# Cognitive Neuropsychology Lecture

## Aim of the course

### Aim of the course:

to provide a working knowledge base about the theories and methodologies of cognitive neuroscience and neuropsychology, from the physiology of the neuron, to the system of functional circuits. During the course, we talk about the function and structure of neurons, their systemic features in connection the neurontransmitters, the main anantomical, functional and developmental features of brain parts and processes and their connection to typical and atypical behavior. A focus is given also to methodological possibilities in cognitive sciences, including animal models, case studies, standardized testing, behavioral and brain imaging studies and the combination of both.

### Learning outcome, competences

knowledge:

- therories of neurophisiology and neurotransmission
- main cognitive scientific theories
- methods in neuropsychology and cognitive neuroscience

attitude:

- to prepare students for the possibilities and challenges of studying neuropsychology and neuroscience in the long term, as a career
- to promote an open, critical thinking based, inquisitive standpoint toward neuroscience

skills:

- basic framework for professional, evidence –based thinking and argumentation about possible brain-behavior connections
- working knowledge about the common methods in neuropsychology and neuroscience

## Content of the course

### Topics of the course

- Short story and main theoretical and methodological assumptions of neuropsychology and neuroscience
- Physiology, function of the neuron cell and its role in cognition and behavior
- Neurotransmitter systems, typical and atypical functioning, artifical modulation (psychoactive drugs & pharmacotherapy)
- Development of the central nervous system
- Role of the cortex in brain circuits 1: the motor system of the human brain
- Role of the cortex in brain circuits 2: hierearchical functioning of the neuron system, lateralization
- High level functions 1: memory and language
- High level functions 2: emotion and social cognition
- High level functions 3: attention and consciousness
- Basics for neuropsychological testing
- Neuropsychodinamic psychiatry: toward an integrative neuroscientific framework of mental health and ilness?

### Learning activities, learning methods

- lectures
- group assigments about methodological and theoretical topics of the course
- literature reading and interpretation
- scientific debate exercises

## Evaluation of outcomes

**Learning requirements, mode of evaluation, criteria of evaluation:**
requirements
- active participation during course activities and lectures
- completion of oral exam during the exam period

mode of evaluation: kollokvium
- short preliminary test exam (before oral exam)
- oral exam

criteria of evaluation:
- activity during course and tasks
- performance in exam

**Reading list**

**Compulsory reading list**
- Kolb, B., Whishaw, I., Q. (2015): Fundamentals of Human Neuropsychology (7th Ed.). Worth Publishers, USA, New York.
- Strauss, E., Sherman, E. M. S., Spreen, O. (2006). A Compendium of Neuropsychological Tests: Administration, Norms, and Commentary. Oxford University Press, USA

**Recommended reading list**
- Jeffrey S. Kreutzer, John DeLuca, Bruce Caplan (2018): Encyclopedia of Clinical Neuropsychology. Springer International Publishing, USA.
- Mark H Johnson & Michelle de Haan (2015): Developmental Cognitive Neuroscience. Wiley Blackwell, USA.
- Heinz Boeker, Peter Hartwich, Georg Northoff (2018): Neuropsychodynamic Psychiatry. Springer International Publishing, USA