# 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

- 45h: 14h contact / 31h literature work  
- 135h: 42h contact / 93h practice with sample fMRI data sets

<table>
<thead>
<tr>
<th>Workload breakdown</th>
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<tbody>
<tr>
<td>1 SWS Seminar (SE)</td>
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<tr>
<td>fMRI: Experimental Design, Data Collection and Analysis</td>
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<tr>
<td>Total workload</td>
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<tr>
<td>15th: 42h contact / 93h practice with sample fMRI data sets</td>
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**Used in course of study**  
- Master's Programme Neuroscience > Background Modules

**Contact person**

- Riklef Weerda
- Peter Sörös

**Module responsibility**

- Riklef Weerda
- Peter Sörös

**Authorized examiners**

- 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
- Module level: ---
- Modulart: je nach Studiengang Pflicht oder Wahlpflicht
- Lern-/Lehrform / Type of program
- Vorkenntnisse / Previous knowledge: Recommended previous knowledge / skills: statistics, MATLAB

**Examination**

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
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<tbody>
<tr>
<td>Final exam of module</td>
<td>December</td>
<td>witten exam (multiple choice)</td>
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In addition, mandatory but ungraded: continuous active participation

**Course type**

<table>
<thead>
<tr>
<th>Seminar</th>
<th>Comment</th>
<th>Frequency</th>
<th>Workload attendance</th>
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<tr>
<td>Seminar</td>
<td>0.00</td>
<td>WSe</td>
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<tr>
<td>Exercises</td>
<td>0.00</td>
<td>WSe</td>
<td>0 h</td>
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**Total time of attendance for the module**

0 h