KURSPLAN FÖR KURS PÅ FORSKARNIVÅ

Kurskod
2791

Kursens svenska benämning
Introduktion till funktionell hjärnavbildning

Kursens engelska benämning
Introduction to functional brain imaging

Språk
en

Antal högskolepoäng
3.0

Kursansvarig institution
Institutionen för klinisk neurovetenskap

Nivå
Forskarnivå

Särskild behörighet

Betygsskala
Godkänd/Underkänd

Kursens lärandemål
The overall objective of the course is to offer an introduction to the most important methods for functional brain imaging and their application.
Course aims in the knowledge and understanding domain have been classified according to the SOLO taxonomy (S1-S4) and aims in the skills domain have been classified according to Miller¿s pyramid.
Knowledge and understanding:
- The student shall be able to describe principles for brain imaging using structural and functional magnetic resonance imaging (MRI), electroencephalography (EEG), magnetoencephalography (MEG), and positron emission tomography (PET) (S2).
- The student shall be able to describe principles for transcranial magnetic stimulation (S2)
Skills:
- The student shall be able to design experiments using the above-mentioned methods to probe different aspects of brain function (M3).
Attitudes:
- The student shall be able to critically appraise scientific literature where the above-mentioned techniques have been used (M3).

Kursens innehåll
The course aims to give an introduction to methods for functional brain imaging. The following methods will be covered:
- Structural methods in magnetic resonance imaging, including morphometry and diffusion tensor imaging
- Functional magnetic resonance imaging including data preprocessing, parametric mapping, and connectivity analyses.
- Electroencephalography and magnetoencephalography
- Positron emission tomography
- Transcranial magnetic stimulation

Arbetsformer
The main learning activities will be lectures and demonstration of the different methods in laboratories/computer rooms.
The student shall write a plan for an experiment using one of the methods covered, and present their plan to the other course participants.

Obligatoriska moment

Examination

Examination is based on appraisal of the students' experiment plan. All intended learning outcomes will be assessed.

Kurslitteratur och övriga läromedel

Mandatory literature: Lecturers' notes and occasional scientific papers, which will be made available.
Reference literature: Functional Magnetic Resonance Imaging, second edition, Huettel, Song, and McCarthy.

Noteringar

- ☐ (*) Kursen uppfyller kraven inom ramen för Allmänvetenskap.
- ☐ (#) Lämplig för doktorander som saknar grundläggande medicinsk utbildning.
- ☐ Kursen är en försöksdjurskurs

Kursplan fastställd av Kurskommittén på delegation av Styrelsen för forskarutbildning på KI.

Datum för fastställande	Datum för revidering

Kursansvarig

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Kontaktpersoner