



**LUND**  
UNIVERSITY

Faculty of Social Sciences

## **PSYD53, Psychology: Cognitive Neuroscience, 30 credits** *Psykologi: Kognitiv neurovetenskap, 30 högskolepoäng* First Cycle / Grundnivå

---

### **Details of approval**

The syllabus was approved by Committee for Single Subject Courses at the Department of Psychology on 2020-04-08 and was last revised on 2021-10-20. The revised syllabus applies from 2022-01-17, spring semester 2022.

### **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:* English and Swedish

*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
- Describe the structure of the nerve cells and reflect about the principles of neuronal communication and change
- Describe the development of the central nervous system and reflect about factors that can influence the development and change of the brain
- Reflect about the principles behind the methods used in cognitive neuroscience such as response times and accuracy, lesion and patient data, and different brain imaging methods
- Reflect about basic brain functions such as sensory processing, perception, motor function and motivation
- Evaluate the current cognitive neuroscience theories related to higher cognitive

This is a translation of the course syllabus approved in Swedish

functions, such as attention, memory, language, thinking, problem-solving, cognitive control, decision-making and consciousness

- Evaluate the influences of emotion on higher cognitive functions, such attention, memory, and decision-making
- Show knowledge about different types of brain damage and psychoorganic syndrome

## Competence and skills

- Apply theories of cognitive neuroscience to explain everyday phenomena
- Conduct small empirical studies about cognitive functions, and report the results of such studies in accordance with the international standards for the publication of empirical research in psychology
- Search and evaluate scientific information in cognitive neuroscience
- Communicate knowledge in cognitive neuroscience to different target groups

## Judgement and approach

- Evaluate scientific information in cognitive neuroscience and reflect through a critical approach about modern theories and research findings in the field.

## 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 and 2 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 module 3, for component 2 (cognitive laboratory session) in module 2, and for the seminars 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 1-2, 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 V22

- 2201 Introduction to brain function, 10,0 hp  
Grading scale: Fail, E, D, C, B, A
- 2202 Seminar - introduction to brain function, 0,0 hp  
Grading scale: Fail, Pass
- 2203 Higher cognitive functions (moment 1), 10,0 hp  
Grading scale: Fail, E, D, C, B, A
- 2204 Higher cognitive functions (moment 2), 5,0 hp  
Grading scale: Fail, Pass
- 2205 Seminar - higher cognitive functions, 0,0 hp  
Grading scale: Fail, Pass
- 2206 Project work, 5,0 hp  
Grading scale: Fail, Pass

### 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