

# Professional Master's Degree Emergency Toxicology





## Professional Master's Degree Emergency Toxicology

Course Modality: Online

Duration: 12 months.

Certificate: TECH Technological University

Official N° of hours: 1,500 h.

Website: [www.techitute.com/us/medicine/professional-master-degree/master-emergency-toxicology](http://www.techitute.com/us/medicine/professional-master-degree/master-emergency-toxicology)

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# 01

# Introduction

Hygiene improvements in product manufacturing processes, safety measures and information provided by manufacturers have led to a reduction in food, household and drug intoxications. However, there is still a general lack of knowledge among the population, which means that patients requiring intervention due to intoxication continue to arrive at the emergency department. The vital importance of having professionals who are up to date with advances in the most effective diagnoses and treatments makes it necessary to have a degree that provides the essential update. This is the reason for this 100% online program, where the students will delve into a global and concise vision of therapeutic management, clinical manifestations, analyses and complications. All this through a comfortable teaching format compatible that is with the even the most demanding responsibilities.





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*This program brings you closer to the advances in the treatments applied to patients suffering from gas poisoning”*

Social and economic changes influence the presence of poisoned persons in emergency departments. Apart from the control and prevention measures in consumer products, there are individual behaviors associated with leisure that lead to alcohol poisoning or drug overdose, especially in the youth population group. Likewise, drug abuse by people with mental disorders is also notable in the ED. Two scenarios, where the medical professional must be aware of the most consumed substances, their effects on the body and the therapeutic approach.

Accordingly, emetics, gastric lavage, activated charcoal, forced diuresis or alkaline diuresis are the most commonly used toxin absorption or purification techniques used by medical professionals who, at the same time, must keep abreast of the advances made in the diagnoses and treatments currently used in patients who have suffered intoxication by heavy metals, pesticides or sanitary products. In this scenario, TECH has developed a Professional Master's Degree that will allow students to delve into Emergency Toxicology in a dynamic manner.

The multimedia teaching resources that make up the syllabus of this university program will favor the medical professionals who seek to update their knowledge in a visual and agile way. Accordingly, the program will delve into the most frequent poisonings, as well as the products, food or animals that cause the mildest to the most serious poisonings. This program will also delve into the protection measures for healthcare personnel, as well as the most relevant legal aspects of toxicological care.

This Professional Master's Degree is, therefore, an excellent opportunity for professionals who wish to update their knowledge through an exclusively online and flexible format, which will allow them to balance their medical functions with a university education. With no classroom attendance or fixed class timetables, students who take part in this program will only need an electronic device with an internet connection to access the complete syllabus hosted on the virtual campus. In addition, the *Relearning* system, used by this academic institution in all its degrees, reduces the long study hours so frequent in other teaching methods.

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

- ♦ The development of practical cases presented by experts in Toxicology
- ♦ 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.
- ♦ Practical exercises where the self-assessment 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 device with an Internet connection



*TECH provides you with all the necessary tools to update your knowledge in toxicology in an agile and comfortable way"*

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*The library of educational resources will immerse you in synthetic drug intoxication so that you are aware of their effects on the patient”*

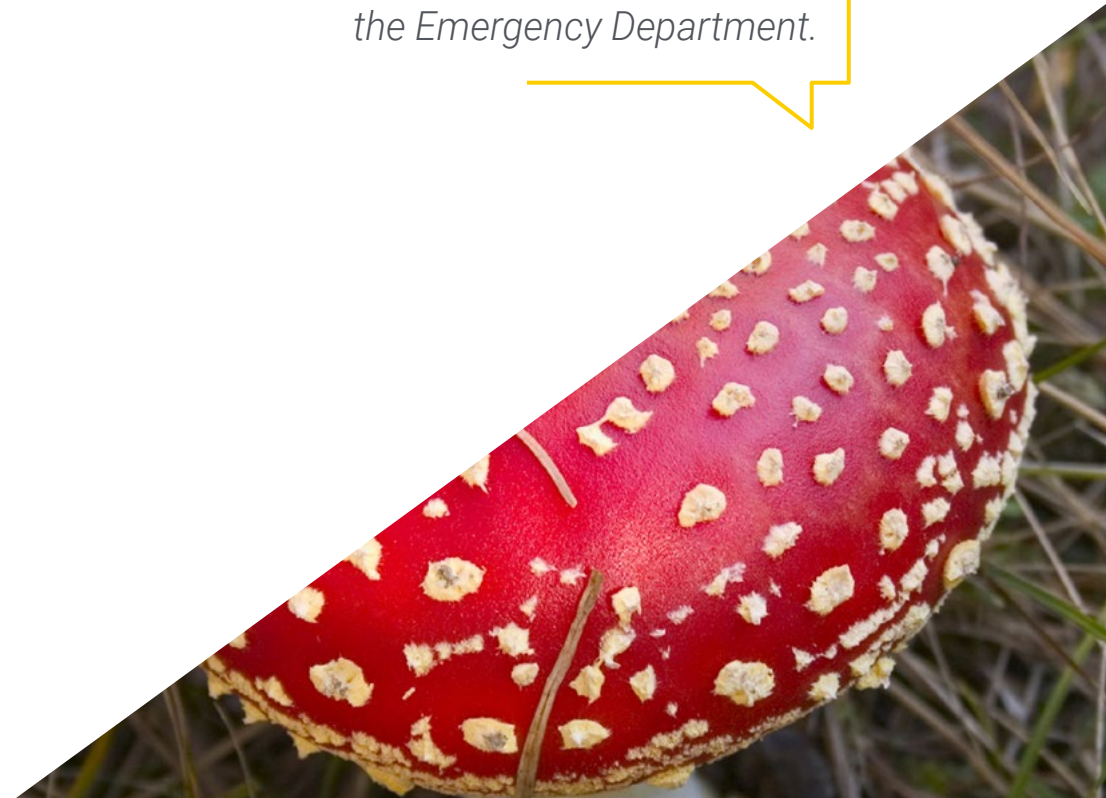
The program’s teaching staff includes professionals from sector who contribute their work experience to this training program, as well as renowned specialists from leading societies and prestigious universities.

Its 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 programmed to learn 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 and experienced experts.

*Delve into prolonged latency syndromes in a much more engaging way thanks to the multimedia content of this university program.*

*You can access 24 hours a day the most exhaustive syllabus on the most frequent toxic syndromes in the Emergency Department.*



# 02 Objectives

This program is aimed at providing the medical professional with the latest information on the therapeutic management of the poisoned patient, as well as the different techniques used and the administration of the most effective antidotes depending on the poisoning. The simulations of clinical cases provided by the specialized teaching team will be very useful for students by bringing them closer in a much clearer and direct way to situations that they may experience in the Emergency Department.







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*Access a university qualification that will allow you to get up to date on the main toxins and the complications that arise as a result of their consumption”*



## General objectives

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- Define the basic and general principles of care for the severely poisoned patient
- Identify the main toxics available in our environment
- Describe the main signs and symptoms related to severe acute poisoning and its organ involvement
- Implement mechanisms to protect the severely poisoned patients and those around them
- Detect complications related to the related toxicant or to the patient's health status
- Explain the process of care, diagnosis and treatment of the severely poisoned patient in all its dimensions

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*Athletes, young people, children... delve in this Professional Master's Degree in the most frequent poisonings in these population groups”*





## Specific objectives

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### Module 1. Introduction

- ♦ Explain the proper way to assess the acutely poisoned patient
- ♦ Explain the process of applying life support in the acutely poisoned patient
- ♦ Apply preventive techniques for gastrointestinal absorption
- ♦ Explain the alterations of the water and electrolyte balance in the acutely poisoned patient
- ♦ Describe toxicokinetics and its implication for emergency treatment

### Module 2. Assessment of the Poisoned Patient

- ♦ Explain the decontamination procedures in acute dermal intoxication
- ♦ Define the toxicity mechanisms in the male genitourinary tract
- ♦ Define the toxicity mechanisms in the female genitourinary tract
- ♦ Explain the effects of xenobiotics
- ♦ Describe the ECG alterations in poisonings that produce cardiac involvement
- ♦ Describe the possible arrhythmias to be detected in acute poisonings
- ♦ Explain the hematological involvement that occurs in acute poisonings

### Module 3. Therapeutic Management of the Poisoned Patient: Life Support

- ♦ Explain the procedure for examination of the patient with fumes inhalation poisoning
- ♦ Define the therapeutic approach to be carried out in the patient poisoned by inhalation of fumes or other respiratory agents
- ♦ Establish the differential diagnosis between the different toxic renal syndromes
- ♦ Identify the clinical pictures that can occur in poisoning with neurological involvement
- ♦ Describe the systemic repercussion of eye poisoning
- ♦ Identify those toxics that cause hepatic affectation and their repercussion at the organic level
- ♦ Identify violent and self-injurious behaviors in relation to psychiatric toxicology

### Module 4. Therapeutic Management of the Poisoned Patient: Specific Treatment

- ♦ Describe the organic repercussions of toxicology in athletes and the different products used
- ♦ Identify poisoning related to possible pharmacological errors in the pediatric patient
- ♦ Describe the action to be taken in case of overdose in pregnant women
- ♦ Explain the principles of teratogenesis and all those products that can produce it
- ♦ Identify products that may pose a risk of poisoning to both the mother and the newborn during breastfeeding
- ♦ Explain the procedure for decontamination of the gastrointestinal tract in acutely poisoned children
- ♦ Describe the epidemiology, etiology and repercussions of acute poisonings in pediatric and neonatal age
- ♦ Define the characteristics of intentional and unintentional poisoning in the elderly
- ♦ Explain the different therapeutic approaches in the acutely poisoned elderly person
- ♦ Describe the specific xenobiotics that can be used in the pediatric and neonatal age group

### Module 5. Therapeutic Management of the Poisoned Patient: Additional Aspects

- ♦ Identify the toxicokinetics of paracetamol and its treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of antimycotics and their treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of anti-inflammatory drugs and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of opioids and their treatment in case of acute poisoning

- ♦ Explain the toxicokinetics of antiepileptics and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of antihistamines and their treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of antidiabetic and hypoglycemic agents and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of bisphosphonates and antineoplastics and their treatment in case of acute poisoning

#### **Module 6. Toxicology of Drugs of Abuse**

- ♦ Identify the toxicokinetics of selective  $\beta_2$ -adrenergic agonists and their treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of cardioactive steroids and their treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of antiarrhythmic drugs and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of  $\beta$ -adrenergic antagonists and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of antibiotics, antifungals and antivirals and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of antimalarials and antiparasitics and their treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of thyroid and antithyroid drugs and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of antithrombotics, anticoagulants, thrombolytics and antifibrinolytics and their treatment in case of acute poisoning

#### **Module 7. Toxicology and Pharmacology**

- ♦ Identify the toxicokinetics of SSRI and other atypical antidepressants and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of sedative hypnotics and barbiturates and their treatment in case of acute intoxication
- ♦ Identify the toxicokinetics of benzodiazepines and muscle relaxants and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of MAOIs and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of local and general anesthetics and their treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of antipsychotics and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of lithium and its treatment in case of acute poisoning
- ♦ Explain phytotherapeutic and vitamin poisoning

#### **Module 8. Industrial Poisoning from Fumes**

- ♦ Identify the toxicokinetics of phencyclidine and ketamine and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of pyrethroids and insect repellents and how to treat cases of acute intoxication
- ♦ Identify the toxicokinetics of amphetamines and designer drugs and how to treat cases of acute intoxication
- ♦ Explain the toxicokinetics of inhalants and how to treat cases of acute intoxication
- ♦ Explain the toxicokinetics of ethanol and how to treat cases of acute intoxication
- ♦ Identify the toxicokinetics of cannabinoids and marijuana and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of cocaine and its treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of hallucinogens and their treatment in case of acute poisoning



**Module 9. Industrial Poisoning from Solvents**

- ♦ Identify the toxicokinetics of arsenic and its treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of lead and its treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of iron and its treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of mercury and its treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of cyanides and their treatment in case of acute poisoning

**Module 10. Industrial Poisoning from Heavy Materials**

- ♦ Identify the toxicokinetics of petroleum derivatives and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of asphyxiants and pulmonary irritants and their treatment in case of acute poisoning
- ♦ Identify the toxicokinetics of antiseptics, disinfectants and sterilants and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of fluorine and hydrofluoride and their treatment in case of acute poisoning
- ♦ Explain the toxicokinetics of methanol, ethylene glycol and other toxic alcohols and their treatment in case of acute poisoning

**Module 11. Pesticide or Phytosanitary Product Poisoning in Rural Areas**

- ♦ Identify the toxicokinetics of herbicides and how to treat cases of acute intoxication
- ♦ Explain the toxicokinetics of pyrethroids and insect repellents and how to treat cases of acute intoxication
- ♦ Identify the toxicokinetics of organochlorines and how to treat cases of acute intoxication
- ♦ Explain the toxicokinetics of organophosphates and carbamates and how to treat cases of acute intoxication

**Module 12. Household Poisoning from Cleaning Products, Personal Hygiene Products and Caustic Poisons**

- ♦ Describe the possible serious poisonings caused by marine animals and their treatment
- ♦ Identify and classify poisonous mushrooms and their possible antidotes
- ♦ Describe the possible serious poisonings caused by arthropods, arachnids, tarantulas, scorpions, ants, hymenoptera, butterflies, termites, beetles, etc., and their treatment
- ♦ Identify and classify plants with poisonous potential and their possible antidotes
- ♦ Describe the possible serious poisonings caused by snakes and their treatment

**Module 13. Poisoning from Natural Agents: Plants, Mushrooms and Animals**

- ♦ Describe the possible serious poisonings caused by marine animals and their treatment
- ♦ Identify and classify poisonous mushrooms and their possible antidotes
- ♦ Describe the possible serious poisonings caused by arthropods, arachnids, tarantulas, scorpions, ants, hymenoptera, butterflies, termites, beetles, etc., and their treatment
- ♦ Identify and classify plants with poisonous potential and their possible antidotes
- ♦ Describe the possible serious poisonings caused by snakes and their treatment

# 03 Skills

During this degree, healthcare personnel will be able to enhance their competencies and skills in the identification of clinical pictures of acute intoxication, the detection of the appropriate pharmacology, as well as the most recent mechanisms of action to be applied safely in the patient. The specialized team that teaches this program will guide students to effectively achieve these goals.





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*With this program, you will broaden your technical skills for the elimination of the toxicant in the patient"*





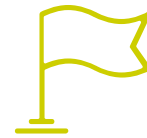
## General skills

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- ♦ Understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
- ♦ Apply acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study
- ♦ Be able to integrate knowledge and face the complexity of making judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities linked to the application of their knowledge and judgments
- ♦ Know how to communicate conclusions, knowledge, and supporting arguments to specialized and non-specialized audiences in a clear and unambiguous way
- ♦ Acquire the learning skills that will enable the professional to continue studying in a manner that will be largely self-directed or autonomous







### Specific skills

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- Identify the clinical pictures that can occur in acute poisoning in order to anticipate serious organ involvement and prevent its complications
- Describe the toxicokinetics of the most commonly used drugs and other frequently used chemicals in order to establish an appropriate early treatment in each case
- Identify the most commonly used antidotes and their mechanism of action in order to apply them safely in acute poisonings

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*You have the opportunity to be up to date in Medical Toxicology with a flexible university education, compatible with your professional responsibilities”*

# 04

# Course Management

TECH brings together in all its qualifications the most relevant specialists in the sector in order to offer students the most up-to-date information with the highest scientific rigor. For this reason, the medical professional who attends this program will have at his disposal a multidisciplinary management and teaching team with extensive knowledge in Medicine and Toxicology. A teaching staff that is also characterized by its proximity, which will allow students to consult any doubts that may arise about the syllabus during the course of the program.





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*Medical and law enforcement professionals will show you the latest advances in the detection of overdose due to drug abuse”*

## Management



### Dr. Álvarez Rodríguez, Cesáreo

- ♦ Emergency Physician. Head of the Emergency Unit of Verín Hospital
- ♦ Research Sufficiency by the University of Salamanca
- ♦ PhD in Medicine and Surgery from the Autonomous University of Madrid
- ♦ Director of Doctoral Thesis in the area of Clinical Toxicology (Extraordinary Award)
- ♦ Member of the Editorial Board of the journal "Emergencias"
- ♦ Specialist in Family and Community Medicine
- ♦ University Expert in Health Promotion
- ♦ Advanced Life Support Instructor (American Heart Association Accredited)
- ♦ Coordinator of the Toxicology Working Group of SEMES Galicia
- ♦ Scientific Secretary of the Galician Society of Emergency Medicine (SEMES Galicia)
- ♦ Vice-Secretary for Training of the Spanish Society of Emergency Medicine (SEMES)
- ♦ Scientific Committee of the XXI Conference on Glycinic Toxicology and XI Conference on Toxicovigilance (October 2017)
- ♦ President of the Scientific Committee of the XXV Congress of the Spanish Society of Emergency Medicine (SEMES)
- ♦ Degree in Medicine and Surgery from the University of Santiago de Compostela



## Professors

### Dr. Burillo-Putze, Guillermo

- ♦ Emergency Coordinator of the University Hospital Complex of the Canary Islands
- ♦ Specialist in Family and Community Medicine
- ♦ PhD in Medicine from the University of La Laguna
- ♦ Master's Degree in Emergency Medicine
- ♦ University Expert in Toxicology by the University of Sevilla
- ♦ Instructor Advanced Hazardous Materials Life Support (AHLS), American College of Clinical Toxicology, Washington, USA
- ♦ Associate Professor of Emergency Medicine at the Faculty of Medicine of the University of La Laguna
- ♦ Director of the Official University Master's Degree in Urgencies, Emergencies and Critical Care in Nursing of the European University of the Canary Islands
- ♦ Founding trustee of the Spanish Foundation of Clinical Toxicology (FETOC)
- ♦ Member of the Toxicology Group of the Spanish Society of Emergency Medicine (SEMESTOX)
- ♦ Stays at the Clinical Toxicology Unit of the Emergency Department, Clinical Hospital, Barcelona; at the New York City Poison Center- Bellevue Hospital Center, New York; and at the Trauma and Surgical Critical Care Section, Yale-New Haven Hospital, Yale University
- ♦ Degree in Medicine from the University of La Laguna

### Mr. Carnero Fernandez, César Antonio

- ♦ Deputy Inspector of National Police
- ♦ TEDAX-NRBQ Specialist in the TEDAX-NRBQ Unit of the National Police
- ♦ Teacher in TEDAX-NRBQ for national agencies and Security Forces and Corps

### Dr. Bajo Bajo, Angel Ascensiano

- ♦ Specialist in Family and Community Medicine
- ♦ Hospital Emergency Physician at the University Health Care Complex of Salamanca
- ♦ Associate Professor of Emergency Medicine at the University of Salamanca
- ♦ PhD in Medicine from the University of Salamanca
- ♦ Certified in Emergency Medicine by the Spanish Society of Emergency Medicine (SEMES)
- ♦ Member of the Clinical Toxicology Section of the Spanish Association of Toxicology (AETOX)
- ♦ Member of the Clinical Toxicology Working Group of the Spanish Society of Emergency Medicine (SEMETOX)
- ♦ Member of the European Association of Poison Control Centres and Clinical Toxicology (EAPCCT)
- ♦ Founding Member of the Spanish Foundation of Toxicology (FETOC)
- ♦ Degree in Medicine and Surgery from the University of Salamanca

### Dr. Suárez Gago, María del Mar

- ♦ Assistant Physician of the Emergency Department of the Verín Hospital
- ♦ Specialist in Internal Medicine
- ♦ Member of the Toxicology Working Group of SEMES Galicia
- ♦ Assistant Physician of the Emergency Department of the Verín Hospital
- ♦ Professional experience in out-of-hospital emergency medicine in Portugal
- ♦ VMER (Medical Emergency and Resuscitation Vehicle) accreditation of the Training Center of the National Institute of Medical Emergencies of Oporto (INEM)
- ♦ Degree in Medicine and Surgery University of the Basque Country

**Ms. Giralde Martínez, Patricia**

- Prehospital Emergency Physician in the Galician 061 Health Emergency Service
- Professional experience in Hospital Emergency Medicine at Montecelo Hospital
- Specialist in Family and Community Medicine
- Master's Degree in Urgencies, Emergencies and Catastrophes by CEU San Pablo University
- Postgraduate University Professor in the course "University Expert in Urgencies and Emergencies" of the School of Health Sciences of the Complutense University of Madrid
- General Vice-Secretary of the Galician Society of Emergency Medicine (SEMES Galicia)
- Degree in Medicine and Surgery from the University of Santiago de Compostela

**Dr. Miguéns Blanco, Iria**

- Hospital Emergency Physician at the Gregorio Marañón General University Hospital in Madrid
- Specialist in Family and Community Medicine
- Professional experience in Pre-Hospital Emergency Medicine in the Emergency Service of the Community of Madrid-SUMMA
- Master's Degree in Emergency Medicine from the Complutense University of Madrid
- Master's Degree in Teaching and Digital Competencies in Health Sciences by CEU Cardenal Herrera
- Master's Degree in University Law and Bioethics from the University of Castilla-La Mancha
- Member of the National Board of Directors of the Spanish Society of Emergency Medicine (SEMES)
- Degree in Medicine and Surgery from the University of Santiago de Compostela



**Dr. Mayan Conesa, Plácido**

- ◆ Emergency Physician at the University Hospital Complex of A Coruña
- ◆ Specialist in Family and Community Medicine
- ◆ Diploma of Advanced Studies from the University of A Coruña
- ◆ Emergency Physician at the University Hospital Complex of A Coruña
- ◆ Advanced Life Support Teacher
- ◆ Member of the Toxicology Working Group of SEMES Galicia
- ◆ Member of the Board of Directors of the Spanish Society of Urgencies and Emergency Medicine
- ◆ Graduate in Medicine and Surgery from the Universidad de Navarra

**Dr. Maza Vera, María Teresa**

- ◆ Specialist in Family and Community Medicine
- ◆ Member of the Toxicology Working Group of SEMES Galicia
- ◆ Hospital Emergency Physician at the Álvaro Cunqueiro Hospital in Vigo
- ◆ Specialist in Family and Community Medicine
- ◆ Diploma of Advanced Studies in Health Sciences from the University of Vigo
- ◆ Coordinator of the Scientific Committee XXIV Autonomous Congress SEMES Galicia

**Mr. Rodríguez Domínguez, José María**

- ◆ National Police Officer
- ◆ TEDAX-NRBQ Specialist in the TEDAX-NRBQ Unit of the National Police
- ◆ TEDAX-NRBQ teacher for national and international organizations
- ◆ Degree in Biology from the University of Santiago de Compostela

# 05

## Structure and Content

The syllabus of this Professional Master's Degree has been developed by a specialized teaching team with extensive experience in the diagnosis and emergency treatment of patients who have suffered poisoning. Given the multiple cases that can produce such poisonings, this program delves into drugs of abuse, poisoning by gases, solvents, heavy metals, phytosanitary products, cleaning products or plants, mushrooms and animals. All this with a theoretical-practical approach that is reflected in the video summaries, videos in detail or specialized readings.







“

*The detailed videos and clinical cases will be of great use to you, offering you a more real and direct vision of the patient with intoxication"*

## Module 1. Introduction

- 1.1. Introduction
- 1.2. Basic Concepts of Toxicology
  - 1.2.1. Concepts of Toxicology, Intoxication, Toxicants and Toxicity
  - 1.2.2. Clinical Toxicology
    - 1.2.2.1. Types of Toxicity
    - 1.2.2.2. Types of Intoxication
    - 1.2.2.3. Dose-Response
    - 1.2.2.4. Causes of Intoxication
    - 1.2.2.5. Toxicity Mechanisms
      - 1.2.2.5.1. Toxicokinetics
      - 1.2.2.5.2. Toxicodynamics
  - 1.2.3. Dose-Response
  - 1.2.4. Causes of Intoxication
  - 1.2.5. Toxicity Mechanisms
- 1.3. Toxicology in its Historical Context
  - 1.3.1. The Use of Poisons in the Bronze Age
  - 1.3.2. Poisoning in Ancient Times
  - 1.3.3. The Middle Ages
  - 1.3.4. The Modern Age
  - 1.3.5. Contemporary Era
- 1.4. Chemistry as a Weapon: The History of Criminal Toxicology
- 1.5. Radiation as a Crime

## Module 2. Assessment of Poisoned Patients

- 2.1. Introduction to the Module
  - 2.1.1. Medical History
    - 2.1.1.1. Medical History
    - 2.1.1.2. Physical Exploration
    - 2.1.1.3. Complementary Evaluations

- 2.1.2. Toxic Syndromes
  - 2.1.2.1. Sympathomimetics
  - 2.1.2.2. Cholinergic Drugs
  - 2.1.2.3. Anticholinergics
  - 2.1.2.4. Serotonergic Drugs
  - 2.1.2.5. Opioids
  - 2.1.2.6. Sedative-Hypnotic Drugs
  - 2.1.2.7. Hallucinatory Drugs
- 2.1.3. Metabolic Acidosis in Toxicology
- 2.1.4. Diagnosis of Suspected Poisoning and Diagnostic Hypotheses
- 2.1.5. Conclusions and Key Points
- 2.2. Initial Assessment of Patients Suffering from Intoxication
  - 2.2.1. Preliminary
    - 2.2.1.1. Introduction
    - 2.2.1.2. Index
    - 2.2.1.3. Objectives
  - 2.2.2. Hepatic Toxicology
  - 2.2.3. Renal Toxicology
  - 2.2.4. Hematological Toxicity
  - 2.2.5. Neurological and Psychiatric Toxicology
  - 2.2.6. Conclusions and Key Points
  - 2.2.7. Cardiovascular and Respiratory Toxicology
- 2.3. Organic Damage by Toxins
  - 2.3.1. Preliminary
    - 2.3.1.1. Introduction
    - 2.3.1.2. Index
    - 2.3.1.3. Objectives
  - 2.3.2. Reproductive and Perinatal Toxicology
  - 2.3.3. Neonatal and Pediatric Toxicology
  - 2.3.4. Geriatric Toxicology
- 2.4. Group Toxicology



### Module 3. Therapeutic Management of Poisoned Patients: Life Support

- 3.1. A Complete Overview of Poisoning Treatment
- 3.2. Life Support for Poisoned Patients: Cardiopulmonary Arrest
  - 3.2.1. The Fundamental Pillars of Life Support in Cardiopulmonary Arrest
  - 3.2.2. Respiratory Arrest and Ventilatory Support
  - 3.2.3. Cardiorespiratory Arrest in Poisoned Patients
  - 3.2.4. Conclusions and Key Points
- 3.3. Acute Respiratory Failure in Poisoned Patients and Therapeutic Management
  - 3.3.1. Preliminary
  - 3.3.2. Acute Respiratory Failure due to Airway Obstruction
  - 3.3.3. Acute Respiratory Failure due to Hypoventilation
  - 3.3.4. Acute Respiratory Failure due to Decrease in Inspiratory Oxygen Fraction
  - 3.3.5. Acute Respiratory Failure due to Alveolocapillary Diffusion Impairment
  - 3.3.6. Acute Respiratory Failure due to Altered Oxygen Transport or Tissue Oxygen Utilization
  - 3.3.7. Acute Mixed Respiratory Failure
  - 3.3.8. Conclusions and Key Points
- 3.4. Hemodynamic Stability and Instability in Poisoned Patients
  - 3.4.1. Shock and its Different Types in Poisoned Patients
  - 3.4.2. Therapeutic Management of Shock in Poisoned Patients
  - 3.4.3. Hypotension and Hypertension in Poisoned Patients
  - 3.4.4. Cardiac Arrhythmias in Acute Poisoning
  - 3.4.5. Acute Coronary Syndrome in Poisoned Patients
  - 3.4.6. Conclusions and Key Points
- 3.5. Neuropsychiatric Disorders Associated with Poisoning
  - 3.5.1. Disorders of Consciousness Toxic Coma
  - 3.5.2. Seizures
  - 3.5.3. Behavioral Disorder: Agitated Patient Management
    - 3.5.3.1. Etiology of Psychomotor Agitation: Toxicology-Related Causes
    - 3.5.3.2. Protective Measures for Healthcare Personnel
    - 3.5.3.3. Verbal, Mechanical and Pharmacological Restraint Measures
  - 3.5.4. Conclusions and Key Points

## Module 4. Therapeutic Management of Poisoned Patients: Specific Treatment

- 4.1. The Three Phases of the Specific Treatment of Poisoning
- 4.2. Decrease Absorption of the Toxicant
  - 4.2.1. Digestive Decontamination:
    - 4.2.1.1. Emetics
    - 4.2.1.2. Gastric lavage
    - 4.2.1.3. Activated Carbon
    - 4.2.1.4. Cathartics
    - 4.2.1.5. Whole Bowel Irrigation
  - 4.2.2. Skin Decontamination
  - 4.2.3. Ocular Decontamination
  - 4.2.4. Prevention of Parenteral Absorption
  - 4.2.5. Prevention of Pulmonary Absorption
  - 4.2.6. Endoscopy and Surgery
  - 4.2.7. Dilution
  - 4.2.8. Conclusions and Key Points
- 4.3. Increasing Toxicant Elimination
  - 4.3.1. Kidney Cleanse
    - 4.3.1.1. Forced Diuresis
    - 4.3.1.2. Alkaline Diuresis
  - 4.3.2. Extrarenal Purification
    - 4.3.2.1. Dialysis
    - 4.3.2.2. Hemoperfusion, Hemofiltration, Hemodiafiltration
    - 4.3.2.3. Plasmapheresis and Exchange Transfusion
    - 4.3.2.4. Conclusions and Key Points
- 4.4. Antidotes
  - 4.4.1. Main Antidotes
    - 4.4.1.1. Indications, Contraindications, Side Effects and Precautions
    - 4.4.1.2. Dose
  - 4.4.2. Minimum Stock of Antidotes Depending on the Type of Hospital or Health Center
  - 4.4.3. Conclusions and Key Points

- 4.5. Antidotes
  - 4.5.1. Nasogastric or Orogastic Tube Placement Technique and Gastric Lavage
  - 4.5.2. Skin and Ocular Decontamination Techniques

## Module 5. Therapeutic Management of Poisoned Patients: Additional Aspects

- 5.1. General Outline of Additional Aspects to Consider
- 5.2. The Suicidal Patient and Toxicology. Psychiatric Assessment
  - 5.2.1. Introduction
  - 5.2.2. Risk Factors for Self-Harming Behavior
  - 5.2.3. Determining the Severity of the Self-Harm Attempt
  - 5.2.4. Suicidal Patient Management
  - 5.2.5. Conclusions and Key Points
- 5.3. Medical and Legal Aspects of Toxicological Care
  - 5.3.1. Introduction
  - 5.3.2. Report to the Court
  - 5.3.3. Medical and Legal Autopsy
  - 5.3.4. Sampling of the Patient Corpse
  - 5.3.5. Informed Consent and Voluntary Discharge of the Poisoned Patient
  - 5.3.6. The Extraction of Blood Samples for Toxicological Studies in the Emergency Room
  - 5.3.7. Conclusions and Key Points
- 5.4. Protective Measures for Healthcare Personnel
  - 5.4.1. Introduction
  - 5.4.2. Personal Protective Equipment (PPE)
  - 5.4.3. Poison Prevention Measures for Healthcare Personnel
  - 5.4.4. Conclusions and Key Points
- 5.5. General Criteria for Admission to an Intensive Care Unit
  - 5.5.1. Introduction
  - 5.5.2. Criteria Table
  - 5.5.3. Conclusions and Key Points
- 5.6. Toxicant-Induced Rhabdomyolysis
  - 5.6.1. Introduction
  - 5.6.2. Definition and Pathophysiology



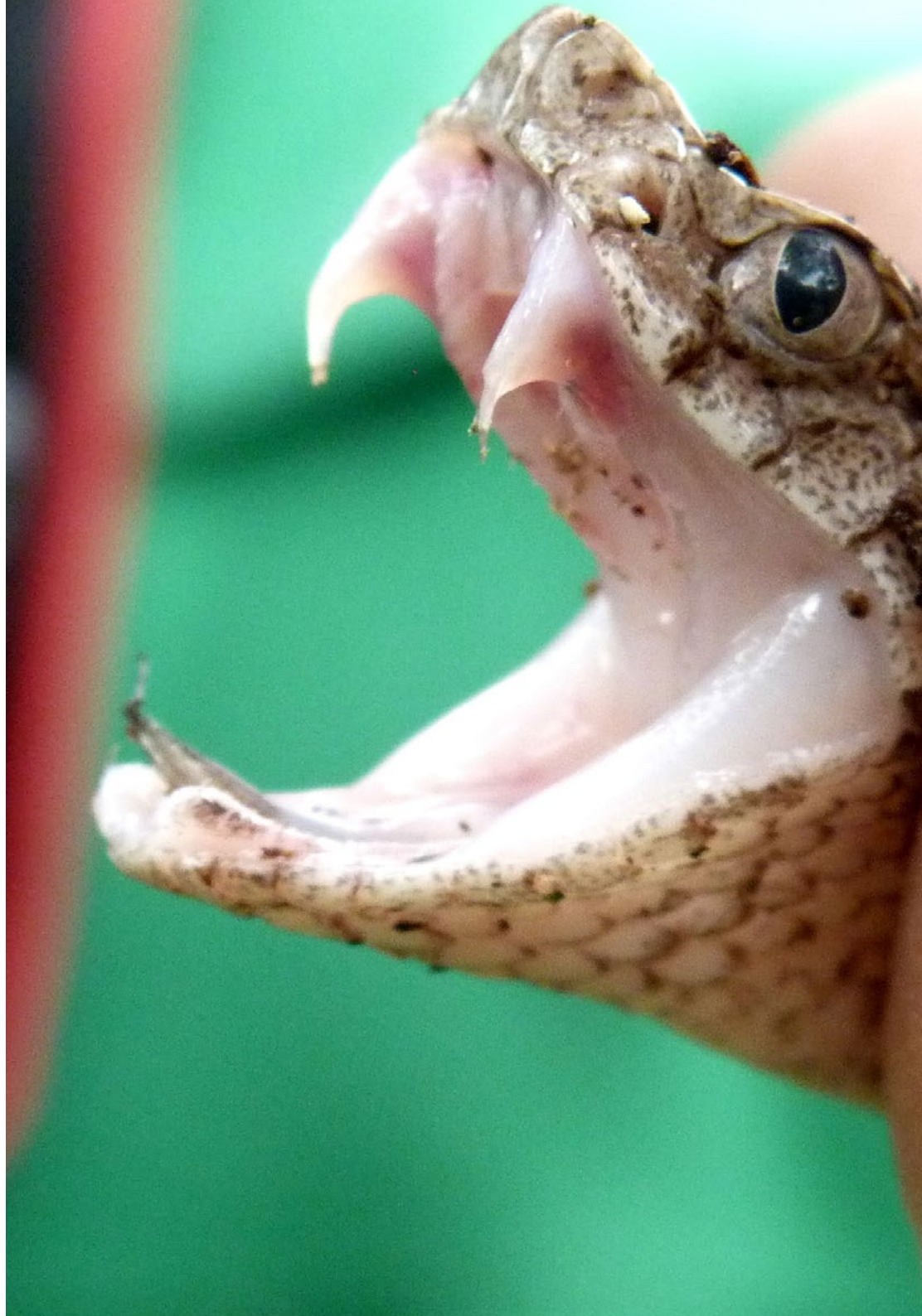
- 5.6.3. General Etiology and Toxicological Causes of Rhabdomyolysis
- 5.6.4. Clinical Manifestations, Laboratory Tests and Complications
- 5.6.5. Treatment
- 5.6.6. Conclusions and Key Points
- 5.7. Toxicant-Induced Methemoglobinemia
  - 5.7.1. Introduction
  - 5.7.2. Pathophysiology
  - 5.7.3. Etiology of Methemoglobinemia
  - 5.7.4. Clinical Manifestations
  - 5.7.5. Suspected, Differential and Confirmatory Diagnosis
  - 5.7.6. Treatment
- 5.8. Hypersensitivity and Anaphylaxis Secondary to Poisonings by Animal Stings or Bites
  - 5.8.1. Introduction
  - 5.8.2. Etiology
  - 5.8.3. Hypersensitivity Types
  - 5.8.4. Clinical Manifestations
  - 5.8.5. Diagnosis
  - 5.8.6. Treatment Management
  - 5.8.7. Conclusions and Key Points
- 5.9. Emergencies Associated with Psychotropic Drugs
  - 5.9.1. Introduction
  - 5.9.2. Neuroleptic Malignant Syndrome
    - 5.9.2.1. Definition and Risk Factors
    - 5.9.2.2. Clinical Manifestations and Differential Diagnosis
    - 5.9.2.3. Treatment
  - 5.9.3. Serotonin Syndrome
    - 5.9.3.1. Causes
    - 5.9.3.2. Clinical Manifestations and Differential Diagnosis
    - 5.9.3.3. Treatment
  - 5.9.4. Acute Dystonia
  - 5.9.5. Drug-Induced Parkinsonism
  - 5.9.6. Conclusions and Key Points

## Module 6. Toxicology of Drugs of Abuse

- 6.1. Drug Addiction, Intoxication, Withdrawal Syndromes, Sexual Offenses, Drug Traffickers, Reintegration
- 6.2. Epidemiology of Drugs of Abuse
- 6.3. CNS Depressant Poisoning
  - 6.3.1. Preliminary
    - 6.3.1.1. Introduction
    - 6.3.1.2. Index
    - 6.3.1.3. Objectives
      - 6.3.1.3.1. Opiates (Heroin; Methadone; Oxycodone)
      - 6.3.1.3.2. Alcohol Poisoning
      - 6.3.1.3.3. Volatile Inhalable Substances
      - 6.3.1.3.4. Conclusions and Key Points
- 6.4. Psychostimulant Poisoning
  - 6.4.1. Preliminary
    - 6.4.1.1. Introduction
    - 6.4.1.2. Index
    - 6.4.1.3. Objectives
      - 6.4.1.3.1. Cocaine
      - 6.4.1.3.2. Amphetamines
      - 6.4.1.3.3. Others: (Ephedrine and pseudoephedrine, KATH, energy drinks, guarana)
      - 6.4.1.3.4. Conclusions and Key Points
- 6.5. Hallucinogen Poisoning
  - 6.5.1. Hallucinogenic Mushrooms (LSD, Amanita Muscaria, Psilocybe)
  - 6.5.2. Hallucinogenic Plants
    - 6.5.2.1. Cannabis
    - 6.5.2.2. Mescaline
    - 6.5.2.3. Estramonium
    - 6.5.2.4. Belladonna
    - 6.5.2.5. Scopolamine (Burundanga)
    - 6.5.2.6. Vegetable Ecstasy



- 6.5.3. DMT and AMT
- 6.5.4. Dextromethorphan
- 6.5.5. Conclusions and Key Points
- 6.6. Poisoning by Synthetic Drugs
  - 6.6.1. Synthetic Opiates (Fentanyl and Meperidine Derivatives)
  - 6.6.2. Dissociative
    - 6.6.2.1. Phencyclidine and Ketamine
  - 6.6.3. Methaqualone Derivatives
  - 6.6.4. Synthetic Phenylethylamines
    - 6.6.4.1. DOM, BOB, 2C-B, MDA
    - 6.6.4.2. Ecstasy (MDMA)
    - 6.6.4.3. Liquid Ecstasy (GHB)
    - 6.6.4.4. Conclusions and Key Points
- 6.7. Psychosocial Component of Drugs of Abuse
- 6.8. Sex and Drugs: Chemsex (Chemical Sex)
  - 6.8.1. What is Meant by Chemsex?
  - 6.8.2. Historical Background and Epidemiologic Profile of Consumers
  - 6.8.3. Risks Associated with the Practice of Chemsex
  - 6.8.4. Most Commonly Used Drugs
  - 6.8.5. Conclusions and Key Points
- 6.9. Language and Drugs
  - 6.9.1. A Language that Emergency Physicians Must Know
  - 6.9.2. Drug Slang
  - 6.9.3. The Slang of Drugs of Abuse
  - 6.9.4. Conclusions and Key Points
- 6.10. A Society Besieged by Drugs
  - 6.10.1. Introduction
  - 6.10.2. The "Botellón", a Toxic Social Phenomenon
  - 6.10.3. Electronic Parties and Drugs of Abuse
  - 6.10.4. The "Jarra Loca"
  - 6.10.5. Conclusions and Key Points



- 6.11. Bodypackers and Bodystuffers in the Emergency Department
  - 6.11.1. Definition
  - 6.11.2. Clinical Manifestations
  - 6.11.3. Diagnosis
  - 6.11.4. Treatment Management
  - 6.11.5. Conclusions and Key Points
- 6.12. Chemical Submission
  - 6.12.1. Concept
  - 6.12.2. Epidemiology
  - 6.12.3. Keys to Diagnosis
  - 6.12.4. Crimes Related to Chemical Submission
  - 6.12.5. Drugs Most Commonly Used in Chemical Submission
  - 6.12.6. Conclusions and Key Points
- 6.13. Withdrawal Syndromes
  - 6.13.1. Introduction and Objectives
  - 6.13.2. Alcohol Withdrawal Syndrome
    - 6.13.2.1. Concept
    - 6.13.2.2. Clinical Manifestations and Criteria Diagnosis
    - 6.13.2.3. Delirium Tremens
    - 6.13.2.4. Alcohol Withdrawal Syndrome Treatment
    - 6.13.2.5. Conclusions and Key Points
  - 6.13.3. Opioid Withdrawal Syndrome
    - 6.13.3.1. Concept
    - 6.13.3.2. Opioid Dependence and Tolerance
    - 6.13.3.3. Clinical Manifestations and Diagnosis of the Withdrawal Syndrome
    - 6.13.3.4. Treatment of Drug Addicts with Withdrawal Syndrome
  - 6.13.4. Detoxification Treatment
  - 6.13.5. Conclusions and Key Points
- 6.14. Addictive Behavior Unit

## Module 7. Toxicology and Pharmacology

- 7.1. Poisoning by Analgesics and Anti-Inflammatory Drugs
  - 7.1.1. Preliminary
    - 7.1.1.1. Introduction
    - 7.1.1.2. Index
    - 7.1.1.3. Objectives
  - 7.1.2. Paracetamol
  - 7.1.3. NSAIDs
  - 7.1.4. Salicylates
  - 7.1.5. Colchicine
  - 7.1.6. Conclusions and Key Points
- 7.2. Psychotropic Drug Poisoning
  - 7.2.1. Preliminary
    - 7.2.1.1. Introduction
    - 7.2.1.2. Index
    - 7.2.1.3. Objectives
  - 7.2.2. Antidepressants
    - 7.2.2.1. Tricyclics
    - 7.2.2.2. Selective Serotonin Reuptake Inhibitors (SSRIs)
    - 7.2.2.3. Monoamine Oxidase Inhibitors (MAOIs)
  - 7.2.3. Lithium
  - 7.2.4. Sedative-Hypnotic Drugs
    - 7.2.4.1. Benzodiazepines
    - 7.2.4.2. Barbiturates
    - 7.2.4.3. Non-Benzodiazepine and Non-Barbiturate Sedative-Hypnotic Drugs
  - 7.2.5. Antipsychotics
  - 7.2.6. Anticonvulsants
  - 7.2.7. Conclusions and Key Points
- 7.3. Antiarrhythmic and Antihypertensive Drug Poisoning
  - 7.3.1. Preliminary
    - 7.3.1.1. Introduction
    - 7.3.1.2. Index
    - 7.3.1.3. Objectives

- 7.3.2. Digoxin
- 7.3.3. Beta-Blockers
- 7.3.4. Calcium Antagonists
- 7.3.5. Conclusions and Key Points
- 7.4. Poisoning by Other Drugs
  - 7.4.1. Preliminary
    - 7.4.1.1. Introduction
    - 7.4.1.2. Index
    - 7.4.1.3. Objectives
  - 7.4.2. Antihistamines
  - 7.4.3. Anticoagulants
  - 7.4.4. Metoclopramide
  - 7.4.5. Hypoglycemics
  - 7.4.6. Conclusions and Key Points

## Module 8. Industrial Poisoning from Fumes

- 8.1. Effect of Different Types of Gases on the Respiratory System
- 8.2. Poisoning due to Inhalation of Fumes
  - 8.2.1. Preliminary
    - 8.2.1.1. Introduction
    - 8.2.1.2. Index
    - 8.2.1.3. Objective
  - 8.2.2. Mechanisms of Toxicity Production and Airway Damage
  - 8.2.3. Clinical Manifestations
  - 8.2.4. Medical History, Examination and Suspected Diagnosis
  - 8.2.5. Treatment Management
  - 8.2.6. Conclusions and Key Points
- 8.3. Irritant Fume Poisoning
  - 8.3.1. Preliminary
    - 8.3.1.1. Introduction
    - 8.3.1.2. Index
    - 8.3.1.3. Objective

- 8.3.2. Hydrogen Sulfide Poisoning
  - 8.3.2.1. Sources of Exposure
  - 8.3.2.2. Toxicokinetics and Pathophysiology
  - 8.3.2.3. Clinical Manifestations and Diagnosis
  - 8.3.2.4. Treatment
- 8.3.3. Fluorine Derivative Poisoning
  - 8.3.3.1. Sources of Exposure
  - 8.3.3.2. Pathophysiology
  - 8.3.3.3. Clinical Manifestations
  - 8.3.3.4. Diagnosis and Treatment
- 8.3.4. Chlorine Derivative Poisoning
  - 8.3.4.1. General Aspects of Poisoning
- 8.3.5. Nitrogen Derivative Poisoning
  - 8.3.5.1. Ammonia Poisoning
  - 8.3.5.2. Other Intoxications
- 8.4. Poisoning by Asphyxiating Fumes: Carbon Monoxide
  - 8.4.1. Preliminary
    - 8.4.1.1. Introduction
    - 8.4.1.2. Index
    - 8.4.1.3. Objective
  - 8.4.2. Definition and Causes of Carbon Monoxide Hazards
  - 8.4.3. Epidemiology of Carbon Monoxide Poisoning: A Known and a Hidden Epidemiology
  - 8.4.4. Sources of Carbon Monoxide Exposure and Medical and Legal Causes of the Poisoning
  - 8.4.5. Pathophysiology of Carbon Monoxide Poisoning
  - 8.4.6. Clinical Manifestations
  - 8.4.7. Diagnosis of Suspicion and Diagnostic Confirmation. Pulse Oximetry in the Prehospital Setting
  - 8.4.8. Poisoning Severity Criteria
  - 8.4.9. Treatment of Poisoning
  - 8.4.10. Observation, Admission and Discharge Criteria
  - 8.4.11. Conclusions and Key Points

- 8.5. Chemical Asphyxia: Cyanide
  - 8.5.1. Preliminary
    - 8.5.1.1. Introduction
    - 8.5.1.2. Index
    - 8.5.1.3. Objective
  - 8.5.2. Sources of Exposure
  - 8.5.3. Toxicokinetics and Pathophysiology
  - 8.5.4. Clinical Manifestations, Suspicion and Confirmation Diagnosis
  - 8.5.5. Treatment
  - 8.5.6. Conclusions and Key Points

## Module 9. Industrial Poisoning by Solvents

- 9.1. Introduction to the Module
- 9.2. Hydrocarbon Poisoning
  - 9.2.1. Preliminary
    - 9.2.1.1. Introduction
    - 9.2.1.2. Index
    - 9.2.1.3. Objective
  - 9.2.2. Aliphatic or Linear
    - 9.2.2.1. Short Chain Hydrocarbons: Butane, Propane, Ethane and Methane
    - 9.2.2.2. Long-Chain Hydrocarbons: Pentanes, Hexanes, Heptanes and Octanes
    - 9.2.2.3. Petroleum Distillates: Gasoline, Kerosene, Others
    - 9.2.2.4. Halogenated Products
    - 9.2.2.5. Carbon Tetrachloride
    - 9.2.2.6. Chloroform
    - 9.2.2.7. Dichloromethane
    - 9.2.2.8. Trichloroethylene
    - 9.2.2.9. Tetrachloroethylene
    - 9.2.2.10. Trichloroethane
  - 9.2.3. Aromatic or Cyclic
    - 9.2.3.1. Benzene
    - 9.2.3.2. Toluene
    - 9.2.3.3. Conclusions and Key Points

- 9.3. Aliphatic Alcohols Poisoning
  - 9.3.1. Preliminary
    - 9.3.1.1. Introduction
    - 9.3.1.2. Index
    - 9.3.1.3. Objective
  - 9.3.2. Methyl Alcohol
  - 9.3.3. Isopropyl Alcohol
  - 9.3.4. Conclusions and Key Points
- 9.4. Glycol Poisoning
  - 9.4.1. Preliminary
    - 9.4.1.1. Introduction
    - 9.4.1.2. Index
    - 9.4.1.3. Objective
  - 9.4.2. Ethylene Glycol
  - 9.4.3. Diethylene Glycol
  - 9.4.4. Propylene Glycol
  - 9.4.5. Conclusions and Key Points
- 9.5. Nitrogen Derivative Poisoning
  - 9.5.1. Preliminary
    - 9.5.1.1. Introduction
    - 9.5.1.2. Index
    - 9.5.1.3. Objective
  - 9.5.2. Aniline
  - 9.5.3. Toluidine
  - 9.5.4. Nitrobenzene
  - 9.5.5. Conclusions and Key Points
- 9.6. Acetone Poisoning
  - 9.6.1. Preliminary
    - 9.6.1.1. Introduction
    - 9.6.1.2. Index
    - 9.6.1.3. Objective
  - 9.6.2. Conclusions and Key Points



## Module 10. Industrial Poisoning by Heavy Metal

- 10.1. Introduction: General Aspects of Heavy Metals and their Main Chelating Agents
- 10.2. Iron Poisoning
  - 10.2.1. Definition, General Aspects
  - 10.2.2. Sources of Exposure
  - 10.2.3. Toxicokinetics and Mechanism of Action
  - 10.2.4. Clinical Manifestations
  - 10.2.5. Diagnosis
  - 10.2.6. Treatment
  - 10.2.7. Conclusions and Key Points
- 10.3. Phosphorus Poisoning
  - 10.3.1. Definition, General Aspects
  - 10.3.2. Sources of Exposure
  - 10.3.3. Toxicokinetics and Mechanism of Action
  - 10.3.4. Clinical Manifestations
  - 10.3.5. Diagnosis
  - 10.3.6. Treatment
  - 10.3.7. Conclusions and Key Points
- 10.4. Lead Poisoning
  - 10.4.1. Definition, General Aspects
  - 10.4.2. Sources of Exposure
  - 10.4.3. Toxicokinetics and Mechanism of Action
  - 10.4.4. Clinical Manifestations
  - 10.4.5. Diagnosis
  - 10.4.6. Treatment
  - 10.4.7. Conclusions and Key Points
- 10.5. Mercury Poisoning
  - 10.5.1. Definition, General Aspects
  - 10.5.2. Sources of Exposure
  - 10.5.3. Toxicokinetics and Mechanism of Action
  - 10.5.4. Clinical Manifestations
  - 10.5.5. Diagnosis
  - 10.5.6. Treatment
  - 10.5.7. Conclusions and Key Points

- 10.6. Arsenic Poisoning
  - 10.6.1. Definition, General Aspects
  - 10.6.2. Sources of Exposure
  - 10.6.3. Toxicokinetics and Mechanism of Action
  - 10.6.4. Clinical Manifestations
  - 10.6.5. Diagnosis
  - 10.6.6. Treatment
  - 10.6.7. Conclusions and Key Points
- 10.7. Cadmium Poisoning
  - 10.7.1. Definition, General Aspects
  - 10.7.2. Sources of Exposure
  - 10.7.3. Toxicokinetics and Mechanism of Action
  - 10.7.4. Clinical Manifestations
  - 10.7.5. Diagnosis
  - 10.7.6. Treatment
  - 10.7.7. Conclusions and Key Points

## Module 11. Pesticide or Phytosanitary Product Poisoning in Rural Areas

- 11.1. Introduction to the Module: General Aspects of Pesticide Poisoning
  - 11.1.1. Concept of Pesticides
  - 11.1.2. Classification of Pesticides
  - 11.1.3. Preventive and Protective Measures for Workers
  - 11.1.4. First Aid at the Poisoning Site
- 11.2. Insecticide Poisoning
  - 11.2.1. Preliminary
    - 11.2.1.1. Introduction
    - 11.2.1.2. Index
    - 11.2.1.3. Objective
  - 11.2.2. Organochlorines
  - 11.2.3. Organophosphates
  - 11.2.4. Carbamates
  - 11.2.5. Pyrethroids
  - 11.2.6. Conclusions and Key Points



- 11.3. Herbicide Poisoning
  - 11.3.1. Preliminary
    - 11.3.1.1. Introduction
    - 11.3.1.2. Index
    - 11.3.1.3. Objective
  - 11.3.2. Diquat
  - 11.3.3. Paraquat
  - 11.3.4. Conclusions and Key Points
- 11.4. Fungicide Poisoning
  - 11.4.1. Conclusions and Key Points
- 11.5. Rodenticide Poisoning
  - 11.5.1. Conclusions and Key Points

## **Module 12.** Household Poisoning from Cleaning Products, Personal Hygiene Products and Caustic Poisons

- 12.1. Introduction to the Module
- 12.2. Poisoning from Cleaning, Personal Hygiene and Cosmetic Products
  - 12.2.1. Classification According to Toxicity
  - 12.2.2. Specific Poisonings
    - 12.2.2.1. Soaps and Shampoos
    - 12.2.2.2. Nail Polish and Nail Polish Remover
    - 12.2.2.3. Hair Substances: Hair Dyes, Hairsprays, Hair Softeners, etc
    - 12.2.2.4. Others
  - 12.2.3. General Therapeutic Measures and Controversies
  - 12.2.4. Conclusions and Key Points
- 12.3. Caustic Poisoning
  - 12.3.1. Introduction
  - 12.3.2. Main Caustic Substances
  - 12.3.3. Pathophysiology
  - 12.3.4. Clinical Symptoms
  - 12.3.5. Diagnosis
  - 12.3.6. Acute and Late Complications
  - 12.3.7. Treatment and Attitude to be Followed
  - 12.3.8. Conclusions and Key Points

## Module 13. Poisoning from Natural Agents: Plants, Mushrooms and Animals

- 13.1. Plant Poisoning
  - 13.1.1. Classification According to Target Organ, Apparatus or System
    - 13.1.1.1. Gastrointestinal
    - 13.1.1.2. Cardiovascular
    - 13.1.1.3. Central Nervous System
    - 13.1.1.4. Others
  - 13.1.2. Conclusions and Key Points
- 13.2. Mushroom Poisoning
  - 13.2.1. Epidemiology of Mushroom Poisoning
  - 13.2.2. Pathophysiology
  - 13.2.3. The Clinical History as a Fundamental Element for Diagnosis
  - 13.2.4. Classification According to the Latency Period of Onset of Clinical Manifestations and Clinical Syndromes
    - 13.2.4.1. Short Latency Syndromes
      - 13.2.4.1.1. Acute Mushroom Gastroenteritis (Gastroenteritic, Resinoid or Lividian Syndrome)
      - 13.2.4.1.2. Intolerance Syndrome
      - 13.2.4.1.3. Delirium Syndrome (Mycoatropinic or Anticholinergic)
      - 13.2.4.1.4. Muscarinic Syndrome (Mycocholinergic or Sweat Syndrome)
      - 13.2.4.1.5. Hallucinatory Syndrome (Psychotropic or Narcotic)
      - 13.2.4.1.6. Nitritoid Syndrome (Coprinic or Antabus Effect Syndrome)
      - 13.2.4.1.7. Hemolytic Syndrome
    - 13.2.4.2. Long-Latency Syndromes
      - 13.2.4.2.1. Giromitrile Syndrome (Ogiromitrile)
      - 13.2.4.2.2. Orellanic Syndrome (Cortinaric or Nephrotoxic)
      - 13.2.4.2.3. Phalloid, Hepatotoxic or Cyclopeptide Syndrome
        - 13.2.4.2.3.1. Etiology
        - 13.2.4.2.3.2. Pathophysiology and Toxicokinetics
        - 13.2.4.2.3.3. Clinical Symptoms
        - 13.2.4.2.3.4. Diagnosis
        - 13.2.4.2.3.5. Treatment
        - 13.2.4.2.3.6. Prognosis
    - 13.2.4.3. New Syndromes
      - 13.2.4.3.1. Proximal Syndrome
      - 13.2.4.3.2. Erythromelalgia or Achromelalgia
      - 13.2.4.3.3. Rhabdomyolysis
      - 13.2.4.3.4. Hemorrhagic Syndrome (or Szechwan's Syndrome)
      - 13.2.4.3.5. Neurotoxic Poisoning
      - 13.2.4.3.6. Encephalopathy
    - 13.2.4.4. Conclusions and Key Points
- 13.3. Animal Poisoning: Snakes
  - 13.3.1. Preliminary
    - 13.3.1.1. Introduction
    - 13.3.1.2. Index
    - 13.3.1.3. Objectives
  - 13.3.2. Epidemiology of Snake Bites
  - 13.3.3. Classification of Snakes
  - 13.3.4. Differences between Vipers and Snakes
  - 13.3.5. The Poison Apparatus of Snakes
  - 13.3.6. The Effect of Snake Venoms on Humans
  - 13.3.7. Clinical Symptoms
    - 13.3.7.1. Clinical Syndromes
      - 13.3.7.1.1. Neurological Syndrome
      - 13.3.7.1.2. Hemotoxic-Cytotoxic Syndrome
      - 13.3.7.1.3. Cardiotoxic and Myotoxic Syndromes
      - 13.3.7.1.4. Hypersensitivity Syndromes
    - 13.3.7.2. Clinical Grading of the Intensity of the Poisoning
  - 13.3.8. Treatment
    - 13.3.8.1. Symptoms
    - 13.3.8.2. Specific
  - 13.3.9. Conclusions and Key Points

- 13.4. Animal Bites: Mammals
  - 13.4.1. Preliminary
    - 13.4.1.1. Introduction
    - 13.4.1.2. Index
    - 13.4.1.3. Objectives
  - 13.4.2. Epidemiological Aspects
  - 13.4.3. Clinical-Diagnostic Aspects
  - 13.4.4. Therapeutic Aspects
    - 13.4.4.1. Initial Management
    - 13.4.4.2. Surgical Management: Suture
    - 13.4.4.3. Antibiotic Prophylaxis
    - 13.4.4.4. Tetanus Prophylaxis
    - 13.4.4.5. Rabies Prophylaxis
    - 13.4.4.6. Antiviral Prophylaxis: Anti-Hepatitis B and Anti-HIV
  - 13.4.5. Conclusions and Key Points
- 13.5. Marine Animals
  - 13.5.1. Fish Poisoning
    - 13.5.1.1. Stonefish
    - 13.5.1.2. Viperfish
    - 13.5.1.3. Stingray
  - 13.5.2. Food Poisoning from Fish and Shellfish
    - 13.5.2.1. Paralytic Shellfish Poisoning
    - 13.5.2.2. Scombroidosis: Histamine Poisoning
    - 13.5.2.3. Pufferfish Poisoning
  - 13.5.3. Coelenterate Poisoning
    - 13.5.3.1. Jellyfish Stings
    - 13.5.3.2. Portuguese Man o' War Sting
    - 13.5.3.3. Treatment
  - 13.5.4. Conclusions and Key Points

- 13.6. Invertebrates
  - 13.6.1. Preliminary
    - 13.6.1.1. Introduction
    - 13.6.1.2. Index
    - 13.6.1.3. Objectives
  - 13.6.2. Insects: Wasps, Bees and Bumblebees
  - 13.6.3. Arachnids
    - 13.6.3.1. Spiders
    - 13.6.3.2. Scorpions
    - 13.6.3.3. Ticks
  - 13.6.4. Conclusions and Key Points
- 13.7. Everything Has an End



*A 100% online Professional Master's Degree that gives you the opportunity to learn about the latest and most effective antidotes currently in use"*



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# 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.





# 07 Certificate

The Professional Master's Degree in Emergency Toxicology guarantees you, in addition to the most rigorous and up-to-date training, access to a Professional Master's Degree issued by TECH Technological University.



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*Successfully complete this program  
and receive your university degree  
without travel or laborious paperwork”*

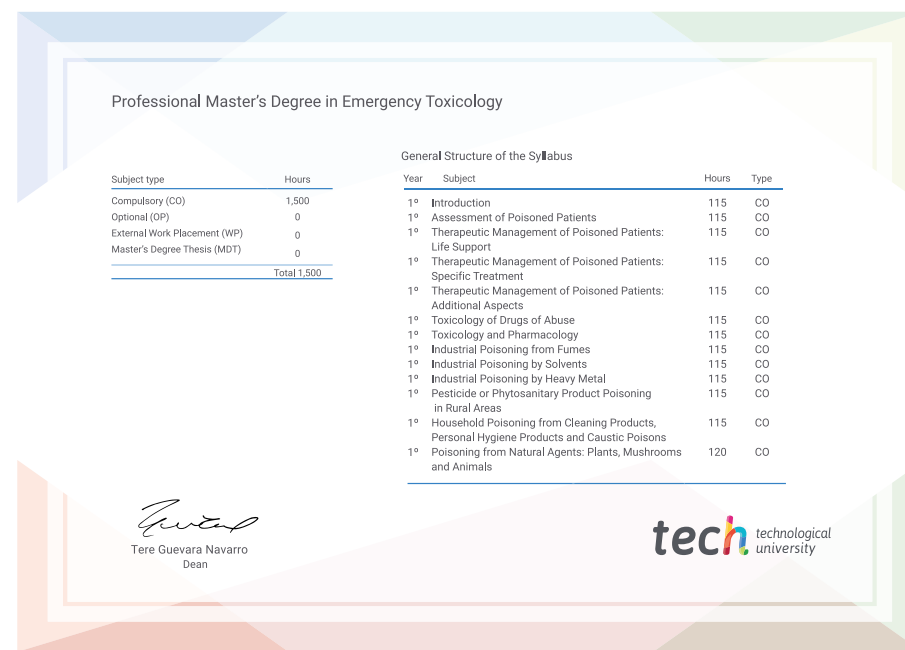
This **Professional Master's Degree in Emergency Toxicology** contains the most complete and up-to-date scientific program on the market.

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

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

Title: **Professional Master's Degree in Emergency Toxicology**

Official N° of hours: **1,500 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.

future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

personalized service innovation

knowledge present quality

online training

development languages

virtual classroom

**tech** technological  
university

**Professional Master's  
Degree**

Emergency Toxicology

Course Modality: Online

Duration: 12 months.

Certificate: TECH Technological University

Official N° of hours: 1,500 h.



# Professional Master's Degree

## Emergency Toxicology

