# neu280 - Research Techniques in Neuroscience

**Module label** | Research Techniques in Neuroscience  
**Module code** | neu280  
**Credit points** | 6.0 KP  
**Workload** | 180 h  
(2 SWS Lecture: 35 h contact / 45 h background reading / 10 h exam preparation  
2 SWS Practical: 50 h contact / 30 h protocol preparation / 10 h exam preparation)  

**Used in course of study** | Master's Programme Neuroscience > Background Modules  
**Contact person** |  
**Module responsibility** |  
- Anna-Maria Hartmann  
**Authorized examiners** |  
- Anna-Maria Hartmann  
- Hans Gerd Nothwang  
- Christine Margarete Thiel  
- John Neidhardt  
- Martin Greschner  
- Carsten Bantel  
- Alexandra Philipsen  

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

1. have basic knowledge of different techniques (see content of the module) used in neurosciences  
2. have basic knowledge of realizing clinical studies, generating questionnaires and their biostatistical data analyses  
3. have acquired practical skills in whole brain imaging (fMRI) and molecular techniques  
4. have acquired practical skills in performing clinical studies  

**Module contents**  
**Lecture topics:**  
1. Whole brain imaging (CT, MRI, fMRI, PET, EEG, MEG)  
2. Animal Behaviour  
3. Microscopy and Visualizing nervous system structure  
4. Electrophysiology  
5. Identifying Gene of Interest and Gene delivery strategies  
6. Molecular Cloning, generation of transgenic organism, manipulating endogenous genes  
7. Cell culture techniques  
8. Biochemical assays and intracellular signalling  
9. Clinical studies  
10. questionnaire and biostatistics  
11. judicial basics of scientific work  

**Laboratory course**  
1. molecular methods (site directed mutagenesis, PCR, midi preparation, sequencing, bioinformatics)  
2. fMRI  
3. clinical studies  

**Reader's advisory**  
Guide to Research Techniques in Neuroscience, 2nd Edition  
Author(s) : Carter & Shieh  
Print Book ISBN : 9780128005118  
eBook ISBN : 9780128005972  

**Links**  
**Language of instruction** | English  
**Duration (semesters)** | 1 Semester  
**Module frequency** | summer term / annually  
**Module capacity** | 20 (  
Registration procedure / selection criteria: StudIP)  
**Modullevel** | ---
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**Total time of attendance for the module:** 56 h