - 2.2.1.1. Palpebral Reflex
    - 2.2.1.2. Threat Response
    - 2.2.1.3. Glare Reflex
    - 2.2.1.4. Pupillary Motor Reflex
    - 2.2.1.5. Corneal Reflex
  - 2.2.2. Biomicroscopy
  - 2.2.3. Direct Ophthalmoscopy
  - 2.2.4. Indirect Ophthalmoscopy
    - 2.2.4.1. Indirect Monocular Ophthalmoscopy

- 2.3. Ophthalmic Examination Test
  - 2.3.1. Schirmer Test
  - 2.3.2. Fluorescein Test
    - 2.3.2.1. Fluorescein Test
    - 2.3.2.2. Break Up Time (But)
    - 2.3.2.3. Jones Test
    - 2.3.2.4. Seidel Test
  - 2.3.3. Rose Bengal
  - 2.3.4. Lysamine Green
- 2.4. Tonometry
  - 2.4.1. Indentation Tonometry
  - 2.4.2. Flattening Tonometry
  - 2.4.3. Rebound Tonometry
- 2.5. Gonioscopy
  - 2.5.1. Direct Gonioscopy
  - 2.5.2. Indirect Gonioscopy
- 2.6. Cytology and Biopsy
  - 2.6.1. Sampling for Cytology
    - 2.6.1.1. Conjunctival Cytology
    - 2.6.1.2. Corneal Cytology
    - 2.6.1.3. Aqueous Humor Cytology
    - 2.6.1.4. Vitreous Cytology
  - 2.6.2. Sampling for Biopsy
- 2.7. Ocular Ultrasonography
  - 2.7.1. Anterior Segment Ultrasound
  - 2.7.2. Ultrasound of the Posterior Segment
  - 2.7.3. Ultrasound of the Orbit
- 2.8. Optical Coherence Tomography (OCT)
  - 2.8.1. Corneal OCT
  - 2.8.2. Iridocorneal Angle
  - 2.8.3. Retinal Oct

- 2.9. Electroretinography
  - 2.9.1. Electroretinography (ERG)
  - 2.9.2. Technique for Performing Electroretinography
  - 2.9.3. Applications of ERG
- 2.10. Other Diagnostic Imaging
  - 2.10.1. Magnetic Resonance Imaging and CT
  - 2.10.2. Fluorescein Angiography
  - 2.10.3. Pachymetry
  - 2.10.4. Meibography

### Module 3. Diseases and Surgery of the Eyelids and Nasolacrimal System

- 3.1. Structure and Function
  - 3.1.1. Palpebral Surgery
  - 3.1.2. Anesthetic Protocol
  - 3.1.3. Preparation and Positioning
  - 3.1.4. Instrumentation and Suture Material
- 3.2. Congenital and Developmental Abnormalities
  - 3.2.1. Physiologic and Pathologic Ankyloblepharon
  - 3.2.2. Colobomas
  - 3.2.3. Dermoids
  - 3.2.4. Distichiasis and Ectopic Cilia
  - 3.2.5. Entropion
  - 3.2.6. Ectropion
  - 3.2.7. Macroblepharon
- 3.3. Surgical Techniques
  - 3.3.1. Entropion
  - 3.3.2. Ectropion
  - 3.3.3. Euryblepharon, Diamond Eye
  - 3.3.4. Trauma

- 3.4. Blepharitis
  - 3.4.1. Bacterial
  - 3.4.2. Mycotic
  - 3.4.3. Parasitic
  - 3.4.4. Leishmania
  - 3.4.5. Immune-mediated
  - 3.4.6. Meibomianitis
- 3.5. Neoplasms
  - 3.5.1. Neoplasms in Dogs
  - 3.5.2. Neoplasms in Cats
- 3.6. Reconstructive Surgery
  - 3.6.1. Advance Flaps
  - 3.6.2. Myocutaneous Flaps
  - 3.6.3. Tarsconjunctival Flaps
- 3.7. Nasolacrimal Lacrimal System
  - 3.7.1. Embryology
  - 3.7.2. Anatomy and Physiology
  - 3.7.3. Clinical Signs of Nasolacrimal Lacrimal System Disease
  - 3.7.4. Diagnostic Techniques
    - 3.7.4.1. Schirmer Test
    - 3.7.4.2. Cytology and Microbiological Cultures
    - 3.7.4.3. Jones Test and Nasolacrimal Lacrimal Lavage
    - 3.7.4.4. Imaging
      - 3.7.4.4.1. CAT
      - 3.7.4.4.2. MRI
      - 3.7.4.4.3. Ultrasonography
- 3.8. Nasolacrimal Lacrimal System Pathology
  - 3.8.1. Lacerations
  - 3.8.2. Dacryocystitis
  - 3.8.3. Neoplasms of the Nasolachrymal Duct

- 3.9. Lacrimal Secretory System
  - 3.9.1. Lacrimal Formation and Components
  - 3.9.2. Precorneal Film Pathologies
  - 3.9.3. Quantitative Tear Deficiency
  - 3.9.4. Qualitative Tear Deficiency
  - 3.9.5. Diagnosis of Tear Quantity and Quality
  - 3.9.6. Treatment of Quantitative and Qualitative Tear Deficiency
- 3.10. Novel Therapies for Quantitative and Qualitative Tear Deficiency
  - 3.10.1. Novel Therapies in Quantitative Tear Deficiency
  - 3.10.2. Novel Therapies for Qualitative Tear Deficiency

## Module 4. Diseases and Surgery of the Conjunctiva, Nictitating Membrane, and Orbit

- 4.1. Physiology of the Conjunctiva
  - 4.1.1. Anatomy and Physiology of the Conjunctiva
  - 4.1.2. Response to Disease
  - 4.1.3. Infectious Conjunctivitis
    - 4.1.3.1. Bacterial Conjunctivitis
    - 4.1.3.2. Viral Conjunctivitis
    - 4.1.3.3. Fungal Conjunctivitis
    - 4.1.3.4. Conjunctivitis due to Rickettsiae
    - 4.1.3.5. Parasitic Conjunctivitis
- 4.2. Classification of Conjunctivitis
  - 4.2.1. Non-infectious Conjunctivitis
    - 4.2.1.1. Allergic Conjunctivitis
    - 4.2.1.2. Follicular Conjunctivitis
    - 4.2.1.3. Woody Conjunctivitis
    - 4.2.1.4. Lipogranulomatous Conjunctivitis
    - 4.2.1.5. Conjunctivitis Associated with Lacrimal Deficiency
    - 4.2.1.6. Conjunctivitis Associated with Anatomical Alterations
  - 4.2.2. Conjunctival Neoplasms

- 4.3. Conjunctivitis Non-Neoplastic Masses
  - 4.3.1. Non-Neoplastic Masses
    - 4.3.1.1. Inflammatory
    - 4.3.1.2. Dermoids
    - 4.3.1.3. Parasitic
    - 4.3.1.4. Fat Prolapse
    - 4.3.1.5. Cysts
- 4.4. Conjunctival Surgery
  - 4.4.1. Instruments
  - 4.4.2. Lacerations
  - 4.4.3. Conjunctival Flaps
  - 4.4.4. Symblepharon
  - 4.4.5. Conjunctival Masses
- 4.5. Nictitating Membrane Anatomical Variations
  - 4.5.1. Anatomy and Physiology
  - 4.5.2. Exploration
  - 4.5.3. Anatomical Variations
    - 4.5.3.1. Pigmentation Variations
    - 4.5.3.2. Ercycling
- 4.6. Nictitating Membrane Acquired Pathologies
  - 4.6.1. Congenital or Developmental Anomalies
    - 4.6.1.1. Eversion of the Cartilage
    - 4.6.1.2. Prolapse of the Nictitating Gland
  - 4.6.2. Acquired Pathologies
    - 4.6.2.1. Lacerations
    - 4.6.2.2. Foreign Bodies
    - 4.6.2.3. Inflammatory Diseases
    - 4.6.2.4. Protrusion of the Membrane
    - 4.6.2.5. Neoplasms
- 4.7. Surgery of the Nictitating Membrane
  - 4.7.1. Eversion of the Cartilage
  - 4.7.2. Prolapse of the Gland
  - 4.7.3. Third EyelidFlap
- 4.8. Orbit. Orbital Diseases
  - 4.8.1. Anatomy
  - 4.8.2. Pathological Mechanisms
  - 4.8.3. Orbital Diseases
    - 4.8.3.1. Orbital Cellulitis. Retrobulbar Abscess
    - 4.8.3.2. Orbital Cystic Lesions
    - 4.8.3.3. Vascular Anomalies
    - 4.8.3.4. Myositis
    - 4.8.3.5. Neoplasms
    - 4.8.3.6. Trauma
      - 4.8.3.6.1. Fractures
      - 4.8.3.6.2. Emphysema
      - 4.8.3.6.3. Ocular Proptosis
    - 4.8.3.7. Fat Prolapse
- 4.9. Eyeball and Orbit Surgery
  - 4.9.1. Preparation
  - 4.9.2. Anesthesia
  - 4.9.3. Enucleation
  - 4.9.4. Exenteration
- 4.10. Orbitotomy and Orbitectomy
  - 4.10.1. Orbital Prosthesis
  - 4.10.2. Evisceration and Intrasccleral Prosthesis
  - 4.10.3. Orbitotomy and Orbitectomy

## Module 5. Corneal Diseases and Surgery

- 5.1. Corneal Physiology
  - 5.1.1. Clarity. Corneal Transparency
  - 5.1.2. Corneal Healing
    - 5.1.2.1. Proteases and Protease Inhibitors in the Corneal Healing Process
    - 5.1.2.2. Proteinases
  - 5.1.3. Epithelial, Endothelial and Corneal Pigmentation
  - 5.1.4. Corneal Edema, Corneal Vascularization

- 5.2. Congenital and Developmental Diseases
  - 5.2.1. Microcornea. Megalocornea
  - 5.2.2. Dermoid cysts
  - 5.2.3. Congenital Opacities Persistent Pupillary Membranes
  - 5.2.4. Coloboma. Staphyloma
- 5.3. Inflammatory Keratopathies
  - 5.3.1. Ulcerative Keratitis
  - 5.3.2. Bacterial Keratitis
  - 5.3.3. Viral Keratitis
  - 5.3.4. Mycotic Keratitis
- 5.4. Corneal Ulcers
  - 5.4.1. Ulcer Depth Identification
  - 5.4.2. Chronic Spontaneous Epithelial Defects (SCCED's)
- 5.5. Corneal Surgery
  - 5.5.1. Corneal Adhesives
  - 5.5.2. Conjunctival Flaps
  - 5.5.3. Use of Biological Membranes
  - 5.5.4. Keratoplasty
- 5.6. Non-Ulcerative Keratitis
  - 5.6.1. Pigmentary Keratitis
  - 5.6.2. Chronic Superficial Keratitis
  - 5.6.3. Punctate Keratitis
  - 5.6.4. Marginal Keratitis
  - 5.6.5. Punctate Keratitis
  - 5.6.6. Neurogenic Keratitis
- 5.7. Inflammatory Keratopathies
  - 5.7.1. Corneal Dystrophies
  - 5.7.2. Lipid Keratopathy
  - 5.7.3. Corneal Degeneration
  - 5.7.4. Endothelial Dystrophy
  - 5.7.5. Florida Keratopathy
  - 5.7.6. Surgery for Keratopathies
- 5.8. Corneal Neoplasms
  - 5.8.1. Neoplasms in Dogs
  - 5.8.2. Neoplasms in Cats
- 5.9. Sclera
  - 5.9.1. Structure and Function
  - 5.9.2. Inflammatory Diseases
    - 5.9.2.1. Episcleritis
      - 5.9.2.1.1. Nodular Granulomatous
  - 5.9.3. Scleritis
    - 5.9.3.1. Non-necrotizing
    - 5.9.3.2. Necrotizing
  - 5.9.4. Trauma. Laceration
- 5.10. Cross Linking. Cryotherapy
  - 5.10.1. Cross Linking and Cryotherapy
  - 5.10.2. Keratopathies treated with Cross Linking
  - 5.10.3. Keratopathies Treated with Cryotherapy

## Module 6. Lens diseases and surgery

- 6.1. Embryology and Anatomy
  - 6.1.1. Embryology
  - 6.1.2. Anatomy
- 6.2. Exploration of the Crystalline Lens
  - 6.2.1. Exploration of the Crystalline Lens
  - 6.2.2. Advanced Examination
- 6.3. Congenital Disorders
  - 6.3.1. Aphakia
  - 6.3.2. Coloboma
  - 6.3.3. Microphakia
  - 6.3.4. Lenticonus
  - 6.3.5. PHPV/TVL
  - 6.3.6. Cataracts

- 6.4. Acquired Alterations
  - 6.4.1. Cataracts, Classification
  - 6.4.2. Characterization, Location
  - 6.4.3. Age
    - 6.4.3.1. Congenital
    - 6.4.3.2. Hereditary
    - 6.4.3.3. Aged Related
  - 6.4.4. Primary vs. Secondary
- 6.5. Metabolic and Systemic Cataracts
  - 6.5.1. Ions
  - 6.5.2. Diabetes
  - 6.5.3. Galactosemia
  - 6.5.4. Infectious Diseases
- 6.6. Treatment of Metabolic and Systemic Cataracts
  - 6.6.1. Doctor
  - 6.6.2. Surgical
- 6.7. Visual Disturbances and Untreated Cataract Sequels
  - 6.7.1. Visual Alterations
  - 6.7.2. Sequels of Untreated Cataracts
    - 6.7.2.1. Hyperpigmentation of the Iris
    - 6.7.2.2. Other Sequels
- 6.8. Dislocation
  - 6.8.1. Primary Dislocation
  - 6.8.2. Secondary Dislocation
- 6.9. Cataract Surgery
  - 6.9.1. Patient Selection
  - 6.9.2. Complementary Tests
    - 6.9.2.1. Ultrasound
    - 6.9.2.2. Gonioscopy
    - 6.9.2.3. ERG

- 6.9.3. Complications
  - 6.9.3.1. Pre-Surgery
  - 6.9.3.2. Intra-Operative
  - 6.9.3.3. Post-Operatives
- 6.9.4. Patient Preparation
- 6.9.5. Equipment
- 6.9.6. Surgery
- 6.10. Lens Dislocation Surgery
  - 6.10.1. Patient Choice
  - 6.10.2. Patient Preparation
  - 6.10.3. Intraoperative complications
  - 6.10.4. Techniques

## Module 7. Diseases and Surgery of the Uvea and Retina

- 7.1. Embryology and Anatomy of Uvea
  - 7.1.1. Embryology
  - 7.1.2. Anatomy
- 7.2. Congenital Disorders
  - 7.2.1. Heterochromia
  - 7.2.2. Colobomas
  - 7.2.3. Persistence of Pupillary Membranes
  - 7.2.4. Discoria
- 7.3. Degenerative Alterations
  - 7.3.1. Iris Atrophy
  - 7.3.2. Iris Cysts
- 7.4. Uveal Inflammation
  - 7.4.1. Intraocular Causes
  - 7.4.2. Systemic Causes
- 7.5. Diagnosis and Clinical Presentations
  - 7.5.1. Ophthalmologic Examination
  - 7.5.2. Neuro-Ophthalmology

- 7.6. Color Changes
  - 7.6.1. Benign
  - 7.6.2. Neoplasms
    - 7.6.2.1. Primary
    - 7.6.2.2. Metastatics
- 7.7. Specific Treatments Depending on the Cause
  - 7.7.1. Topical Treatments
  - 7.7.2. Adjuvant Systemic Therapy
  - 7.7.3. Specific Therapy According to Etiology
  - 7.7.4. Control of Sequels
- 7.8. Variations of the Normality in the Ocular Fundus
  - 7.8.1. Age
  - 7.8.2. Albinism
- 7.9. Retinal Alterations
  - 7.9.1. On Development
  - 7.9.2. Hereditary
  - 7.9.3. Storage
  - 7.9.4. Inflammatory (causes)
  - 7.9.5. Miscellaneous
    - 7.9.5.1. SARDs
    - 7.9.5.2. CAR
    - 7.9.5.3. Immune-mediated Retinitis
    - 7.9.5.4. Uveodermatologic Syndrome
    - 7.9.5.5. Nutritional
    - 7.9.5.6. Neoplasms
- 7.10. Medical Management vs. Surgical Management of Retinal Lesions
  - 7.10.1 Types of Retinal Detachment
  - 7.10.2 Genetic Alterations

## Module 8. Ophthalmology of Exotic Animals

- 8.1. Ophthalmology in Exotic Animals
  - 8.1.1. Environment
  - 8.1.2. Vision Evaluation
  - 8.1.3. Comparative Anatomy of the Retina
  - 8.1.4. Restrictions
  - 8.1.5. Visual Reflections
  - 8.1.6. Medical Therapy in Exotic Animals
  - 8.1.7. Surgical Procedures in Exotic Animals
- 8.2. Rabbits
  - 8.2.1. Anatomy
  - 8.2.2. Exploration
  - 8.2.3. Orbital Diseases
  - 8.2.4. Palpebral Diseases
  - 8.2.5. Conjunctival Pathologies
  - 8.2.6. Nasolacrimal Lacrimal System Diseases
  - 8.2.7. Corneal Pathology
  - 8.2.8. Cataracts
  - 8.2.9. Glaucoma
- 8.3. Guinea Pig
  - 8.3.1. Anatomy
  - 8.3.2. Palpebral Diseases
  - 8.3.3. Conjunctival Pathologies
  - 8.3.4. Corneal Pathologies
  - 8.3.5. Cataracts
  - 8.3.6. Heterotopic Bone
- 8.4. Rat and Mouse
  - 8.4.1. Anatomy
  - 8.4.2. Exploration
  - 8.4.3. Conjunctival and Nasolacrimal System Pathologies
  - 8.4.4. Corneal Pathologies
  - 8.4.5. Cataracts
  - 8.4.6. Uveal Pathologies
  - 8.4.7. Abnormalities of the Posterior Segment

- 8.5. Wild Animals
  - 8.5.1. General Characteristics
  - 8.5.2. Exploration (Day vs. Nocturnal)
  - 8.5.3. Complementary Tests
  - 8.5.4. Medical and Surgical Restrictions
  - 8.5.5. Routes of Administration
  - 8.5.6. Surgical Procedures (Differences Between Species)
  - 8.5.7. Postoperative Care
- 8.6. Ferrets
  - 8.6.1. Anatomy
  - 8.6.2. Exploration
  - 8.6.3. Orbital Diseases
  - 8.6.4. Conjunctival Pathologies
  - 8.6.5. Corneal Pathologies
  - 8.6.6. Cataracts
  - 8.6.7. Uveal Pathologies
  - 8.6.8. Glaucoma
- 8.7. Other Exotic Mammals
  - 8.7.1. Hamsters
  - 8.7.2. Chinchillas
  - 8.7.3. Gerbils
  - 8.7.4. Degus
  - 8.7.5. Hedgehogs
- 8.8. Birds
  - 8.8.1. Anatomy
  - 8.8.2. Exploration
  - 8.8.3. Trauma
  - 8.8.4. Palpebral Diseases
  - 8.8.5. Conjunctival Pathologies
  - 8.8.6. Corneal Pathologies
  - 8.8.7. Uveal Pathologies
  - 8.8.8. Cataracts
  - 8.8.9. Horner Syndrome
  - 8.8.10. Enucleation

- 8.9. Reptiles Anatomy and Physiology
  - 8.9.1. Anatomy and Physiology
  - 8.9.2. The Speculum and its Pathologies
  - 8.9.3. Microphthalmia and Anophthalmia
  - 8.9.4. Megaglobus
- 8.10. Reptiles Pathologies
  - 8.10.1. Hypovitaminosis A in Turtles
  - 8.10.2. Palpebral Diseases and Dacryocystitis
  - 8.10.3. Conjunctival Pathologies
  - 8.10.4. Corneal Pathologies
  - 8.10.5. Uveal Pathologies
  - 8.10.6. Cataracts
  - 8.10.7. Abnormalities of the Posterior Segment
- 8.11. Fish and Amphibians
  - 8.11.1. Fish
    - 8.11.1.1. Anatomy
    - 8.11.1.2. Exploration
    - 8.11.1.3. Ocular Pathology
  - 8.11.2. Amphibians
    - 8.11.2.1. Anatomy
    - 8.11.2.2. Exploration
    - 8.11.2.3. Ocular Pathology

## Module 9. Glaucoma

- 9.1. Anatomy and Embryology
  - 9.1.1. Embryologic Development of the Irido-corneal Angle
  - 9.1.2. Embryological Development Trabecular Meshwork
  - 9.1.3. Anatomical Changes Associated with Intraocular Hypertension
- 9.2. Classifications of Glaucoma
  - 9.2.1. Classification According to Etiology
    - 9.2.1.1. Primary
    - 9.2.1.2. Secondary



- 9.3. Diagnosis
  - 9.3.1. Ophthalmologic examination
    - 9.3.1.1. Funduscopy
    - 9.3.1.2. Neuro-Ophthalmology
  - 9.3.2. Tonometry
  - 9.3.3. Gonioscopy
  - 9.3.4. Complementary Imaging Techniques
    - 9.3.4.1. UBM
    - 9.3.4.2. High Resolution Ultrasonography
    - 9.3.4.3. Optical Coherence Tomography (OCT)
- 9.4. Clinical Signs
  - 9.4.1. Intraocular Hypertension
  - 9.4.2. Acute Primary Glaucoma
  - 9.4.3. Secondary Glaucoma
    - 9.4.3.1. Acute
    - 9.4.3.2. Renal Patient
- 9.5. Primary Canine Glaucoma (According to Breeds)
  - 9.5.1. Heritability
  - 9.5.2. Genetic Tests
  - 9.5.3. Pectinate Ligament Dysplasia
  - 9.5.4. Sex, Age Relationship
  - 9.5.5. Open Angle Glaucoma
    - 9.5.5.1. Beagle
    - 9.5.5.2. Norwegian Elkhound
    - 9.5.5.3. Petit Basset Griffon
  - 9.5.6. Blunt Angle Glaucoma
    - 9.5.6.1. American Cocker Spaniel
    - 9.5.6.2. Basset Hound
    - 9.5.6.3. Chow Chow
    - 9.5.6.4. Samoyed
    - 9.5.6.5. Other Breeds
- 9.6. Secondary Glaucoma
  - 9.6.1. Causes
    - 9.6.1.1. Primary Lens Dislocation
    - 9.6.1.2. Uveitis
    - 9.6.1.3. Phacomorphic
    - 9.6.1.4. Associated with Crystalline Surgery
    - 9.6.1.5. Malignant Glaucoma
    - 9.6.1.6. Trauma
    - 9.6.1.7. Pigmentary Glaucoma
    - 9.6.1.8. Retinal Alterations
    - 9.6.1.9. Neoplasms
- 9.7. Feline Glaucoma (Primary and Secondary)
  - 9.7.1. Causes
    - 9.7.1.1. Congenital
    - 9.7.1.2. Primary
    - 9.7.1.3. Secondary
  - 9.7.2. Clinical Signs
  - 9.7.3. Medical Treatment
    - 9.7.3.1. Specific Characteristics of the Feline Species
  - 9.7.4. Surgical Management
- 9.8. Medical Treatment
  - 9.8.1. Decrease in Aqueous Humor Production
  - 9.8.2. Increased Secondary Drainage
  - 9.8.3. Neuroprotection
- 9.9. Surgical Management
  - 9.9.1. Patient Choice
  - 9.9.2. Pre- and Perioperative Treatment of the Patient
  - 9.9.3. Valve Placement
    - 9.9.3.1. Surgical Technique
    - 9.9.3.2. Post-Operative Care
    - 9.9.3.3. Surgical Results

- 9.9.4. Cyclodestruction
  - 9.9.4.1. Photocoagulation
  - 9.9.4.2. Chemistry
  - 9.9.4.3. Thermal
- 9.10. Ocular Changes in Chronic Glaucomas
  - 9.10.1. Cornea
  - 9.10.2. Sclera
  - 9.10.3. Lens
  - 9.10.4. Uvea
  - 9.10.5. Retina
  - 9.10.6. Optic Nerve

## Module 10. Systemic Diseases

- 10.1. Congenital Diseases
  - 10.1.1. Albinism and Conditions Related to Hair Coat Color
  - 10.1.2. Dysplasia Osteochondrodysplasia
  - 10.1.3. Hydrocephalus
  - 10.1.4. Myasthenia Gravis
- 10.2. Developmental Diseases
  - 10.2.1. Metabolic Diseases
  - 10.2.2. Lysosomal Storage
  - 10.2.3. Lipofuscinosis
  - 10.2.4. Gangliosidosis
  - 10.2.5. Mucopolysaccharidosis
- 10.3. Acquired Diseases
  - 10.3.1. Hypertension
  - 10.3.2. Hematologic Alterations
  - 10.3.3. Vascular Accidents
- 10.4. Idiopathic Diseases
  - 10.4.1. Granulomatous Meningoencephalitis
  - 10.4.2. Dysautonomia
  - 10.4.3. Acute Acquired Blindness Syndrome (SARDS)
- 10.5. Immune-mediated Diseases
  - 10.5.1. Juvenile Cellulitis
  - 10.5.2. Immune-mediated Retinitis
  - 10.5.3. Keratoconjunctivitis Sicca
  - 10.5.4. Myositis
    - 10.5.4.1. Masticatory Muscles
    - 10.5.4.2. Extraocular Muscles
  - 10.5.5. Uveodermatologic Syndrome
- 10.6. Infectious Diseases
  - 10.6.1. Algae
  - 10.6.2. Bacterial
  - 10.6.3. Mycotic
  - 10.6.4. Parasitic
  - 10.6.5. Protozoa
  - 10.6.6. Rickettsia
  - 10.6.7. Viral
- 10.7. Metabolic Diseases
  - 10.7.1. Diabetes Mellitus
  - 10.7.2. Hypothyroidism
  - 10.7.3. Hyperadrenocorticism
- 10.8. Neoplasms
  - 10.8.1. Cavernous Sinus Syndrome
  - 10.8.2. Lymphoma
  - 10.8.3. Central Neoplasms
- 10.9. Nutritional Disorders
  - 10.9.1. Alterations due to Milk Substitutes
  - 10.9.2. Vitamin Deficiency
  - 10.9.3. Ocular Manifestation due to Administration of Toxic Substances



- 10.10. Ocular Manifestation of Systemic Disease in Felines
  - 10.10.1. Congenital and Developmental Diseases
  - 10.10.2. Arterial Hypertension
  - 10.10.3. Hematologic Alterations
  - 10.10.4. Idiopathic Diseases
  - 10.10.5. Infectious Diseases
  - 10.10.6. Metabolic Diseases
  - 10.10.7. Neoplasms
  - 10.10.8. Nutritional Alterations
  - 10.10.9. Use of Toxic Drugs

“

*Thanks to the completeness of this program, you are guaranteed to be up to date on the different anesthetic drugs and their ophthalmic use”*

07

# Clinical Internship

Once the 1,500 hours of online training have been completed, the graduate will have access to 3 weeks of practical training in a reference clinical center where they will become part of a team of veterinary experts. In this way, they will be able to work actively in the management of small species with different ophthalmologic problems, contributing to perfect their professional practice, as well as to implement the most avant-garde and effective diagnostic and therapeutic strategies in the current sector. It is, therefore, a unique opportunity to elevate their career to the highest level at the hands of the best specialists in the veterinary field.



“

*Not all centers offer 120 hours of practical training in the best veterinary clinics. That is why TECH is different and better than the rest”*

The syllabus of this Hybrid Professional Master's Degree in Veterinary Ophthalmology in Small Animals developed by TECH includes a practical period in a veterinary clinical center of international reference. It is an experience of 120 hours distributed over 3 weeks in which the graduate will be part of a top level team from Monday to Friday with 8 consecutive hours of work. During these 3 weeks, the graduate will be part of a top level team from Monday to Friday with 8 consecutive hours of work and during which they will have the support of an assistant specialist who will ensure that the objectives for which this program was developed are met.

In this way, the student will be able to actively participate in the day to day of an ophthalmologic practice, handling small animals and intervening in their diagnosis and treatment. All this, through the most avant-garde clinical technology and with the security of using the newest veterinary techniques in the current sector. Therefore, not only will you be able to keep up to date with the most effective strategies, but you will also be able to perfect your professional skills in a guaranteed way.

It is, therefore, a unique opportunity to implement a distinguished and top-level practice in your practice thanks to the support of a team of veterinary ophthalmologists with a long and extensive experience in the field. Additionally, you will be updated on the most frequent ocular conditions in the daily practice, as well as on the most effective treatments for each case, contributing to offer a better service for pets and, therefore, providing greater peace of mind to their owners.

The practical teaching will be carried out with the active participation of the student performing the activities and procedures of each area of skill (learning to learn and learning to do), with the accompaniment and guidance of teachers and other training partners that facilitate teamwork and multidisciplinary integration as transversal skills for the veterinary praxis (learning to be and learning to relate).

The procedures described below will be the basis of the practical part of the training, and their implementation will be subject to the center's own availability and workload, the proposed activities being the following:



*Having access to 3 weeks of an internship program will provide greater security and guarantee to your practice, allowing you to implement the most innovative and avant-garde clinical strategies"*



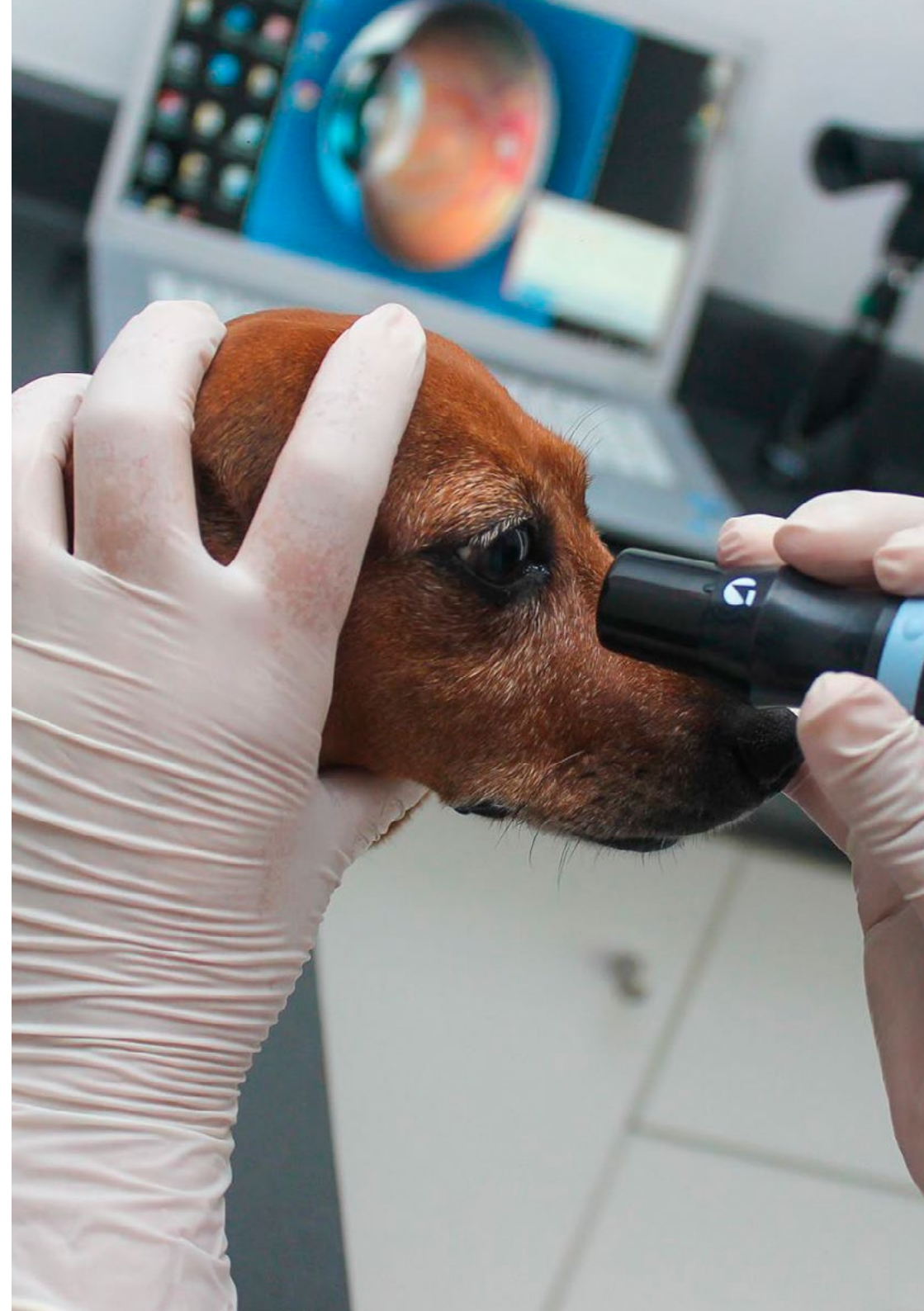
Module	Practical Activity
<b>Update in embryology, anatomy, physiology and pharmacology</b>	Practice with real anatomical models: pig eyes and deceased skulls
	Conduct study rounds
	Address the most up-to-date pharmacological criteria through supervised drug regimen for specific ocular pathologies
<b>Eyelid and conjunctival membrane surgery</b>	Participate in eyelid surgeries in different species
	Approach different pathologies through the most effective surgical techniques for this
	Work actively in conjunctival surgeries
	Handle clinical cases seen in consultation
	Practice with real anatomical models of deceased patients
<b>Diseases of the crystalline lens, of the uvea and retina, and surgical intervention</b>	Participate in lens surgeries and surgeries related to uveal diseases
	Work in the diagnosis of the different pathologies related to the retina, uvea and crystalline lens
	Treat the various patients attending the practice with pathologies related to this area
	Update the pharmacological catalog of specialized drugs for the different diseases in the post and pre-surgical period
<b>Veterinary medicine in exotic animals</b>	Deal with the different cases related to exotic animals attending the practice
	Update the student's knowledge on the pros and cons of the application of different strategies in different species
	Handle the most specialized tools for each species, providing the maximum wellbeing of the patients that come to the practice
<b>Ophthalmologic examination and complementary tests: glaucoma</b>	Participate in glaucoma surgeries
	Participate in clinical cases of those seen in the consultations
	Practice with real anatomical models of deceased patients
	Address the operation of each component of the practice in the use of the different clinical strategies
	Handle specialized apparatus for each complementary test

## Civil Liability Insurance

This institution's main concern is to guarantee the safety of the trainees and other collaborating agents involved in the internship process at the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns will have broad coverage and will be taken out prior to the start of the Internship Program period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.





## General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

**1. TUTOR:** during the Hybrid Professional Master's Degree, students will be assigned two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned an academic tutor whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

**2. DURATION:** The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

**3. ABSENCE:** If the student does not show up on the start date of the Internship Program, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

**4. CERTIFICATION:** the student who passes the Hybrid Professional Master's Program will receive a certificate accrediting their stay at the center.

**5. EMPLOYMENT RELATIONSHIP:** the Hybrid Professional Master's Program shall not constitute an employment relationship of any kind.

**6. PRIOR EDUCATION:** Some centers may require a certificate of prior education for the Internship Program. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

**7. DOES NOT INCLUDE:** the Hybrid Professional Master's Program will not include any element not described in these conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed.

However, students may consult with their academic tutor for any questions or recommendations in this regard. They will provide the student with all the necessary information to facilitate the procedures in any case.

# 08

## Where Can I Do the Clinical Internship?

In order to offer the best internship program, TECH and its team of experts submit the centers that apply to an extensive quality review, thanks to which it is possible to determine which are the highest level, as well as those that are most prepared to host the specialists during the 3 weeks of training. In this way, it guarantees a unique experience, in which the graduate will have access to the most avant-garde clinical technology, as well as to an active participation in the veterinary practice handling different cases of various species.






“

*By accessing this program you will be able to assist animals of multiple species, knowing in detail their ocular anatomy and putting into practice the most effective diagnostic and therapeutic techniques”*



The student will be able to complete the practical part of this Hybrid Professional Master's Degree at the following centers:



Pharmacodynamics.

### Happy Can Camp

Country	City
Mexico	Puebla


Management: Km 4.5 lateral Recya a Cholula Col. Bella Horizonte Puebla C.P. 72170

Veterinary clinic and hotel

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**Related internship programs:**

- Veterinary Radiology in Small Animals
- Veterinary Ophthalmology in Small Animals



Pharmacodynamics.

### Meds for pets

Country	City
Mexico	Nuevo Leon


Management: Av. Venustiano Carranza 429 Centro C.P 64000

Veterinary Hospital for advanced and comprehensive care

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**Related internship programs:**

- Veterinary Cardiology in Small Animals
- Ecography for Small Animals



Pharmacodynamics.

### Hospital Veterinario Reynoso

Country	City
Mexico	Mexico


Management: Guillermo roja No.201 Col. Federal Toluca Edomex

High specialty veterinary hospital

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**Related internship programs:**

- Anesthesiology and Veterinary
- Management and Direction of Veterinary Centers



Pharmacodynamics.

### Aztekan Hospital Veterinario - Roma

Country	City
Mexico	Mexico City


Management: San Luis 152 Col Roma C.P CDMX

24-hour Veterinary Hospital

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**Related internship programs:**

- Veterinary Emergencies in Small Animals
- Veterinary Cardiology in Small Animals



Pharmacodynamics.

### Aztekan Hospital Veterinario - Sur

Country	City
Mexico	Mexico City


Management: Circuito Estadio Azteca #298 Pedregal de Santa Ursula C.P 04600 CDMX

24-hour Veterinary Hospital

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**Related internship programs:**

- Veterinary Emergencies in Small Animals
- Dermatology in Small Animals



Pharmacodynamics.

### Aztekan Hospital Veterinario - Nápoles

Country	City
Mexico	Mexico City

Management: Nebraska 151 Colonia Nápoles C.P 03810 CDMX

24-hour Veterinary Hospital

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**Related internship programs:**

- Equine Medicine and Surgery
- Veterinary Emergencies in Small Animals



Pharmacodynamics.

### Hospital Veterinario Menes

Country	City
Spain	Asturias

Management:  
Calle Daniel Palacio Fernández, 15, 33204  
Gijón, Asturias  
Veterinary clinic with exclusive dedication  
to companion animals

**Related internship programs:**

- Internal Medicine in Small Animals
- Veterinary Ophthalmology in Small Animals



Pharmacodynamics.

### Clínica Veterinaria Unzeta

Country	City
Spain	Madrid

Management: C. de Ferraz, 28, 28008 Madrid

Veterinary clinical assistance center for  
domestic animals

**Related internship programs:**

- Internal Medicine in Small Animals
- Veterinary Oncology in Small Animals

09

# 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.





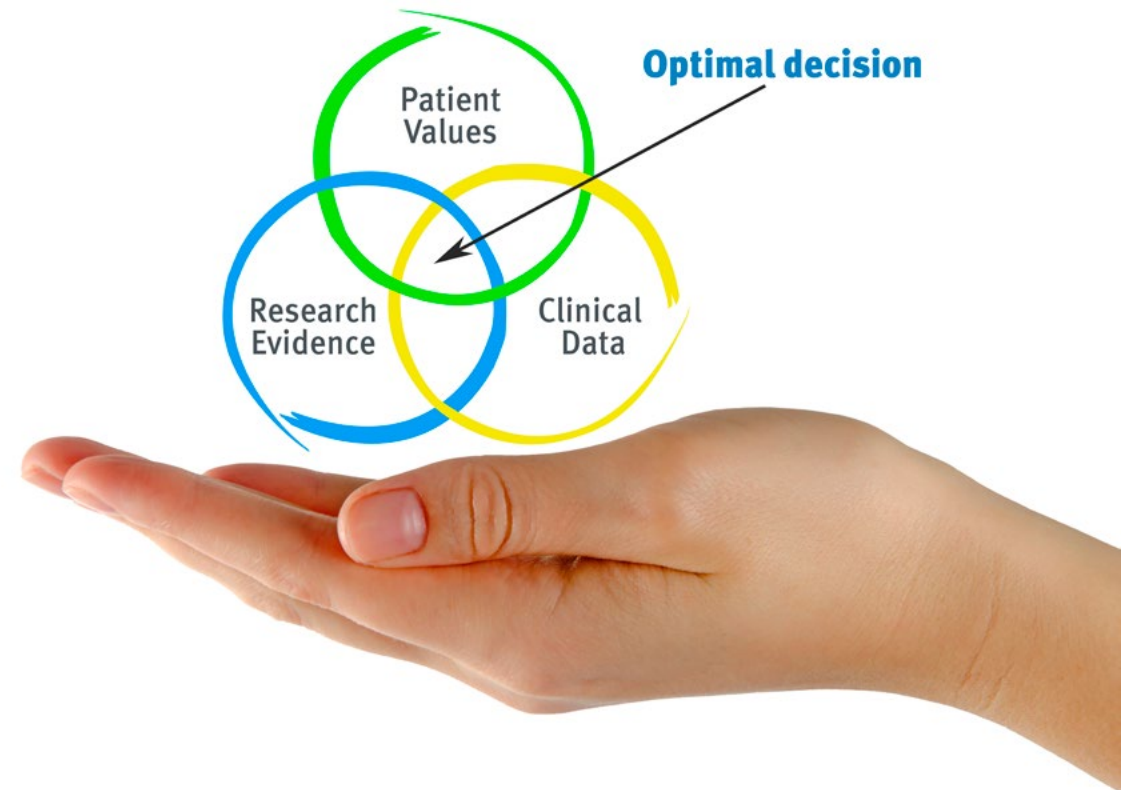
“

*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. Gervas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, 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

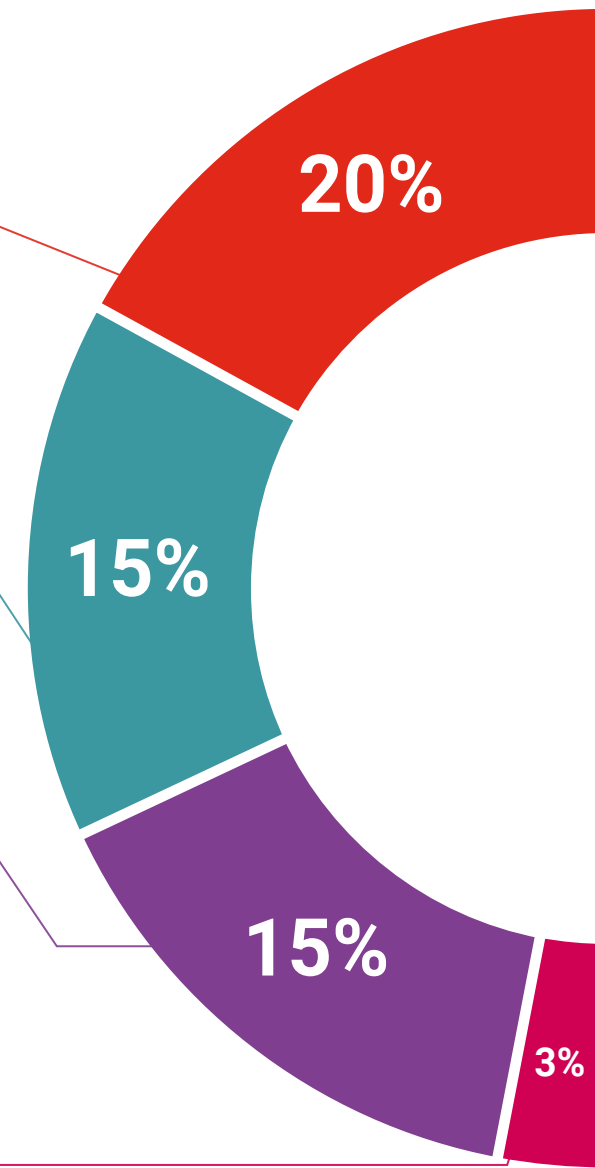
The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

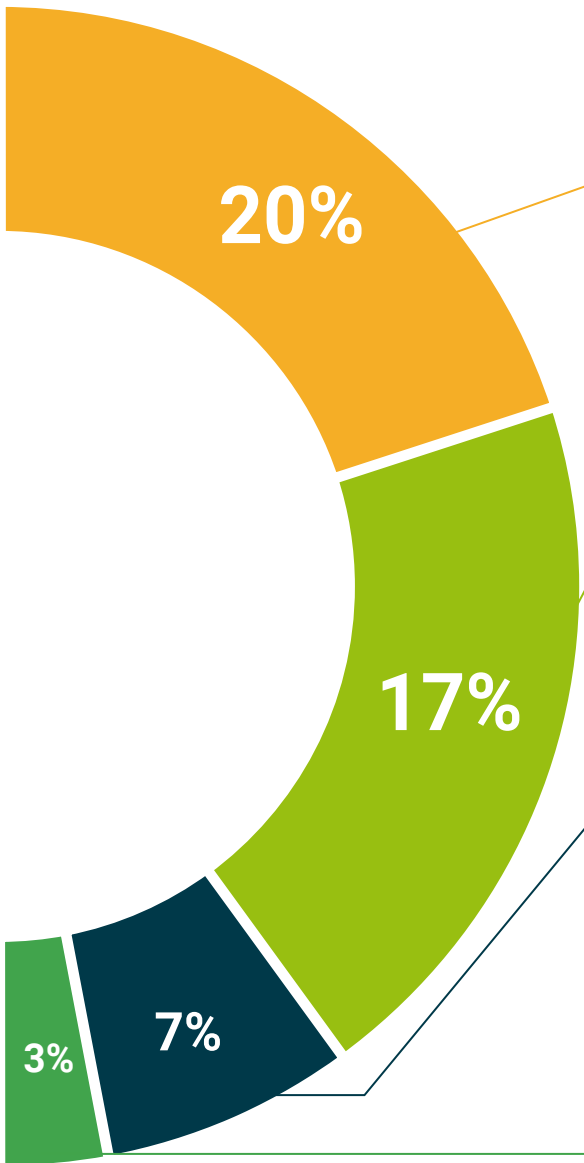
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### 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.



# 10 Certificate

The Hybrid Professional Master's Degree in Small Animal Veterinary Ophthalmology guarantees, in addition to the most rigorous and updated training, access to a Hybrid Professional Master's Degree issued by TECH Technological University.



“

*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

This **Hybrid Professional Master's Degree in Veterinary Ophthalmology in Small Animals** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Hybrid Professional Master's Degree** issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Hybrid Professional Master's Degree, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

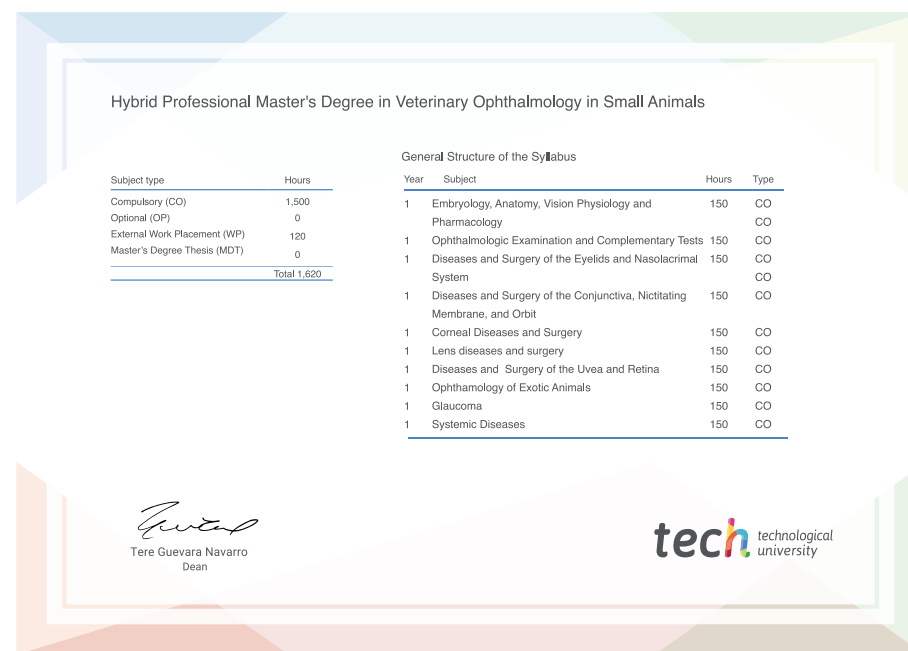
Title: **Hybrid Professional Master's Degree in Veterinary Ophthalmology in Small Animals**

Course Modality: **Hybrid (Online + Clinical Internship)**

Duration: **12 months**

Certificate: **TECH Technological University**

Teaching Hours: **1,620 h.T**



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



future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
online training  
development language  
virtual classroom

**tech** technological  
university

Hybrid Professional  
Master's Degree  
Veterinary Ophthalmology  
in Small Animals

- » Modality: online
- » Duration: 12 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Hybrid Professional Master's Degree Veterinary Ophthalmology in Small Animals