

module code /
module title

D-FGME/ Functional Genomics of Marine Eukaryotes

 date / version of the module
description 26.10.2021

1 INFORMATION ON THE MODULE	
1a	module code D-FGME
1b	module title (German title) Funktionelle Genomik von marinen Eukaryonten
1c	module title (English title) Functional Genomics of Marine Eukaryotes
1d	credit points 6
1e	responsible for the module Prof. Dr. Janine Kirstein
1f	type of module elective 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 Basic understanding of molecular biology and genetics is recommended, including laboratory skills for molecular biology such as PCR and gel-electrophoresis, Basic in R and preferable R studio .
1j	learning contents Consolidation of the theoretical knowledge and understanding in the field of molecular ecology, functional genomics and genome evolution: Therefore the following topic will be discussed: <ul style="list-style-type: none"> - Introduction into the functional genomic - Application of functional genomics in the field of molecular ecology - Comparative genomics: Concepts and approaches - Introduction into Genome evolution - functional gene annotation - Theoretical background for functional and statical analyses of RNAseq data

		<p>Methodologies, applied in the laboratory and on a computer part:</p> <ul style="list-style-type: none"> - Extraction of RNA: Analysis (NanoDrop, Bioanalyser) - production of cDNA libraries the generation of ESTs with Illumina sequencer - Gene expression analysis of RNA seq (Illumina) data using R 																																																																																																
1k	learning outcomes/ competencies/ targeted competencies	<ul style="list-style-type: none"> • Students have an in-depth theoretical knowledge and understanding in the field of molecular ecology, functional genomics, and environmental genomics • Students can perform experiments in functional genomics and molecular ecology • Students understand the principles in genome evolution and bioinformatics • Students can generate and analyse RNAseq data 																																																																																																
1l	<p>calculation of student workload <i>(part a: calculation of presence time and working hours)</i></p>	<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"> <tr> <td><input checked="" type="checkbox"/></td> <td>1</td> <td>lecture(s) with</td> <td>2</td> <td>SWS/ contact hours</td> <td>28</td> <td>hours of presence time</td> </tr> <tr> <td><input type="checkbox"/></td> <td></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 type="checkbox"/></td> <td></td> <td>exercise(s) with</td> <td></td> <td>SWS/ contact hours</td> <td></td> <td>hours of presence time</td> </tr> <tr> <td><input type="checkbox"/></td> <td></td> <td>internship(s) with</td> <td></td> <td>sum of working hours</td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>1</td> <td>seminar(s) with</td> <td>0.4</td> <td>SWS/ contact hours</td> <td>6</td> <td>total hours of presence time</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>1</td> <td>laboratory/laboratories with</td> <td>4</td> <td>SWS/ contact hours</td> <td>56</td> <td>total hours of presence time</td> </tr> <tr> <td><input type="checkbox"/></td> <td></td> <td>tutorial(s) with</td> <td></td> <td>SWS/ contact hours</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td></td> <td>excursion(s) with</td> <td></td> <td>SWS contact hours in total</td> <td></td> <td>working hours</td> </tr> <tr> <td><input type="checkbox"/></td> <td></td> <td colspan="5">other form of course (e.g. block seminar), namely this:</td> <td></td> </tr> <tr> <td></td> <td></td> <td colspan="5">Klicken Sie hier, um Text einzugeben.</td> <td></td> </tr> <tr> <td></td> <td></td> <td>with</td> <td>SWS / with totaly</td> <td>contact hours</td> <td><input type="checkbox"/></td> <td>presence time <input type="checkbox"/></td> <td>working hours</td> </tr> <tr> <td></td> <td></td> <td colspan="5">= sum of presence time and working hours:</td> <td></td> </tr> <tr> <td></td> <td></td> <td colspan="5">90</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/>	1	lecture(s) with	2	SWS/ contact hours	28	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 checked="" type="checkbox"/>	1	seminar(s) with	0.4	SWS/ contact hours	6	total hours of presence time	<input checked="" type="checkbox"/>	1	laboratory/laboratories with	4	SWS/ contact hours	56	total hours of presence time	<input type="checkbox"/>		tutorial(s) with		SWS/ contact hours			<input type="checkbox"/>		excursion(s) with		SWS contact hours in total		working hours	<input type="checkbox"/>		other form of course (e.g. block seminar), namely this:								Klicken Sie hier, um Text einzugeben.								with	SWS / with totaly	contact hours	<input type="checkbox"/>	presence time <input type="checkbox"/>	working hours			= sum of presence time and working hours:								90					
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	<p>calculation of student workload</p> <p><i>(part b: preparation time and follow-up work/self-study)</i></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>24</p>
	<p>calculation of student workload</p> <p><i>(part c: exam preparation etc.)</i></p>	<p>c) exam preparation (incl. examination)</p> <p>= sum of working hours:</p> <p>66</p>
	<p>calculation of student workload</p> <p><i>(total amount of hours including a) - c))</i></p>	<p>Total amount of the presence time and working hours a) to c):</p> <p>180</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></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	<p>frequency</p>	<p><i>(regular cycle module is offered) e.g.: winter semester, yearly or summer semester, yearly or each semester</i></p> <p>summer semester yearly</p> <p>Klicken Sie hier, um Text einzugeben.</p>
1p	<p>duration</p>	<p>one semester module</p> <p>Klicken Sie hier, um Text einzugeben.</p>
1q	<p>Literature <i>(optional)</i></p>	<p>Klicken Sie hier, um Text einzugeben.</p>
1r	<p>more information on the module <i>(optional)</i></p>	<p>Instructors: Dr. Uwe John and Dr. Sylke Wohlrab</p>
2	<p>INFORMATION ON THE MODULE EXAMINATION (see also AT Art. 5 section 8)</p>	
2a	<p>type of examination</p>	<p><input checked="" type="checkbox"/> module exam; i.e. exam with only one component (MP)</p> <p><input 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 (type, number)	<p><i>PL</i> = graded component of the examination <i>SL</i> = ungraded component of the examination, coursework <i>PVL</i> = prerequisite of the examination (see AT Art. 5 Section 10)</p> <p><input checked="" type="checkbox"/> PL 1 <input type="checkbox"/> SL <input type="checkbox"/> PVL justification</p> <p>If necessary, further explanations:</p> <p>PL = Portfolio, consisting of: oral presentation (seminar talk), or oral examination (25%), scientific poster or oral presentation (of results) (75%)</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: 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)	<p><input type="checkbox"/> Assignment <input type="checkbox"/> Oral examination (single) <input type="checkbox"/> Presentation, oral</p> <p><input type="checkbox"/> Written examination <input type="checkbox"/> Group examination, oral <input type="checkbox"/> Presentation and written assignment</p> <p><input checked="" type="checkbox"/> Portfolio <input type="checkbox"/> Project report <input type="checkbox"/> Bachelor Thesis</p> <p><input type="checkbox"/> Internship report <input type="checkbox"/> Colloquium <input type="checkbox"/> Master Thesis</p> <p><input type="checkbox"/> Other (concrete definition is given in the examination regulations):</p>
2e	language(s) of instruction	<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>