

Bachelor Module

Cell Biology

The following topics are presented and discussed as examples:

- bio macromolecules
- cell architecture and function
- cytoskeleton and cell motility
- intra cellular transport mechanisms
- cell signaling and cellular communication
- cell cycle, cell differentiation, and cell death
- stem cells and reprogramming
- methods of cell biology

The accompanying practical training and exercises highlight lecture topics and relate theoretical knowledge to practical application. The practical training will introduce students to and train in:

- lab related mathematics (e.g. calculation of dilutions, concentrations, etc.)
- good laboratory praxis
- safe and professional handling of laboratory equipment, instruments and methods (focus on cell culture techniques and microscopy)
- building scientific working hypothesis and critical thinking
- scientific documentation according to the DFG guidelines of “good scientific praxis”

In particular topics of the practical training are:

- basics of mammalian cell culture and sterile working
- observation and analysis of cell cycle, cell differentiation and cell death
- cell nuclei isolation and chromosome preparation
- fluorescence microscopy and classical staining methods

We recommend general cell biology textbooks. Special literature recommendation and reading lists will be announced during the first lectures (or in the respective Moodle).

We strongly recommend the preparation of topics in advance as well as their post-processing on a regular basis.

Further information concerning the second lecture part from Prof Cardoso will be provided via the corresponding Moodle.

Basic knowledge in biology, chemistry, mathematics, physics and English is expected.

All relevant information can be found on Moodle.