

module code /
module title

BMB-A (Basics in Biochemistry and Molecular Cell Biology)

date / version of the module
description

21.04.2021

1 INFORMATION ON THE MODULE

1a	module code	BMB-A
1b	module title (German title)	Grundlagen der Biochemie und Molekularbiologie
1c	module title (English title)	Basics in Biochemistry and Molecular Cell Biology
1d	credit points	15
1e	responsible for the module	Prof. Dr. Andreas Dotzauer
1f	type of module	compulsory module
1g	programs using the module	M.Sc. Biochemistry and Molecular Biology
1h	organizational unit offering the module	
1i	content-related prior knowledge or skills	
1j	learning contents	<p>The course provides the essential theoretical knowledge for the specialization for all biological disciplines which deal with biochemical and cell biology topics</p> <p>The course deals with the following topics:</p> <ul style="list-style-type: none">• Functional groups and their reactions in biochemistry• Protein structure• Nucleic acids structure• Transcription and RNA processing• Genomics

		<ul style="list-style-type: none"> Gene regulation in prokaryotes DNA replication Thermodynamic basics, metabolism Protein biosynthesis I (translation) Protein biosynthesis II (translocation) Protein folding Nuclear-cytoplasmic transport of macromolecules Redox potential, membrane potential Enzymes (regulation) Cytoskeleton Vesicular transport Signal transduction Gene transfer <p>Methods which are used in the practical part</p> <ul style="list-style-type: none"> Work with nucleic acids (Isolation, determination of concentration, restriction digest, agarose gel electrophoresis, ligation, PCR) Work with proteins (Affinity chromatography, determination of concentration, SDS-PAGE, protein staining, protein tagging, ELISA) 																																				
1k	learning outcomes/ competencies/ targeted competencies	<ul style="list-style-type: none"> Students have a comprehensive understanding of the basics in biochemistry and molecular cell biology of the a.m. topics. Students understand laboratory safety regulations, including handling of genetically modified organisms. Students can perform basic biochemical and molecular biology experiments. Students know how to document experimental work, critically judge and discuss results of experimental work. 																																				
1l	calculation of student workload <i>(part a: calculation of presence time and working hours)</i>	<p>The total amount of the presence time and working hours of the module has to be calculated additionally in the detailed calculation a) to c).</p> <p>a) detailed calculation: SWS / presence time/working hours in each course of the module</p> <table border="1"> <thead> <tr> <th></th> <th></th> <th></th> <th>SWS/ contact hours</th> <th></th> <th>hours of presence time</th> </tr> </thead> <tbody> <tr> <td data-bbox="493 1567 541 1612"><input checked="" type="checkbox"/></td><td data-bbox="493 1574 541 1603">1</td><td data-bbox="493 1574 779 1603">lecture(s) with</td><td data-bbox="937 1574 969 1603">3.6</td><td data-bbox="1223 1574 1255 1603">50</td><td data-bbox="1318 1567 1477 1603">hours of presence time</td></tr> <tr> <td data-bbox="493 1657 541 1702"><input type="checkbox"/></td><td></td><td data-bbox="493 1664 779 1693">seminar(s) with</td><td></td><td data-bbox="1064 1657 1096 1686">SWS/ contact hours</td><td data-bbox="1318 1657 1477 1715">hours of presence time</td></tr> <tr> <td data-bbox="493 1769 541 1814"><input checked="" type="checkbox"/></td><td data-bbox="493 1776 541 1805">1</td><td data-bbox="493 1776 779 1805">exercise(s) with</td><td data-bbox="937 1769 969 1799">3.4</td><td data-bbox="1223 1769 1255 1799">48</td><td data-bbox="1318 1769 1477 1828">hours of presence time</td></tr> <tr> <td data-bbox="493 1882 541 1927"><input type="checkbox"/></td><td></td><td data-bbox="493 1888 779 1918">internship(s) with</td><td></td><td data-bbox="1064 1882 1096 1911">sum of working hours</td><td></td></tr> <tr> <td data-bbox="493 1994 541 2039"><input type="checkbox"/></td><td></td><td data-bbox="493 2001 779 2030">seminar(s) with</td><td></td><td data-bbox="1064 1994 1096 2023">SWS/ contact hours</td><td data-bbox="1318 1994 1445 2052">total hours of presence time</td></tr> </tbody> </table>				SWS/ contact hours		hours of presence time	<input checked="" type="checkbox"/>	1	lecture(s) with	3.6	50	hours of presence time	<input type="checkbox"/>		seminar(s) with		SWS/ contact hours	hours of presence time	<input checked="" type="checkbox"/>	1	exercise(s) with	3.4	48	hours of presence time	<input type="checkbox"/>		internship(s) with		sum of working hours		<input type="checkbox"/>		seminar(s) with		SWS/ contact hours	total hours of presence time
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	<p><input checked="" type="checkbox"/> 1 laboratory/laboratories with 6 SWS/ contact hours 84 total hours of presence time</p> <p><input type="checkbox"/> tutorial(s) with SWS/ contact hours</p> <p><input type="checkbox"/> excursion(s) with SWS contact hours in total working hours</p> <p><input type="checkbox"/> other form of course (e.g. block seminar), namely this:</p> <p>Klicken Sie hier, um Text einzugeben.</p> <p>with SWS / with totaly contact hours <input type="checkbox"/> presence time <input type="checkbox"/> working hours</p> <p>= sum of presence time and working hours:</p> <p>182</p>
	<p>b) working hours for preparation/follow-up work of the course(s) and/or self-study</p> <p>= sum of working hours:</p> <p>204</p>
	<p>c) exam preparation (incl. examination)</p> <p>= sum of working hours:</p> <p>64</p>
	<p>Total amount of the presence time and working hours a) to c):</p> <p>450</p>
1m	<p><u>Can a student choose between different courses within the module?</u></p> <p>NO</p> <p><u>Short description of selection option</u></p> <p>Klicken Sie hier, um Text einzugeben.</p>
1n	<p>language(s) of instruction</p> <p><input type="checkbox"/> German <input checked="" type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French</p> <p><input type="checkbox"/> Other, namely this:</p> <p>Klicken Sie hier, um Text einzugeben.</p>

1o	frequency	(regular cycle module is offered) e.g.: winter semester, yearly or summer semester, yearly or each semester winter semester yearly Klicken Sie hier, um Text einzugeben.																		
1p	duration	one semester module Klicken Sie hier, um Text einzugeben.																		
1q	Literature (optional)	Basic text books on biochemistry and molecular cell biology																		
1r	more information on the module (optional)	Klicken Sie hier, um Text einzugeben.																		
2	INFORMATION ON THE MODULE EXAMINATION (see also AT Art. 5 section 8)																			
2a	type of examination	<input type="checkbox"/> module exam; i.e. exam with only one component (MP) <input checked="" type="checkbox"/> combination exam, i.e. exam with several components (administered by instructors) (KP) <input type="checkbox"/> partial exam; i.e. exam with several components (administered by registrar) (TP)																		
2b	exam components or prerequisites (type, number)	<p>PL = graded component of the examination SL = ungraded component of the examination, coursework PVL = prerequisite of the examination (see AT Art. 5 Section 10)</p> <p><input checked="" type="checkbox"/> PL 1 <input checked="" type="checkbox"/> SL 1 <input type="checkbox"/> PVL justification</p> <p>If necessary, further explanations: SL: protocols (of laboratory work)</p>																		
2c	Give this information for combination examinations only: Weights (in percentage) of component grades	<p>PL 1: 100%</p> <p>PL 2:</p> <p>PL 3: Klicken Sie hier, um Text einzugeben.</p> <p>PL 4: Klicken Sie hier, um Text einzugeben.</p> <p>If necessary, further comments: Klicken Sie hier, um Text einzugeben.</p>																		
2d	form of examination (see AT BPO/AT MPO Art. 8, 9 and 10)	<table border="0"> <tr> <td><input type="checkbox"/> Assignment</td> <td><input type="checkbox"/> Oral examination (single)</td> <td><input type="checkbox"/> Presentation, oral</td> </tr> <tr> <td><input checked="" type="checkbox"/> Written examination</td> <td><input type="checkbox"/> Group examination, oral</td> <td><input type="checkbox"/> Presentation and written assignment</td> </tr> <tr> <td><input type="checkbox"/> Portfolio</td> <td><input type="checkbox"/> Project report</td> <td><input type="checkbox"/> Bachelor Thesis</td> </tr> <tr> <td><input type="checkbox"/> Internship report</td> <td><input type="checkbox"/> Colloquium</td> <td><input type="checkbox"/> Master Thesis</td> </tr> <tr> <td colspan="3"><input checked="" type="checkbox"/> Other (concrete definition is given in the examination regulations):</td> </tr> <tr> <td colspan="3">protocols (of laboratory work)</td> </tr> </table>	<input type="checkbox"/> Assignment	<input type="checkbox"/> Oral examination (single)	<input type="checkbox"/> Presentation, oral	<input checked="" type="checkbox"/> Written examination	<input type="checkbox"/> Group examination, oral	<input type="checkbox"/> Presentation and written assignment	<input type="checkbox"/> Portfolio	<input type="checkbox"/> Project report	<input type="checkbox"/> Bachelor Thesis	<input type="checkbox"/> Internship report	<input type="checkbox"/> Colloquium	<input type="checkbox"/> Master Thesis	<input checked="" type="checkbox"/> Other (concrete definition is given in the examination regulations):			protocols (of laboratory work)		
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2e

language(s)
of instruction

German English Spanish French

Other, namely this:

Klicken Sie hier, um Text einzugeben.