Summary

The goal is to guide students into the essential topics of Behavioral and Cognitive Neuroscience. The challenge for the student in this course is to integrate the diverse knowledge acquired from those levels of analysis into a more or less coherent understanding of brain structure and function.

Content

Pathways into the visual brain
Perception and encoding
Attention and selective perception
Perception and consciousness
Understanding statistics
Stress and emotion
Learning and memory
Neurobiological mechanisms of memory
Emotional influences on cognitive functions
Psychiatric disorders
Structural and functional cortical neuroanatomy
Somatosensory perception and parietal cortex in human and non-human primates
Multisensory perception and parietal and premotor cortex in human and non-human primates
Perception and representation of visual space in the right hemisphere
Selected neurological disorders and human brain imaging
Bodily self-consciousness

Learning Prerequisites

Required courses
Neuroscience I and II

Learning Outcomes

By the end of the course, the student must be able to:

• Identify underlying neurobiological mechanisms that relate to essential behavioral and cognitive processes
• Describe the neurobiological mechanisms that get disrupted in certain brain and mind pathologies
• Discuss the main methods used in humans and animals to measure brain function during performance of behavioral and cognitive tasks
• Understanding the basic neurophysiology of vision
• Understanding the basic computational principles of vision
• Understanding top-down processing in vision
• Understanding the problem of consciousness

Assessment methods
Written exam

Resources
Bibliography

Ressources en bibliothèque
• Cognitive Neuroscience / Gazzaniga
• Principles of Cognitive Neuroscience / Purves