



FSK3372 Visual Psychophysics

7.5 credits

Visuell psykofysik

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for FSK3372 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The overall goal of this course is to give the student a fundamental understanding of psychophysics and how it can be applied to measurements of visual function.

After completing this course, the student should be able to:

- Discuss the advantages with different types of psychophysical methods
- Independently plan and design a psychophysical measurement of a visual function
- Evaluate psychophysical measurements described in scientific publications
- Design and perform visual psychophysical tests with Matlab® and WinVis/Psychophysical toolbox or similar program.

Course contents

Fundamental principals of psychophysical measurements, the psychometric function, psychophysical methods, choice and control of the stimulus, detection and resolution. Measurement of absolute threshold, intensity discrimination, and adaptation to different light levels. Measurement of visual acuity and contrast sensitivity. Temporal factors in vision. Wavelength dependent effects on vision, color vision, chromaticity diagram. Vision development and age related changes. Design and perform visual psychophysical tests with Matlab® and WinVis/Psychophysical toolbox or similar program.

Disposition

The students read the course literature and prepare the presentation and programming tasks individually. All students and the examiner then meet for the oral presentations.

Specific prerequisites

Admitted as phd-studente. Recommended previous knowledge: Optics of the human eye, basics of MatLab programming.

Course literature

T. T. Norton, D. A. Corliss and J. E. Bailey, *The Psychophysical Measurement of Visual Function*, Butterworth-Heinemann, 2002.

In addition, relevant course literature can be added by the participants, e.g., Ehrenstein chapt 43 "Psychophysical Methods" and help manuals/publications on WinVis/Psychophysical toolbox.

Examination

- INL1 - Assignment, 7.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

Oral presentation of the course literature as well as solving the programming tasks.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.