

# Postgraduate Certificate Fetal Screening for Chromosomal Abnormalities





## Postgraduate Certificate Fetal Screening for Chromosomal Abnormalities

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

Website: [www.techtitute.com/us/medicine/postgraduate-certificate/fetal-screening-chromosomal-abnormalities](http://www.techtitute.com/us/medicine/postgraduate-certificate/fetal-screening-chromosomal-abnormalities)

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# 01

# Introduction

Prenatal screening for chromosomal abnormalities is essential for detecting genetic disorders such as Down syndrome, which affects approximately 1 in 700 newborns. Early detection allows expectant parents to make informed decisions about the care and treatment of their baby. TECH Technological University has designed a comprehensive program that provides the latest advances in procedures for accurate and ethical evaluations in this crucial area of prenatal medicine. This program addresses up-to-date techniques and protocols in the diagnosis and management of chromosomal abnormalities. Its format is 100% online, employs the innovative pedagogical methodology of *Relearning* and offers flexibility in organizing academic resources, allowing students to tailor their studies to their individual needs.





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*Thanks to this Certificate you will master the most advanced techniques in the early detection of chromosomal abnormalities and make a difference in prenatal care”*

Prenatal screening is a fundamental component in the medical care of pregnant women, as it allows the identification of chromosomal abnormalities in the fetus, such as Down syndrome, Edwards' syndrome and Patau's syndrome, among others. These disorders can significantly affect the quality of life of those affected and their families. Given that the prevalence of chromosomal abnormalities increases with maternal age, and taking into account the increase in the average age of women at the time of conception, it is essential to have professionals trained in the early detection of these genetic disorders.

In response to this need, TECH Technological University has designed the Certificate in Fetal Screening for Chromosomal Abnormalities, which focuses on providing health professionals with a specialized update in this field, covering both theoretical and practical aspects. Throughout the program, students will delve into the development of accurate and ethical chromosomal risk assessments through the use of different diagnostic techniques, such as ultrasound, biochemical analysis and non-invasive genetic testing. Additionally, the course addresses clinical management and decision making in cases of detected chromosomal abnormalities, with emphasis on communication and emotional support for affected families.

One of the main advantages of this course is its 100% online modality, which allows students to access the content and participate in learning activities from anywhere and at any time, eliminating geographical barriers and facilitating work-life balance. In addition, the course employs the innovative pedagogical methodology of *Relearning*, which promotes the acquisition of knowledge in an active and meaningful way, through the resolution of real clinical cases, group discussions and the application of self-assessment and feedback strategies.

This **Postgraduate Certificate in Fetal Screening for Chromosomal Abnormalities** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ◆ The development of case studies presented by experts in Fetal Medicine
- ◆ 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
- ◆ The practical exercises where the self-evaluation process can be carried out to improve learning
- ◆ Its special emphasis on innovative methodologies
- ◆ 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



*You will get the most up-to-date and practical view on non-invasive prenatal diagnostic methods"*

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*With this 100% online program you will become a referenced professional in the diagnosis and management of chromosomal disorders”*

*Acquire practical knowledge through the analysis of real clinical cases and high quality multimedia content.*

*Learn about the latest advances in cytogenetics through the innovative Relearning methodology.*

The program includes in its teaching staff professionals of the field who pour into this training the experience of their work, in addition to recognized specialists from reference societies and prestigious universities.

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

The design of this program focuses on Problem-Based Learning, in which the professional will have to try to solve the different professional practice situations that will arise throughout the academic course. This will be done with the help of an innovative system of interactive videos made by renowned experts.



# 02 Objectives

The objectives of the Certificate in Fetal Screening for Chromosomal Abnormalities focus on providing students with the knowledge and skills necessary to master the most advanced techniques for the detection of chromosomal disorders in the fetus, including the identification of genetic abnormalities, the performance of early evaluations and the interpretation of diagnostic test results. Likewise, this degree aims to train participants in the application of accurate and updated diagnostics, based on the most recent advances in the field of genetics and prenatal medicine. To achieve these objectives, an academic program of excellence has been designed to ensure comprehensive, up-to-date and quality training in this discipline.







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*Get cutting-edge learning in a constantly evolving field and be updated on the latest advances in fetal screening techniques”*



## General Objectives

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- ◆ Provide a specific update that allows physicians to update their skills to exercise and lead the functions as specialists in the area of Fetal Medicine and Prenatal Diagnosis
- ◆ Update theoretical knowledge in the different fields of Fetal Medicine: basic and advanced obstetric ultrasound, prenatal diagnosis, maternal-fetal pathologies and placental pathologies
- ◆ Link the improvement of their medical practice with scientific research so that they can contribute to change and progress in their clinical environment through the application of the most innovative and effective guidelines and strategies in the sector





## Specific Objectives

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- ◆ Delve into the Latest Developments of the screening test
- ◆ Have a comprehensive understanding of the latest advances related to the application of combined screening for chromosomal abnormalities in the first trimester of gestation, both in single and multiple gestations
- ◆ Distinguish between the types of genetic diagnostic tests available and their indications
- ◆ Master the skills of interpretation of results and the genetic counseling

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*Get up to date in an area that is increasingly in demand and increase your chances of professional success”*

# 03

## Course Management

Committed to educational excellence, TECH Technological University has assembled a highly qualified faculty to teach the Certificate in Fetal Screening for Chromosomal Abnormalities. This group of experts, with vast experience in the field of fetal medicine, has designed a set of didactic resources presented in a 100% online format. In this way, the program becomes an enriching and practical learning experience, allowing health professionals to integrate the most cutting-edge knowledge into their daily work and, therefore, achieve success in their professional performance.





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*Immerse yourself in an academic program of excellence, designed by experts in prenatal medicine”*

## Management



### Dr. Gallardo Arozena, Margarita

- ♦ FEA in Obstetrics and Gynecology at HU Nuestra Señora of Candelaria
- ♦ Founder and Medical Director of Natum Center - Ultrasound and Fetal Medicine
- ♦ Doctor in Health Sciences, University of La Laguna
- ♦ Master's Degree in Refresher for Gynecologists and Obstetricians from the University of Barcelona
- ♦ Master's Degree in Healthcare Management in Gynecology and Obstetrics from the Francisco de Vitoria University
- ♦ Diploma in Fetal Medicine and Surgery from the Fetal Medicine Foundation (King's College Hospital, London). Invasive techniques and intrauterine fetal therapy at San Cecilio Granada University Hospital
- ♦ Postgraduate Certificate Training in obstetric-gynecological ultrasound by the Spanish Society of Gynecology and Obstetrics (SEGO)
- ♦ Researcher and Author of scientific articles published in high-impact journals
- ♦ Member of the Prenatal Diagnosis Unit at the Human Reproduction Assistance Center of the Canary Islands (FIVAP)



## Professors

### Dr. Plasencia Acevedo, Walter

- ◆ Doctor Specialist in Obstetrics and Gynecology at HU of Canary
- ◆ Specialised doctor of the Fetal Medicine Unit of Canary Hospiten Group
- ◆ Doctor in Medicine and Surgery from the University of La Laguna.
- ◆ Subspecialization in Fetal Medicine and Surgery at the King's College University Hospital in London.
- ◆ Supervisor of more than 3,000 ultrasound studies per year.
- ◆ Author of over 50 scientific publications in international high-impact journals
- ◆ Director of several national and international research projects on fetal anomalies, placental abnormalities, preeclampsia, preterm delivery and fetal and maternal complications during gestation.
- ◆ Regular reviewer of articles in multiple international and national journals in his specialty.

### Dr. Cuenca Gómez, Diana

- ◆ Obstetrics and Gynecology Specialist at the HU of Torrejón de Ardoz.
- ◆ Specialist in Obstetrics and Gynecology at Ginemad Salazar
- ◆ Professor of Clinical Practice for the Medical Degree at the Complutense University of Madrid and at the Francisco de Vitoria University.
- ◆ Director of the Prenatal Genetics course at the iMaterna Foundation.
- ◆ Master's Degree in Clinical Genetics from San Pablo University CEU
- ◆ Expert in Gynecological and Obstetric Ultrasound by the Complutense University of Madrid and Expert in Clinical Genetics by the University of Alcalá de Henares.

**Dr. Gil Mira, María del Mar**

- ◆ Obstetrics and Gynecology Specialist at the HU of Torrejón de Ardoz.
- ◆ Main Researcher at the Torrejón University Hospital
- ◆ Director of doctoral theses in the field of Gynecology and Obstetry
- ◆ Author of multiple scientific articles published in high-impact journals
- ◆ Associate Professor in the Department of Gynecology and Obstetry. Faculty of Medicine. Francisco de Vitoria University (UFV), Madrid
- ◆ Co-founder and Vice President of the iMaterna Foundation and leader of the iMaterna research group for the UFV.
- ◆ Advisor to the Prenatal Screening Working Group. Commissions of Public Health Ministry of Health. Government of Spain
- ◆ Doctor of Medicine and Surgery from the Autonomous University of Madrid
- ◆ Board member of World Association in Perinatal Medicine (WAMP)
- ◆ Editor at Perinatal Journal and Editorial board member of Ultrasound in Obstetrics and Gynecology magazine

**Dr. Dévora Cabrera, María Ylenia**

- ◆ Doctor Specialist in Obstetrics and Gynecology at HU of Canary
- ◆ Participation in various research projects in the specialty as well as authorship of book chapters
- ◆ Master's Degree in Professional Updating for Gynecologists
- ◆ Author of several scientific articles published in national media

**Dr. Molina García, Francisca Soni**

- ◆ Doctor Specialist in Obstetrics and Gynecology at HU Nuestra Señora of Granada
- ◆ Head of the Ultrasound Unit of the Gutenberg Center of Granada
- ◆ Director of several research lines of funded projects on preeclampsia, preterm delivery, fetal and maternal complications during pregnancy and fetal surgery
- ◆ Regular reviewer of articles in five international and national journals on Gynecology and Obstetrics
- ◆ Contributing editor of Fetal Diagnosis and Therapy
- ◆ European PhD in Medicine and Surgery from the University of Granada
- ◆ Subspecialization in Fetal Medicine and Surgery at the King's College University Hospital in London.

**Dr. Gibbone, Elena**

- ◆ Specialist in the Obstetrics and Gynecology Unit of the HU Cruces de Vizcaya
- ◆ Specialist at Ecography and Fetal Medicine Unit of Zuatzu clinic
- ◆ Researcher in several lines related to Preeclampsia, twin pregnancy and its complications and maternal pathology in pregnancy
- ◆ International Doctorate in Biomedical Research, University of the Basque Country
- ◆ Graduate in Medicine and Surgery
- ◆ Specialist in Gynecology and Obstetrics
- ◆ Subspecialization in Fetal Medicine and Surgery at the King's College University Hospital in London
- ◆ Subspecialization in Fetal Medicine and Surgery at the San Cecilio Clinical Hospital in Granada
- ◆ Author of over 10 scientific publications in international high-impact journals





**Dr. Pérez Gómez, Adela Marine**

- ◆ FEA in Obstetrics and Gynecology at HU Nuestra Señora of Candelaria
- ◆ Degree in Medicine and Surgery, La Laguna University
- ◆ Training in Gynecological and Obstetric Ultrasound by the University Hospital of Canarias
- ◆ Participation as author in papers presented at conferences and courses related to the specialty

**Dr. Chulilla Pérez, Carolina**

- ◆ Doctor Specialist in Obstetrics and Gynecology at HU Nuestra Señora of Candelaria
- ◆ Professor at the Midwifery Teaching Unit of the Nuestra Señora de Candelaria University Hospital
- ◆ Researcher and author of publications related to maternal-fetal medicine
- ◆ Participation as author in papers presented at conferences and courses from the specialty
- ◆ Training in Obstetric-Gynecological Ultrasound by the Spanish Society of Gynecology and Obstetrics (SEGO)

# 04

## Structure and Content

The syllabus of the Certificate in Fetal Screening for Chromosomal Abnormalities has been carefully designed by TECH's Technological University teaching team, following the highest quality standards and taking into account the most recent advances in genetics and prenatal medicine. The program consists of 150 hours of theoretical and practical content, in addition to complementary materials in various formats to encourage dynamism and interest during the learning process. All resources can be downloaded to any device with internet connection, allowing students to access them even after completing the 6 weeks of academic training.





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*This Certificate is composed of a specific module that will address the future of genomic applications in Fetal Medicine”*

## Module 1. Screening of Chromosome Abnormalities

- 1.1. Combined Aneuploidy Screening
  - 1.1.1. Basis for Universal Contingent Screening
  - 1.1.2. What does it consist of?
  - 1.1.3. Performance and Limitations
  - 1.1.4. Current Status and Practical Aspects
- 1.2. Screening in Multiple Gestations
  - 1.2.1. Two-Chorionic Twin Gestation
  - 1.2.2. Monochorionic Twin Gestation
  - 1.2.3. Multiple Gestation of 3 or More Fetuses
  - 1.2.4. Vanishing Twin
- 1.3. Ultrasound Markers of Chromosomopathy
  - 1.3.1. Nuchal Translucency
  - 1.3.2. Nasal Bone
  - 1.3.3. Ductus Venosus
  - 1.3.4. Tricuspid Regurgitation
- 1.4. Non Invasive Prenatal Test (NIPT): test for free fetal DNA circulating in maternal blood
  - 1.4.1. Indications
  - 1.4.2. Conditions for Correct Application
  - 1.4.3. Limitations
  - 1.4.4. Future of Noninvasive Prenatal Diagnosis
- 1.5. Invasive Genetic Diagnostic Tests
  - 1.5.1. Chorionic Biopsy
  - 1.5.2. Amniocentesis



- 1.6. Cytogenetics
  - 1.6.1. QF-PCR
  - 1.6.2. FISH
  - 1.6.3. Karyotype
- 1.7. Microarray
- 1.8. Exome
- 1.9. Genetic Counseling in Practicing Fetal Medicine
  - 1.9.1. The Role of the Geneticist
  - 1.9.2. Genetic Counseling
  - 1.9.3. Interpretation of Results of a Genetic Test and Implications in the Course of the Gestation
  - 1.9.4. Pre-pregnancy Study and Counseling
- 1.10. Genomics and Personalised Medicine
  - 1.10.1. Present and Future of Genomic Applications in Fetal Medicine

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*You will have access to a wide variety of learning resources in a variety of formats, available on any device with an internet connection”*



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, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician'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. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
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. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more 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.

*Professionals 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 250,000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*Relearning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

In our program, learning is not a linear process, but rather a spiral (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.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical 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 on the usefulness of learning by observing experts. The system known as 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 Fetal Screening for Chromosomal Abnormalities 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 Fetal Screening of Chromosomal Abnormalities** 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 diploma 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 Fetal Screening for Chromosomal Abnormalities**

Official N° of hours: **150 h.**



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





**Postgraduate Certificate**  
Fetal Screening for  
Chromosomal Abnormalities

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