neu340 - Invertebrate Neuroscience

Module label: Invertebrate Neuroscience
Module code: neu340
Credit points: 6.0 KP
Workload: 180 h

(1 SWS Seminar (SE) Total workload 45h: 15h contact / 30h background literature reading, preparation for short tests and results presentation 3 SWS Supervised exercise (UE) Total workload 135h: 70h contact / 65h data analysis and preparation of portfolio assignments)

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

Contact person: Module responsibility Jutta Kretzberg

Entry requirements: attendance in pre-meeting

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

Upon successful completion of this course, students
- have knowledge on invertebrate neuronal systems in comparison to vertebrate systems
- have discussed an overview of experimental and theoretical methods of invertebrate neuroscience
- have acquired first practical skills in intracellular recordings from invertebrate neurons
- have acquired basic skills in data analysis
- have acquired an intuitive understanding of membrane potential and action potential generation based on computer simulations

Module contents:
The background module Neurophysiology consists of three weeks of seminar and hands-on lab exercises on intracellular recordings from leech neurons, as well as computer simulations to study the basis of membrane potential and action potential generation. The seminar covers the following topics:
- Invertebrate neuronal systems in comparison to vertebrate systems
- Ion channels, membrane potential and action potential generation
- Introduction to electrophysiological methods
- Introduction to data analysis methods
In the practical exercises, portfolio assignments will be performed on:
- Qualitative electrophysiological classification of different cell types in the leech nervous system
- Quantitative analysis (stimulus - response relationship) of at least one cell type
- Action potential generation: Comparison of model simulations and experiments

Reader's advisory:
Course scripts and mandatory scientific literature (3 review articles) discussed in the seminar will be available in Stud.IP
Background and seminar literature will be available in Stud.IP

Links
Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: annually, summer term, second half
Module capacity: 12

this module provides the background for neu345 "Neural Computation in invertebrate systems"

Module level: ---
Module type: je nach Studiengang Pflicht oder Wahlpflicht
Lern-/Lehrform / Type of program:
Vorkenntnisse / Previous knowledge:

basic knowledge of neurobiology, basic MATLAB programming skills

Examination:
Final exam of module: during the course (summer term, second half)
Portfolio consisting of short tests and short reports. In addition, mandatory but ungraded: seminar presentation

Course type:
Seminar: 2.00 SWS
Exercises: 2.00 SWS

Comment:
- Frequency:
- Workload attendance:
- 28 h
- 28 h
- 28 h