



**Karolinska  
Institutet**

Course syllabus for

## **Cognitive Processes, 15 credits**

Kognitiva processer, 15 hp

This course syllabus is valid from spring 2015.

Please note that the course syllabus is available in the following versions:

[Spring2013](#) , [Spring2014](#) , [Spring2015](#) , [Spring2016](#) , [Spring2017](#) , [Spring2020](#) , [Spring2022](#) , [Spring2023](#) , [Spring2024](#)

Course code	2PS029
Course name	Cognitive Processes
Credits	15 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Psychology
Level	G2 - First cycle 2
Grading scale	Pass with distinction, Pass, Fail
Department	Department of Clinical Neuroscience
Decided by	Programnämnd 8
Decision date	2012-11-06
Revised by	Programme Committee 8
Last revision	2014-11-26
Course syllabus valid from	Spring 2015

## **Specific entry requirements**

To be eligible to advance to this course, students must have no more than 15 credits remaining from the previous term, and no credits remaining from any terms preceding this.

## **Objectives**

### ***Part 1***

#### *Learning goals*

On completion of the course, the student should be able to:

- define the concepts of cognition and cognitive neuroscience and briefly describe the historical development of the subject and its current status as a scientific subject
- account for central concepts, theories and methods within cognitive psychology (eg. memory, languages, visuospatial ability, intelligence, executive functions, problem solving and decision making)
- account for the neurobiological basis for the above functions

- discuss individual differences in relation to cognitive processes

### *Skills and attitudes*

On completion of the course, the student should be able to:

- reflect ethically on how to handle test situations and test results with a starting point in his/her initial experience of administering cognitive tests

## **Part 2**

### *Learning goals*

On completion of the course, the student should be able to:

- independently analyse behavioral data with an emphasis on comparisons between groups by means of analyses of variance methodology

### *Skills and attitudes*

On completion of the course, the student should be able to:

- review own and others results critically and understand the meaning of statistical significance
- be able to design and carry out a scientific experiment and report this in written text
- be able to carry out and interpret calculations (e.g. correlation, ANOVA) in the statistical program SPSS

## **Content**

The course consists of two (2) parts:

**Cognitive Processes, 10.5 hp** Part 1 deals with human cognition and addresses areas within cognitive psychology as working memory, episodic memory, semantic memory, implicit memory functions, cognitive plasticity, language functions, intelligence, executive functions, problem-solving and decision making. Also included are sleep, emotion and gender and how these factors interact with cognitive performance. In most cases, aspects of cognition are presented from a theoretical perspective, in which cognitive theories are presented, as well as from a biological perspective, in which the biological basis for the cognitive functions are presented. By means of practical exercises and discussions during seminars, further knowledge and understanding of cognitive functions are given. **Statistical Methods, 4.5 hp** Part 2 provides a repetition of earlier statistical methods and introduces statistical correlations, analysis of variance, non-parametric tests, power calculation and statistical pitfalls. Practical knowledge is given in computer labs, but also during the laboratory work. In the laboratory work, aspects of cognition is examined in an experiment, where problem formulation, data collection, data analysis and interpretation of the data are performed in groups, and the documented and presented in a written scientific report. Finally, the laboratory reports are discussed at a critical review occasion.

## **Teaching methods**

### *Part 1*

The course starts with an introduction to cognitive psychology. Teacher-supervised and webbased lectures are interleaved with seminars, practical exercises and quizzes, most of them are compulsory and require attendance. At the seminars, required attendance is at least 80%. Absence at more than 20% of the seminars is substituted by written complementary assignments.

### *Part 2*

Teaching of statistical methods starts after the course introduction and consist of webbased and teacher-supervised lectures and computer exercises. The computer exercises are compulsory and require attendance. On these occasions, quizzes on the textbook content will be given. As a practical exercise,

the students will collect data in experiments, and later analyse and report the results in a written report. These laboratory sessions are compulsory and require attendance.

The course director assesses whether absence from a compulsory education element can be replaced. If this is possible, the course director decides how the learning objectives should be achieved. Until the student has participated in the compulsory parts (or compensated any absence with assigned tasks in accordance with instructions from the course director) the final study results can not be reported. Absence from a mandatory education element could mean that the student can not do the part until the next time the course is offered.

## **Examination**

### *Part 1*

Part 1 of the course Cognitive Processes is examined in a written exam at the end of the course. The contents of the reading list, but also the contents of lectures and practical exercises are examined in the written examination.

The written exam is given one of the grades Pass with distinction (VG), Pass (G) or Fail (U). In order to get Pass with distinction on the part Cognitive Processes Pass with distinction on the examination is required, but also that the compulsory seminars are completed. For Pass on the part Cognitive Processes, Pass on examination is required, but also that the compulsory seminars are completed.

### *Part 2*

The part Statistical Methods is examined in a written examination. The contents of the reading list, but also the contents of lectures and practical exercises are examined in the written examination. The students will also write a laboratory report, in which they present the results of the experimental study they have conducted.

The written examination is given one of the grades Pass with distinction, Pass or Fail. On the laboratory report, only one of the grades Pass/Fail is given. In order to get Pass with distinction on the part Statistical Methods, Pass with distinction on the examination and Pass on laboratory report is required, but also that the compulsory lectures are completed. In order to get Pass on the part Statistical Methods, Pass on the examination and Pass on laboratory report is required, but also that the compulsory lectures are completed.

For Pass with distinction on the course, Pass with distinction on the written examination of Cognitive Processes (part 1) and at least Pass on written examination of Statistical Methods (part 2) is required. In addition, Pass on computer exercises, the laboratory report and that the compulsory lectures are completed is also required.

Limitation in the number of examinations: For information about limitation in the number of examinations, see Guidelines at examination compiled by Karolinska Institutet.

## **Transitional provisions**

The transition rules follow KI's local guidelines for examination.

## **Other directives**

Course evaluation from the expected learning outcomes of the course syllabus takes place according to KI's local guidelines. Results and possible measures are returned to the students on course web.

Teaching in English may occur.

# Literature and other teaching aids

## Mandatory literature

The latest editions of the literature should be used.

*Borg, Elisabet; Westerlund, Joakim*

### **Statistik för beteendevetare. : Faktabok**

3., [uppdaterade och omarb.] uppl. : Malmö : Liber, 2012 - 552 s.  
ISBN:978-91-47-09737-1 (korr.) LIBRIS-ID:13434322

[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](#)

*Kolb, B.; Whishaw, I. Q.*

### **Fundamentals of human neuropsychology**

6th edition : New York : Worth Publishers, 2008

*Myers, David G.*

### **Psychology**

8. ed. : New York : Worth Publishers, 2006, cop. 2007 - 778, [135] s.  
ISBN:0-7167-7929-3 LIBRIS-ID:10338483

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*Reisberg, Daniel.*

### **Cognition : exploring the science of the mind**

5th ed. : New York : W.W. Norton & Co., c2013.  
ISBN:9780393921762 (hardcover) LIBRIS-ID:17208539

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## Suggested literature

*Gazzaniga, M. S.*

### **The cognitive neurosciences**

4th edition : Cambridge, MA : MIT Press, 2009

*Brace, Nicola; Kemp, Richard; Snelgar, Rosemary.*

### **SPSS for psychologists**

5. ed. : Basingstoke : Palgrave Macmillan, 2012. - xi, 470 p.  
ISBN:0230362729 LIBRIS-ID:12750273

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*Howitt, Dennis; Cramer, Duncan*

### **Introduction to statistics in psychology**

5th ed. : Harlow, England : Pearson, 2011. - xlvii, 624 p.  
ISBN:978-0-273-73430-7 (pbk.) LIBRIS-ID:12035052

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