

<b>Module title</b>		<b>Abbreviation</b>
Biotechnology 1		07-4BFMZ5-102-m01
<b>Module coordinator</b>		<b>Module offered by</b>
holder of the Chair of Biotechnology and Biophysics		Faculty of Biology
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>
5	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	undergraduate	By way of exception, additional prerequisites are listed in the section on assessments.
<b>Contents</b>		
<p>In this module (lab course and seminar), students will acquire fundamental specialist knowledge in the areas of biotechnology, biophysics and microscopic imaging. Students will gain an insight into different topics in biotechnology and biophysics at the molecular and cellular level. The following topics will be covered: introduction to photon absorption, (UV/VIS) spectroscopy, fluorescence anisotropy, time-resolved fluorescence measurement, fluorescent labelling of proteins, circular dichroism, confocal laser scanning microscopy (CLSM), electrophysiological techniques, osmoregulation in animal cells, dielectric analysis and electromanipulation of cells. During the practical part, students will become familiar with the abovementioned technologies and will perform several experiments under expert guidance.</p>		
<b>Intended learning outcomes</b>		
<p>Students will have acquired a knowledge of fundamental biotechnological and 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. Students will have acquired practical experience performing experiments, using a variety of scientific tools. In the seminar, students will have acquired detailed theoretical knowledge on these experiments and will have delivered a short presentation (15 minutes) on one of the experiments they performed.</p>		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
<p>This module comprises 2 module components. Information on courses will be listed separately for each module component.</p> <ul style="list-style-type: none"> <li>• 07-4BFMZ5-1-102: P (no information on SWS (weekly contact hours) and course language available)</li> <li>• 07-4BFMZ5-2-102: S (no information on SWS (weekly contact hours) and course language available)</li> </ul>		
<b>Method of assessment</b> (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)		
<p>Assessment in this module comprises the assessments in the individual module components as specified below. Unless stated otherwise, successful completion of the module will require successful completion of all individual assessments.</p> <p><b>Assessment in module component 07-4BFMZ5-1-102: Biotechnology 1 (practical course)</b></p> <ul style="list-style-type: none"> <li>• 4 ECTS, Method of grading: numerical grade</li> <li>• log (approx. 10 to 20 pages)</li> <li>• Other prerequisites: Admission prerequisite to assessment: regular attendance of lab course as specified at the beginning of the course.</li> </ul> <p><b>Assessment in module component 07-4BFMZ5-2-102: Seminar Biotechnology 1</b></p> <ul style="list-style-type: none"> <li>• 1 ECTS, Method of grading: (not) successfully completed</li> <li>• presentation (approx. 20 to 30 minutes)</li> <li>• Other prerequisites: Admission prerequisite to assessment: regular attendance of exercises and successful completion of the respective exercises as specified at the beginning of the course.</li> </ul>		
<b>Allocation of places</b>		
<p>Number of places: 24. Should the number of applications exceed the number of available places, places will be allocated as follows: Places will primarily be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits. Should the module be used in other subjects, there will be two quotas: 95% of pla-</p>		

ces will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits and 5% of places (a minimum of one participant in total) will be allocated to students of the Bachelor's degree subject Biologie (Biology) with 60 ECTS credits and to students of the Bachelor's degree subjects Computational Mathematics and Mathematik (Mathematics), each with 180 ECTS credits, as part of the application-oriented subject Biology (as well as potentially to students of other 'importing' subjects). Should the number of places available in one quota exceed the number of applications, the remaining places will be allocated to applicants from the other quota. Should there be, within one module component, several courses with a restricted number of places, there will be a uniform regulation for the courses of one module component. In this case, places on all courses of a module component that are concerned will be allocated in a standardised procedure. In this procedure, applicants who already have successfully completed at least one other module component of the respective module will be given preferential consideration. A waiting list will be maintained and places re-allocated as they become available. Selection process group 1 (95%): Places will primarily be allocated according to the applicants' previous academic achievements. For this purpose, applicants will be ranked according to the number of ECTS credits they have achieved and their average grade of all assessments taken during their studies or of all module components in the subject of Biologie (Biology) (excluding Chemie (Chemistry), Physik (Physics), Mathematik (Mathematics)) at the time of application. This will be done as follows: First, applicants will be ranked, firstly, according to their average grade weighted according to the number of ECTS credits (qualitative ranking) and, secondly, according to their total number of ECTS credits achieved (quantitative ranking). The applicants' position in a third ranking will be calculated as the sum of these two rankings, and places will be allocated according to this third ranking. Among applicants with the same ranking, places will be allocated according to the qualitative ranking or otherwise by lot. Selection process group 2 (5%): Places will be allocated according to the following quotas: Quota 1 (50% of places): total number of ECTS credits already achieved in modules/module components of the Faculty of Biology; among applicants with the same number of ECTS credits achieved, places will be allocated by lot. Quota 2 (25% of places): number of subject semesters of the respective applicant; among applicants with the same number of subject semesters, places will be allocated by lot. Quota 3 (25% of places): allocation by lot. Should the module be used only in the Bachelor's degree subject Biologie (Biology) with 180 ECTS credits, places will be allocated according to the selection process of group 1.

**Additional information**

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**Workload**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

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**Module appears in**

Bachelor' degree (1 major) Biology (2010)