

SYLLABUS

Human Cognitive Neuroscience 7.5 credits P7002H

Mänsklig kognitiv neurovetenskap

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2023-02-14**

Human Cognitive Neuroscience 7.5 credits P7002H

Mänsklig kognitiv neurovetenskap

Second cycle, P7002H

| Education level | Grade scale | Subject | Subject group (SCB) |
|-----------------|-------------|-------------------|---------------------|
| Second cycle | U G VG | Teknisk psykologi | Psychology |

Entry requirements

It is recommended to have taken
B7008K Neurochemistry, 7,5 Hp or equivalent.

Selection

The selection is based on 30-285 credits

Course Aim

Knowledge and understanding

After passing the course, the student should be able to:

- Identify the functional and anatomical organization of the human nervous system.
- Locate key structures and regions within the human nervous system and functions.
- Demonstrate understanding of basic concepts related to neuronal communication.

Competence and skills

After passing the course, the student should be able to:

- Characterise core cognitive functions and their underlying brain processes.
- Assess how neuropathology and neurological syndromes impact brain functioning and can provide insights into the biological bases of behavior.

Judgement and approach

After passing the course, the students should be able to:

- Evaluate different neuroscientific techniques and methodologies used in the study of brain and cognition, alongside their main challenges and limitations.
- Summarise, present, and demonstrate critical understanding of topics related to structure-function relationships in the brain.
- Explain current research and different technological applications (e.g., neuroimaging) in the study of the brain and human cognition.

Contents

First, to understand the biological bases of behavior, students will learn fundamentals of human neuroanatomy and neurophysiology, the organization of the human nervous system, and key theories about the role of different brain structures and brain regions in cognitive processes. The course will cover a number of different cognitive domains and their neuroscientific bases. The course will also review and incorporate a number of methodologies and technological developments (e.g., brain imaging techniques), as well as neuropsychological approaches used in the study of brain and cognition, alongside their main challenges and limitations. For instance, drawing from neurological syndromes and patient literature, students will learn about the role of dissociations in neuropsychology and will also be presented with an overview of the application of selected neuroscientific techniques to address different questions in cognitive neuroscience research.

The knowledge acquired throughout this course will enable students to better understand principles, scope and applications in fields at the intersection between neuroscience and technology.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures, laboratories, self-studying, and student presentations. The laboratories will complement the theoretical aspects of the lectures by including a brain model to visualize brain structures as well as interactive activities to gain a deeper understanding of key psychological concepts. The students' oral presentations will allow students to practice presentation skills and to summarise and explain material related to function-structure relationships in the brain as well as to research and technologies applied in human cognitive neuroscience, alongside their main challenges and limitations.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Assessment is carried out through a final exam, laboratory assignments, and students' presentations. The grading of the course is according to the U, G, VG scale. A passing grade for all course elements is required in order to pass the course.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Health, Education and Technology

Modules

| Code | Description | Grade scale | Cr | Status | From period | Title |
|------|------------------------|-------------|-----|-----------|-------------|-------|
| 0001 | Digital Exam | U G VG | 3.5 | Mandatory | A23 | |
| 0002 | Laboratory assignments | U G# | 2 | Mandatory | A23 | |
| 0003 | Oral presentation | U G# | 2 | Mandatory | A23 | |

Syllabus established

by Anna Öqvist, Director of Undergraduate Studies at the Department of Health, Education and Technology 2023-02-14