

Blockkurs “Cell and Neurobiology“

Duration: 6 weeks; 15 credit points

When: second half of spring term; 3rd year

Goal:

The aim of the Cell and Neurobiology Course is to learn about current topics in cell biology and neuroscience, including receiving first-hand experience in state-of-the-art experimental methods. The course consists of introductory lectures covering different research topics, and then practical classes consisting of experiments and data analysis. In addition, students will be advised how to write a research report and how to critically assess scientific literature.

The main topics:

Neuroscience

- Connectivity in the brain and spinal cord
- Dynamics and plasticity of synapses in the brain
- Sensory and motor processing
- Imaging structure and function in the nervous system
- Muscle physiology

Cell biology

- Cell division cycle
- Asymmetric
- Organ and cell development
- Stem cells

Laboratory experience:

- Immunostaining, whole-mount preparations, tissue dissection, cell cultures
- Fluorescence microscopy
- Live cell imaging *in vitro* and *in vivo*
- Analysis of structural and functional fluorescence data
- Analysis of brain connectivity using online databases
- Cell transfection, PCR, genotyping, DNA-sequencing
- Quantitative data and image analysis

Additional skills:

- Data analysis and writing a research project
- Reading, interpreting, and critically assessing scientific literature
- Scientific writing and presentation
- Experience and discussions of contemporary and emerging research fields

The course lasts six weeks (compulsory attendance), followed by two weeks for exam preparation. The final grade is determined by final examination only.

Language: English

Responsible person: Prof. Thomas Mrsic-Flogel (thomas.mrsic-flogel@unibas.ch)

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