

## **Course Description: BMB-B-2 Methods for bioscience research**

3 ECTS

Course Coordinator: Prof. Dr. Janine Kirstein

Offer: winter semester

Assessment of module: written examination

### **Related courses**

- Methods for bioscience research

### **Contents and Learning outcomes**

The lecture course provides an introduction to important methods that are frequently used for biomolecular research to study modern research questions. For each method principles and basic information will be provided as lecture and special aspects will be additionally addressed in the accompanying seminar or exercises. The methods addressed by this course may include (but may be modified according to recent developments):

- Physicochemical analysis of biomolecules (NMR, mass spectrometry, photometry, fluorometry, ...)
- Enzymatic methods (coupled enzymatic tests, cycling assays, ...)
- Immunological test systems (ELISA, immunocytochemistry, ...)
- Microscopy (light, fluorescence, confocal, atomic force, ...)
- Centrifugation
- Protein purification
- Viruses as vectors
- Cell cultures
- Isotope labeling and radioactivity
- Optogenetics
- Omic-technologies
- Bisulfite sequencing
- Chip sequencing

At the end of the course the student understands the principles and concepts of selected methods and technologies that are frequently used for biomolecular research to study modern research questions. They know of the advantages and disadvantages (such as sensitivities of methods, safety and legal issues, ethical aspects) of the various methods addressed and will be able to choose appropriate methods and technologies to answer new research questions in biomolecular research.