



Faculty of Social Sciences

## PSYD53, Psychology: Cognitive Neuroscience, 30 credits

*Psykologi: Kognitiv neurovetenskap, 30 högskolepoäng*

First Cycle / Grundnivå

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### Details of approval

The syllabus is an old version, approved by Committee for Single Subject Courses at the Department of Psychology on 2020-04-08 and was last revised on 2020-04-08. . The revised syllabus applied from 2021-01-18. , spring semester 2021.

### General Information

The course is given as a freestanding course at the first cycle level and may be included in a Bachelor Degree in Psychology.

*Language of instruction:* Swedish and English

*Main field of studies*

Psychology

*Depth of study relative to the degree requirements*

G1N, First cycle, has only upper-secondary level entry requirements

### Learning outcomes

After finishing the course, the students should

#### Knowledge and understanding

" Show knowledge about the structure and function of the brain " Show knowledge about the structure of the nerve cells and about the principles of neuronal communication and change " Demonstrate an understanding of the development of the central nervous system and factors that can influence the development and change of the brain " Show knowledge about the principles behind the methods in cognitive and neuropsychology such as response times and accuracy, lesion and patient data, and different brain imaging methods " Demonstrate an understanding about neurocognitive conditions related to basic brain functions such as sensory processing, perception, motor function and motivation " Demonstrate an understanding about neurocognitive conditions related to higher cognitive functions, such as attention, memory, language, thinking, problem-solving, cognitive control,

decision-making and consciousness " Demonstrate an understanding of neurocognitive conditions related to emotions and social interaction " Show knowledge about different types of brain damage and psychoorganic syndrome

### **Competence and skills**

" Demonstrate the ability to apply theories of cognitive neuropsychology to understand everyday phenomena " Demonstrate the ability to identify, formulate and solve problems in cognitive neuroscience " Demonstrate the ability to conduct small empirical studies about cognitive functions, and to report the results of such studies in accordance with the international standards for the publication of empirical research in psychology " Demonstrate the ability to make critical assessments of information that concerns cognitive neuroscience " Demonstrate the ability to search and evaluate scientific information in cognitive neuroscience " Demonstrate the ability to communicate knowledge in cognitive neuroscience to different target groups

### **Judgement and approach**

" Demonstrate ability to search and evaluate scientific information in cognitive neuroscience " Demonstrate ability to reflect through a critical approach about modern theories and research findings in cognitive neuroscience

### **Course content**

Through theoretical studies and practical exercises, the course aims to convey knowledge about the structure and function of the brain and key areas of modern cognitive neuroscience, such as attention, memory, language, and cognitive control, as well as emotions and social interaction. The understanding of normal function is the primary focus of the course, but clinical examples will also be used, as they provide substantial illustrations of normal functioning. Furthermore, the course aims to provide knowledge about relevant research methods within the area, and major emphasis will be placed on the interdisciplinary nature of the subject.

The course consists of three modules.

#### **Module 1.** Introduction to brain function (10 credits)

The module provides students with basic knowledge of neuroanatomy, brain development and change, cellular function and communication, and basic brain functions, such as sensory processing, perception, motor function and motivation. Furthermore, important methods to study cognitive functions and mental processes (e.g. response times, accuracy) and to study the activity of the brain and functional anatomy (e.g. lesion and patient data, brain imaging methods) are described.

#### **Module 2.** Higher cognitive functions (15 credits) (2 parallel components)

##### *Component 1 - Theory (10 credits)*

The module focuses on higher cognitive functions, such as, attention and cognitive control, memory, language, social interaction, problem-solving and thinking and decision-making. Furthermore, the module communicates knowledge about the neurocognitive basis of emotion and how cognitive function is influenced by emotion. The module also introduces different types of brain damages and psychoorganic syndrome.

##### *Component 2 - Cognitive laboratory session (5 credits)*

After the lectures, that introduce each higher cognitive function, the student will participate in laboratory demonstrations. During the laboratory demonstrations the students get the opportunity to train important skills for conduction of empirical

studies in cognitive neuroscience, including reporting of the results in accordance with the international norms for publication in the psychology.

**Module 3.** Project Work (5 credits)

The module includes a literature review but can also consist of a short empirical oriented project.

## Course design

The teaching consists of lectures, demonstrations, laboratory sessions and seminars. Attendance to the seminars and laboratory sessions are compulsory. Unless there are valid reasons to the contrary, compulsory participation is required. Students who have been unable to participate due to circumstances such as accidents or sudden illness will be offered the opportunity to compensate for or re-take the compulsory components. This also applies to students who have been absent because of duties related to elected office, e.g. as a student representative.

## Assessment

Module 1 and module 2 (component 1) are examined through written examinations and presentations (compulsory attendance in seminars). The examination of module 2 (component 2) includes a compulsory laboratory report. The assessment of module 3 is based on the project work and subsequent presentation at a special seminar. Three opportunities for examination are offered in conjunction with the course: a first examination and two re-examinations. At least two further re-examinations on the same course content are offered within a year of the end of the course. After this, further re-examination opportunities are offered but in accordance with the current course syllabus.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## Grades

Marking scale: Fail, E, D, C, B, A.

The grades of module 1, 2 and 3 are A, B, C, D, E or Fail. The highest grade is A and the lowest passing grade is E. The grade for a non-passing result is Fail. The student's performance is assessed with reference to the learning outcomes of the course. For the grade of E the student must show acceptable results. For the grade of D the student must show satisfactory results. For the grade of C the student must show good results. For the grade of B the student must show very good results. For the grade of A the student must show excellent results. For the grade of Fail the student must have shown unacceptable results.

The grades for component 2 (cognitive laboratory session) in module 2 and for the seminar part on each module, are Pass or Fail. For the grade of Pass the student must show acceptable results. For the grade of Fail the student must have shown unacceptable results.

Final grade for the whole course constitutes a weighed average of the grades on module 1-3, the grade of each module is transformed in a 5-point scale (where A = 5, B = 4, C = 3, D = 2, and E = 1), is weighted with the credits from each module, and the average is calculated. The average is rounded to the nearest whole (0.5 and above are rounded up) and is once again translated into letter grades. For a grade of Pass (at least E) on the whole course, the student must have been awarded a Pass (E or Pass) on all included modules.

## **Entry requirements**

General and courses corresponding to the following Swedish Upper Secondary School Programs: Social Studies 1b/1a1 + 1a2

## Subcourses in PSYD53, Psychology: Cognitive Neuroscience

Applies from V21

- 2101 Introduction to brain function, 10,0 hp  
Grading scale: Fail, E, D, C, B, A
- 2102 Seminar - introduction to brain function, 0,0 hp  
Grading scale: Fail, Pass
- 2103 Higher cognitive functions (moment 1), 10,0 hp  
Grading scale: Fail, E, D, C, B, A
- 2104 Higher cognitive functions (moment 2), 5,0 hp  
Grading scale: Fail, Pass
- 2105 Seminar - higher cognitive functions, 0,0 hp  
Grading scale: Fail, Pass
- 2106 Project work, 5,0 hp  
Grading scale: Fail, E, D, C, B, A