

# Practical course in Experimental Molecular Biology (68795-01/-02, 73175-01)

## Course philosophy:

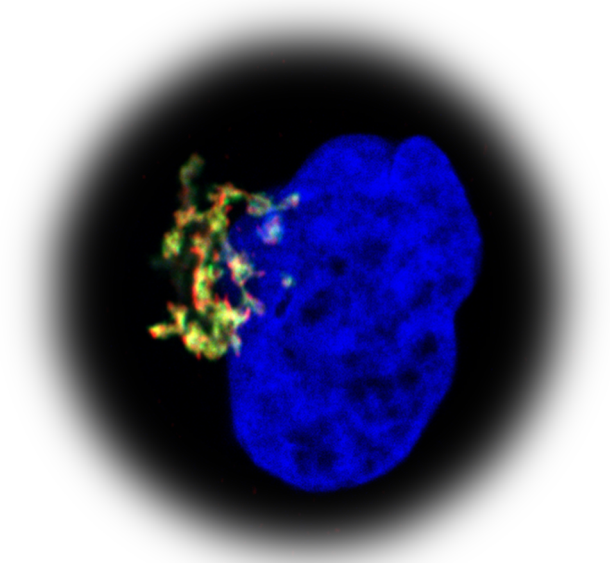
Learn to become a scientist

## Course goals:

Aim of the course in Experimental Molecular Biology (EMB) is to train Biology students for the gradual transition from a student to a scientist, including training technical as well as intellectual skills. Combining these skills, students will dissect the function, localization, and interaction network of a protein of interest. Additional intellectual skills comprise reading, presenting, and discussing produced data, literature, and scientific articles.

## Topics and techniques:

- Pipetting and good laboratory practice
- Media and buffer preparation for Molecular Biology
- Polymerase chain reaction and RT-qPCR
- Molecular cloning
- Mammalian cell culture and transfection
- Protein expression
- SDS-PAGE
- Western blotting
- Gel staining techniques
- Immunofluorescence staining
- Light and fluorescence microscopy
- CRISPR/Cas9 gene editing
- Mass spectrometry and proteomics



## Course organization:

The EMB course is an annual course for second year Bachelor students in Biology with a Major in Molecular Biology, students in Computational Sciences with a Major in Computational Biology, and students in Nanosciences. The course can be only started in fall semesters. Students spend two afternoons per week in the lab and conduct experiments on their own. Practical sessions are accompanied by theory.

## Requirements:

The practical course "Allgemeine Chemie" (12222) and "Grundlagen der präparativen organischen Chemie" (10571) must have been attended. Three out of six main lectures of the modules "Biologie 1" and "Biologie 2" must have been written. Equivalent courses from other universities can be accepted after evaluation. In addition, course registration is mandatory.

## Organizer:

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## Lecturers:

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