Module title
Biophysics and Molecular Biotechnology

Abbreviation
07-MS2BT-152-m01

Module coordinator
holder of the Chair of Biotechnology and Biophysics

Module offered by
Faculty of Biology

ECTS
10

Method of grading
numerical grade

Duration
1 semester

Module level
graduate

Other prerequisites
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Contents
This lecture provides a broad overview of biophysical techniques and their applications. The first part of the lecture discusses fundamental aspects of thermodynamics, kinetics and molecular interactions. The course then moves on to discuss biophysical methods that facilitate the investigation of individual cells down to the level of single molecules. Focus is on electromanipulation and dielectric spectroscopy of cells, biomembranes, electrophysiology, ion channels, protein folding, single-molecule fluorescence methods and high-resolution as well as dynamic microscopy.

Intended learning outcomes
Students will have acquired a knowledge of fundamental biophysical methods and their applications that will enable them to independently review relevant literature. In addition, they will have become acquainted with - or, where necessary, will be able to independently acquaint themselves with - biophysical mechanisms.

Courses (type, number of weekly contact hours, language — if other than German)
V (2) + S (1)
Module taught in: English

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)
Students will be informed about the method, length and scope of the assessment prior to the course. Usually, one of the following options will be chosen: a) written examination (30 to 60 minutes, including multiple choice questions) or b) oral examination of one candidate each (30 to 60 minutes) or c) oral examination in groups of up to 3 candidates (30 to 60 minutes)
Language of assessment: German and/or English

Allocation of places
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Additional information
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Referred to in LPO I (examination regulations for teaching-degree programmes)
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Module appears in
Master's degree (1 major) Biochemistry (2015)
Master's degree (1 major) Biology (2015)
Master's degree (1 major) FOKUS Life Science (2015)
Master's degree (1 major) Biosciences (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's degree (1 major) Biosciences (2017)
Master's degree (1 major) Biochemistry (2017)
Master's degree (1 major) Biosciences (2018)
Master's degree (1 major) Biochemistry (2019)