

Cognitive Neuroscience

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

The brain, the mind and the brain-mind relationship. Evolutionary perspective. Convergent methodology in Cognitive Neuroscience. Cognitive Neuroscience in basic psychological processes. Cognitive Neuroscience in executive processes and consciousness. Mind-brain interaction in core psychological processes: perception; attention; learning and memory; language; emotion; consciousness and executive processes. Social cognitive neuroscience: emotion and social cognition.

Learning outcomes

The student will know how and be able to:

- Understand the foundations of Cognitive Neuroscience as a multidisciplinary science in the framework of cognitive science, paying special attention to the relationships between cognitive psychology, neuroscience and artificial intelligence from a computational perspective.
- Learn to interpret data obtained through neuroimaging techniques in light of psychological theories.
- Learn to analyse the cognitive and behavioural deficiencies which patients with brain injuries or dysfunctions present, in light of current theories from Psychology or Cognitive Neuroscience.
- An important objective of this subject is for students to consolidate their knowledge about different psychological processes acquired in the different subjects in the area of basic Psychology, in the context of Cognitive Neuroscience.

Planned learning activities

Theory Syllabus

Block I. Conceptual and methodological introduction

1. Mind, brain, and mind-brain relationship (1)
2. Cognitive Neuroscience methods (3, 4, 5)

Block II: Cognitive Neuroscience in different processes

3. Perception: face and object recognition (6)
4. Attention and action (7, 8)

5. Learning and memory (9)
6. Executive processes and consciousness (14)
7. Symbolic representations: arithmetic and reading (12, 13)
8. Emotion and social cognition (15)

Practical Syllabus

Seminars will be carried out where activities will be proposed to consolidate the theoretical contents. Activities like those described below will be proposed:

1. Visits to Cognitive Neuroscience laboratories (where possible)
2. Knowledge and handling online resources related to Cognitive Neuroscience
3. Presentation and discussion of neuroimaging data analysis techniques
4. Reading and discussing the contents of scientific papers.