neu305 - Essentials of fMRI Data Analysis with SPM and FSL

Module label: Essentials of fMRI Data Analysis with SPM and FSL
Module code: neu305
Credit points: 6.0 KP
Workload: 180 h

(1 SWS Seminar (SE) fMRI: Experimental Design, Data Collection and Analysis Total workload 45h: 14h contact / 31h literature work 3 SWS Supervised exercise (UE) Statistical Analysis of fMRI Data with SPM and FSL Total workload 135h: 42h contact / 93h practice with sample fMRI data sets)

Used in course of study
- Master's Programme Neuroscience > Background Modules

Contact person
- Module responsibility
  - Riklef Weerda
  - Peter Sörös

Entry requirements

Skills to be acquired in this module
- + Neurosci. knowlg.
- ++ Expt. Methods
- + Independent research
- + Scient. Literature
- + Social skills
- + Interdiscipl. knowlg.
- ++ Maths/Stats/Progr.
- + Data present./disc.
- + Scientific English
- + Ethics

This module offers a concise introduction to the basic principles of functional magnetic resonance imaging (fMRI). Students will gain essential knowledge about experimental design, data collection and analysis. Special emphasis will be laid on the statistical background of fMRI data analysis and a hands-on introduction to SPM and FSL, two widely-used and free software packages for fMRI data analysis and results visualisation.

Module contents
1. Methodological basics of functional magnetic resonance imaging (fMRI)
2. Basic principles of fMRI experimental design and data collection
3. Statistical background of fMRI data analysis
4. Hands-on training in fMRI data analysis and results visualisation with SPM and FSL

Reader's advisory
Recommended textbook(s) or other literature:

Links
Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: annually, winter term, first half
Module capacity: 40
Modulart: je nach Studiengang Pflicht oder Wahlpflicht
Lern-/Lehrform / Type of program
Vorkenntnisse / Previous knowledge
Recommended previous knowledge / skills: statistics, MATLAB

Examination
Final exam of module: December
Type of examination: written exam (multiple choice) In addition, mandatory but ungraded: continuous active participation

Course type
Seminar: 0.00 SWS 0 h
Exercises: 0.00 SWS 0 h

Total time of attendance for the module: 0 h