

Postgraduate Certificate Semen Sexing





Postgraduate Certificate Semen Sexing

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

Official N° of hours: 150 h.

Website: www.techtute.com/in/veterinary-medicine/postgraduate-certificate/semen-sexing

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Certificate

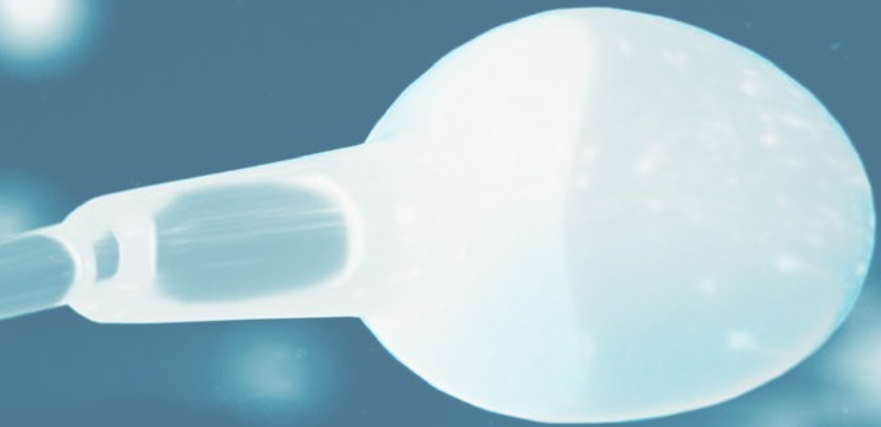
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01

Introduction

Sex selection has been of great interest throughout history, but it was not until the 20th century that technologies for pre-identification of sex before birth of animals began to be applied. First, research on sex identification in embryos was initiated, but the use of sexing methods had repercussions on the viability of gestation in the majority of cases. For this reason, research on sperm sexing techniques was started.

Given the complexity of all these methodologies, this program presents a comparative study of all the techniques to make an adequate assessment and choice of seminal sexing in the different clinics, farms and reproduction centers.



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This program is the best option you can find to specialize in Semen Sexing and make more accurate diagnoses”

From the earliest data on animal reproduction in Egyptian hieroglyphs, through the ancient veterinarians to the present day, man has always been interested in the study of animal reproduction to increase populations and obtain better yields.

Animal reproduction has evolved exponentially in recent decades and its current development means that technologies implemented a few years ago are now obsolete. Technique, science and human genius combine and bring, as a consequence, results identical to natural reproduction.

The objective of this program focuses on the mastery and control of all physiological, pathological and biotechnological aspects that affect the reproductive organ function of domestic animals. The species studied in this Postgraduate Certificate are: bovinds, equids, swine, sheep, goats and canids; a selection made based on the importance and development of assisted reproduction at present.

This Postgraduate Certificate is developed to deepen the current knowledge of the specialization in the different techniques of Semen Sexing.

The group of professors teaching the Postgraduate Certificate is made up of specialists in animal reproduction with a work history of more than 30 years of experience, not only in the field of teaching, but also with practical activity, research and directly in livestock farms and animal reproduction centers. In addition, the teaching team is actively developing the latest techniques in assisted reproduction biotechnologies, making available to the market genetic material of different species of international zotechnical interest.

The specialization will be based on the theoretical and scientific aspects, combining them with the practical and applicative professionalism of each of the subjects in the current work. Continuous specialization after completing undergraduate studies is sometimes complicated and difficult to combine with work and family activities, so with this Postgraduate Certificate, TECH gives the possibility to continue specializing online with a large amount of practical audiovisual support that will allow the student to advance in reproductive techniques in their work environment.

This **Postgraduate Certificate in Semen Sexing** contains the most complete and up-to-date scientific program on the market. The features are:

- ♦ Practical cases presented by experts in Semen Sexing
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional development
- ♦ Latest innovations in Semen Sexing
- ♦ Practical exercises where self-assessment can be used to improve learning
- ♦ Special emphasis on innovative methodologies in Semen Sexing
- ♦ 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



Don't miss the opportunity to study this Semen Sexing Postgraduate Certificate with us. It's the perfect opportunity to advance your career"

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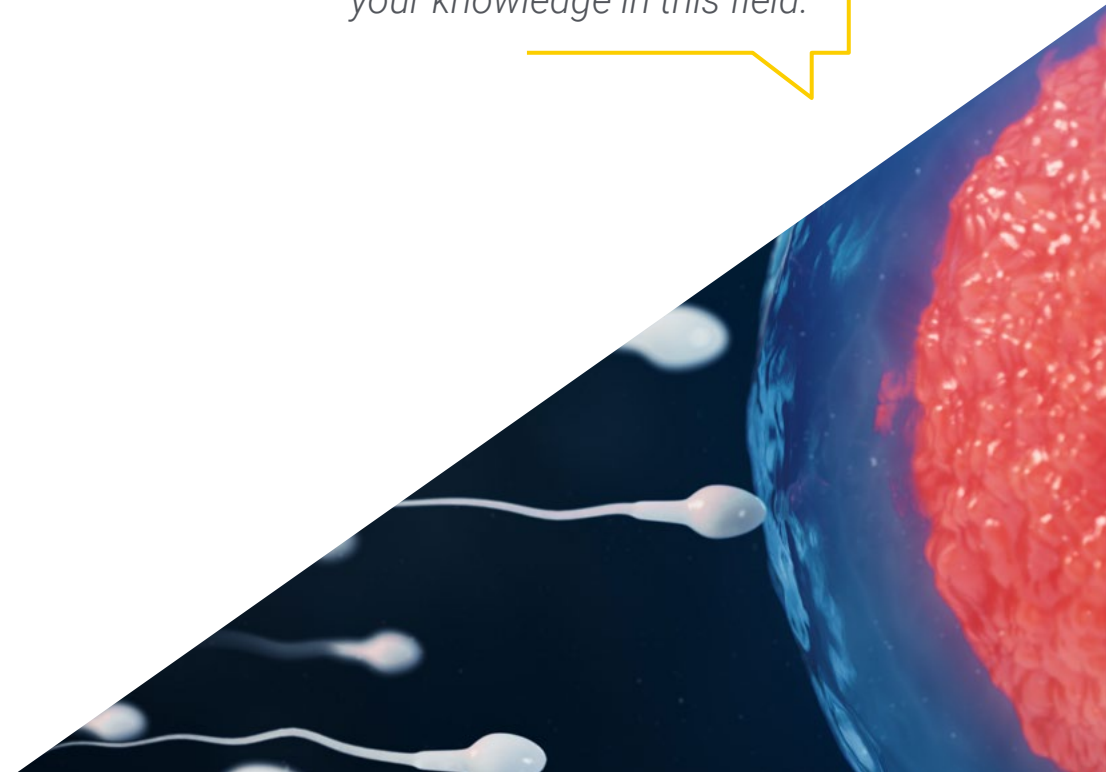
This Postgraduate Certificate is the best investment you can make when choosing a refresher program to expand your existing knowledge of Semen Sexing”

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education that is programmed to teach students 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. To do so, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts in Semen Sexing.

This program comes with the best educational material, providing you with a contextual approach that will facilitate your learning.

This 100% online program will allow you to combine your studies with your professional work while increasing your knowledge in this field.



02 Objectives

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





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It is the best option to learn about the latest advances in Semen Sexing”



General Objectives

- Specify the importance of sexual differentiation in mammals and its application in progeny testing programs
- Evaluate sex selection techniques in both embryos and spermatozoa
- Develop the alterations caused by the application of these techniques in pathologies that may affect sex determination

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A path of preparation and professional growth that will propel you towards greater competitiveness in the labor market”





Specific Objectives

- ♦ Evaluate the importance of sex selection in breeding programs
- ♦ Establishing a bioethical review of sex selection in mammals
- ♦ Develop the methods of embryo sexing currently in use
- ♦ Demonstrate the scientific basis of the different techniques of sperm sex selection
- ♦ Analyze the different advantages and disadvantages of the different sperm sexing techniques in mammalian males
- ♦ Identify pathologies that can affect sex, as well as flagellar mutations and alterations
- ♦ Fundamentals of sperm sexing efficacy techniques

03

Course Management

The program's teaching staff includes leading experts in semen sexing, who bring the experience of their work to this program. They are world-renowned doctors from different countries with proven theoretical and practical professional experience.





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*Our teaching team, experts in Semen Sexing,
will help you achieve professional success”*

Management



Dr. Gomez Peinado, Antonio

- Coordinator of Obstetrics and Reproduction at Alfonso X El Sabio University, Faculty of Veterinary Medicine
- Degree in Veterinary Medicine
- Doctorate in Alfonso X El Sabio University Faculty of Veterinary Medicine - Professor of Animal Production



Dr. Gómez Rodríguez, Elisa

- Work development of assisted reproduction techniques at the " Spanish Institute of Animal Genetics and Reproduction" (IEGRA) in Talavera de la Reina, Toledo
- Professor of Veterinary Medicine at the Alfonso X El Sabio University
- Degree in Veterinary Medicine, Complutense University Madrid
- Postgraduate course "Assisted Reproduction in Cattle Taught by IEGRA, UAX and HUMECO, Talavera de la Reina
- Course on "Bovine Reproductive Ultrasound" Taught by Dr. Giovanni Gnemmi (HUMECO), Talavera de la Reina



04

Structure and Content

The structure of the content has been designed by the best Professionals in the Semen Sexing Sector, with extensive experience and recognized prestige in the profession, backed by the volume of cases reviewed, studied, and diagnosed, and with extensive knowledge of new technologies applied to veterinary medicine.



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This Postgraduate Certificate in Semen Sexing contains the most complete and up-to-date scientific program on the market”

Module 1. Selection of Sex in Mammals

- 1.1. Sex Selection in Genetic Improvement
 - 1.1.1 Sexual Differentiation in Mammals
 - 1.1.2 Sex Selection in Progeny Tests
 - 1.1.3 Bioethics in Mammalian Sex Selection
- 1.2. Embryo Sex Identification
 - 1.2.1 Methods of Sex Detection in Embryos
 - 1.2.2 Invasive Methods, Cytogenetic Analysis and PCR
 - 1.2.3 Non-Invasive, Antigenic and Immunofluorescence Methods
 - 1.2.4 Control of Sex by Speed Difference in Embryonic Development
- 1.3. Sperm Sex Selection Techniques: Immunological Methods
 - 1.3.1 Membrane Proteins of the X and Y Spermatozoa
 - 1.3.2 Monoclonal and Polyclonal Anti-H-Y Antibodies
 - 1.3.3 X- and Y-Sperm Specific Membrane Markers
 - 1.3.4 Identification of Sex-Specific Proteins (SSP)
- 1.4. Sperm Sex Selection Techniques: Methods Based on Physical Differences
 - 1.4.1 Study of the Physical Differences between X and Y Spermatozoa
 - 1.4.2 PH Sensitivity
 - 1.4.3 Different Electric Charges
 - 1.4.4 Differences in the Size of the Sperm Head Nucleus
- 1.5. Sperm Sex Selection Techniques: Methods Based on DNA Content
 - 1.5.1 Study of DNA Content in Different Mammals
 - 1.5.2 Sex Selection by Flow Cytometry
 - 1.5.3 Efficiency of the Flow Cytometry Technique
- 1.6. Sperm Sex Selection Techniques: Methods Based on Cytochrome Filters
 - 1.6.1 What Are Cytochromic Filters?
 - 1.6.2 Density Difference Techniques
 - 1.6.3 Use of Cytochromes and Density Differences in the Separation of X and Y Sperm
 - 1.6.4 Efficiency of This Technique



- 1.7. Sperm Sex Selection Techniques: Differences in Migration Speed
 - 1.7.1 Differences in X and Y Sperm Velocity
 - 1.7.2 Culture Media for Sperm Separation by Migration Speed
 - 1.7.3 Efficiency of This Technique
- 1.8. Comparative Study of Different Sperm Separation Techniques
 - 1.8.1 Advantages and Disadvantages of Using the Different Sexing Techniques
 - 1.8.2 Assessment of Sexing Techniques in Different Mammalian Species
 - 1.8.3 Proper Choice of Sexing Technique for Livestock Farms
- 1.9. Morphokinetic Alterations in Sperm Obtained from Sexing Techniques
 - 1.9.1 Sex Determination Pathologies
 - 1.9.2 Cytogenetic Analysis of the Y Chromosome
 - 1.9.3 Genes Carried on the Y Chromosome
 - 1.9.4 Mutations
 - 1.9.5 Flagellar Alterations in the Sexed Doses
- 1.10. Techniques for the Detection of Sperm Sexing Efficiency
 - 1.10.1 Ultrasound Sex Detection
 - 1.10.2 Quantitative PCR
 - 1.10.3 Fluorescence In Situ Hybridization (FISH)
 - 1.10.4 Other techniques



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



05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

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





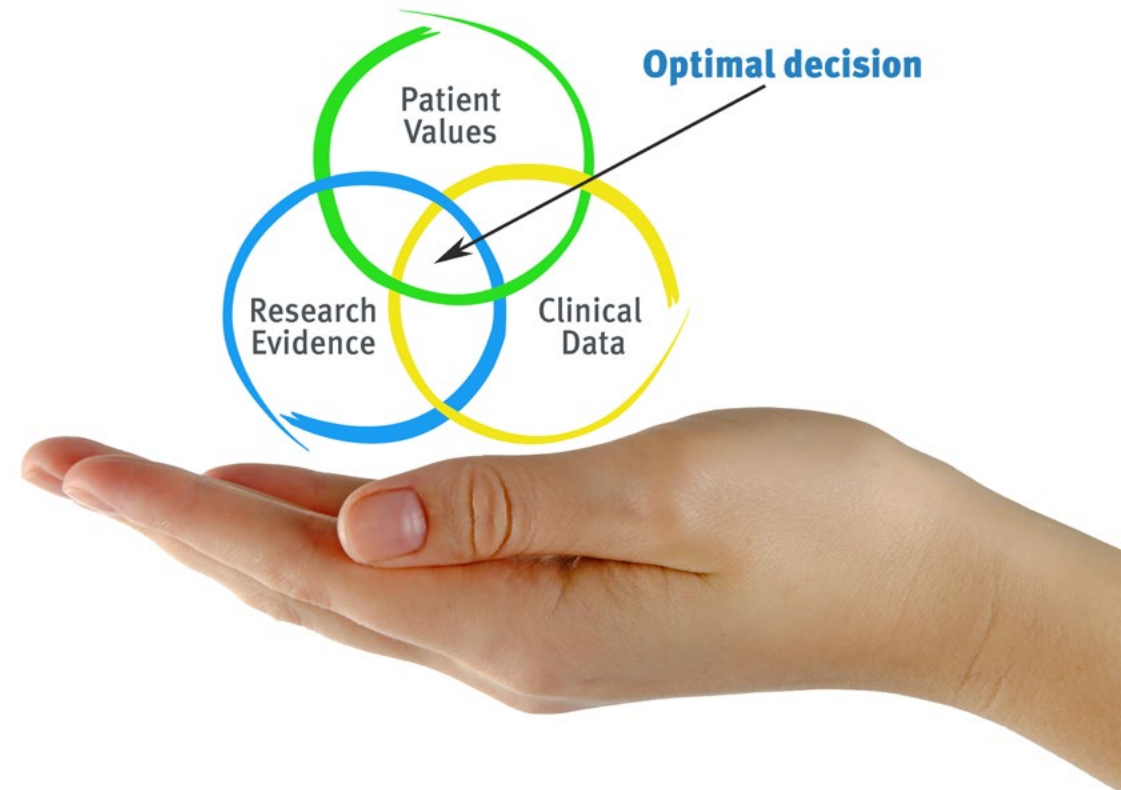
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Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"

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.

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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.



06 Certificate

The Postgraduate Certificate in Semen Sexing guarantees students, in addition to the most rigorous and up-to-date education, access to a Postgraduate Certificate issued by TECH Technological University.



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

This **Postgraduate Certificate in Semen Sexing** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Postgraduate Certificate in Semen Sexing**

Official N° of hours: **150 h.**



*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 quality
development language
virtual classroom



Postgraduate Certificate
Semen Sexing

Course Modality: Online

Duration: 6 weeks

Certificate: TECH Technological University

Official N° of hours: 150 h.

Postgraduate Certificate Semen Sexing