

Faculty of Psychology and Education Sciences



PSP1133

Neurophysiology

[37.5h+4h exercises] 3 credits

This course is taught in the 2nd semester

Teacher(s): André Roucoux
Language: French
Level: First cycle

Aims

Study of the neurophysiological mechanisms of behaviour in its basic aspects: encoding, information processing and integration, nervous control of posture and movement, nervous control of the vegetative life. Study of the neuroanatomical bases of these functions.

- to describe the great principles of the functional organisation of the central and peripheral nervous system (transduction, structure, function, parallel processing, hierarchical processing, specialisation, control systems...)
- to approach the laws of the nerve development processes, with the help of some examples.
- to supply the basic knowledge essential for the understanding of other neuroscience courses (psychophysiology, neuropsychology, neurology...)

Main themes

1. Introduction to the principal investigation methods and techniques (recording, lesion, stimulation, imaging, mapping, anatomo-clinical correlation...)
2. Sense organs and transduction mechanisms
3. Central mechanisms of information processing: vision, audition, taste, olfaction, somesthesia, pain, proprioception, balance).
4. Motor control (tonus, posture, spinal reflex, pyramidal and extrapyramidal control, automatic and voluntary movements, locomotion, manipulation, motor coordination...).
5. Sensory-motor integration.
6. Vegetative nervous system (ortho and parasympathetic) and basic principles of neuroendocrinology.
7. For some of these themes, chosen as paradigms (ex. visual system) the aspects of development and compared neurophysiology will be approached.

Content and teaching methods

- to study the neurophysiological mechanisms of behaviour in its basic aspects: encoding, informations processing and integration, nervous control of posture and movement, nervous control of the vegetative life. Study of the neuroanatomical bases of these functions.
- to describe the great principles of the functional organisation of the central and peripheral nervous system (transduction, structure, functioning, function, parallel processing, hierarchical processing, specialisation, control systems...)
- to approach the laws of the nerve development processes, with the help of some examples.
- to supply the basic knowledge essential for the understanding of other neuroscience courses (psychophysiology, neuropsychology, neurology...)

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

The course is mostly based on the knowledge acquired in General and Genetic Biology which should have been attended previously.

Lectures + 2 neuroanatomy demonstrations

Other credits in programs

EDUS21	Première licence en sciences de la santé publique (Promotion de la santé, éducation pour la santé)	
PSP11BA	Première année de bachelier en sciences psychologiques et de l'éducation (3 credits)	Mandatory