

# Advanced Master's Degree Neuropsychology





## Advanced Master's Degree Neuropsychology

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/psychology/advanced-master-degree/advanced-master-degree-neuropsychology](http://www.techtitute.com/us/psychology/advanced-master-degree/advanced-master-degree-neuropsychology)

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# 01

# Introduction

Neuropsychology has become an essential area of Psychology, both in educational, social and professional fields. Therefore, knowing how the brain works is essential to understand people's behavior. And, for this, research in Neuropsychology has to occupy a fundamental place in the day-to-day work of psychology professionals. In this Advanced Master's Degree we intend to offer you the most complete specialization on Neuropsychology, in such a way that you will be able to improve the care of both children and adults.



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*At TECH we offer you the most complete specialization on Neuropsychology, so that you can complement your area of expertise and improve your knowledge to advance in your daily practice"*

The work of psychologists in the field of Neuropsychology is quite complex and requires a great amount of specialization. Understanding the brain, its particularities, and the link between it and human behavior is essential to offer more specific and effective treatments, but it also requires a high level of specialization to develop their skills.

This Advanced Master's Degree is divided into two main blocks: on one side, research in Neuropsychology and, on the other side, Clinical Neuropsychology. Therefore, this very complete specialization brings together concepts and high-level expertise on current approaches in the field of neuropsychological research, from the basic starting points to the application of conclusions and the materialization of new interventions, with specific topics on the chemical and anatomical structures involved in each of the processes within the field of health and mental disorders.

Throughout this specialization, the student will go through all the current approaches in the work of the neuropsychologist in the different challenges that his/her profession presents. A high-level step that will become a process of improvement, not only on a professional level, but also on a personal level.

This challenge is one of TECH's social commitments: to help highly qualified professionals to specialize and to develop their personal, social and labor competencies during the course of their training.

We will not only take you through the theoretical knowledge we offer, but we will introduce you to another way of studying and learning, one which is simpler, more organic, and efficient. We will work to keep you motivated and to develop your passion for learning, helping you to think and develop critical thinking skills. And we will push you to think and develop critical thinking.

This Advanced Master's Degree is designed to give you access to the specific knowledge of this discipline in an intensive and practical way. A great value for any professional.

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

- ◆ The latest technology in online teaching software
- ◆ A highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ◆ Practical cases presented by practising experts
- ◆ State-of-the-art interactive video systems
- ◆ Teaching supported by remote education
- ◆ Continuous updating and retraining systems
- ◆ Autonomous learning: full compatibility with other occupations
- ◆ Practical exercises for self-evaluation and learning verification
- ◆ Support groups and educational synergies: Questions to the expert, discussion forums and knowledge
- ◆ Communication with the teacher and individual reflection work
- ◆ Content that is accessible from any, fixed or portable device with an Internet connection
- ◆ The supporting documentation databanks are permanently available, even after the Progression



*A high level scientific educational program, supported by advanced technological development and the teaching experience of the best professionals"*

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*An educational program created for professionals who aspire to excellence that will allow you to acquire new skills and strategies in a smooth and effective way”*

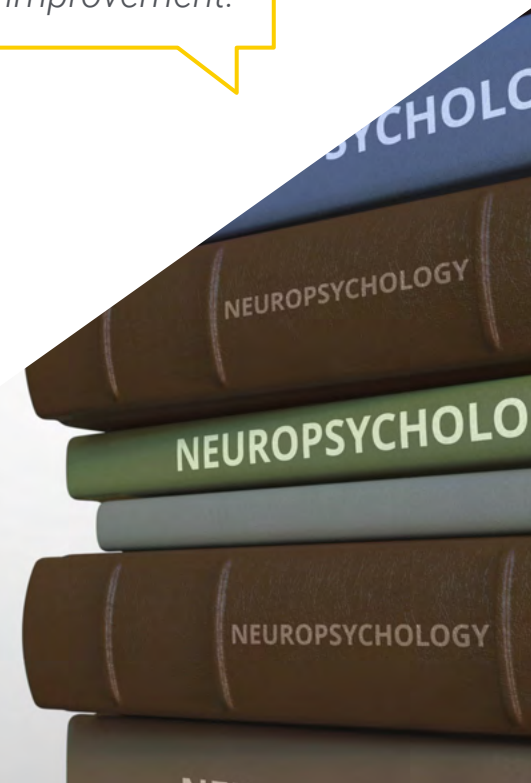
Our teaching staff is made up of working professionals. In this way, we ensure that we provide you with the up-to-date education we are aiming for. A multidisciplinary team of professionals prepared and experienced in different environments, who will develop theoretical knowledge efficiently, but, above all, will put at the service of specialization the practical knowledge derived from their own experience.

This command of the subject is complemented by the effectiveness of the methodological design of this Grand Master. Developed by a multidisciplinary team of e-learning experts, it integrates the latest advances in educational technology. In this way, you will be able to study with a range of easy-to-use and versatile multimedia tools that will give you the necessary skills you need for your specialization.

The design of this program is based on Problem-Based Learning: an approach that views learning as a highly practical process. To achieve this remotely, we will use telepractice learning. With the help of an innovative interactive video system, and learning from an expert, you will be able to acquire the knowledge as if you were actually dealing with the scenario you are learning about. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

*A deep and comprehensive dive into strategies and approaches in the field of Neuropsychology.*

*The sensory systems of the human being studied from the neuropsychologist's point of view, with a view to intervention and improvement.*



02

# Objectives

Our goal is to prepare highly qualified professionals for work experience. An objective that is also complemented, in a general way, with the promotion of human development that lays the foundations for a better society. This objective is focused on helping professionals reach a much higher level of expertise and control. A goal that you will be able to achieve thanks to a highly intensive and detailed course.





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*If your goal is to improve in your profession, to acquire a qualification that will enable you to compete among the best, then look no further: Welcome to TECH”*



## General Objectives

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- ◆ Qualify professionals for the practice of neuropsychology in education in the development of children and young people
- ◆ Learn how to carry out specific programs to improve school performance
- ◆ Access to the methods and processes of Neuropsychology Research in the educational environment
- ◆ Increase the capacity for work and autonomous resolution of learning processes
- ◆ Study the attention to diversity from the neuropsychological approach
- ◆ Learn about the different ways to implement enrichment systems for learning methodologies in the classroom, especially aimed at diverse students
- ◆ Analyze and integrate the knowledge necessary to foster students' school and social development
- ◆ Describe the overall working of the brain and the biochemistry that activates or inhibits it
- ◆ Use brain activity as a map for mental health disorders
- ◆ Describe the brain-mind relationship
- ◆ Develop knowledge of the technology which can provoke changes in the brain in order to overcome mental illnesses
- ◆ Describe the most common neurological disorders in psychological behavior
- ◆ Describe the relationship between the central nervous system, the endocrine system and immune systems
- ◆ Understand current psychopharmacology and integrate this knowledge into psychological tools that can improve mental illness





## Specific Objectives

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- ◆ Study the anatomy of the brain and its relationship to learning
- ◆ Learn the brain basis of motor development
- ◆ Explore the quality of brain plasticity
- ◆ Analyze the various agents affecting child, adolescent and adult brain development
- ◆ Reflect on the meaning of neuroeducation
- ◆ Study the peculiarities and fundamental characteristics of the different areas of the brain associated with emotions and learning
- ◆ Learn the different forms and techniques of intervention in education
- ◆ Explore and gain in-depth knowledge of the characteristics and functioning of memory processes, in relation to the whole development of the person, in the specific area of learning
- ◆ Learn about the characteristics and development of the organs of sight
- ◆ Learn about the risk factors
- ◆ Learn ways to detect, assess and intervene in the classroom with students with vision problems
- ◆ Acquire the ability to work for the improvement of visual perception
- ◆ Become familiar with vision and reading skill training programs
- ◆ Study the saccadic models
- ◆ Learn about the characteristics and development of the organs of the ear
- ◆ Learn about the risk factors

- ♦ Learn about the risk factors
- ♦ Learn ways to detect, evaluate and intervene in the classroom with students with hearing problems
- ♦ Acquire the ability to work for the improvement of hearing
- ♦ Know the psychobiological aspects of hearing loss
- ♦ Develop the necessary skills to make curricular adaptations in this area
- ♦ Study all the implications of visual and auditory problems on literacy learning
- ♦ Develop the neurobiological aspects involved in language development
- ♦ Study of the neuropsychological bases of language and the possibilities of language work and development
- ♦ Analysis and knowledge of the processes of language comprehension, sounds and reading comprehension
- ♦ Analysis of language and literacy disorders
- ♦ Learn how to assess, diagnose and correct language difficulties
- ♦ Learn all aspects related to the theory of multiple intelligences and their assessment
- ♦ Learn the neuropsychological basis of creativity and its development in the educational context
- ♦ Learn ways to detect, evaluate and intervene in the classroom with students with hearing problems
- ♦ Acquire the ability to work for the improvement of hearing
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- ♦ Analysis of language and literacy disorders
- ♦ Learn how to assess, diagnose and correct language difficulties
- ♦ Learn all aspects related to the theory of multiple intelligences and their assessment
- ♦ Learn the neuropsychological basis of creativity and its development in the educational context
- ♦ Know the possibilities of working in the area of high abilities
- ♦ Describe the biological principles of behavior
- ♦ Explain phylogeny from brain ontogeny
- ♦ Understand the neurological and biochemical framework in the overall view of human behavior
- ♦ Develop models for understanding mental health and mental illness based on brain activity
- ♦ Describe biochemical activity and the specific anatomy involved in each mental health disorder

- ◆ Explain the biochemical antagonists and agonists of brain globalization
- ◆ Acquire in-depth knowledge of the treatment of mental health illnesses
- ◆ Gain an understanding of the psychological models which improve biochemical and anatomical imbalance
- ◆ Implement multidisciplinary intervention in mental disorders
- ◆ Explain the regulators in human behavior
- ◆ Present imaging tools in neurological research
- ◆ Learn about the latest scientific discoveries
- ◆ Describe the psychoneurological developments involved in health and disease
- ◆ List the different stages in the analysis of the stimulus
- ◆ Understand the biochemical and neurological drivers that lead to the establishment of a memory and its loss
- ◆ Develop psychic tools to change brain biochemistry and neuroanatomy
- ◆ Explain how basic emotions depend on biochemical and neuroanatomical activity
- ◆ Explain the involvement of respiration, body temperature and heart Cardiac in illness and health
- ◆ Understand the ascending reticular system with psychic procedures
- ◆ Explain how psychosocial elements translate into brain activity and thus into disease intervention
- ◆ Incorporate the necessary knowledge to detect and intervene in the classroom in cases of dyscalculia, dyslexia and TDH
- ◆ Understand the incidence of comorbidity in this context
- ◆ Learn about the possibilities of neurotechnology applied to dyslexia, ADHD and dyscalculia
- ◆ Learn research methodology and its different approaches
- ◆ Develop a complete research method, from the choice of the topic, to the proposal and production
- ◆ Learn how to conduct quantitative research and analysis of results
- ◆ Learn descriptive statistics
- ◆ Learn how to develop a hypothesis test and interpret it
- ◆ Study the use of correlational and group comparison statistics and be able to use them in research



*Get the most comprehensive update in Operating Room Nursing through the best didactic material, studying real clinical cases”*

# 03 Skills

Once all the contents have been studied and the objectives of the Advanced Master's Degree in Neuropsychology have been achieved, the professional will have superior competence and performance in this area. A very complete approach, in a high-level Advanced Master's Degree, which makes the difference.



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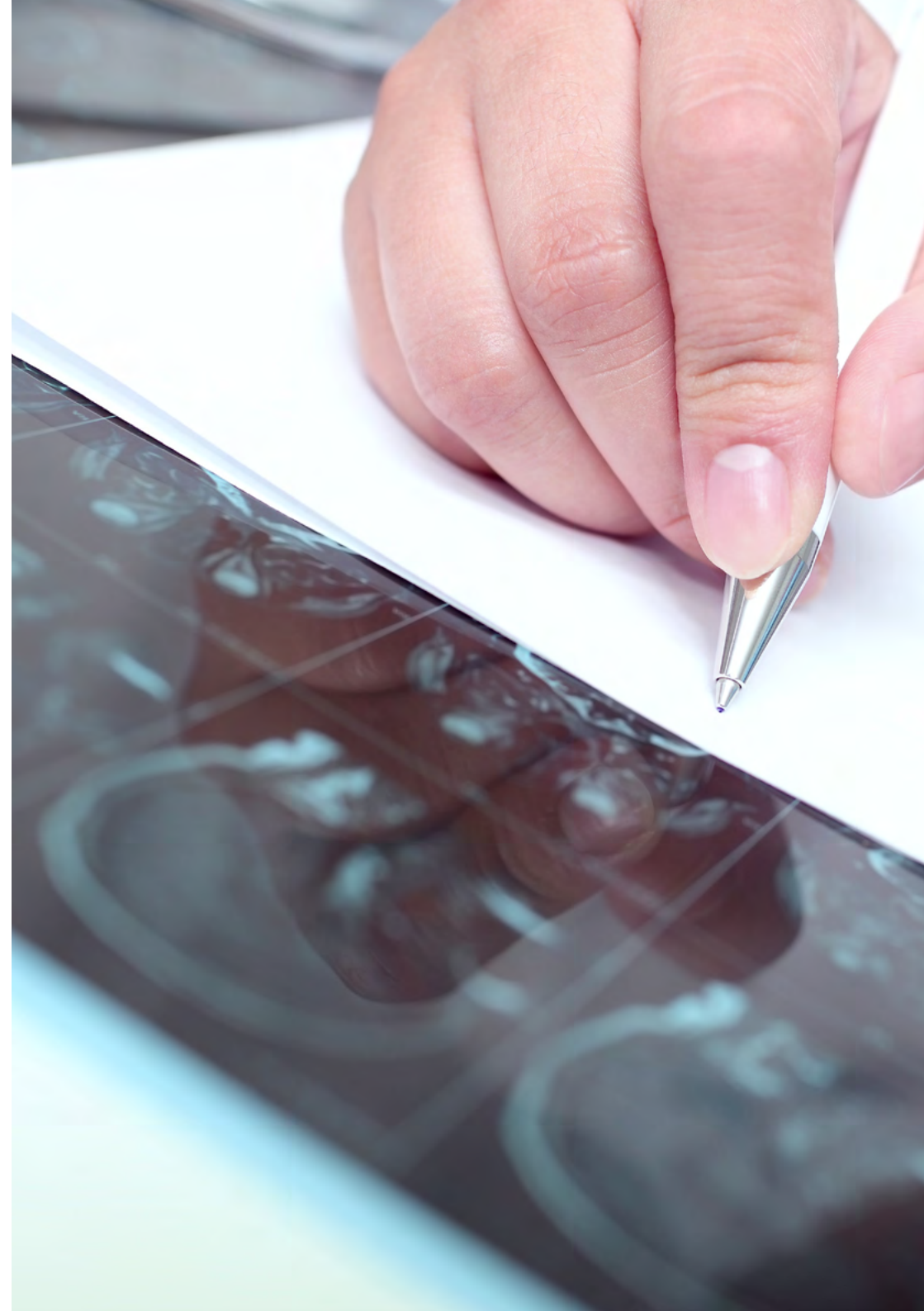
*Achieving excellence in any profession requires effort and perseverance. But, above all, the support of professionals, who will give you the boost you need, with the necessary means and assistance. At TECH, we offer you everything you need”*



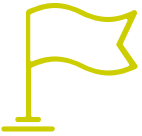
## General Skills

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- ◆ Employ Neuropsychology in the educational environment
- ◆ Conduct programs to improve school performance
- ◆ Apply modes of Neuropsychology research
- ◆ Construct new ways of attending to diversity in the classroom
- ◆ Master and describe the neurological principles of behavior
- ◆ Understand and explain the anatomy and function of our central nervous system, autonomic nervous system, endocrine and immune systems
- ◆ Understand brain biochemistry and explain its involvement in behavior
- ◆ Master the biochemical behavior that occurs in mental disorders
- ◆ Manage the activation and inhibition of the different neuroanatomical structures involved in mental disorders
- ◆ Connect the neurobiological elements that occur in the most common disorders that reach the psychologist's outpatient clinic
- ◆ Master the different drugs used in psychiatry and neurology today
- ◆ Employ the neurological maps and rivers of chemistry that occur in the fundamental building blocks of our behavior







## Specific Skills

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- ♦ Recognize the anatomy of the brain and its relationship with the development of the different learning processes from the motor, sensory, emotional, etc... point of view
- ♦ Employ the knowledge of neuropsychology in the development of diverse intervention programs in all areas of school development
- ♦ Put into practice the different forms of intervention in the educational area based on the data extracted from the analysis of brain functionality in the field of emotions and learning
- ♦ Work on strengthening memory development
- ♦ Have tools to work with altered memory states
- ♦ Perform effective assessment, diagnosis and intervention of language difficulties
- ♦ Identify motor difficulties in students that affect their performance
- ♦ Apply new strategies in cases of high abilities
- ♦ Planning taking into account multiple intelligences and encouraging talent and creativity
- ♦ Develop efficient intervention programs for students with dyscalculia, dyslexia and hyperactivity
- ♦ Devise, develop and analyze comprehensive research in the area of neuropsychology in the educational setting
- ♦ Master the philosophical discourses that led us to the current knowledge of neuroscience
- ♦ How to differentiate between the mind and the brain
- ♦ Master the different processes regulated by the central nervous system
- ♦ Gain the ability to differentiate sympathetic and parasympathetic activity and their involvement in behavior
- ♦ Describe the knowledge to connect the motor and vegetative nervous systems
- ♦ Identify the intervention of the medulla in our organism
- ♦ Know and understand the anatomy of the brainstem
- ♦ Differentiate the structures and their relationship in the brain
- ♦ Master and understand brain microstructure
- ♦ Master the anatomy and function of the neuron
- ♦ Have knowledge of embryological evolution and its relation to the behavior of the fetus and later the baby
- ♦ Understand the maturation process moment by moment
- ♦ Consider the maturation of the nervous system relevant in order to have the capacity to perform one or another function
- ♦ Understand and describe the rate of maturation and ability to perform cognitive functions
- ♦ Identify problems in the growth rate and their consequences since the disease
- ♦ Master the knowledge of vascularization and myelination rhythm in brain growth
- ♦ Discriminate the different types of intelligences that we can distinguish according to the area of the brain we are working on
- ♦ Learn how the reptilian brain deals with basic, pattern and parameter intelligences
- ♦ Master the relationship between the limbic system and our emotional universe
- ♦ Have knowledge of the brain chemicals that affect our emotions

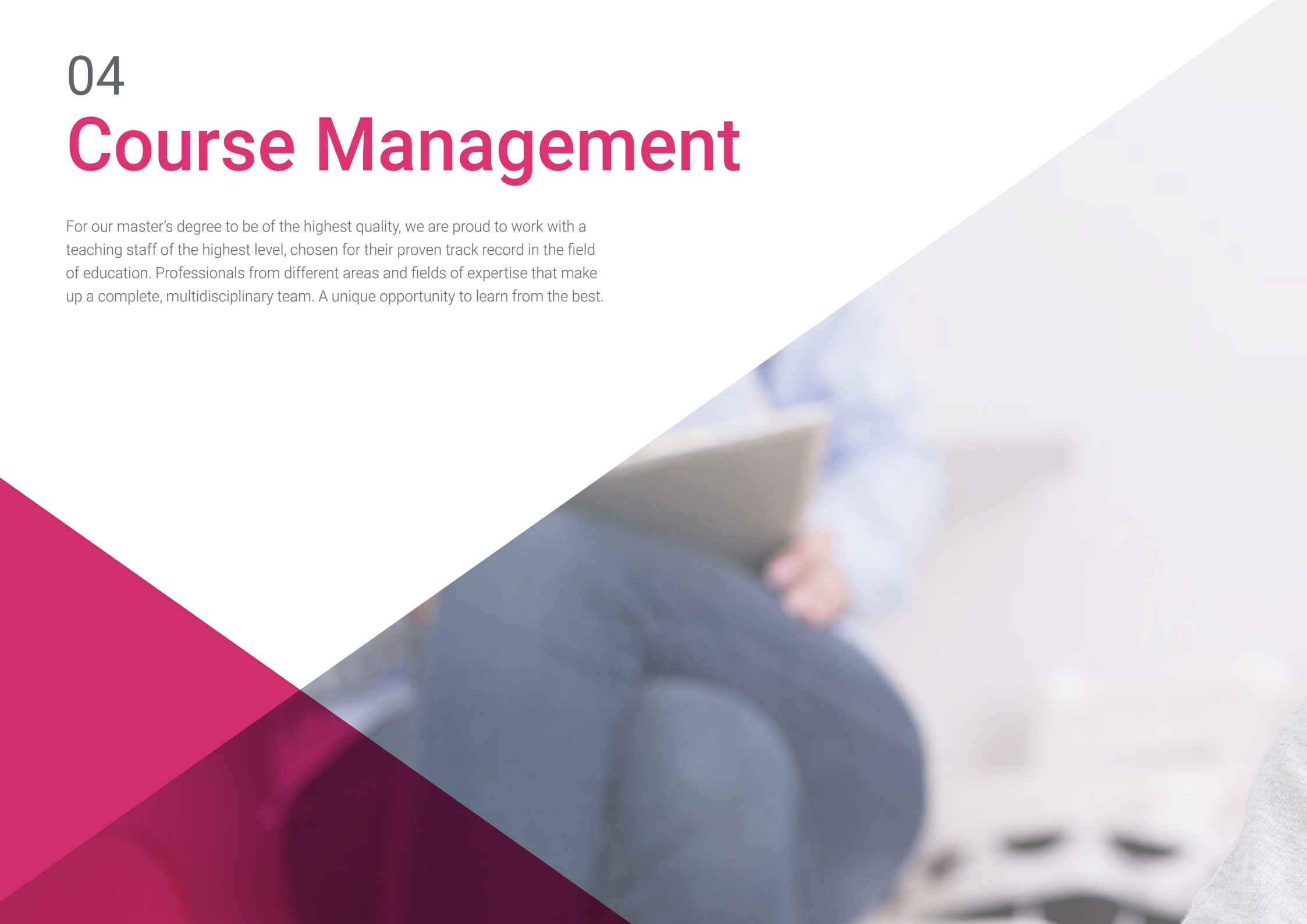
- ◆ Learn the neurological seat of our emotions
- ◆ Research intuition and its scientific and measurable side
- ◆ Learn about the unconscious mechanisms of emotional intelligence
- ◆ Determine from scientific knowledge that "emotion decides and reason justifies"
- ◆ Learn about the drivers of motivation in human beings
- ◆ Differentiate from the neurological reality the fact of thinking from the fact of reflecting
- ◆ Discover the evolutionary succession of our neocortex
- ◆ Have knowledge of the rational capacity to associate, represent in space and reflect
- ◆ Learn about the Alpha fibers and their function
- ◆ Learn about the Beta fibers and their function
- ◆ Learn about the Gamma fibers and their function
- ◆ Learn about the Delta fibers and their function
- ◆ Review and list sympathetic and preganglionic nerve fibers
- ◆ Learn how to differentiate mechano-receptors from other fibers
- ◆ Master the importance of sympathetic nociceptors in pain and sensitivity
- ◆ Learn the morphology and function of preganglionic fibers
- ◆ Discover the sympathetic and parasympathetic mechanisms
- ◆ Learn the functions and mechanisms of the spinal nerves
- ◆ Learn how to differentiate between efferent and afferent communication
- ◆ Learn the properties of the gray matter and its communication vehicle, white matter
- ◆ Learn the functions of the Varolio Bridge
- ◆ Learn how the medulla oblongata influences our global behavioral system
- ◆ Understand the description and function of the cerebellum
- ◆ Master the global role of the Tonsils
- ◆ Master the global role of the Hippocampus
- ◆ Master the global role of the Hypothalamus
- ◆ Master the global role of the Cingulum
- ◆ Master the global role of the Sensory Thalamus
- ◆ Master the global role of the base cores
- ◆ Master the global role of the periaqueductal gray region
- ◆ Master the global role of the pituitary gland
- ◆ Master the global role of the nucleus accumbens
- ◆ Know the brain evolution theory of R. Carter
- ◆ Manage the global role of the orbital frontal lobe
- ◆ Linking neuromotor transmission and sensory perception
- ◆ Gain knowledge of the hypothalamic axis and the endocrine system
- ◆ Understand the neurological mechanisms and chemistries that regulate temperature, blood pressure, food intake, and reproductive function
- ◆ Assimilate the latest knowledge on the relationship between the nervous system and the immune system
- ◆ Identify the elements that make it possible for NK cells to be effective
- ◆ Have knowledge of the relationship of lymphocytes and NK efficacy
- ◆ Be aware of current discoveries in understanding certain diseases and the errors of the immune system as the ultimate precursor to these disorders
- ◆ Announce and question a global and macro specialty that could be called psychoneuroimmunoendocrinology
- ◆ Learn the relationship between tonsil hyperactivity and panic attacks

- ◆ Know the relationship between caudate nucleus hyperactivity and obsessive-compulsive disorder
- ◆ Master the relationship between cingulate inhibition and hypochondriasis
- ◆ Identify gray region hyperactivity and literal petrification of the motor and sensory apparatus
- ◆ Describe the activity of the nucleus accumbens and pleasure, joy and wellness
- ◆ Understand how activating the ventral tegmental area reinforces what we do in order to do it more often
- ◆ Learn about the activity of the hypothalamus and the desire and need to eat whenever the food stimulus is present
- ◆ Learn how the pituitary gland is linked to stress
- ◆ Understand the chemistry and neuroanatomy that precedes the ten basic emotions
- ◆ Understand and master the network that leads to the nerve impulse
- ◆ Assimilate what we know today about neurotransmitters and their agonist and antagonist relationships
- ◆ Understand the performance of Gamma-Amino Butyric Acid
- ◆ Learn how acetylcholine, adrenaline, noradrenaline, serotonin and dopamine are connected
- ◆ Know how to differentiate the functions of DAe and DAi
- ◆ Assimilate the importance of endogenous enkephalins and endorphins in behavior
- ◆ Learn about the family of Catecholamines and Indolamines
- ◆ Learn the imbalances or disorders behind the imbalances in the different neurotransmitters
- ◆ Describe the sequelae of Noradrenaline imbalance
- ◆ Describe the sequelae of Serotonin imbalance
- ◆ Describe the sequelae of acetylcholine imbalance
- ◆ Describe the sequelae of Dopamine imbalance, both DAe and DAi
- ◆ Differentiate the different structures involved in mental disorders
- ◆ Learn the fundamental importance of the reticular system in the subsequent relays of our brain
- ◆ Discover the brain map through Brodmann's Areas
- ◆ Learn how to differentiate in neuroanatomy the five phases of human brain evolution
- ◆ Know that the first phase was the development of the brainstem
- ◆ Know that the Second phase was the development of Limbic System
- ◆ Know that the third phase was the development of the cortex
- ◆ Know that the fourth phase was hemispheric differentiation
- ◆ Know that the fifth phase was the evolution of the orbital frontal lobe
- ◆ Master the biochemistry and neuroanatomy of consciousness and memory disorders
- ◆ Describe the use of medicine called Benzodiazepines
- ◆ Master the sources of emotions, feelings, thoughts and the reflective act

# 04

# Course Management

For our master's degree to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record in the field of education. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.





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*Our professors bring their vast experience and their teaching skills to offer you a stimulating and creative specialized educational program”*

## Management



### Dr. Aguado Romo, Roberto

- Psychologist specializing in Clinical Psychology
- European Specialist in Psychotherapy by the EFPA, President of the European Institute for Time Limited Psychotherapy
- Author with patents in psychotherapy models and techniques
- Psychologist Specialist in Clinical Psychology, founder and director of the CEP of Madrid, Bilbao and Talavera de la Reina
- Director of the scientific journal Psinapsis. Master's Degree in Clinical and Health Psychology from the Spanish Society of Psychosomatic Medicine and Health Psychology
- Tutor of the Basic Psychology course at the UNED

## Co-management



### Don. Martínez Lorca, Alberto

- Specialist in Nuclear Medicine. Rey Juan Carlos University Hospital - Madrid. Madrid. Spain BORRAR
- Specialist in Nuclear Medicine
- Specialist in nuclear medicine area at the Rey Juan Carlos-Quirón University Hospital
- International Residency in Turku PET Centre
- Turku University Hospital. Finland
- Medical Education Manager
- Master's Degree in Time-Limited Psychotherapy and Health Psychology
- Coaching V.E.C
- Director of Neurological Studies at CEP in Madrid



### Ms. Sánchez Padrón, Nuria Ester

- ◆ Degree in Psychology from the University of La Laguna
- ◆ Master's Degree in General Health Psychology from the University of La Rioja
- ◆ Training in Emergency Psychological Care
- ◆ Training in Psychological Care in Penitentiary Institutions
- ◆ Teaching and training experience
- ◆ Experience in educational attention to children at risk

## Professors

### Dr. Fernandez, Angel

- ◆ European specialist psychologist in Psychotherapy from the EFPA
- ◆ Health Psychologist. Master's Degree in Clinical and Health Psychology
- ◆ Director of the Evaluation and Psychotherapy Center of Madrid

### Dr. González, Mónica

- ◆ Psychologist in charge of the Department of Child and Adolescent Psychology in the Quirón Hospital and Avatar Psychologists in Marbella
- ◆ Master's degree in Time-Limited Psychotherapy and Health Psychology by the European Institute of Time-Limited Psychotherapy

### Dr. Martínez-Lorca, Manuela

- ◆ Doctorate in Psychology from the University of Castilla-La Mancha
- ◆ Health Psychologist
- ◆ Lecturer in the Department of Psychology at the UCLM
- ◆ Master in Time-Limited Psychotherapy and Health Psychology by the European Institute of Time-Limited Psychotherapies

### Dr. Roldan, Lucía

- ◆ Health Psychologist
- ◆ Cognitive-behavioral intervention specialist
- ◆ Master in Time-Limited Psychotherapy and Health Psychology

# 05

## Structure and Content

The contents of this specialisation have been developed by the different teachers of this program, with a clear purpose: to ensure that our students acquire each and every one of the necessary skills to become true experts in this field. The content of this Grand Master's Degree enables you to learn all aspects of the different disciplines involved in this field. A complete and well-structured program that will take you to the highest standards of quality and success.







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*Through a very well segmented development, you will be able to access the most advanced knowledge in the field to be more effective in your daily work.”*

## Module 1. Basis of Neurosciences

- 1.1. The Nervous System and Neurons
  - 1.1.1. Introduction
  - 1.1.2. Developments and Latest Approaches
- 1.2. Basic Anatomy of Learning-Related Structures
  - 1.2.1. Description
  - 1.2.2. Physiology of Learning
- 1.3. Psychological Processes Related to Learning
  - 1.3.1. Emotions and Learning
  - 1.3.2. Emotional Approaches
- 1.4. The Main Brain Structures Related to Motor Skills
  - 1.4.1. Brain and Motor Development
  - 1.4.2. Laterality and Development
- 1.5. Plastic Brain and Neuroplasticity
  - 1.5.1. Definition of Plasticity
  - 1.5.2. Neuroplasticity and Education
- 1.6. Epigenetics
  - 1.6.1. Definition and Origins
- 1.7. Effects of the Environment on Brain Development
  - 1.7.1. Current Theories
  - 1.7.2. The Influence of the Environment on Child Development
- 1.8. Changes in the Infant's Brain
  - 1.8.1. Brain Development in Infancy
  - 1.8.2. Features
- 1.9. Evolution of the Adolescent Brain
  - 1.9.1. Brain Development in Adolescence
  - 1.9.2. Features
- 1.10. The Adult Brain
  - 1.10.1. Characteristics of the Adult Brain
  - 1.10.2. The Adult Brain and Learning

## Module 2. Neuroeducation

- 2.1. Introduction to Neuroeducation
- 2.2. Main Neuromyths
- 2.3. Attention
- 2.4. Emotion
- 2.5. Motivation
- 2.6. The Learning Process
- 2.7. Memory
- 2.8. Stimulation and Early Interventions
- 2.9. Importance of Creativity in Neuroeducation
- 2.10. Methodologies that Allow the Transformation of Education into Neuroeducation

## Module 3. Memory Processes, Skills and ICTs

- 3.1. Conceptual Bases of Memory
  - 3.1.1. Introduction and Objectives
  - 3.1.2. Concept and Definition of Memory
  - 3.1.3. Basic Processes of Memory
  - 3.1.4. Initial Research on Memory
  - 3.1.5. Classification of Memory
  - 3.1.6. Memory During Development
  - 3.1.7. General Strategies to Stimulate Memory
  - 3.1.8. Bibliographical References
- 3.2. Sensory Memory
  - 3.2.1. Introduction and Objectives
  - 3.2.2. Concept and Definition
  - 3.2.3. Neurobiological Foundations of Sensory Memory
  - 3.2.4. Assessing Sensory Memory
  - 3.2.5. Intervention in Educational Contexts of Sensory Memory
  - 3.2.6. Family Activities for Students From Three to Five Years of Age
  - 3.2.7. Sensory Memory Intervention Case Study
  - 3.2.8. Bibliographical References



- 3.3. Short-Term Memory
  - 3.3.1. Introduction and Objectives
  - 3.3.2. Concept and Definition of Short-Term Memory and Working Memory
  - 3.3.3. Neurobiological Bases of Short-Term and Working Memory
  - 3.3.4. Assessment of Short-Term and Working Memory
  - 3.3.5. Intervention in Educational Contexts of Short-Term Memory
  - 3.3.6. Family Activities for Students From Six to Eleven Years of Age
  - 3.3.7. Working Memory Intervention Case Study
  - 3.3.8. Bibliographic
- 3.4. Long-Term Memory
  - 3.4.1. Introduction and Objectives
  - 3.4.2. Concept and Definition
  - 3.4.3. Neurobiological Bases of Long-Term Memory
  - 3.4.4. Assessment of Long-Term Memory
  - 3.4.5. Intervention in Educational Contexts of Long-Term Memory
  - 3.4.6. Family Activities for Students From Twelve to Eighteen Years of Age
  - 3.4.7. Long-Term Memory Intervention Case Study
- 3.5. Memory Disorders
  - 3.5.1. Introduction and Objectives
  - 3.5.2. Memory and Emotion
  - 3.5.3. Forgetfulness Theories of Forgetfulness
  - 3.5.4. Memory Distortions
  - 3.5.5. Memory Alterations: Amnesias
  - 3.5.6. Childhood Amnesia
  - 3.5.7. Other Types of Memory Alteration
  - 3.5.8. Programs to Improve Memory
  - 3.5.9. Technological Programs to Improve Memory
  - 3.5.10. Bibliographical References

- 3.6. Thinking Skills
  - 3.6.1. Introduction and Objectives
  - 3.6.2. Developing Thinking from Childhood to the Adult Age
  - 3.6.1. Basic Thought Processes
  - 3.6.1. Thinking Skills
  - 3.6.1. Critical Thinking
  - 3.6.1. Characteristics of Digital Natives
  - 3.6.1. Bibliographical References
- 3.7. Neurobiology of Thinking
  - 3.7.1. Introduction and Objectives
  - 3.7.2. Neurobiological Foundations of Thinking
  - 3.7.3. Cognitive distortions
  - 3.7.4. Neuropsychological Assessment Instruments
  - 3.7.5. Bibliographical References
- 3.8. Cognitive Intervention
  - 3.8.1. Introduction and Objectives
  - 3.8.2. Learning Strategies
  - 3.8.3. Cognitive Stimulation Techniques in Educational Contexts
  - 3.8.4. Methods for Studying at Home
  - 3.8.5. Cognitive Stimulation Activities in the Family Environment
  - 3.8.6. Learning Strategy Intervention Case Study
  - 3.8.7. Bibliographical References
- 3.9. Cognitive Thought Theories
  - 3.9.1. Introduction and Objectives
  - 3.9.2. Significant Learning Theory
  - 3.9.3. Information Processing Theory
  - 3.9.4. Genetic Theory: Constructivism
  - 3.9.5. Sociocultural Theory: Socioconstructivism
  - 3.9.6. Theory of Connectivism
  - 3.9.7. Metacognition: to learn how to think
  - 3.9.8. Programs for the Acquisition of Thinking Skills
  - 3.9.9. Technology Programs for the Improvement of Thinking Skills
  - 3.9.10. Thinking Skill Intervention Case Study
  - 3.9.11. Bibliographical References

## Module 4. Visual and Auditory Functionality for Reading, Language, Languages and Learning

- 4.1. Vision: Functioning and Neuropsychological Bases
  - 4.1.1. Introduction
  - 4.1.2. Development of the Visual System at Birth
  - 4.1.3. Risk Factors
  - 4.1.4. Development of Other Sensory Systems During Infancy
  - 4.1.5. Influence of Vision on the Visuomotor System and its Development
  - 4.1.6. Normal and Binocular Vision
  - 4.1.7. Anatomy of Human Eyes
  - 4.1.8. Eye Functions
  - 4.1.9. Other Functions
  - 4.1.10. Visual Pathways to the Cerebral Cortex
  - 4.1.11. Elements that Favor Visual Perception
  - 4.1.12. Vision Diseases and Alterations
  - 4.1.13. Most Common Eye Disorders or Diseases: Classroom Interventions
  - 4.1.14. Computer Vision Syndrome (CVS)
  - 4.1.15. Attitudinal Observation of the Student
  - 4.1.16. Summary
  - 4.1.17. Bibliographical References
- 4.2. Visual Perception, Assessment and Intervention Programs
  - 4.2.1. Introduction
  - 4.2.2. Human Development: Development of the Sensory Systems
  - 4.2.3. Sensory Perception
  - 4.2.4. Neurodevelopment
  - 4.2.5. Description of the Perceptual Process
  - 4.2.6. Color Perception
  - 4.2.7. Perception and Visual Skills
  - 4.2.8. Evaluation of Visual Perception
  - 4.2.9. Intervention for the Improvement of Visual Perception
  - 4.2.10. Summary
  - 4.2.11. Bibliographical References

- 4.3. Tracking Eye Movements
  - 4.3.1. Introduction
  - 4.3.2. Eye Movements
  - 4.3.3. Tracking Eye Movements
  - 4.3.4. Ocular Motility Recording and Assessment
  - 4.3.5. Ocular Motility-Related Disorders
  - 4.3.6. The Visual System and Reading
  - 4.3.7. Development of Skills in Learning to Read
  - 4.3.8. Improvement and Training Programs and Activities
  - 4.3.9. Summary
  - 4.3.10. Bibliographical References
- 4.4. Saccadic Movements and Their Implication in Reading
  - 4.4.1. Introduction
  - 4.4.2. Models of the Reading Process
  - 4.4.3. Saccadic Movements and Their Relation to Reading
  - 4.4.4. How Saccadic Movements are Assessed
  - 4.4.5. The Reading Process at the Visual Level
  - 4.4.6. Visual Memory in the Reading Process
  - 4.4.7. Investigations to Study the Relationship Between Visual Memory and Reading
  - 4.4.8. Reading Difficulties
  - 4.4.9. Specialized Teachers
  - 4.4.10. Social Educators
  - 4.4.11. Summary
  - 4.4.12. Bibliographical References
- 4.5. Visual Accommodation and its Relation to Posture in the Classroom
  - 4.5.1. Introduction
  - 4.5.2. Mechanisms that Allow for Accommodation or Focus
  - 4.5.3. How is Visual Accommodation Assessed?
  - 4.5.4. Body Posture in the Classroom
  - 4.5.5. Visual Accommodation Training Programs
  - 4.5.6. Aids for Visually Impaired Students
  - 4.5.7. Summary
  - 4.5.8. Bibliographical References
- 4.6. Structure and Function of the Ear
  - 4.6.1. Introduction
  - 4.6.2. The World of Sound
  - 4.6.3. Sound and its Propagation
  - 4.6.4. The Auditory Receptors
  - 4.6.5. Ear Structure
  - 4.6.6. Development of the Hearing System at Birth
  - 4.6.7. Development of Sensory Systems during Infancy
  - 4.6.8. Influence of the Ear on Balance Development
  - 4.6.9. Ear Diseases
  - 4.6.10. Summary
  - 4.6.11. Bibliographical References
- 4.7. Auditory Perception
  - 4.7.1. Introduction
  - 4.7.2. Guidelines for Detecting Auditory Perception Problems
  - 4.7.3. The Perceptive Process
  - 4.7.4. Role of the Auditory Pathways in Perceptual Processes
  - 4.7.5. Children with Impaired Auditory Perception
  - 4.7.6. Evaluation Tests
  - 4.7.7. Summary
  - 4.7.8. Bibliographical References
- 4.8. Evaluation of Hearing and its Alterations
  - 4.8.1. Introduction
  - 4.8.2. Evaluation of the External Auditory Canal
  - 4.8.3. Otoscopy
  - 4.8.4. Air Audiometry
  - 4.8.5. Bone Conduction Hearing
  - 4.8.6. Curve of the Pain Threshold
  - 4.8.7. Tone Audiometry, Vocal Audiometry and Acoustic Audiometry
  - 4.8.8. Hearing Impairment: Degrees and Types of Hearing Loss
  - 4.8.9. Causes of Hearing Loss
  - 4.8.10. Psychobiological Aspects of Hearing Impairment
  - 4.8.10. Summary
  - 4.8.11. Bibliographical References

- 4.9. Hearing and Learning Development
  - 4.9.1. Introduction
  - 4.9.2. Development of the Human Ear
  - 4.9.3. Programs, Activities and Games for Auditory Development in Children
  - 4.9.4. Berard Method
  - 4.9.5. Tomatis Method
  - 4.9.6. Visual and Hearing Health
  - 4.9.7. Adaptations of Curricular Elements
  - 4.9.8. Summary
  - 4.9.10. Bibliographical References
- 4.10. Vision and Hearing Processes Involved in Reading
  - 4.10.1. Introduction
  - 4.10.2. Tracking Eye Movements
  - 4.10.3. The Visual System and Reading
  - 4.10.4. Dyslexia
  - 4.10.5. Color-Based Therapies for Dyslexia
  - 4.10.6. Visual Impairment Aids
  - 4.10.7. Summary
  - 4.10.8. Bibliographical References
- 4.11. Relationship Between Vision and Hearing in Language
  - 4.11.1. Introduction
  - 4.11.2. Relationship Between Vision and Hearing
  - 4.11.3. Verbal-Auditory and Visual Information Processing
  - 4.11.4. Intervention Programs for Hearing Disorders
  - 4.11.5. Guidelines for Teachers
  - 4.11.6. Summary
  - 4.11.7. Bibliographical References

## Module 5. Neurolinguistic Processes, Difficulties and Intervention Programs

- 5.1. Neurobiological Basis Involved in Language
  - 5.1.1. Introduction
  - 5.1.2. Language Definitions
  - 5.1.3. Historical Background BORRAR
  - 5.1.4. Summary
  - 5.1.5. Bibliographical References
- 5.2. Language Development
  - 5.2.1. Introduction
  - 5.2.2. Appearance of Language
  - 5.2.3. Acquisition of Language
  - 5.2.4. Summary
  - 5.2.5. Bibliographical References
- 5.3. Neuropsychological Approaches to Language
  - 5.3.1. Introduction
  - 5.3.2. Brain Processes of Language
  - 5.3.3. Brain Areas Involved
  - 5.3.4. Neurolinguistic processes
  - 5.3.5. Brain Centers Involved in Comprehension
  - 5.3.6. Summary
  - 5.3.7. Bibliographical References
- 5.4. Neuropsychology of Language Comprehension
  - 5.4.1. Introduction
  - 5.4.2. Brain Areas Involved in Comprehension
  - 5.4.3. Sounds
  - 5.4.4. Syntactic Structures for Linguistic Comprehension
  - 5.4.5. Semantic Processes and Meaningful Learning
  - 5.4.6. Reading Comprehension
  - 5.4.7. Summary
  - 5.4.8. Bibliographical References

- 5.5. Communication Through Language
  - 5.5.1. Introduction
  - 5.5.2. Language as a Tool for Communication
  - 5.5.3. Evolution of Language
  - 5.5.4. Social Communication
  - 5.5.5. Summary
  - 5.5.6. Bibliographical References
- 5.6. Language Disorders
  - 5.6.1. Introduction
  - 5.6.2. Speech and Language Disorders
  - 5.6.3. Professionals Involved in the Treatment
  - 5.6.4. Classroom Implications
  - 5.6.5. Summary
  - 5.6.6. Bibliographical References
- 5.7. Aphasia
  - 5.7.1. Introduction
  - 5.7.2. Types of Aphasia
  - 5.7.3. Diagnosis
  - 5.7.4. Assessment
  - 5.7.5. Summary
  - 5.7.6. Bibliographical References
- 5.8. Language Stimulation
  - 5.8.1. Introduction
  - 5.8.2. Importance of Language Stimulation
  - 5.8.3. Phonetic-Phonological Stimulation
  - 5.8.4. Lexical-Semantic Stimulation
  - 5.8.5. Morphosyntactic Stimulation
  - 5.8.6. Pragmatic Stimulation
  - 5.8.7. Summary
  - 5.8.8. Bibliographical References
- 5.9. Reading and Writing Disorders
  - 5.9.1. Introduction
  - 5.9.2. Delayed Reading
  - 5.9.3. Dyslexia
  - 5.9.4. Dysorthographia
  - 5.9.5. Dysgraphia
  - 5.9.6. Dyslalia
  - 5.9.7. Treatment of Reading and Writing Disorders
  - 5.9.8. Summary
  - 5.9.9. Bibliographical References
- 5.10. Evaluation and Diagnosis of Language Difficulties
  - 5.10.1. Introduction
  - 5.10.2. Language Evaluation
  - 5.10.3. Language Assessment Procedures
  - 5.10.4. Psychological Tests for Assessing Language
  - 5.10.5. Summary
  - 5.10.6. Bibliographical References
- 5.11. Intervention in Language Disorders
  - 5.11.1. Introduction
  - 5.11.2. Implementation of Improvement Programs
  - 5.11.3. Improvement Programs
  - 5.11.4. Improvement Programs Using New Technologies
  - 5.11.5. Summary
  - 5.11.6. Bibliographical References
- 5.12. Incidence of Language Difficulties on Academic Performance
  - 5.12.1. Introduction
  - 5.12.2. Linguistic Processes
  - 5.12.3. Incidence of Language Disorders
  - 5.12.4. Relationship Between Hearing and Language
  - 5.12.5. Summary
  - 5.12.6. Bibliographical References

- 5.13. Guidance for Parents and Teachers
  - 5.13.1. Introduction
  - 5.13.2. Language Stimulation
  - 5.13.3. Reading Stimulation
  - 5.13.4. Summary
  - 5.13.5. Bibliographical References

## Module 6. Multiple Intelligences, Creativity, Talent and High Abilities

- 6.1. Theory of Multiple Intelligences
  - 6.1.1. Introduction
  - 6.1.2. Background
  - 6.1.3. Conceptualization
  - 6.1.4. Validation
  - 6.1.5. Premises and Basic Principles of Theories
  - 6.1.6. Neuropsychological and Cognitive Science
  - 6.1.7. Classification of the Theories of Multiple Intelligences
  - 6.1.8. Summary
  - 6.1.9. Bibliographical References
- 6.2. Types of Multiple Intelligences
  - 6.2.1. Introduction
  - 6.2.2. Types of Intelligence
  - 6.2.3. Summary
  - 6.2.4. Bibliographical References
- 6.3. Assessment of Multiple Intelligences
  - 6.3.1. Introduction
  - 6.3.2. Background
  - 6.3.3. Types of Assessments
  - 6.3.4. Aspects to Consider in the Assessment
  - 6.3.5. Summary
  - 6.3.6. Bibliographical References
- 6.4. Creativity
  - 6.4.1. Introduction
  - 6.4.2. Concepts and Theories of Creativity
  - 6.4.3. Approaches to the Study of Creativity
  - 6.4.4. Characteristics of Creative Thinking
  - 6.4.5. Types of Creativity
  - 6.4.6. Summary
  - 6.4.7. Bibliographical References
- 6.5. Neuropsychological Basis of Creativity
  - 6.5.1. Introduction
  - 6.5.2. Background
  - 6.5.3. Characteristics of Creative People
  - 6.5.4. Creative Products
  - 6.5.5. Neuropsychological Bases of Creativity
  - 6.5.6. Influence of the Environment and Context on Creativity
  - 6.5.7. Summary
  - 6.5.8. Bibliographical References
- 6.6. Creativity in the Educational Context
  - 6.6.1. Introduction
  - 6.6.2. Creativity in the Classroom
  - 6.6.3. Stages of the Creative Process
  - 6.6.4. How to Work on Creativity
  - 6.6.5. Connection Between Creativity and Thinking
  - 6.6.6. Modification in the Educational Context
  - 6.6.7. Summary
  - 6.6.8. Bibliographical References



- 6.7. Methodologies for Developing Creativity
  - 6.7.1. Introduction
  - 6.7.2. Programs for Developing Creativity
  - 6.7.3. Projects for Developing Creativity
  - 6.7.4. Promoting Creativity in the Family Context
  - 6.7.5. Summary
  - 6.7.6. Bibliographical References
- 6.8. Creativity Assessment and Guidance
  - 6.8.1. Introduction
  - 6.8.2. Considerations on Assessment
  - 6.8.3. Evaluation Tests
  - 6.8.4. Subjective Assessment Tests
  - 6.8.5. Guidance on Assessment
  - 6.8.6. Summary
  - 6.8.7. Bibliographical References
- 6.9. High Capacities and Talents
  - 6.9.1. Introduction
  - 6.9.2. Relationship Between Giftedness and High Capacities
  - 6.9.3. Connection Between Heredity and Environment
  - 6.9.4. Neuropsychological Foundation
  - 6.9.5. Models of Giftedness
  - 6.9.6. Summary
  - 6.9.7. Bibliographical References
- 6.10. Identification and Diagnosis of High Capacities
  - 6.10.1. Introduction
  - 6.10.2. Main Characteristics
  - 6.10.3. How to Identify Far High-Capacity Individuals
  - 6.10.4. Role of the Agents Involved
  - 6.10.5. Assessment Tests and Instruments
  - 6.10.6. Intervention Programs
  - 6.10.7. Summary
  - 6.10.8. Bibliographical References
- 6.11. Problems and Difficulties
  - 6.11.1. Introduction
  - 6.11.2. Problems and Difficulties in the School Environment
  - 6.11.3. Myths and Beliefs
  - 6.11.4. Desynchronies
  - 6.11.5. Differential Diagnosis
  - 6.11.6. Differences Between Genders
  - 6.11.7. Educational Needs
  - 6.11.8. Summary
  - 6.11.9. Bibliographical References
- 6.12. Connection Between Multiple Intelligences, High Capacities, Talent and Creativity
  - 6.12.1. Introduction
  - 6.12.2. Connection Between Multiple Intelligences and Creativity
  - 6.12.3. Connection Between Multiple Intelligences, High Capacities and Talents
  - 6.12.4. Differences Between Talent and High Capacities
  - 6.12.5. Creativity, High Capacities and Talent
  - 6.12.6. Summary
  - 6.12.7. Bibliographical References
- 6.13. Guiding and Developing Multiple Intelligences
  - 6.13.1. Introduction
  - 6.13.2. Advising Teachers
  - 6.13.3. Multidimensional Student Development
  - 6.13.4. Curricular Enrichment
  - 6.13.5. Strategies at Different Educational Levels
  - 6.13.6. Summary
  - 6.13.7. Bibliographical References

- 6.14. Creativity for Problem-Solving
  - 6.14.1. Introduction
  - 6.14.2. Models of the Creative Process for Problem Solving
  - 6.14.3. Creative Project Development
  - 6.14.4. Summary
  - 6.14.5. Bibliographical References
- 6.15. Educational Process and Family Support
  - 6.15.1. Introduction
  - 6.15.2. Guidelines for Teachers
  - 6.15.3. Educational Response in Children
  - 6.15.4. Educational Response in Primary Education
  - 6.15.5. Educational Response in Secondary Education
  - 6.15.6. Coordination with Families
  - 6.15.7. Program Implementation
  - 6.15.8. Summary
  - 6.15.9. Bibliographical References

## Module 7. Neurological foundations of behavior

- 7.1. Philosophical Tradition: monism, dualism and integrationism
- 7.2. Monism from Spinoza to Donald Davidson
- 7.3. Descartes' Dualism
- 7.4. Behavior as a Function of the Nervous System
- 7.5. Organization of the Nervous System
- 7.6. Anatomy
  - 7.6.1. Central Nervous System vs. Peripheral Nervous System
  - 7.6.2. Motor Nervous System vs. Vegetative System
  - 7.6.3. Spinal Cord
  - 7.6.4. Brainstem
  - 7.6.5. Brain
- 7.7. Functional Activity
  - 7.7.1. Lower
  - 7.7.2. Upper

- 7.8. Microstructure
  - 7.8.1. Neurons
  - 7.8.2. Other Cells
- 7.9. Embryology of the Nervous System
- 7.10. Spinal Cord
- 7.11. Brainstem
- 7.12. Cerebellum
- 7.13. Midbrain, Forebrain and Diencephalon
- 7.14. Subcortex
- 7.15. Basal Ganglia
- 7.16. Frontal Orbital Lobe
- 7.17. Process of Vascolarization and Myelination of the Nervous System
  - 7.17.1. Reptilian Brain
  - 7.17.2. Basic Intelligence
  - 7.17.3. Pattern Intelligence
  - 7.17.4. Parameter Intelligence
- 7.18. Limbic Brain and the Chemistry of Basic Emotions

## Module 8. Principals of Neuroanatomy

- 8.1. Classification of Nerve Fibers (Erlanger and Gasser)
  - 8.1.1. Alpha
  - 8.1.2. Beta
  - 8.1.3. Gamma
  - 8.1.4. Delta
  - 8.1.5. Sympathetic
  - 8.1.6. Preganglionic
  - 8.1.7. Mechanoreceptors
  - 8.1.8. Sympathetic Nociceptors
  - 8.1.9. Preganglionic
- 8.2. Vegetative Nervous System
- 8.3. Spinal Cord
- 8.4. Spinal Nerves
- 8.5. Afferent and Efferent Communication

- 8.6. Gray Matter
- 8.7. White Matter
- 8.8. Brainstem
  - 8.8.1. Midbrain
  - 8.8.2. Varolio Bridge
  - 8.8.3. Medulla Oblongata
  - 8.8.4. Cerebellum
- 8.9. Limbic System
  - 8.9.1. Tonsils
  - 8.9.2. Hippocampus
  - 8.9.3. Hypothalamus
  - 8.9.4. Cingulum
  - 8.9.5. Sensory Thalamus
  - 8.9.6. Base Cores
  - 8.9.7. Periaqueductal Gray Region
  - 8.9.8. Pituitary
  - 8.9.9. Nucleus Accumbens
- 8.10. Cerebral Cortex (Theory of Cerebral Evolution, Carter 2002)
  - 8.10.1. Parietal Cortex
  - 8.10.2. Frontal Lobes (6m)
  - 8.10.3. Limbic System (12 m)
  - 8.10.4. Language Areas: 1st Wernicke, 2nd Broca. (18 m)
- 8.11. Frontal Orbital Lobe
- 8.12. Functional Relationships of the NS with Other Organs and Systems
- 8.13. Motorneurone Transmission
- 8.14. Sensoperception
- 8.15. Neuroendocrinology (Hypothalamus-Endocrine System Relationship)
  - 8.15.1. Temperature Regulation
  - 8.15.2. Blood Pressure Regulation
  - 8.15.3. Food Ingestion Regulation
  - 8.15.4. Reproductive Function Regulation
- 8.16. Neuroimmunology (Relationship between the Nervous System and Immune System)
- 8.17. Map Relating Emotion to Neuroanatomical Structures

## Module 9. Principles of Cerebral Biochemistry

- 9.1. The Neurone and its Composition
  - 9.1.1. Axon
  - 9.1.2. Cellular Body or Soma
  - 9.1.3. Dendrites
- 9.2. Nervous Impulse
  - 9.2.1. Sodium / Potassium Pump
  - 9.2.2. Resting Potential
  - 9.2.3. Action Potential Generation
  - 9.2.4. GABA-Glutamate-Glutamine Cycle
- 9.3. Electric and Chemical Synapses
- 9.4. Neurotransmitters
  - 9.4.1. G.A.B.A
  - 9.4.2. Acetylcholine. (Ach)
  - 9.4.3. Catecholamines
    - 9.4.3.1. Adrenaline. (A)
    - 9.4.3.2. Noradrenaline. (NA)
    - 9.4.3.3. Dopamine (DA)
      - 9.4.3.3.1. DAe
      - 9.4.3.3.2. DAi
  - 9.4.4. Indolamines
    - 9.4.4.1. Serotonin. (5-HT)
  - 9.4.5. Gastrointestinal Polypeptides
  - 9.4.6. Protanglandins
  - 9.4.7. Glycerine
  - 9.4.8. Enkephalins and Endorphins
  - 9.4.9. Adenylate Cyclase (ATP)
- 9.5. Neurotransmission Process
- 9.6. Neurotransmitter Synthesis
- 9.7. Neurotransmitter Storage
- 9.8. Release into the Intersynaptic Space
- 9.9. Interaction with the Postsynaptic Receptor

- 9.10. Neurotransmitter Reuptake
- 9.11. General Circulation Diffusion
- 9.12. Inactivation by the M.A.O
- 9.13. Rivers of Chemistry Flooding our Brains
- 9.14. Chemical Families and Interactions Between Them
- 9.15. Hormonal System
  - 9.15.1. Adrenaline
  - 9.15.2. Melatonin
  - 9.15.3. Adrenocorticotropin
  - 9.15.4. Norepinephrine

## Module 10. Biochemistry of Mental Disorders

- 10.1. Neurotransmitters and Mental Illness
  - 10.1.1. Upper Stratum (NA / 5-HT) Own Anxiety, Stress
  - 10.1.2. Lower Stratum (DA / Ach) Own Helplessness, Depression
- 10.2. NA-Type Biochemical Imbalance
  - 10.2.1. Clinical Hypomania
  - 10.2.2. Clinical Psychopathy
  - 10.2.3. Clinical Psychosis
  - 10.2.4. Clinical Anxiety
  - 10.2.5. Clinical Loss of Impulse Control
- 10.3. Clinical Depression
- 10.4. Clinical Immunological Depression
- 10.5. Clinical Mania
- 10.6. Clinical Schizophrenia
- 10.7. Clinical Sleep Disorders
- 10.8. Clinical Impulse Control Disorders
- 10.9. Clinical Eating Disorders
- 10.10. Type Ach Biochemical Imbalance
  - 10.10.1. Complex Arterial Hypotension, Hypoglycemia, Bradycardia and Muscular Asthenia
  - 10.10.2. Physical and Psychological Exhaustion
  - 10.10.3. Attention and Memory Disorders
  - 10.10.4. Neurological Diseases Affecting the Locomotor System
  - 10.10.5. Clinical Affective Blunting and Consciousness Disorder

- 10.11. Type DAe Biochemical Imbalance
  - 10.11.1. Calm, Serenity Suppressing Irritability Complex
  - 10.11.2. Insomnia
  - 10.11.3. Ill-tempered, Without Expressing it
- 10.12. Type DAi Biochemical Imbalance
  - 10.12.1. Motor Hyperactivity
  - 10.12.2. Complex Tachycardia, Hypertension and Hyperglycemia
  - 10.12.3. Histrionic Spectrum Disorders with Anxious Depression

## Module 11. Neuroanatomy and Mental Disorders

- 11.1. Relationship of Brain Chemistry and Neurological Activation
- 11.2. Reticular System and Mental Illness
  - 11.2.1. Neurotransmission Activator
  - 11.2.2. Conscious State Activator
  - 11.2.3. Sleep-Wake Cycle Activator
  - 11.2.4. Learning Activator
- 11.3. Brainstem
  - 11.3.1. Substantia Nigra
  - 11.3.2. Base Nodes
  - 11.3.3. Locus Coeruleus
  - 11.3.4. Raphe
- 11.4. Limbic Structures Involved in Mental Disorders
  - 11.4.1. Tonsils
  - 11.4.2. Periaqueductal Gray Region
  - 11.4.3. Hypothalamus
  - 11.4.4. Caudate Nucleus
  - 11.4.5. Putamen
  - 11.4.6. Cingular Area
  - 11.4.7. Ventral Tegmental Area
  - 11.4.8. Nucleus Accumbens
  - 11.4.9. Sensory Thalamus

- 11.5. Corpus Callosum
- 11.6. Cortical Structures
  - 11.6.1. Pre-optical Area
  - 11.6.2. Insula
  - 11.6.3. Association Areas
  - 11.6.4. Brodmann Areas
  - 11.6.5. Wernicke Area
  - 11.6.6. Broca Area
  - 11.6.7. Limbic Association Area
- 11.7. Frontal Orbital Lobe

## Module 12. Biochemistry and Neuroanatomy of the Most Well-Known Mental Disorders in the Practitioner's Outpatient Clinic of Psychology

- 12.1. Neuroanatomy and Biochemistry in Consciousness and Memory Disorders
  - 12.1.1. Hypervigilance, Obnubilation, Confusional or Twilight States
  - 12.1.2. Depersonalization or Derealization Disorders
  - 12.1.3. Remote or Immediate Memory Disorders
  - 12.1.4. Clinical Disorientation, Drowsiness
  - 12.1.5. Obnubilation, Stupor, Delirium, Coma, Twilight State
  - 12.1.6. Clinical Agnosia, Anosognosia, Apraxia, Adiadochokinesia
  - 12.1.7. Memory Disorders: Amnesia, Paramnesia, Amnesic Screen, Lethologic
- 12.2. Neuroanatomy and Biochemistry of Anxiety Disorders
  - 12.2.1. Panic Attacks
  - 12.2.2. Agoraphobia
  - 12.2.3. Simple Phobia
  - 12.2.4. Generalized Anxiety Disorder
  - 12.2.5. Obsessive Compulsive Disorder
  - 12.2.6. Social Phobia
  - 12.2.7. Post-Traumatic Stress Disorder
- 12.3. Neuroanatomy and Biochemistry of Mood Disorders
  - 12.3.1. Dysthymia
  - 12.3.2. Severe Depression
  - 12.3.3. Adaptive Deficit Disorders
- 12.4. Neuroanatomy and Biochemistry of Eating Disorders
  - 12.4.1. Pica
  - 12.4.2. Rumination Disorder
  - 12.4.3. Anorexia Nervosa
  - 12.4.4. Bulimia Nervosa
  - 12.4.5. Binge Eating Disorder
- 12.5. Neuroanatomy and Biochemistry of Impulse Control Disorders
  - 12.5.1. Oppositional Defiant Disorder
  - 12.5.2. Intermittent Explosive Disorder
  - 12.5.3. Antisocial Personality Disorder
  - 12.5.4. Behavioral Disorders
  - 12.5.5. Kleptomania
  - 12.5.6. Pyromania
- 12.6. Neuroanatomy and Biochemistry of Sleep Disorders
  - 12.6.1. Insomnia
  - 12.6.2. Hypersomnia
  - 12.6.3. Narcolepsy
  - 12.6.4. Apnea
  - 12.6.5. Circadian Rhythm Disorders
  - 12.6.6. Restless Leg Syndrome
- 12.7. Neuroanatomy and Biochemistry of Personality Disorders
  - 12.7.1. Borderline Personality Disorder
  - 12.7.2. Schizoid Personality Disorder
  - 12.7.3. Avoidant Personality Disorder
  - 12.7.4. Narcissistic Personality Disorder
  - 12.7.5. Obsessive Compulsive Personality Disorder
- 12.8. Neuroanatomy and Biochemistry of Psychotic Disorders
  - 12.8.1. Schizophrenia
  - 12.8.2. Delirious Disorders
  - 12.8.3. Bipolar Disorder
  - 12.8.4. Psychotic Disorder

## Module 13. Pharmacological Treatment

- 13.1. Benzodiazepine Drugs
  - 13.1.1. Long-Term Action
  - 13.1.2. Immediate Action
  - 13.1.3. Short Term Action
  - 13.1.4. Ultra Short-Term Action
- 13.2. Antidepressive Drugs
  - 13.2.1. Tricyclics
  - 13.2.2. Tetracyclics
  - 13.2.3. SSRIs
  - 13.2.4. SNRIs
  - 13.2.5. Non-Selective 5-HT Reuptake Inhibitors
  - 13.2.6. NA Reuptake Inhibitors
  - 13.2.7. Antagonists and 5-HT Reuptake Antagonists / Inhibitors
  - 13.2.8. DA-NA Reuptake Inhibitors
  - 13.2.9. Agomelatine
- 13.3. M.A.O.I
- 13.4. Euthymizing Drugs
  - 13.4.1. Lithium
  - 13.4.2. Valproic Acid
  - 13.4.3. Carbamazepine
  - 13.4.4. Lamotrigine
  - 13.4.5. Tipiramate
  - 13.4.6. Oxacarbazepine
  - 13.4.7. Gavapentin
  - 13.4.8. Vigabatrin
  - 13.4.9. Levetiracetam
- 13.5. Antipsychotic Drugs

- 13.6. Classic Neuroleptics
  - 13.6.1. Haloperidol
  - 13.6.2. Chlorpromazine
  - 13.6.3. Levomepromazine
  - 13.6.4. Flufenazide
  - 13.6.5. Pipotiazide
  - 13.6.6. Zuclopenthixol
- 13.7. Atypical Neuroleptics
  - 13.7.1. Clozapine
  - 13.7.2. Olanzapine
  - 13.7.3. Risperidon
  - 13.7.4. Quetiapine
  - 13.7.5. Ziprasidone
  - 13.7.6. Aripiprazole

## Module 14. Neurological Behavioral Sites

- 14.1. Reticular System
  - 14.1.1. Parts
  - 14.1.2. Functions
- 14.2. Brainstem
  - 14.2.1. Cerebral Biochemistry
  - 14.2.2. Influence of Biochemistry on Musculature
- 14.3. Activation of Limbic Structures
  - 14.3.1. Platform for Action
  - 14.3.2. Motivation
- 14.4. Sensation Felt
  - 14.4.1. Emotion
  - 14.4.2. Basic Emotions
- 14.5. Precortical Structures
  - 14.5.1. Feelings
  - 14.5.2. Unconscious Thought
  - 14.5.3. Fantasy

- 14.6. Cortical Structures
  - 14.6.1. Motor Activity
  - 14.6.2. Sensory
- 14.7. Frontal Orbital Lobe
  - 14.7.1. Reflection
  - 14.7.2. Implementation
  - 14.7.3. Planning

### Module 15. Pharmacological Intervention in Anxiety Disorders and Stress

- 15.1. Anxiety or Panic Disorder
- 15.2. Agoraphobia
- 15.3. Social Phobia
- 15.4. Specific Phobias
- 15.5. Generalized Anxiety Disorder
- 15.6. Obsessive Compulsive Disorder and Related Disorders
  - 15.6.1. Obsessive Compulsive Disorder
  - 15.6.2. Body Dysmorphic Disorder
  - 15.6.3. Hoarding Disorder
  - 15.6.4. Trichotillomania
  - 15.6.5. Excoriation Disorder
- 15.7. Separation Anxiety Disorder
- 15.8. Adaptive Disorder
  - 15.8.1. With a Depressed Mood
  - 15.8.2. With Anxiety
  - 15.8.3. With Behavioral Alteration
  - 15.8.4. With Mixed Emotional or Behavioral Alteration
- 15.9. Dissociative Disorders
  - 15.9.1. Dissociative Identity Disorder
  - 15.9.2. Dissociative Amnesia
  - 15.9.3. Depersonalization/Derealization Disorder

- 15.10. Somatic Symptom Disorders
  - 15.10.1. Illness Anxiety Disorder
  - 15.10.2. Conversion Disorder
  - 15.10.3. Factitious Disorder
- 15.11. Trauma and Stress-Related Disorders
  - 15.11.1. Acute Stress Disorder
  - 15.11.2. Post-Traumatic Stress
  - 15.11.3. Disinhibited Social Relationship Disorder

### Module 16. Intervention with Psychopharmaceuticals in Depression, Eating Disorders and Sleep Disorders

- 16.1. Disruptive Mood Dysregulation Disorder
- 16.2. Major Depressive Disorder
  - 16.2.1. Single Episode
  - 16.2.2. With Psychotic Features
  - 16.2.3. Recurring
- 16.3. Persistent Depressive Disorder (Dysthymia)
  - 16.3.1. Pure Dysthymia
  - 16.3.2. With Major Depressive Episode
- 16.4. Premenstrual Dysphoric Disorder
- 16.5. Substance-Induced Depressive Disorder
- 16.6. Pica
- 16.7. Rumination Disorder
- 16.8. Food Avoidance Disorder
- 16.9. Anorexia Nervosa
  - 16.9.1. Restrictive
  - 16.9.2. By Binge Eating with Purging
- 16.10. Bulimia Nervosa
- 16.11. Binge Eating Disorder
- 16.12. Insomnia

- 16.13. Hypersomnia
- 16.14. Narcolepsy
  - 16.14.1. Without Cataplexy
  - 16.14.2. With Cataplexy
  - 16.14.3. With Cerebellar Ataxia
  - 16.14.4. With Obesity or Diabetes
- 16.15. Obstructive Sleep Apnea
- 16.16. Sleep-Related Hypoventilation
- 16.17. Non-REM Sleep Awakening Disorders
  - 16.17.1. Sleepwalking
  - 16.17.2. With Night Terrors
- 16.18. Nightmare Disorder
- 16.19. Restless Leg Syndrome

## Module 17. Dyslexia, Dyscalculia and Hyperactivity

- 17.1. History of Learning Difficulties
  - 17.1.1. Introduction
  - 17.1.2. Definition of Learning Difficulties
  - 17.1.3. Historical Development
  - 17.1.4. Current Learning Difficulties
  - 17.1.5. Neuropsychology of Learning Difficulties
  - 17.1.6. Causes of Learning Difficulties
  - 17.1.7. Classification of Learning Difficulties
  - 17.1.8. Summary
  - 17.1.9. Bibliographical References
- 17.2. Conceptualization of Dyslexia
  - 17.2.1. Introduction
  - 17.2.2. Definition
  - 17.2.3. Neuropsychological Bases
  - 17.2.4. Features
  - 17.2.5. Subtypes
  - 17.2.6. Summary
  - 17.2.7. Bibliographical References





- 17.3. Neuropsychological Assessment of Dyslexia
  - 17.3.1. Introduction
  - 17.3.2. Diagnostic Criteria for Dyslexia
  - 17.3.3. How to Assess
  - 17.3.4. Interview with the Tutor
  - 17.3.5. Reading and Writing
  - 17.3.6. Neuropsychological Assessment
  - 17.3.7. Assessment of Other Related Aspects
  - 17.3.8. Summary
  - 17.3.9. Bibliographical References
- 17.4. Neuropsychological Intervention of Dyslexia
  - 17.4.1. Introduction
  - 17.4.2. Variables Involved
  - 17.4.2. Neuropsychological Field
  - 17.4.3. Intervention Programs
  - 17.4.4. Summary
  - 17.4.5. Bibliographical References
- 17.5. Conceptualization of Dyscalculia
  - 17.5.1. Introduction
  - 17.5.2. Definition of Dyscalculia
  - 17.5.3. Features
  - 17.5.4. Neurophysiological Basis
  - 17.5.5. Summary
  - 17.5.6. Bibliographical References
- 17.6. Neuropsychological Assessment of Dyscalculia
  - 17.6.1. Introduction
  - 17.6.2. Assessment Objectives
  - 17.6.3. How to Assess
  - 17.6.4. Report
  - 17.6.5. Diagnosis
  - 17.6.6. Summary
  - 17.6.7. Bibliographical References
- 17.7. Neuropsychological Interventions of Dyscalculia
  - 17.7.1. Introduction
  - 17.7.2. Variables Involved in the Treatment
  - 17.7.3. Neuropsychological Rehabilitation
  - 17.7.4. Intervention in Dyscalculia
  - 17.7.5. Resumen
  - 17.7.6. Bibliographical References
- 17.8. Conceptualization of ADHD
  - 17.8.1. Introduction
  - 17.8.2. Definition of ADHD
  - 17.8.3. Neuropsychological Bases
  - 17.8.4. Characteristics of Children with ADHD
  - 17.8.5. Subtypes
  - 17.8.6. Summary
  - 17.8.7. Bibliographical References
- 17.9. Neuropsychological Assessment of ADHD
  - 17.9.1. Introduction
  - 17.9.2. Assessment Objectives
  - 17.9.3. How to Assess
  - 17.9.4. Report
  - 17.9.5. Diagnosis
  - 17.9.6. Summary
  - 17.9.7. Bibliographical References
- 17.10. Neuropsychological Interventions of ADHD
  - 17.10.1. Introduction
  - 17.10.2. Neuropsychological Field
  - 17.10.3. Treatment of ADHD
  - 17.10.4. Other Therapies
  - 17.10.5. Intervention Programs
  - 17.10.6. Summary
  - 17.10.7. Bibliographical References

17.11. Comorbidity in Neurodevelopmental Disorders

- 17.11.1. Introduction
- 17.11.2. Neurodevelopment Disorders
- 17.11.3. Dyslexia and Dyscalculia
- 17.11.4. Dyslexia and ADHD
- 17.11.5. Dyscalculia and ADHD
- 17.11.6. Summary
- 17.11.7. Bibliographic references

17.12. Neurotechnology

- 17.12.1. Introduction
- 17.12.2. Applied to Dyslexia
- 17.12.3. Applied to Dyscalculia
- 17.12.4. Applied to ADHD
- 17.12.5. Summary
- 17.12.6. Bibliographical References

17.13. Guidance for Parents and Teachers

- 17.13.1. Introduction
- 17.13.2. Guidance on Dyslexia
- 17.13.3. Guidance on Dyscalculia
- 17.13.4. Guidance on ADHD
- 17.13.5. Summary
- 17.13.6. Bibliographical References

**Module 18. Research Methodology I**

18.1. Research Methodology

- 18.1.1. Introduction
- 18.1.2. The Importance of Research Methodology
- 18.1.3. Scientific Knowledge
- 18.1.4. Research Approaches
- 18.1.5. Summary
- 18.1.6. Bibliographical References

18.2. Choosing the Topic to Research

- 18.2.1. Introduction
- 18.2.2. The Issue of Research
- 18.2.3. Defining the Problem
- 18.2.4. Choice of the Research Question
- 18.2.5. Research Objectives
- 18.2.6. Variables: Types
- 18.2.7. Summary
- 18.2.8. Bibliographical References

18.3. Research Proposal

- 18.3.1. Introduction
- 18.3.2. Research Hypothesis
- 18.3.3. Feasibility of the Research Project
- 18.3.4. Introduction and Justification of the Research
- 18.3.5. Summary
- 18.3.6. Bibliographical References

18.4. Theoretical Framework

- 18.4.1. Introduction
- 18.4.2. Elaboration of the Theoretical Framework
- 18.4.3. Resources Used
- 18.4.4. APA Standards
- 18.4.5. Summary
- 18.4.6. Bibliographical References

- 18.5. Bibliography
  - 18.5.1. Introduction
  - 18.5.2. Importance of Bibliographic References
  - 18.5.3. How to Reference According to APA Standards
  - 18.5.4. Format of Annexes: Tables and Figures
  - 18.5.5. Bibliography Managers: What Are They and How to Use Them
  - 18.5.6. Summary
  - 18.5.7. Bibliographical References
- 18.6. Methodological Framework
  - 18.6.1. Introduction
  - 18.6.2. Roadmap
  - 18.6.3. Sections to be Included in the Methodological Framework
  - 18.6.4. The Population
  - 18.6.5. The Sample
  - 18.6.6. Variables
  - 18.6.7. Tools
  - 18.6.8. Procedure
  - 18.6.9. Summary
  - 18.6.10. Bibliographical References
- 18.7. Research Designs
  - 18.7.1. Introduction
  - 18.7.2. Types of Designs
  - 18.7.3. Characteristics of the Designs Used in Psychology
  - 18.7.4. Research Designs Used in Education
  - 18.7.5. Research Designs Used in Education Neuropsychology
  - 18.7.6. Summary
  - 18.7.7. Bibliographical References
- 18.8. Quantitative Research
  - 18.8.1. Introduction
  - 18.8.2. Designing Randomized Groups
  - 18.8.3. Designing Randomized Groups with Blocks
  - 18.8.4. Other Designs used in Psychology
  - 18.8.5. Statistical Techniques in Quantitative Research
  - 18.8.6. Summary
  - 18.8.7. Bibliographical References
- 18.9. Quantitative Research II
  - 18.9.1. Introduction
  - 18.9.2. Unifactorial Intrasubject Designs
  - 18.9.3. Techniques for Controlling the Effects of Intrasubject Designs
  - 18.9.4. Statistical Techniques
  - 18.9.5. Summary
  - 18.9.6. Bibliographical References
- 18.10. Results
  - 18.10.1. Introduction
  - 18.10.2. How to Gather Data
  - 18.10.3. How to Analyze Data
  - 18.10.4. Statistical Programs
  - 18.10.5. Summary
  - 18.10.6. Bibliographical References
- 18.11. Descriptive Statistics
  - 18.11.1. Introduction
  - 18.11.2. Research Variables
  - 18.11.3. Quantitative Analyses
  - 18.11.4. Qualitative Analyses
  - 18.11.5. Resources that Can Be Used
  - 18.11.6. Summary
  - 18.11.7. Bibliographical References

18.12. Hypothesis Contrast

18.12.1. Introduction

18.12.2. Statistical Hypotheses

18.12.3. How to Interpret Significance (p-value)

18.12.4. Criteria for Analyzing Parametric and Non-Parametric Tests

18.12.5. Summary

18.12.6. Bibliographical References

18.13. Correlational Statistics and Independence Analysis

18.13.1. Introduction

18.13.2. Pearson Correlation

18.13.3. Spearman's Correlation and Chi-Square

18.13.4. Results

18.13.5. Summary

18.13.6. Bibliographical References

18.14. Group Comparison Statistics

18.14.1. Introduction

18.14.2. Mann-Whitney T-Test and Mann-Whitney U-Test

18.14.3. T-Test and Wilcoxon Signed Ranges

18.14.4. The Results

18.14.5. Summary

18.14.6. Bibliographical References

18.15. Discussion and Conclusions

18.15.1. Introduction

18.15.2. What is Discussion

18.15.3. Organization of the Discussion

18.15.4. Conclusions

18.15.5. Limitations and Outlook

18.15.6. Summary

18.15.7. Bibliographical References

18.16. Elaboration of the Advanced Master's Degree Final Project

18.16.1. Introduction

18.16.2. Front Page and Contents

18.16.3. Introduction and Justification

18.16.4. Theoretical Framework

18.16.5. Methodological Framework

18.16.6. The Results

18.16.7. Intervention Program

18.16.8. Discussion and Conclusions

18.16.9. Summary

18.16.10. Bibliographic references

**Module 19. Research Methodology II**

19.1. Research in the Educational Environment

19.1.1. Introduction

19.1.2. Research Characteristics

19.1.3. Research in the Classroom

19.1.4. Keys Needed for Research

19.1.5. Examples:

19.1.6. Summary

19.1.7. Bibliographical References

19.2. Neuropsychological Research

19.2.1. Introduction

19.2.2. Educational Neuropsychological Research

19.2.3. Knowledge and the Scientific Method

19.2.4. Types of Approaches

19.2.5. Research Stages

19.2.6. Summary

19.2.7. Bibliographical References

- 19.3. Ethics of Research
  - 19.3.1. Introduction
  - 19.3.2. Informed Consent
  - 19.3.3. Data Protection Law
  - 19.3.4. Summary
  - 19.3.5. Bibliographical References
- 19.4. Reliability and Validity
  - 19.4.1. Introduction
  - 19.4.2. Reliability and Validity in Research
  - 19.4.3. Reliability and Validity in Assessment
  - 19.4.4. Summary
  - 19.4.5. Bibliographical References
- 19.5. Controlling Variables in Research
  - 19.5.1. Introduction
  - 19.5.2. Choosing Variables
  - 19.5.3. Controlling Variables
  - 19.5.4. Sample Selection
  - 19.5.5. Summary
  - 19.5.6. Bibliographical References
- 19.6. The Quantitative Research Approach
  - 19.6.1. Introduction
  - 19.6.2. Features
  - 19.6.3. Stages
  - 19.6.4. Assessment Tools
  - 19.6.5. Summary
  - 19.6.6. Bibliographical References
- 19.7. Qualitative Research Approach I
  - 19.7.1. Introduction
  - 19.7.2. Systematic Observation
  - 19.7.3. Research Stages
  - 19.7.4. Sampling Techniques
  - 19.7.5. Quality Control
  - 19.7.6. Statistical Techniques
  - 19.7.7. Summary
  - 19.7.8. Bibliographical References
- 19.8. Qualitative Research Approach II
  - 19.8.1. Introduction
  - 19.8.2. The Survey
  - 19.8.3. Sampling Techniques
  - 19.8.4. Survey Stages
  - 19.8.5. Research Designs
  - 19.8.6. Statistical Techniques
  - 19.8.7. Summary
  - 19.8.8. Bibliographical References
- 19.9. Qualitative Research Approach III
  - 19.9.1. Introduction
  - 19.9.2. Types of Interviews and Characteristics
  - 19.9.3. Preparing the Interview
  - 19.9.4. Group Interviews
  - 19.9.5. Statistical Techniques
  - 19.9.6. Summary
  - 19.9.7. Bibliographical References

19.10. Single Case Designs

- 19.10.1. Introduction
- 19.10.2. Features
- 19.10.3. Types
- 19.10.4. Statistical Techniques
- 19.10.5. Summary
- 19.10.6. Bibliographical References

19.11. Research-Action

- 19.11.1. Introduction
- 19.11.2. Objectives of Research-Action
- 19.11.3. Features
- 19.11.4. Phases
- 19.11.5. Myths
- 19.11.6. Examples:
- 19.11.7. Summary
- 19.11.8. Bibliographical References

19.12. Gathering Information for Research

- 19.12.1. Introduction
- 19.12.2. Techniques for Gathering Information
- 19.12.3. Assessing Research
- 19.12.4. Assessment
- 19.12.5. Interpretation of Results
- 19.12.6. Summary
- 19.12.7. Bibliographical References

19.13. Data Management in Research

- 19.13.1. Introduction
- 19.13.2. Databases
- 19.13.3. Data in Excel
- 19.13.4. Data in SPSS
- 19.13.5. Summary
- 19.13.6. Bibliographical References

19.14. Spreading Results in Neuropsychology

- 19.14.1. Introduction
- 19.14.2. Publications
- 19.14.3. Specialized Journals
- 19.14.4. Summary
- 19.14.5. Bibliographical References

19.15. Scientific Journals

- 19.15.1. Introduction
- 19.15.2. Features
- 19.15.3. Types of Journals
- 19.15.4. Quality Indicators
- 19.15.5. Submitting Articles
- 19.15.6. Summary
- 19.15.7. Bibliographical References

19.16. The Scientific Article

- 19.16.1. Introduction
- 19.16.2. Types and Characteristics
- 19.16.3. Structure
- 19.16.4. Quality Indicator
- 19.16.5. Summary
- 19.16.6. Bibliographical References

19.17. Scientific Conferences

- 19.17.1. Introduction
- 19.17.2. The Importance of Conferences
- 19.17.3. Scientific Committees
- 19.17.4. Oral Communications
- 19.17.5. The Scientific Poster
- 19.17.6. Summary
- 19.17.7. Bibliographical References



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.





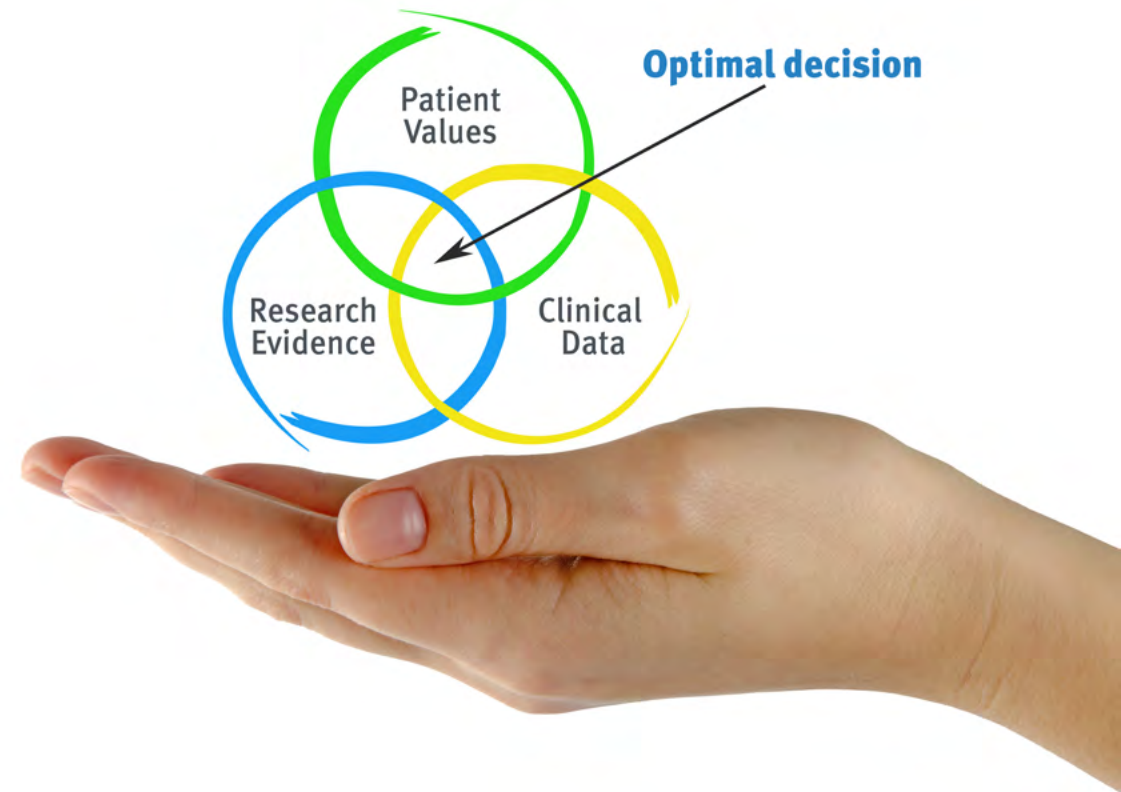
“

*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 the psychologist experiences 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 psychologist's professional practice.

“

*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Psychologists who follow this method not only master the assimilation of concepts, but also develop their mental capacity by means of exercises to evaluate real situations and apply their knowledge.
2. Learning is solidly translated into practical skills that allow the psychologist to better integrate knowledge into clinical practice.
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.

Our 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, which is a real revolution compared to the simple study and analysis of cases.

*The psychologist will learn through real cases and by solving 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).

This methodology has trained more than 150,000 psychologists with unprecedented success in all clinical specialties. 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 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 our 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, to the latest educational advances, to the forefront of current psychology. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### Interactive Summaries

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

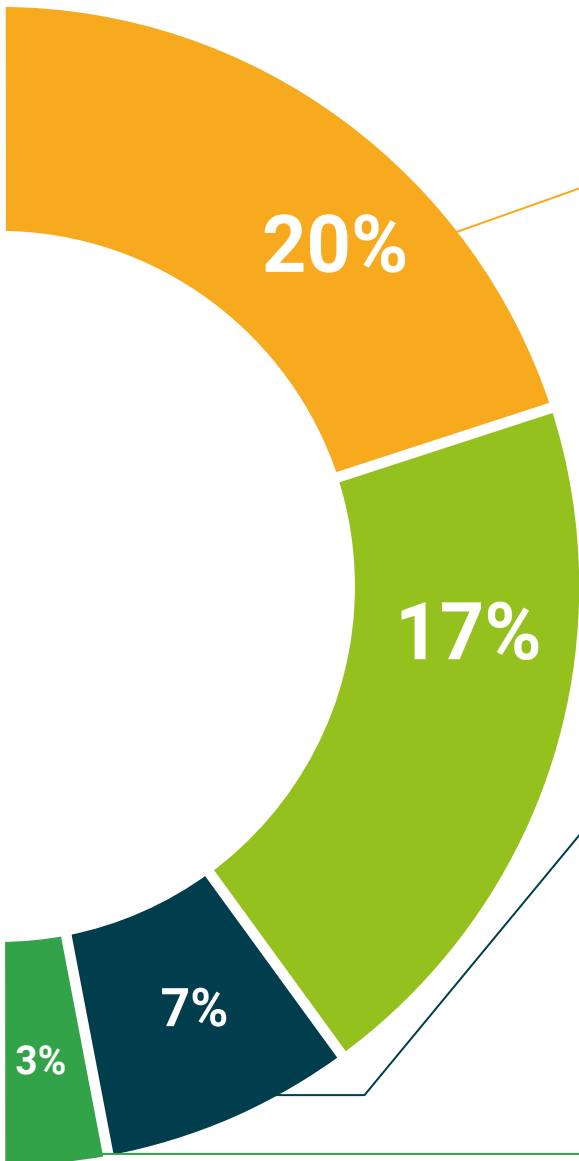
This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



07

# Certificate

The Advanced Master's Degree in Neuropsychology 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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*This Advanced Master's Degree in Neuropsychology is the largest compendium of knowledge in the sector: A degree that will be a high-quality added value for any professional in this area"*

This **Advanced Master's Degree in Neuropsychology** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Advanced 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 Postgraduate Diploma, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees.

Title: **Advanced Master's Degree in Neuropsychology**.

Official Number of Hours: **3000**



\*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.

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

**tech** technological  
university

**Advanced Master's  
Degree  
Neuropsychology**

- » Modality: **online**
- » Duration: **2 years**
- » Certificate: **TECH Technological University**
- » Dedication: **16h/week**
- » Schedule: **at your own pace**
- » Exams: **online**

# Advanced Master's Degree Neuropsychology

