

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 |

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|---------------------------------------|---|--|---------------------------------------|-----------------|---------------------------------|-----------------------|----|---------------------------|--------------------------|-----------------|--|-----------------------|--|---------------------------|---------------------------------------|------------------|-----|-----------------------|----|---------------------------|--------------------------|--------------------|--|-------------------------|--|--|--------------------------|-----------------|--|-----------------------|--|---------------------------------|
| | | <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><tr><td><input checked="" type="checkbox"/> 1</td><td>lecture(s) with</td><td>3.6</td><td>SWS/ contact hours</td><td>50</td><td>hours of presence time</td></tr><tr><td><input type="checkbox"/></td><td>seminar(s) with</td><td></td><td>SWS/ contact hours</td><td></td><td>hours of presence time</td></tr><tr><td><input checked="" type="checkbox"/> 1</td><td>exercise(s) with</td><td>3.4</td><td>SWS/ contact hours</td><td>48</td><td>hours of presence time</td></tr><tr><td><input type="checkbox"/></td><td>internship(s) with</td><td></td><td>sum of working hours</td><td></td><td></td></tr><tr><td><input type="checkbox"/></td><td>seminar(s) with</td><td></td><td>SWS/ contact hours</td><td></td><td>total hours of presence time</td></tr></table> | <input checked="" type="checkbox"/> 1 | lecture(s) with | 3.6 | SWS/ contact hours | 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 | SWS/ contact hours | 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 |
| <input checked="" type="checkbox"/> 1 | lecture(s) with | 3.6 | SWS/ contact hours | 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 | SWS/ contact hours | 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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| | | <input checked="" type="checkbox"/> 1 laboratory/laboratories with 6 SWS/ contact hours 84 total hours of presence time |
| | | <input type="checkbox"/> tutorial(s) with SWS/ contact hours |
| | | <input type="checkbox"/> excursion(s) with SWS contact hours working hours in total |
| | | <input type="checkbox"/> other form of course (e.g. block seminar), namely this: Klicken Sie hier, um Text einzugeben. |
| | | with SWS / with totally contact hours <input type="checkbox"/> presence time <input type="checkbox"/> working hours |
| | | = sum of presence time and working hours: 182 |
| | calculation of student workload <i>(part b: preparation time and follow-up work/self-study)</i> | b) working hours for preparation/follow-up work of the course(s) and/or self-study = sum of working hours: 204 |
| | calculation of student workload <i>(part c: exam preparation etc.)</i> | c) exam preparation (incl. examination) = sum of working hours: 64 |
| | calculation of student workload <i>(total amount of hours including a) - c))</i> | Total amount of the presence time and working hours a) to c): 450 |
| 1m | description of possible optional courses in the module | <u>Can a student choose between different courses within the module?</u> NO <u>Short description of selection option</u> Klicken Sie hier, um Text einzugeben. |
| 1n | language(s) of instruction | <input type="checkbox"/> German <input checked="" type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French <input type="checkbox"/> Other, namely this: Klicken Sie hier, um Text einzugeben. |

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|--|---|--|-------------------------------------|--|---|---|--|--|------------------------------------|---|--|--|-------------------------------------|--|--|--|--|--------------------------------|--|--|
| 1o | frequency | <p><i>(regular cycle module is offered) e.g.: winter semester, yearly or summer semester, yearly or each semester</i></p> <p>winter semester yearly</p> <p>Klicken Sie hier, um Text einzugeben.</p> | | | | | | | | | | | | | | | | | | |
| 1p | duration | <p>one semester module</p> <p>Klicken Sie hier, um Text einzugeben.</p> | | | | | | | | | | | | | | | | | | |
| 1q | Literature <i>(optional)</i> | Basic text books on biochemistry and molecular cell biology | | | | | | | | | | | | | | | | | | |
| 1r | more information on the module <i>(optional)</i> | Klicken Sie hier, um Text einzugeben. | | | | | | | | | | | | | | | | | | |
| 2 | INFORMATION ON THE MODULE EXAMINATION (see also AT Art. 5 section 8) | | | | | | | | | | | | | | | | | | | |
| 2a | type of examination | <p><input type="checkbox"/> module exam; i.e. exam with only one component (MP)</p> <p><input checked="" type="checkbox"/> combination exam, i.e. exam with several components (administered by instructors) (KP)</p> <p><input type="checkbox"/> partial exam; i.e. exam with several components (administered by registrar) (TP)</p> | | | | | | | | | | | | | | | | | | |
| 2b | exam components or prerequisites <i>(type, number)</i> | <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:</p> <p>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:</p> <p>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) | | |
| <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) | | | | | | | | | | | | | | | | | | | | |

2e

language(s)
of instruction

☐ German

☒ English

☐ Spanish

☐ French

☐ Other, namely this:

Klicken Sie hier, um Text einzugeben.