

module code /  
 module title

## BMB-E1 / Lab Project 1

 date / version of the module  
 description

16.02.22

### 1 INFORMATION ON THE MODULE

1a	module code	BMB-E1
1b	module title (German title)	Laborprojekt 1
1c	module title (English title)	Lab Project 1
1d	credit points	15
1e	responsible for the module	Prof. Dr. Barbara Reinhold-Hurek
1f	type of module	compulsory elective module
1g	programs using the module	M.Sc. Biochemistry and Molecular Biology (Students need to complete one Lab Project 1 (incl. Poster presentation) and one Lab Project 2. Students with MicroSys specialization need to choose a topic related to Microbial Systems in at least one of the lab projects (Module BMB-E1-MSys or Module BMB-E2-MSys)
1h	organizational unit offering the module	
1i	content-related prior knowledge or skills	Knowledge of the contents of the modules BMB-A (Basics in Biochemistry and Molecular Cell Biology) and BMB-B (Models, Methods and Specialization) is recommended.
1j	learning contents	<p>Students will be trained on scientific objectives and work techniques in one of the different laboratories. From a large spectrum of scientific projects students can select their preferred topic and research group. They will get involved in all phases of an experimental research project: Development of working hypotheses, experimental design, method selection, <b>practical work</b>, analysis of the data and relevant statistics. They will write a research report, present and discuss the outcome of their project results in a seminar. The project will be presented and discussed as a poster in an annual Postersymposium.</p> <p><b>The module includes compulsory elective choices (Wahlpflicht WP) of 9 weeks duration:</b></p>

		<p>WP1: Students undertake the practical work integrated in a research group at the University of Bremen.</p> <p>WP2: Students undertake the practical work as internship students integrated in an external national or international research group.</p>																																	
1k	learning outcomes/ competencies/ targeted competencies	<p>Students have an increased knowledge about relevant research questions. Students can apply general and specific experimental techniques, analyze and interpret the respective data depending on the research areas of their project. Students are able to independently plan, perform and analyze an experiment based on information from the literature.</p> <p>Students are able to assess the relevance of an experiment with respect to the objective of their project in the current scientific context.</p> <p>Students are able to summarize the key questions, methodology, outcome and conclusions of their project on a poster and are able to discuss this on basis of the poster. Ability to assess the relevance of an experiment with respect to the objective of a particular work.</p>																																	
1l	<p>calculation of student workload</p> <p>(part a: calculation of presence time and working hours)</p>	<p><b>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).</b></p> <p><b>a) detailed calculation:</b></p> <p><b>SWS / presence time/working hours in each course of the module</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 5px;"><input type="checkbox"/> lecture(s) with</th> <th style="text-align: right; padding: 5px;">SWS/ contact hours</th> <th style="text-align: right; padding: 5px;">hours of presence time</th> </tr> </thead> <tbody> <tr> <td style="text-align: left; padding: 5px;"><input type="checkbox"/> seminar(s) with</td> <td style="text-align: right; padding: 5px;">SWS/ contact hours</td> <td style="text-align: right; padding: 5px;">hours of presence time</td> </tr> <tr> <td style="text-align: left; padding: 5px;"><input type="checkbox"/> exercise(s) with</td> <td style="text-align: right; padding: 5px;">SWS/ contact hours</td> <td style="text-align: right; padding: 5px;">hours of presence time</td> </tr> <tr> <td style="text-align: left; padding: 5px;"><input type="checkbox"/> internship(s) with</td> <td style="text-align: right; padding: 5px;">sum of working hours</td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;"><input type="checkbox"/> seminar(s) with</td> <td style="text-align: right; padding: 5px;">SWS/ contact hours</td> <td style="text-align: right; padding: 5px;">total hours of presence time</td> </tr> <tr> <td style="text-align: left; padding: 5px;"><input checked="" type="checkbox"/> 1 laboratory/laboratories with</td> <td style="text-align: right; padding: 5px;">17 SWS/ contact hours</td> <td style="text-align: right; padding: 5px;">238 total hours of presence time</td> </tr> <tr> <td style="text-align: left; padding: 5px;"><input type="checkbox"/> tutorial(s) with</td> <td style="text-align: right; padding: 5px;">SWS/ contact hours</td> <td></td> </tr> <tr> <td style="text-align: left; padding: 5px;"><input type="checkbox"/> excursion(s) with</td> <td style="text-align: right; padding: 5px;">SWS contact hours</td> <td style="text-align: right; padding: 5px;">working hours in total</td> </tr> <tr> <td colspan="3" style="text-align: left; padding: 5px;"><input checked="" type="checkbox"/> other form of course (e.g. block seminar), namely this: Workshop (poster included)</td> </tr> <tr> <td style="text-align: left; padding: 5px;">with 1 SWS / with totally 14</td> <td style="text-align: right; padding: 5px;">contact hours</td> <td style="text-align: right; padding: 5px;"><input checked="" type="checkbox"/> presence time <input type="checkbox"/> working hours</td> </tr> <tr> <td colspan="3" style="text-align: left; padding: 5px; color: red;">= sum of presence time and working hours:</td> </tr> </tbody> </table> <p style="text-align: center;">252</p>	<input type="checkbox"/> lecture(s) with	SWS/ contact hours	hours of presence time	<input type="checkbox"/> seminar(s) with	SWS/ contact hours	hours of presence time	<input type="checkbox"/> exercise(s) with	SWS/ contact hours	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 laboratory/laboratories with	17 SWS/ contact hours	238 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 checked="" type="checkbox"/> other form of course (e.g. block seminar), namely this: Workshop (poster included)			with 1 SWS / with totally 14	contact hours	<input checked="" type="checkbox"/> presence time <input type="checkbox"/> working hours	= sum of presence time and working hours:		
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	<p>calculation of student workload (part b: preparation time and follow-up work/self-study)</p>	<p><b>b) working hours for preparation/follow-up work of the course(s) and/or self-study</b> = sum of working hours: 170</p>
	<p>calculation of student workload (part c: exam preparation etc.)</p>	<p><b>c) exam preparation (incl. examination)</b> = sum of working hours: 28</p>
	<p>calculation of student workload (total amount of hours including a) - c))</p>	<p><b>Total amount of the presence time and working hours a) to c):</b> 450</p>
1m	<p>description of possible optional courses in the module</p>	<p><u>Can a student choose between different courses within the module?</u> YES <u>Short description of selection option</u>  <b>The module includes compulsory elective choices (Wahlpflicht WP) of 9 weeks duration:</b> WP1: Students undertake the practical work integrated in a research group at the University of Bremen. WP2: Students undertake the practical work as internship students integrated in an external national or international research group.</p>
1n	language(s) of instruction	<p><input type="checkbox"/> German      <input checked="" type="checkbox"/> English      <input type="checkbox"/> Spanish      <input type="checkbox"/> French <input type="checkbox"/> Other, namely this:</p>
1o	frequency	<p>(regular cycle module is offered) e.g.: winter semester, yearly or summer semester, yearly or each semester each semester</p>
1p	duration	<p>Other, namely this: 9 weeks plus BMB workshop</p>
1q	Literature (optional)	

1r	more information on the module ( <i>optional</i> )	The presence time in the laboratory given in 1I can vary. Usually, students spend 6 weeks full-time in the laboratory. Depending on the lab and topic, a varying part of this time can be conducted in self study.
2	<b>INFORMATION ON THE MODULE EXAMINATION</b> (see also AT Art. 5 section 8)	
2a	type of examination	<input checked="" type="checkbox"/> module exam; i.e. exam with only one component (MP) <input 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 ( <i>type, number</i> )	<p><b>PL</b> = graded component of the examination  <b>SL</b> = ungraded component of the examination, coursework  <b>PVL</b> = prerequisite of the examination (see AT Art. 5 Section 10)</p> <p><input checked="" type="checkbox"/> PL   <b>1</b>      <input type="checkbox"/> SL        <input type="checkbox"/> PVL   justification</p> <p>If necessary, further explanations:</p> <p>PL = Portfolio, consisting of: project report (lab report) (70%), presentation, oral (30%), scientific poster about the work (ungraded)</p>
2c	Give this information for combination examinations only: Weights (in percentage) of component grades	<p>PL 1:</p> <p>PL 2:</p> <p>PL 3:</p> <p>PL 4:</p> <p>If necessary, further comments:</p>
2d	form of examination (see AT BPO/AT MPO Art. 8, 9 and 10)	<input type="checkbox"/> Assignment <input type="checkbox"/> Oral examination (single) <input type="checkbox"/> Presentation, oral <input type="checkbox"/> Written examination <input type="checkbox"/> Group examination, oral <input type="checkbox"/> Presentation and written assignment <input checked="" 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 type="checkbox"/> Other (concrete definition is given in the examination regulations):
2e	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: