**Neuroscience III: behavior & cognition**

Blanke Olaf, Herzog Michael, Sandi Perez Maria del Carmen

<table>
<thead>
<tr>
<th>Cursus</th>
<th>Sem.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineur en Neuroprosthtiques</td>
<td>E</td>
<td>Opt.</td>
</tr>
<tr>
<td>Mineur en Neurosciences computationnelles</td>
<td>E</td>
<td>Opt.</td>
</tr>
<tr>
<td>Sciences du vivant</td>
<td>MA2, MA4</td>
<td>Opt.</td>
</tr>
<tr>
<td>Sciences et technologies du vivant</td>
<td>MA2</td>
<td>Opt.</td>
</tr>
</tbody>
</table>

**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 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
• Principles of Cognitive Neuroscience / Purves
• Cognitive Neuroscience / Gazzaniga