Foundations of Psychobiology

Brief description of course content (According to the programme's verification report)

Foundations of neuroscience: neuroanatomy and neurophysiology for psychologists. Brain plasticity. Genetic and evolutionary principles.

Learning outcomes

1. To understand the neurophysiology, neurochemistry and neuroanatomy of human behaviour and psychological functions.

2. To acquire a conceptual and three-dimensional overview of the human brain.

3. To promote interest in scientific and biological study of human behaviour.

Planned learning activities
Theory Syllabus

Topic 1. Psychobiology and Neuroscience

1. Concept of Psychobiology
2. Basic aspects
3. General neuroanatomical organisation

Topic 2. Neurobiology and Neurophysiology

1. Morphology of the cells in the nervous system: neurones and glial cells
2. Neuron physiology

Topic 3. Neurochemistry and Neuronal Communication

1. Basic mechanisms of synaptic transmission
2. Chemical and pharmacological neurotransmission systems

Topic 4. Genetics and Evolution of the Nervous System

1. Genetic principles
2. Evolution of the nervous system
3. Brain plasticity

Topic 5. Meninges, Ventricular System and Blood Supply to the Nervous System

1. Protection systems in the central nervous system: meningeal layers
2. Ventricular system and spinal fluid
3. Blood supply to the brain: arterial and venous system

Topic 6. Spinal Cord, Brain Stem and ANS

1. General structure of the spinal cord
    1. Grey matter
    2. White matter
    3. Medullary reflexes
2. Macroscopic structure of the brain stem
    1. Mesencephalon
    2. Protrusion
    3. Medulla oblongata
    4. Reticular formation
3. Autonomic nervous system
    1. Sympathetic system
    2. Parasympathetic system
    3. Central control

Topic 7. Cerebellum and Basal Ganglia

1. Cerebellum
    1. Macroscopic structure
    2. Main nuclei and connections
2. Basal ganglia
    1. Location and structure: main nuclei
    2. Main connections and functions

Topic 8. Diencephalon

1. Thalamus
2. Subthalamus
3. Epithalamus Habenula and pineal gland
4. Hypothalamus
5. Pituitary gland

Topic 9. Limbic System and Cerebral Cortex

1. Location, functions and structures of the lymbic system
    1. Hippocampal formation
    2. Amygdala
2. Cerebral cortex
    1. Macroscopic aspects: lobules, sulci and convolutions
    2. Microscopic aspects: cortical layers
    3. Cortical functions and areas

Practical Syllabus

Seminars/Workshops: GENERAL ORGANISATION OF THE NERVOUS SYSTEM

Workshop 1: MODEL - Seminar work on the 3-dimensional (3D) structure of the nervous system: brain, spinal cord and brain stem.

Workshop 2: IT programmes and/or audiovisual material.

Workshop 3: WORK WITH LAMINATES IN 2 dimensions (2D). Transfer knowledge acquired on the brain in 3D to 2D.