Course syllabus for

Introduction to Cognitive Neuroscience, 15 credits

Introduktion till kognitiv neurovetenskap, 15 hp
This course syllabus is valid from autumn 2023.
Please note that the course syllabus is available in the following versions:
Autumn2021 , Autumn2022 , Spring2023 , Autumn2023

Course code	1QA133
Course name	Introduction to Cognitive Neuroscience
Credits	15 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Psychology
Level	First cycle, has only upper-secondary level entry requirements
Grading scale	Pass, Fail
Department	Department of Clinical Neuroscience
Decided by	Utbildningsnämnden CNS
Decision date	2020-12-16
Revised by	Education committee CNS
Last revision	2023-01-02
Course syllabus valid from	Autumn 2023

Specific entry requirements

Mathematics 2a or 2b or 2c, Social Sciences 1b or 1a1+1a2.

Objectives

The main objective of this course is for the student to acquire basic knowledge in the subject of cognitive neuroscience and learn about the scientific approach.

After completion of this course, the student should be able to

- explain central theories and concepts within the cognitive neuroscience subject area
- explain the brain's structural and functional organization,
- explain the consequences of brain damage
- present and apply basic knowledge of scientific methods and scientific writing as applied in neuroscience.

Content

The course provides an introduction to how the brain processes information from the outside world, by conveying the basics of the structure of the nervous system, neuroanatomy, methods of brain imaging, and cognitive functions (for example, perception and attention, memory, language, consciousness, executive functions). How complex cognitive functions arise in interaction between the many different parts of the brain will also be covered. Theories and research will be presented in relation to everyday phenomena, which enables the student to put the acquired knowledge into a practical context.

Neuroanatomy, sensory and motor systems, 5.0 hp

Grading scale: GU

The module provides an introduction to human brain anatomy and various methods used to measure brain structure and brain activity. Then the focus will shift to the brain's handling of incoming and outgoing information: this includes the senses' encoding of information about the world around us and events in our own body, as well as the brain's control of directed movement. Neuroscientific research on how perceptual information is interpreted and used is analyzed and discussed.

Higher cognitive functions, 5.0 hp

Grading scale: GU

The moment focuses on how higher cognitive functions contribute to behavioral flexibility. Theories around language, learning and various memory processes are included, as well as executive control functions, consciousness, and control of complex tasks through working memory functions. Theories surrounding the neurological basis of attention are addressed. This part ends with an introduction of neuroscientific models of emotional regulation and the reward system.

Focus work, 5.0 hp

Grading scale: GU

In this module, students work on a project in small groups, where they delve deeper into a research field or research problem. It should be about a clearly defined question; either something that we have discussed superficially in the lectures, something in the course literature that we have not covered in the course, or some other topic in cognitive neuroscience. Students will provide an overview of the topic chosen by the group, and then present in more detail a specific experiment/a specific research paper in cognitive neuroscience. This work must then be compiled in the form of a poster and presented to teachers and fellow students.

Teaching methods

Teaching takes place via a learning platform with teacher-led lectures and seminars followed by joint discussions and question and answer sessions. Mandatory meetings occur continuously throughout the course. At the seminars, the students are divided into smaller groups. The course requires independent reading of specified course literature according to the reading instructions in the schedule and active participation in the teaching. The course also includes certain mandatory written assignments and discussion seminars with the aim of helping students achieve the course's goals.

Examination

Part 1, Neuroanatomy, sensory and motor systems, is examined as follows:
a) written exam at the end of part 1, the grade U or G is given
b) active participation in the seminar (obligatory attendance), the grade U or G is given

Part 2, Higher cognitive functions, is examined as follows:
a) written exam at the end of part 2, the grade U or G is given
b) active participation in the seminar (compulsory attendance), the grade U or G is given

Part 3, Focus work, is examined in the following way:
a) written submission of the plan at the end of part 3, the grade U or G is given
b) active participation in the board's presentation (compulsory attendance), the grade U or G is given

Grade on whole course
The course is graded U or G
For the grade G on the entire course, G is required on all three parts of the course.

Absence from compulsory education elements
The examiner assesses whether and, if so, how absences from compulsory educational elements can be made up. Before the student has participated in the mandatory educational elements or made up for absences in accordance with the examiner's instructions, the study results cannot be final reported. Absence from a mandatory educational component may mean that the student cannot make up the opportunity until the next time the course is given.

Limitation of the number of examination occasions
A student who is not approved after the regular examination session has the right to participate in five further examination sessions. If the student has completed six failed exams/exams, no further examination opportunity is given. The number of times the student has participated in one and the same exam is counted as an examination occasion. Submission of blank writing counts as an examination occasion. An examination session for which the student registered but did not participate is not counted as an examination session.

Possibility of exceptions from the syllabus regulations on examination
If there are special reasons, or a need for adaptation for a student with a disability, the examiner may make a decision to depart from the syllabus regulations regarding examination format, number of examination opportunities, possibility of supplementation or exemption from mandatory educational elements, etc. Content and learning objectives and the level of expected skills, knowledge and abilities may not be changed, removed or lowered.

Transitional provisions

Examinations will be provided for one year after a possible closure of the course or in the event of a new syllabus.

Other directives

Course evaluation will be carried out according to the guidelines established for education at Karolinska Institutet.

Literature and other teaching aids

Nyberg, Lars

Kognitiv neurovetenskap : nya teorier och tillämpningar

Tredje upplagan : Lund : Studentlitteratur, [2020] - 207 sidor
ISBN:9789144138138 LIBRIS-ID:n0h3c9stlxpkt9b9
Library search

Purves, Dale.

Principles of cognitive neuroscience

2nd ed. : Sunderland, Mass. : Sinauer Associates, c2013.
ISBN:978-0-87893-573-4 LIBRIS-ID:13905270
Library search