Universität Bremen

module code / module title	**MolEcol/Molecular Techniques of Ecology**

date / version of the module description	25.05.2022

1	**INFORMATION ON THE MODULE**	
1a	module code	MolEcol
1b	module title *(German title)*	Molekulare Methoden der Ökologie
1c	module title *(English title)*	Molecular Techniques of Ecology
1d	credit points	9
1e	responsible for the module	Dr. Marlis Reich
1f	type of module	compulsory module
1g	programs using the module	M.Sc. Ecology
1h	organizational unit offering the module	Klicken Sie hier, um Text einzugeben.
1i	content-related prior knowledge or skills	Basics of molecular biology are recommended
1j	learning contents	• Species hypotheses: biological and phylogenetic species concept (BSC, PSC) • Molecular-based community analysis • Molecular markers and their use in ecological studies • DNA barcoding, metabarcoding, DNA-based taxon classification • DNA fingerprinting techniques • Sequencing techniques: Sanger, next-generation, third-generation • Sequence (downstream) analyses, primary and secondary databases • Sequence similarity based analyses

		• Phylogenetic calculation
		• How to use molecular techniques in the laboratory
		• Workflow with detailed steps: from taking environmental samples to high-throughput sequencing
		• Output formats to be ready to use for uni- and multivariate statistics

| 1k | learning outcomes/ competencies/ targeted competencies | At the end of the course, students will be able to decide on an appropriate molecular/computational approach and apply it specifically to test ecological hypotheses and concepts.

In a scientific discussion, students will be able to form their own opinion about the validity of an applied approach and a derived ecological conclusion. They are able to defend their opinion based on their acquired knowledge regarding different techniques, their advantages and disadvantages. |

| 1l | calculation of student workload

(part a: calculation of presence time and working hours) | **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).**

a) detailed calculation:
SWS / presence time/working hours in each course of the module |

☒	1	lecture(s) with	3	SWS/ contact hours	42	hours of presence time
☒	1	seminar(s) with	1	SWS/ contact hours	14	hours of presence time
☒	1	exercise(s) with	4	SWS/ contact hours	56	hours of presence time
☐		internship(s) with		sum of working hours		
☐		seminar(s) with		SWS/ contact hours		total hours of presence time
☒	1	laboratory/laboratories with	2	SWS/ contact hours	28	total hours of presence time
☐		tutorial(s) with		SWS/ contact hours		
☐		excursion(s) with		SWS contact hours in total		working hours

☐ other form of course (e.g. block seminar), namely this:

Klicken Sie hier, um Text einzugeben.

with	SWS / with totaly	contact hours	☐ presence time	☐ working hours

= sum of presence time and working hours:

140

calculation of student workload *(part b: preparation time and follow-up work/self-study)*	**b) working hours for preparation/follow-up work of the course(s) and/or self-study** = sum of working hours: 60	
calculation of student workload *(part c: exam preparation etc.)*	**c) exam preparation (incl. examination)** = sum of working hours: 70	
calculation of student workload *(total amount of hours including a) - c))*	**Total amount of the presence time and working hours a) to c):** 270	
1m	description of possible optional courses in the module	*Can a student choose between different courses within the module?* NO *Short description of selection option* Klicken Sie hier, um Text einzugeben.
1n	language(s) of instruction	☐ German ☒ English ☐ Spanish ☐ French ☐ Other, namely this: Klicken Sie hier, um Text einzugeben.
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	Other, namely this: 4 weeks block course including the examination
1q	Literature (*optional*)	Klicken Sie hier, um Text einzugeben.
1r	more information on the module (*optional*)	Instructors: Dr. Marlis Reich, Dr. Rolf Nimzyk, Dr. Volkhard Rippe
2	**INFORMATION ON THE MODULE EXAMINATION** (see also AT Art. 5 section 8)	
2a	type of examination	☐ module exam; i.e. exam with only one component (MP) ☒ combination exam, i.e. exam with several components (administered by instructors) (KP) ☐ partial exam; i.e. exam with several components (administered by registrar) (TP)

2b	exam components or prerequisites *(type, number)*	*PL* = graded component of the examination *SL* = ungraded component of the examination, coursework *PVL* = prerequisite of the examination (see AT Art. 5 Section 10) ☒ PL | 1 ☒ SL | 1 ☐ PVL | justification If necessary, further explanations: PL = Presentation and written assignment, SL 1 = Assignment 1
2c	Give this information for combination examinations only: Weights (in percentage) of component grades	PL 1: PL 2: PL 3: PL 4: If necessary, further comments: Klicken Sie hier, um Text einzugeben.
2d	form of examination (see AT BPO/AT MPO Art. 8, 9 and 10)	☒ Assignment ☐ Oral examination (single) ☐ Presentation, oral ☐ Written examination ☐ Group examination, oral ☒ Presentation and written assignment ☐ Portfolio ☐ Project report ☐ Bachelor Thesis ☐ Internship report ☐ Colloquium ☐ Master Thesis ☐ Other (concrete definition is given in the examination regulations): Klicken Sie hier, um Text einzugeben.
2e	language(s) of instruction	☐ German ☒ English ☐ Spanish ☐ French ☐ Other, namely this: Klicken Sie hier, um Text einzugeben.