



**Karolinska  
Institutet**

Course syllabus for

## **Differential Psychology, 15 credits**

Differentiell psykologi, 15 hp

This course syllabus is valid from autumn 2023.

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

[Autumn2008](#) , [Autumn2009](#) , [Autumn2010](#) , [Autumn2011](#) , [Autumn2012](#) , [Autumn2013](#) , [Autumn2014](#) , [Autumn2015](#) , [Autumn2016](#) , [Autumn2019](#) , [Autumn2021](#) , [Autumn2022](#) , Autumn2023

Course code	2PS005
Course name	Differential Psychology
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	Programnämnden för Psykologprogrammet
Decision date	2008-05-15
Revised by	Education committee CNS
Last revision	2023-03-20
Course syllabus valid from	Autumn 2023

## **Specific entry requirements**

Passed results of the first and second semester (30 credits and at least 15 credits, respectively) of the Study Programme in Psychology.

## **Objectives**

### *Module 1, Psychometrics och statistics*

On completion of this module, the student should be able to

- describe and account for basic concepts within both classical and modern psychometric theory
- make own basic psychometric analyses and be able to carry out correlation based statistical calculations
- reflect around own experiences around design and evaluation of psychological tests.

### *Module 2, Individual differences*

On completion of this module, the student should be able to

- define and account for central theoretical models in differential psychology, and discuss these with a critical and reflecting attitude
- describe and account for statistical methods in differential psychology
- discuss cultural influences and gender perspectives in relation to individual differences
- understand and discuss the practical usability (and difficulties) of psychological tests of individual differences when used in psychological testing and assessment.

### *Module 3, Behavioural genetics*

On completion of this module, the student should be able to

- describe and account for basic concepts within behavioural genetics theory and method
- account for and reflect critically around the methods and results from molecular genetics
- account for and reflect critically around the relative importance of genes and environment
- account for theories of brain evolution and findings in relation to how individual differences in genetic variation can affect the brain and behaviours
- give examples of research designs and methodology that is used to study the effects of, and related research results on, genetic and environmental factors on human personality, intelligence and vulnerability for psychopathology
- critically reflect upon ethical aspects of behavioral genetics research in psychology/ psychiatry, and demonstrate fundamental understanding of its clinical applications.

## **Content**

The contents of the course include design of psychological instruments and basic psychometric concepts within psychometrics, an overview of statistical methods used within differential psychology and questions about the importance of the heredity and environment for individual differences.

The course is divided in three modules, as follows:

### **Psychometrics and Statistical methods, 6.0 hp**

Grading scale: VU

The first module gives an introduction to psychometrics. The student learns how psychological phenomena are quantified, how tests are designed and how standardization is used to interpret the quantification. The student learns methods from both classical and modern test theory to assess reliability and validity. In addition to basic test theoretical applications, specific methods to evaluate reliability of diagnostic instruments (interrater reliability sensitivity and specificity) are introduced.

The statistical methods are based on correlational statistics (i.e. how one analyses associations between different properties of tests) and include item analysis and factor analysis. Furthermore, skills in designing psychological tests are communicated and discussions are held around how one can evaluate its reliability and validity critically. With the aim to illustrate the practical usability of psychometric knowledge, the student applies a differential psychological perspective: to evaluate and revise a test and by studying established tests and discuss its reliability interpretation, psychometrics etc.

### **Individual differences, 4.5 hp**

Grading scale: GU

During the second module the student learns about different concepts of intra and individual differences in psychological attributes and statistical methods used to analyze these (regression analysis). Concepts of intellectual skills and abilities and different traditions to define and measure personality traits are discussed. Current perspectives on individual differences from socialcognitive psychology are illustrated. Furthermore, psychoanalytic theory, the five-factor model of personality, cultural influences and gender perspectives on individual differences in intelligence and personality, is addressed.

## Behavioural genetics, 4.5 hp

Grading scale: GU

The third module gives the student knowledge about the importance of genes and environment for differences between people. The student learns about basic genetic mechanisms, methods to study effects of genes on behaviour, and the relative importance of heredity and environment for differences between people regarding different aspects of intelligence, personality and health behaviours. Further, the student gets an insight into how genetic variation can affect the brain and behaviours, and into molecular genetic methods and findings.

## Teaching methods

The teaching consists of teacher-supervised lectures and seminars where the students are encouraged to active participation by discussing and reflecting around the themes of the lectures. Further, the teaching consists of laboratory sessions that intend to let the students exercise on statistical analyses and use statistical calculation exercises and analyses to evaluate these and established tests. These exercises constitute the basis for the examination seminars and aims to illustrate the practical importance of knowledge of differential psychology and statistics in the psychologist's everyday work.

Some course elements are compulsory, see heading "Examination".

## Examination

The course is examined both individually and in groups through oral and written examination assignments.

*Module 1, Psychometrics och statistics* is examined through

- 1) written assignment (laboratory report) with corresponding seminar, is graded U (Fail) or G (Pass)
- 2) written assignment (instrument review) with corresponding seminar, is graded U or G
- 3) individual calculation assignment, is graded U, G or VG (Pass with distinction)

The module is graded U, G or VG.

The grade G on the module requires G on all examination assignments 1, 2 and 3.

The grade VG requires G on assignment 1 and VG on examination assignment 2 and 3.

*Module 2, Individual differences* is examined through

- 1) written assignment (regression analysis) with corresponding seminar, is graded U or G
- 2) oral presentation, minor essay and seminar on a scientific article, is graded U or G

The module is graded U or G.

The grade G requires G on all examination assignments 1 and 2.

*Module 3, Behavioural genetics* is examined through

- 1) written examination, is graded U or G
- 2) participation in compulsory seminars on scientific articles, according to schedule

The module is graded U or G.

The grade G requires G on written examination, as well as fulfillment of compulsory course elements.

*Course grade*

The entire course is graded U, G or VG. The grade G requires G on all three modules. The grade VG on the entire course requires, in addition, VG on module 1.

*Limitation of the number of examinations*

Students who do not pass the regular examination are entitled to retake the examination on five more occasions. If the student has failed a total of six examinations/tests, no additional examination will be given. Each occasion the student participates in the same test counts as an examination. Submission of blank exam is counted as an examination. An electronic examination that has been opened via the learning management system counts as an examination, even if the examination is not submitted. An

examination to which the student registered but did not attend, will not be counted as an examination. In order for an examination assignment to be relevant for assessment, it must have been submitted by the appointed time, otherwise the student is referred to the re-examination opportunity.

*Possibility of exception from the course syllabus' regulations on examination*

If there are special grounds, or a need for adaptation for a student with a functional disability, the examiner may decide to deviate from the syllabus's regulations on the examination form, the number of examination opportunities, the possibility of supplementation or exemptions from the compulsory section/s of the course etc. Content and learning outcomes as well as the level of expected knowledge, skills and attitudes may not be changed, removed or reduced.

## Transitional provisions

If the course is cancelled or goes through substantial changes, information about interim regulations will be stated here.

## Other directives

Course evaluation takes place according to KI's local guidelines. Results and possible measures are returned to the students on course web.

## Literature and other teaching aids

### Mandatory literature

#### Behavioral genetics

*Knopik, Valerie S.; Neiderhiser, Jenae M.; DeFries, J. C.; Plomin, Robert*

Seventh edition. : New York : Worth Publishers, Macmillan Learning, [2017] - xix, 508 pages

ISBN:9781464176050 LIBRIS-ID:t39nvzwr41rkj2l

[Library search](#)

*Diener, E. (Ed)*

#### The NOBA collection

The Diener Education Fund,

URL: [The NOBA Collection](#)

*Furr, R. Michael*

#### Psychometrics : an introduction

Fourth edition. : Thousand Oaks, California : SAGE, [2022] - 1 volume

ISBN:9781071824078 LIBRIS-ID:5lgcdj2b32tmwgp1

[Library search](#)

Articles according to teacher's instructions (about 250 pages)