### neu470 - Molecular Sensory Neuroscience

**Module label**  
Molecular Sensory Neuroscience  

**Module code**  
neu470  

**Credit points**  
15.0 KP  

**Workload**  
450 h  

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

**Contact person**  
Module responsibility  
- Karl-Wilhelm Koch  

Authorized examiners  
- Alle hier genannten  

**Module counseling**  
- Hans Gerd Nothwang  
- Kathrin Thedieck  
- John Neidhardt  
- Anna-Maria Hartmann  

### 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  

For students putting emphasis on cell biological, molecular biological, genetic, biochemical and/or neurobiological fields. The module can serve the purpose of preparing for a Master’s thesis.  

Upon successful completion of this course, students will have an advanced knowledge in molecular cell biology, have acquired methodological and experimental skills in molecular cell biology, have an advanced knowledge of how to perform research projects, have advanced skills in presenting and discussing scientific data they have obtained, analysed and put in a wider framework of a current scientific topic.  

### Module contents

Theory and practice of topics related to issues in molecular sensory neuroscience; independent treatment of an individual project; acquiring an advanced theoretical knowledge in selected fields of the molecular biology of the cell (points of emphasis: genetics, biochemistry, cell biology; topics depending on working groups).  

There are several options for the lab projects, in the broad categories of:  
1. Protein function in neurosensory signaling (Koch)  
   - Heterologous expression in cell cultures of a protein involved in visual transduction or magnetoreception  
2. Neurosensory genetics (Nothwang)  
3. Metabolic signalling networks (Thedieck)  
4. Human genetics: mutation identification, pathogenic processes and therapy development (Neidhardt)  

### Reader’s advisory

Specific literature of the topics indicated above; original papers related to the current research question; will be different for every student and every year.  

Textbooks of Cell Biology, Biochemistry, Genetics:  
- Alberts et al. Molecular Biology of the Cell (5th Edition or later); Stryer Biochemistry (7th Edition or later); Lehninger Biochemistry (4th Edition or later). These textbooks are updated almost every 3 or 4 years.  

### Links

**Languages of instruction**  
German, English  

**Duration (semesters)**  
1 Semester  

**Module frequency**  
halbjährlich  

**Module capacity**  
unlimited  

**Reference text**  
Time is flexible and subject to individual arrangement. An accepted internship report and participation in a joint poster presentation of concurrent research modules are required to pass the module.  

**Modullevel**  
MM (Mastermodul)  

**Modulart**  
Wahlpflicht  

### Examination

**Final exam of module**  
Time of examination: as agreed; usually within 2 months of the conclusion of lab work  

Type of examination: oral exam of 30 min. in Cell Biology, Genetics or Biochemistry, depending on the chosen option  

Participation in seminar,
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