

**Examination and Study Regulations for the
master's degree course 'Biodiversity, Ecology and Evolution'
at the University of Greifswald**

Of 17 June 2021

Based on § 2(1) in conjunction with § 38(1) and § 39(1) of the *Landeshochschulgesetz* - LHG M-V (State Higher Education Law), in the version announced on 25 January 2011 (Law and Ordinance Gazette of Mecklenburg-Vorpommern (GVOBl. M-V) p. 18), last amended by Article 9 of the law of 11 May 2021 (GVOBl. M-V p. 600, 688), the University of Greifswald hereby passes the following Examination and Study Regulations for the master's degree course 'Biodiversity, Ecology and Evolution':

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List of Abbreviations

WL	Required workload in hours
CM	Core module
CE	Compulsory elective
EM	Elective module
D	Duration in semesters
ID	Identification number of the module
WE	Written examination
ECTS	Credits according to the European Credit Transfer System
M	Minutes
MD	Master's dissertation
OE	Oral examination
P	Protocol
AS	Type of assessment
PP	Poster presentation
SA	Scope of assessment

Pr	Presentation
RED	Regular examination date (semester)
p	Pages
C	Coursework
SC	Scope of coursework
SWS	Contact hours per week
PE	Practical exercises
SR	Scientific report
*	Non-assessed examination/coursework
-	until
/	or
+	and

§ 1 Scope of Application

These Examination and Study Regulations govern the course content, course organisation and examination procedure in the master's degree course in 'Biodiversity, Ecology and Evolution' at the University of Greifswald. The General Examination Regulations of the University of Greifswald (*Rahmenprüfungsordnung* – hereinafter RPO) of 18 March 2021 (made public and accessible to all members of the University on 15 April 2021), as amended from time to time, shall apply on a supplementary basis.

§ 2 Study Goals

The master's degree course 'Biodiversity, Ecology and Evolution' aims to educate graduates within the framework of a four-semester advanced degree course so that they can independently identify and structure questions in research and/or practice and answer them by selecting and applying suitable scientific methods. This goal is achieved with an educational programme directly related to research that also has significant practical components. The combination of various elective modules that can be chosen freely allows the student to specialise in one of the named fields. During their studies, students receive a broad methodological education that includes both field and laboratory methods. Particular importance is placed on both protecting biodiversity and understanding how biodiversity arises and can be recorded over space and time. In addition to the ability to implement expert knowledge as required by the specific problem, during their course students learn to reflect critically and analytically on complex matters. This enables students to take on positions of responsibility in universities, research institutes, public authorities, environmental protection organisations and industry and commerce (e.g., agricultural sector, pest control, biotechnology, clinical laboratories, medical technology, pharmaceutical sector, publishing houses, media). Students who complete the degree are eligible to be accepted for a doctorate programme.

§ 3

Admission and Admission Requirements

(1) The master's degree course 'Biodiversity, Ecology and Evolution' can be started in the winter and in the summer semester.

(2) The admission requirements for the master's degree course are:

1. an undergraduate university degree in a degree course in the biosciences or life sciences or a closely related degree course,
2. at least 50 % of the ECTS credit points of the undergraduate degree should come from an area related to biology with topics such as zoology, botany, ecology, evolution or physiology as well as
3. proven proficiency in English at a level of at least B2 of the 'Common European Framework of Reference for Languages' (equivalents: FCE, TOEFL (CBT) 227, TOEFL (IBT) 87, TOEFL (PBT) 567, TOEIC 785, IELTS 5) or alternatively proof of at least seven years of English lessons at school.

§ 4

Structure of the Degree

(1) The master's course can be completed with the degree 'Master of Science' in four semesters (the standard length of study).

(2) The total workload required to successfully complete the course equates to 3600 hours. A total of 120 ECTS must be acquired from the core modules (30 ECTS), elective modules (60 ECTS) and the master's dissertation including defence (30 ECTS).

(3) Core modules shall convey the advanced general knowledge required for the competent discussion of current problem areas in the field of biodiversity, ecology and evolution. Students must acquire 30 ECTS in four core modules.

(4) Elective modules serve to broaden knowledge in individual subject areas within the discipline or offer the opportunity to acquire special qualifications in further basic subjects. They enable access to current research questions. Students must cover ten elective modules and acquire a total of 60 ECTS. Students shall be entitled to cover further elective modules exceeding the minimum number of modules as additional courses (according to § 32 RPO) that shall also be listed on the transcript of records.

(5) Regardless of the students' rights to independently design the temporal and organisational course of their studies, the course of studies listed in the Appendix (sample study plan) is recommended.

(6) The course of study will be completed with the master's dissertation including defence (§ 8).

§ 5 Range and Types of Lectures

- (1) Instruction is given in the form of lectures, seminars, exercise practicals, laboratory practicals and excursions.
- (2) Lectures serve the systematic presentation of a subject matter and are mainly taught in the form of a presentation.
- (3) Seminars serve to apply general content from a subject to specific problems and to practise presentation techniques. Students are introduced to independent academic work through presentations and discussions with teaching staff and fellow students and practice their discussion and oral argumentation skills.
- (4) In exercise practicals, students shall be introduced to practical academic activities. Exercise practicals convey basic methods of academic work in the relevant subject areas and support the application and in-depth exploration of the teaching content.
- (5) Practical are characterised by the autonomous application of scientific methods to scientific problems. They serve the purpose of practising and deepening practical skills and promote the autonomous handling of academic tasks.
- (6) Excursions are external courses under the supervision of a lecturer and serve to demonstrate advanced subject-specific content on a concrete object.
- (7) The language of instruction for all courses is German or English as specified in the module descriptions.

§ 6 Modules

- (1) The master's course is divided into compulsory core modules (30 ECTS), compulsory elective modules (60 ECTS) and the master's dissertation module (30 ECTS).
- (2) Compulsory core modules are:

ID	Core module	D	WL	ECTS	AS	SA	C	SC	RED
B1	Basics of Biodiversity, Ecology and Evolution	1-2	180	6	WE	60 M	PE*	15 p	1/2
B2	Research and Collection Management	1	180	6	Pr	15 M			2
B3	Research Internship	1	300	10	P	10 p			3
B4	Personal Profiling	1	240	8	P*	4 p			3

The 8 credits for Module B4 'Personal Profiling' may be chosen freely from the courses offered at the University of Greifswald, provided that these courses have not already been studied as part of the undergraduate degree. The type of assessment for 'Personal Profiling' will be agreed to in writing after a personal consultation with the course advisor, by the member of staff who is responsible for the module and upon agreement with the student.

(3) The student must complete ten compulsory elective modules with 6 ECTS each. At least eight of the chosen modules must be marked.

ID	Elective module	D	WL	ECTS	AS	SA	C	SC	RED
E0.1	International Excursion	1	180	6	Pr*	20 M			3
E0.2	Mobility Module	1	180	6	WE/ OE/ SR/ R/R	90 M/ 30 M/ 10 p/ 20- 30 M/ 20- 30 M + 5- 10 p			3
E1.1	Microbiomes and biodiversity 1: Lectures	1	180	6	WE/OE	90 M/ 30 M			3
E1.2	Microbiomes and biodiversity 2: Seminar and Lab Course	1	180	6	P	10 p	Pr*	20 M	3
E1.3	Botanical Species Conservation 1: Lecture and Seminar	1	180	6	Pr	20 M			3
E1.4	Botanical Species Conservation 2: Lecture and Field Experiment	1	180	6	P	10 p			3
E1.5	Conservation Genetics of Plants 1: Lecture and Seminar	1	180	6	Pr	20 M			3
E1.6	Conservation Genetics of Plants 2: Lecture and Lab Course	1	180	6	P	10 p			3
E1.7	Conservation and Behaviour 1: Lecture and Seminar	1	180	6	WE	60 M	Pr*	20 M	3
E1.8	Conservation and Behaviour 2: Exercise	1	180	6	P/PP	10 p/ 15 M			3

E1.9	Conservation Genetics 1: Lecture and Seminar	1	180	6	WE	60 M	Pr*	20 M	3
E1.10	Conservation Genetics 2: Exercise	1	180	6	P	10 p			3
E1.11	Shaping Sustainability	1	180	6	Pr	20 M	PE*	20 p	3
E2.1	Aquatic and Marine Microbiology 1: Basics	1	180	6	WE	45 M	Pr* +P*	20 M + 2 p	3
E2.2	Aquatic and Marine Microbiology 2: Advanced	1	180	6	WE	45 M	Pr*	20 M	3
E2.3	Aquatic and Marine Microbiology 3: Practical	1	180	6	Pr	15 M	P*	5 p	3
E2.4	Microbial Ecology 1: Microbial Processes, Energy Fluxes and Elemental Cycles	1	180	6	WE	90 M			3
E2.5	Microbial Ecology 2: Microbial Biodiversity, Interactions and Molecular Ecology	1	180	6	WE	60 M			3
E2.6	Theoretical Ecology	1	180	6	WE/OE	60 M/ 30 M			3
E2.7	Experimental Animal Ecology	1	180	6	SR/PP	10 p/ 15 M			3
E2.8	Functional Animal Ecology 1: Lecture and Seminar	1	180	6	WE/Pr	60 M/ 20 M			3
E2.9	Functional Animal Ecology 2: Exercises	1	180	6	SR/PP	10 p/ 15 M			3
E2.10	Experimental Plant Ecology	1	180	6	SR	10 p			3
E2.11	Evolutionary Ecology 1: Lecture and Exercise	1	180	6	WE/OE	60 M/ 30 M	Pr* +PP*	15 M +15 M	3
E2.12	Evolutionary Ecology 2: Exercises	1	180	6	Pr*	20 M+ 10 p	Pr*	10 M +10 p	3
E2.13	Vegetation Ecology 1: Lecture and Seminar	1	180	6	PE	20 p	Pr*	20 M	3
E2.14	Vegetation Ecology 2: Case Study	1	180	6	SR	10 p			3
E2.15	Ornithology 1: Lecture and Seminar	1	180	6	WE	60 M	Pr*	20 M	3

E2.16	Ornithology 2: Exercise	1	180	6	P	10 p			3
E2.17	Climate Change	1	180	6	PP	15 M			3
E2.18	Dendrochronology	1	180	6	Pr*	15 M			3
E2.19	General and Applied Aquatic Ecology	1	180	6	WE	90 M	Pr*	15 M	3
E2.20	Aquatic Ecology – Summer Course	1	180	6	P	10 p	Pr*	15 M	3
E2.21	Remote Sensing	1	180	6	PE	24 p			3
E2.22	Applied Remote Sensing/Geoinformation Science with Field Work	1	180	6	SR	10 p	PE*	15 p	3
E3.1	Evolutionary Morphology	1	180	6	WE	60 M	Pr*	20 M	3
E3.2	Making the Invisible Visible – Introduction to Imaging Methods	1	180	6	P*	10 p			3
E3.3	Molecular Phylogenetics 1: Theory	1	180	6	WE	60 M	Pr*	40 M	3
E3.4	Molecular Phylogenetics 2: Practice	1	180	6	P	10 p	Pr*	20 M	3
E3.5	Animal Physiology 1: Lecture and Seminar	1	180	6	WE	60 M	Pr*	20 M	3
E3.6	Animal Physiology 2: Lab Course	1	180	6	Pr	15 M	P*	10 p	3
E3.7	Plant Stress Physiology: Lecture and Seminar	1	180	6	WE/OE	90 M/30 M	PE*	20 p	3
E3.8	Experimental Plant Stress Physiology	1	180	6	PP	15 M	Pr*	30 M	3
E3.9	Parasitology 1: Lecture and Seminar	1	180	6	WE	60 M	Pr*	20 M	3
E3.10	Parasitology 2: Lab Course	1	180	6	Pr	15 M	P*	10 p	3

The module E0.2 'Mobility Module' may be chosen a maximum of 5 times. However, the course advisor must be consulted.

(4) The module 'Master's Dissertation' (including defence) is worth 30 ECTS and is taken in the 4th semester.

(5) The entire range of elective modules specified in Sub-Section 3 shall be offered subject to the availability of corresponding teaching capacities. Students shall not be entitled to participation in a specific elective module, since elective modules are limited to a certain number of participants and not all modules are offered in every semester.

(6) A module that has already been covered as part of the bachelor's degree course may not be studied again in the master's degree course, unless the modules differ substantially with regard to their contents. The decision regarding sentence 1 will be

made by the examination board upon written request from the student. The request must be submitted to the Central Examination Office.

§ 7

Examinations and Non-Assessed Coursework

(1) The master's examination consists of study-accompanying examinations for the individual modules and a master's dissertation including its defence.

(2) Module examinations serve the purpose of determining whether, and to what extent, the student has achieved the qualification objectives of the module. Besides examinations, in selected modules non-assessed coursework must be completed according to § 17b RPO and are then a requirement for successful completion of the respective module. Examinations and non-assessed coursework shall be carried out in the same language in which the lecture is instructed. By way of derogation from sentence 3, upon agreement between the examiner and the student, either German or English can be set as the language for the examinations and non-assessed coursework. This deviation must be announced by the fourth week of lectures.

(3) If there is a choice of more than one type of examination, at the latest in the fourth week of lectures the examiner must announce the type of examination required. If no announcement is made, the first type listed under § 6 shall be set down as the examination type.

(4) Module examinations consist of individually separable types of examination and non-assessed coursework. The different types of examination and non-assessed coursework are:

- **Scientific report (SR)**, approximately 10 pages long, equivalent to a coursework essay, written in the form of a journal article for natural sciences, writing-up period 8 weeks
- **Written examination (WE)**, duration 45-90 minutes (M)
- **Oral examination (OE)**, duration 30 M
- **Presentation, possibly with written portion and discussion (Pr)**, duration 15-40 M (if no information is given, then 20 M), additional written portion possible up to 10 p.
- **Poster presentation (PP)**, duration 15 M
- **Protocol (P)** of an exercise practical, experiment, excursion or the like, 2-10 pages long;
- **Practical exercises (PE)**, also possible as weekly assessments to check progress (maximum of 24 pages), determination of type and scope no later than 4 weeks after the beginning of the lecture period.

(5) The criteria to receive an unmarked certificate of participation in a practical for practical exercises is determined by the lecturer within the first four weeks of the lecture period. If no other specification is made, 50% of the exercises must be successfully completed.

(6) As a rule, resits of examinations shall take place at the beginning of the subsequent semester. § 41(3) RPO shall apply accordingly. If the student is making the final possible attempt at an examination, a second examiner shall also be included.

§ 8

Master's Dissertation and Defence

(1) The master's dissertation is an examination component that concludes the academic education. It is intended to demonstrate that students are able to independently work on a problem from their subject area using scientific methods and within a set period of time. The writing-up period is 840 hours over the course of six months. The dissertation is awarded 28 ECTS and the defence 2 ECTS.

(2) Registration for the master's dissertation requires evidence that the student has previously earned at least 60 ECTS. The topic of the master's dissertation must be assigned no later than six months after the completion of the last module examination. In the event that a student fails to apply for the topic or applies after the deadline, the writing-up period shall be shortened correspondingly.

(3) The master's dissertation must be defended. As part of the defence, the student must present the most significant aspects of the master's dissertation (15 minutes) and defend them against objections subsequently raised by the examination board (30 minutes). It shall be assessed by no fewer than two examiners. One of the examiners should be the supervisor of the dissertation. If the defence is not passed, it may be repeated one time. If the defence is not passed second time round, the master's dissertation must also be repeated.

§ 9

Determination of the Overall Mark

(1) In accordance with § 33 RPO, the overall mark of the master's examination is calculated by factoring in the marks of the module examinations and the master's dissertation.

(2) The overall mark is composed of two partial marks. Mark 1 is the arithmetic average of the marked core modules B1 to B3 and the seven compulsory elective modules completed first; this is weighted as 70% of the overall mark. Mark 2 is the mark of the Master's Dissertation module, which is weighted as 30% of the overall mark.

§ 10

Degree

After passing the master's examination, the degree 'Master of Science' (M.Sc.) shall be conferred.

§ 11
Entry into Force / Expiry

(1) These Examination and Study Regulations shall enter into force on the day after their publication at the University. They shall only apply to students enrolled from winter semester 2021/22 onwards.

(2) The Subject Examination and Study Regulations for the master's degree course 'Biodiversity and Ecology' at the University of Greifswald of 11 March 2016 (made public and accessible to all members of the University on 21 March 2016), last amended by Article 1 of the statutes of 16 November 2018 (made public and accessible to all members of the University on 20 November 2018), expires at the end of the day on 30 September 2024.

Issued on the basis of the resolution made by the Senate of 16 June 2021 and following the approval of the Rector of 17 June 2021.

Greifswald, 17 June 2021

The Rector
of the University of Greifswald
University Professor Dr. Katharina Riedel

Note: made public and accessible to all members of the University on 16.08.2021

Appendix A: Sample Study Plan for the master's degree course 'Biodiversity, Ecology and Evolution'

List of Abbreviations:

AS	Type and scope of assessment
C	Type and scope of coursework
CM	Core module
E#	Number of selected elective module
ECTS	Credits
EM	Elective module
EP	Exercise Practicals
ID	Identification number of the module
L	Lecture
MD	Master's dissertation
NLP	Non-lecture period
P (4 S)	Protocol, 4 pages
PE (15 p)	Practical exercises, 15 pages
Pr (15 M)	Presentation, 15 minutes
PR	Practicals
S	Seminar
Sem.	Semester
SR (10 p)	Scientific report, 10 pages
SWS	Contact hours per week
WE (60 M)	Written examination lasting 60 minutes

Example for a start of studies in winter semester

Sem.	ID	Module	Type of course	AS	C	SWS	ECTS	Total ECTS
1	B1	Basics in Biodiversity, Ecology & Evolution	L+EP	WE (60 M)	PE (15 p)	2+2	6	32
	B4	Personal Profiling	L, S	P (4 p)		6	8	
	E#	Elective module 1	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 2	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 3	see Appendix B	see Appendix B	see Appendix B	4	6	
2	B2	Research and Collection Management	L+EP	Pr (15 M)		4	6	30
	E#	Elective module 4	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 5	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 6	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 7	see Appendix B	see Appendix B	see Appendix B	4	6	
3	B3	Research Internship	P	SR (10 p)		6 weeks (NLP)	10	28
	E#	Elective module 8	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 9	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 10	see Appendix B	see Appendix B	see Appendix B	4	6	
4	MD	Master's dissertation	MD	see Appendix B		6 months	30	30

Example for a start of studies in summer semester

Sem.	ID	Module	Type of course	AS	C	SWS	ECTS	Total ECTS
1	B1*	Basics in Biodiversity, Ecology & Evolution	L	WE (60 M)		2		
	B2	Research and Collection Management	L+EP	Pr (15 M)		4	6	
	E#	Elective module 1	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 2	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 3	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 4	see Appendix B	see Appendix B	see Appendix B	4	6	30
2	B1*	Basics in Biodiversity, Ecology & Evolution	EP		PE (15 p)	2	6	
	B4	Personal Profiling	L, S	P (4 p)		6	8	
	E#	Elective module 5	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 6	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 7	see Appendix B	see Appendix B	see Appendix B	4	6	32
3	B3	Research Internship	P	SR (10 p)		6 weeks (NLP)	10	
	E#	Elective module 8	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 9	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 10	see Appendix B	see Appendix B	see Appendix B	4	6	28
4	MD	Master's dissertation	MD	see Appendix B		6 months	30	30

B1* If studies are taken up in summer semester, module B1 will last 2 semesters; the table lists the number of credits gained following completion of the module.

Example for a start of studies in winter semester with a period of study abroad in the third semester

Sem.	ID	Module	Type of course	AS	C	SWS	ECTS	Total ECTS
1	B1	Basics in Biodiversity, Ecology & Evolution	L+EP	WE (60 M)	PE (15 p)	2+2	6	
	B4	Personal Profiling	L, S	P (4 p)		6	8	
	E#	Elective module 1	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 2	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 3	see Appendix B	see Appendix B	see Appendix B	4	6	32
2	B2	Research and Collection Management	L+EP	Pr (15 M)		4	6	
	B3	Research Internship	P	SR (10 p)	6 weeks (NLP)		10	
	E#	Elective module 4	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 5	see Appendix B	see Appendix B	see Appendix B	4	6	28
3	E0.2	Mobility Module	see Appendix B	see Appendix B	see Appendix B		30	30
4	MD	Master's dissertation	MD	see Appendix B		6 months	30	30

Example for a start of studies in summer semester with a period of study abroad in the third semester

Sem.	ID	Module	Type of course	AS	C	SWS	ECTS	Total ECTS
1	B1	Basics in Biodiversity, Ecology & Evolution	L	WE (60 M)		2		
	B2		L+EP	Pr (15 M)		4	6	
	B4	Management				6	8	
	E#	Personal Profiling	L, S	P (4 p)				
	E#	Elective module 1	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 2	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 3	see Appendix B	see Appendix B	see Appendix B	4	6	32
2	B1	Basics in Biodiversity, Ecology & Evolution	EP		PE (15 p)	2	6	
	B3	Research Internship	P	SR (10 p)		6 weeks (NLP)	10	
	E#	Elective module 4	see Appendix B	see Appendix B	see Appendix B	4	6	
	E#	Elective module 5	see Appendix B	see Appendix B	see Appendix B	4	6	28
3	E0.2	Mobility Module	see Appendix B	see Appendix B	see Appendix B		30	30
4	MD	Master's dissertation	MD	see Appendix B		6 months	30	30

B1* If studies are taken up in summer semester, module B1 will last 2 semesters; the table lists the number of credits gained following completion of the module.

**Appendix B: Abridged Course Catalogue
for the master's degree course 'Biodiversity, Ecology and Evolution'**

List of Abbreviations:

AS	Type of assessment	Pr	Presentation
C	Coursework	SA	Scope of assessment
CM	Core module	SC	Scope of coursework
ECTS	Credits according to the European Credit Transfer System	SR	Scientific report
EM	Elective module	SuSe	Summer semester
ID	Identification number of the module	SWS	Contact hours per week
M	Minutes	WE	Written examination
MD	Master's dissertation	WiSe	Winter semester
OE	Oral examination	WL	Required workload in hours
P	Protocol	*	Non-assessed examination/coursework
p	Pages	-	until
PE	Practical exercises	/	or
PP	Poster presentation	+	and

Abridged Course Catalogue

ID	Core module	Classes	SWS	WL	ECTS	AS	SA	C	SC	Sem
B1	Basics of Biodiversity, Ecology and Evolution	2 L	4	180	6	WE	60 M	PE*	15 p	SuSe+ WiSe
B2	Research and Collection Management	1 L/PR, 1L	4	180	6	Pr	15 M			SuSe
B3	Research Internship	1 P	6 weeks	300	10	P	10 p			SuSe/ WiSe
B4	Personal Profiling		4	240	8	P*	10 p			SuSe/ WiSe

ID	Elective module	Classes	SWS	WL	ECTS	AS	SA	C	SC	Sem
E0.1	International Excursion	1 E	10 days	180	6	Pr*	20 M			SuSe/ WiSe
E0.2	Mobility Module		4	180	6	WE/ OE/ SR/ Pr	90 M/ 30 M/ 10 p/ 20-30 M, 5-10 p			SuSe/ WiSe
E1.1	Microbiomes and Biodiversity 1: Lectures	3 L	4	180	6	WE/OE	90 M/ 30 M			WiSe
E1.2	Microbiomes and Biodiversity 2: Seminar and Lab Course	1 S, 1 P	4	180	6	P	10 p	Pr*	20 M	SuSe
E1.3	Botanical Species Conservation 1: Lecture and Seminar	1 L, 1 S	4	180	6	Pr	20 M			SuSe

E1.4	Botanical Species Conservation 2: Lecture and Field Experiment	1 L, 1 P	4	180	6	P	10 p			SuSe
E1.5	Conservation Genetics of Plants 1: Lecture and Seminar	1 L, 1 S	4	180	6	Pr	20 M			SuSe
E1.6	Conservation Genetics of Plants 2: Lecture and Lab Course	1 L, 1 P	4	180	6	P	10 p			SuSe
E1.7	Conservation and Behaviour 1: Lecture and Seminar	1 L, 1 of 2 S	4	180	6	WE	60 M	Pr*	20 M	SuSe
E1.8	Conservation and Behaviour 2: Exercise	1 PR	4	180	6	P/PP	10 p/ 15 M			SuSe
E1.9	Conservation Genetics 1: Lecture and Seminar	1 L, 1 of 2 S	4	180	6	WE	60 M	Pr*	20 M	WiSe
E1.10	Conservation Genetics 2: Exercise	1 PR	4	180	6	P	10 p			WiSe
E1.11	Shaping Sustainability	2 S	4	180	6	Pr	20 M	PE	20 p	SuSe
E2.1	Aquatic and Marine Microbiology 1: Basics	2 L, 1 S, 1 PR	4	180	6	WE	45 M	Pr*, P*	20 M + 2 p	WiSe
E2.2	Aquatic and Marine Microbiology 2: Advanced	2 L, 1 S	4	180	6	WE	45 M	Pr*	20 M	SuSe
E2.3	Aquatic and Marine Microbiology 3: Practical	1 P	5	180	6	Pr	15 M	P*	5 p	SuSe
E2.4	Microbial Ecology 1: Microbial Processes, Energy Fluxes and Elemental Cycles	1 L	4	180	6	WE	90 M			WiSe
E2.5	Microbial Ecology 2: Microbial Biodiversity, Interactions and Molecular Ecology	2 L	4	180	6	WE	60 M			SuSe
E2.6	Theoretical Ecology	1 L	4	180	6	WE/OE	60 M/ 30 M			WiSe

E2.7	Experimental Animal Ecology	1 L/S, 1PR	4	180	6	SR/PP	10 p/ 15 M			WiSe
E2.8	Functional Animal Ecology 1: Lecture and Seminar	1 L, 1 S	4	180	6	WE/Pr	60 M/ 20 M			SuSe
E2.9	Functional Animal Ecology 2: Exercises	1 PR	4	180	6	SR/PP	10 p/ 15 M			SuSe
E2.10	Experimental Plant Ecology	1 PR, 1 S	5	180	6	SR	10 p			WiSe
E2.11	Evolutionary Ecology 1: Lecture and Exercise	1 L/S, 1PR	4	180	6	WE/OE	60 M/ 30 M	Pr*/PP*	15 M +15 M	SuSe
E2.12	Evolutionary Ecology 2: Exercises	2 PR	5	180	6	Pr*	20 M, 10 p	Pr*	10 M +10 p	SuSe
E2.13	Vegetation Ecology 1: Lecture and Seminar	1 L/PR, 1 S	5	180	6	PE	20 p	Pr*	20 M	WiSe
E2.14	Vegetation Ecology 2: Case Study	1 P	5	180	6	SR	10 p			SuSe
E2.15	Ornithology 1: Lecture and Seminar	1 L, 1 P	4	180	6	WE	60 M	Pr*	20 M	SuSe
E2.16	Ornithology 2: Exercise	1 PR	4	180	6	P	10 p			SuSe
E2.17	Climate Change	1 L, 1 S	4	180	6	PP	15 M			SuSe
E2.18	Dendrochronology	1 P	5	180	6	Pr*	15 M			SuSe+ WiSe
E2.19	General and Applied Aquatic Ecology	2 L, 1 S	4	180	6	WE	90 M	Pr*	15 M	WiSe
E2.20	Aquatic Ecology – Summer Course	1 P	4	180	6	P	10 p	Pr*	15 M	SuSe
E2.21	Remote Sensing	1 L/PR	4	180	6	PE	24 p			WiSe
E2.22	Applied Remote Sensing/Geoinformation Science with Field Work	1 P	3	180	6	SR	10 p	PE	15 p	SuSe
E3.1	Evolutionary Morphology	1 L, 1 S	4	180	6	WE	60 M	Pr*	20 M	WiSe

E3.2	Making the Invisible Visible – Introduction to Imaging Methods	1 L, 1 PR	4	180	6	P*	10 p			WiSe
E3.3	Molecular Phylogenetics 1: Theory	1 L/PR, 1 S	4	180	6	WE	60 M	Pr	40 M	SuSe+ WiSe
E3.4	Molecular Phylogenetics 2: Practice	2 PR	4	180	6	P	10 p	Pr*	20 M	SuSe
E3.5	Animal Physiology 1: Lecture and Seminar	1 L, 1 S	4	180	6	WE	60 M	Pr*	20 M	SuSe+ WiSe
E3.6	Animal Physiology 2: Lab Course	1 P	5	180	6	Pr	15 M	P*	10 p	WiSe
E3.7	Plant Stress Physiology: Lecture and Seminar	2 L, 1 S	4	180	6	WE/OE	90 M/ 30 M	PE*	20 p	WiSe
E3.8	Experimental Plant Stress Physiology	1 P, 1 S	5	180	6	PP	15 M	Pr*	30 M	WiSe
E3.9	Parasitology 1: Lecture and Seminar	1 L, 1 S	4	180	6	WE	60 M	Pr*	20 M	SuSe+ WiSe
E3.10	Parasitology 2: Lab Course	1 P	5	180	6	Pr	15 M	P*	10 p	SuSe

Appendix C: Module Descriptions for the master's degree course 'Biodiversity, Ecology and Evolution'

List of Abbreviations:

CE	Compulsory elective
CM	Core module
ECTS	Credits according to the European Credit Transfer System
EM	Elective module
M	Minutes
MSc. BEE	MSc. Biodiversity, Ecology and Evolution
MSc. LENC	MSc. Landscape Ecology and Nature Conservation
MSc. NHG	MSc. Sustainable Geography
MSc. UWi	MSc. Environmental Sciences
p	Pages
SWS	Contact hours per week
*	Non-assessed examination/coursework
-	until
/	or

Core modules:

Core module B1 'Basics in Biodiversity, Ecology and Evolution'	
Responsible	Chairperson of the Examination Board
Lecturers	Lecturers at the Institute of Botany and Landscape Ecology and the Zoological Institute
Language	English
Qualification objectives	<ul style="list-style-type: none"> ▪ Competent knowledge of biodiversity, ecology, morphology and phylogeny ▪ Overview of important theoretical concepts and central experimental approaches ▪ Knowledge of the development of experimental designs and the conduction of adequate statistical analyses ▪ Competence in interpreting data, reading original literature and scientific writing, insights into recent scientific outcomes
Module contents	<p>Lecture 'Biodiversity, Ecology, Physiology, Evolution, Morphology and Phylogeny'</p> <ul style="list-style-type: none"> ▪ Introduction to population ecology & synecology ▪ Introduction to conservation ecology, conservation genetics & behavioural biology ▪ Environmental physiology, physiology of sensory information and adaptation to environmental changes ▪ Evolution, natural and sexual selection, fitness, phenotypic plasticity, heritability ▪ Backbones of morphology

	<ul style="list-style-type: none"> Molecular phylogenetics <p>Lecture/Exercise Practical ‘Experimental Design & Analysis’</p> <ul style="list-style-type: none"> Experimental designs such as block designs, split-plot designs, coordinated distributed experiments, gradient experiments ANOVA and regression analyses in linear and mixed models 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Biodiversity, Ecology, Physiology, Evolution, Morphology and Phylogeny (2 SWS)	30	120	180
	Lecture/Exercise Practical: Experimental Design & Analysis (2 SWS)	30		
Assessment components	Assessment component: written examination 60 M on the lectures Biodiversity, Ecology and Physiology and Evolution, Morphology and Phylogeny			
	Coursework: weekly practice exercises* 15 p on Experimental Design & Analysis			
Regular examination date	1 st /2 nd Semester			
On offer	Biodiversity, Ecology, Physiology, Evolution, Morphology and Phylogeny: Summer semester/Winter semester, every year Experimental Design & Analysis: Winter semester, every year			
Duration	1 Semester if studies commence in winter semester, 2 Semesters if studies commence in summer semester			
Admission requirements	none			
Module can be selected for	MSc. BEE			

Core module B2 ‘Research and Collection Management’	
Responsible	Head of the Zoological Museum working group
Language	English
Qualification objectives	<ul style="list-style-type: none"> Competent knowledge for collecting and managing study organisms as well as the obtained research data addressing the following questions: <ul style="list-style-type: none"> Which permits are needed to collect and use the study organisms? Which ethical regulations should be considered?

	<ul style="list-style-type: none"> - How are voucher specimens stored and labelled? - How is voucher information documented and digitised? - What specific requirements need to be considered in morphological, molecular and/or behavioural studies? <ul style="list-style-type: none"> • Basic knowledge of collection-based techniques and data management 			
Module contents	<p>Lecture/Exercise Practical: ‘Basic Principles in Research and Collection Management’</p> <p>Theory</p> <ul style="list-style-type: none"> • collecting study organisms: permits (collection, import/export), sampling methods and their impacts, quantities • access – benefit sharing for collected material: basics of Nagoya regulations and how to apply for permits • ethics involved in using collected organisms animal welfare for laboratory experiments • voucher management: short and long-term storage, labelling (e.g. which information needs to be on a scientific label, how labels should be printed), digitisation of vouchers (introduction in collection management software and metadata, introduction to georeferencing, introduction to imaging of specimens) • E-Lab: documenting and managing laboratory experiments • DNA-analyses, management of sequence data, tissue storage, etc. • Museum: collection types, outreach • Citizen science <p>Practical</p> <ul style="list-style-type: none"> • Voucher management Natural History collections in Greifswald and Stralsund: imaging of different types of organisms, introduction to the database for voucher management • E-Lab and its implementation in laboratory experiments • Animal welfare: applications for lab and field-based research • Outreach: excursion to the German Oceanographic Museum (<i>Meeresmuseum</i>) Stralsund <p>Lecture: ‘Scientific Approaches to Knowledge’ Acquisition of knowledge, data interpretation, literature search, publication process, scientific writing and presentation</p>			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/ Exercise Practical: Basic Principles in	45	120	180

	Research and Collection Management (3 SWS)			
	Lecture: Scientific Approaches to Knowledge (1 SWS)	15		
Assessment components	Assessment component: presentation 15 M on the lecture/exercise practical			
	Coursework: -			
Regular examination date	2 nd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE			

Core module B3 'Research Internship'				
Responsible	Chairperson of the Examination Board			
Lecturers	Lecturers at the Institute of Botany and Landscape Ecology and the Zoological Institute			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced theoretical and practical knowledge regarding a specific case / a specific research task ▪ Advanced knowledge and skills for independent academic work and writing academic texts 			
Module contents	<ul style="list-style-type: none"> ▪ Developing a design to solve the assigned task ▪ Advanced introduction to literature studies ▪ Independently carrying out a research project of limited scope ▪ Evaluation, presentation and discussion of findings in a report 			
Classes (in ECTS, SWS and h)	10 ECTS are available	Contact hours	Self-study	Overall workload
	Internship: Research Internship (6 weeks)	150	150	300
Assessment components	Assessment component: Protocol 10 p			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Following prior arrangement			
Duration	1 st Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE			

Core module B4 'Personal Profiling'				
Responsible	Chairperson of the Examination Board			
Lecturers	Lecturers at the Institute of Botany and Landscape Ecology and the Zoological Institute			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> Skills or additional qualifications that are related to the subject of the degree course and serve to enhance the profile in regard to employability in academia, associations, the industrial sector, the business world or administration. 			
Module contents	<ul style="list-style-type: none"> In accordance with students' own choice. The 8 credits for Module B4 may be chosen freely from the courses offered at the University of Greifswald, provided that these courses have not already been studied as part of the undergraduate degree course. It is recommended that students choose modules that increase their employability, e.g., from the areas of statistics, rhetoric, presentation techniques, law, business management 			
Classes (in ECTS, SWS and h)	8 ECTS are available	Contact hours	Self-study	Overall workload
	8 ECTS to be chosen by student (6 SWS)			120
Assessment components	Assessment component: Protocol* 4 p			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester/Winter semester, every year			
Duration	1 Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE			

Elective modules:

Elective module E0.1 International Excursion“				
Responsible	Chairperson of the Examination Board			
Lecturers	Lecturers at the Institute of Botany and Landscape Ecology and the Zoological Institute			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Illustrative advancement of subject content based on a concrete object ▪ Travel to a natural space with particular features ▪ Getting to know the respective types of vegetation, flora and/or fauna typical for the region 			
Module contents	<ul style="list-style-type: none"> ▪ Dependent on excursion destination 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Excursion: International Excursion (5 SWS, Block)	75	105	180
Assessment components	Assessment component: Presentation* 20 M			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Every year			
Duration	1 Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E0.2 ‘Mobility Module’				
Responsible	Chairperson of the Examination Board			
Language	English and others			
Qualification objectives	<ul style="list-style-type: none"> ▪ Gaining insights into different scientific, political and cultural environments ▪ Developing intercultural communication skills in science practice and management ▪ Extending knowledge across several scientific disciplines beyond the offer of the University of Greifswald 			
Module contents	<p>The content of this module covers topics selected from the full scope of the Biodiversity, Ecology and Evolution study programme, in particular from the disciplines of botany, zoology, microbiology, physiology, and other disciplines of natural sciences. Depending on the level of interest, and following agreement with the Chairperson of the Examination Board, a student can undertake a period of study abroad at a recognised institution chosen by the student, which can be external universities or research institutes. The precise activities and module content are defined at the beginning of the course, together with a learning agreement between the Chairperson of the Examination Board and the student. The module can be selected a maximum of five times.</p>			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/Seminar/Exercise Practical (4 SWS)	60	120	180
Assessment components	Assessment component: Written examination 90 M or oral examination 30 M or scientific report 10 p or presentation 20–30 M, 5 –10 p			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Following prior arrangement			
Duration	1 Semester			
Admission requirements	Consultation required with the Chairperson of the Examination Board			
Module can be selected for	MSc. BEE			

Elective module E1.1 'Microbiomes and Biodiversity 1: Lectures'				
Responsible	Head of the Bacterial Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ In-depth knowledge about environmental and organism-associated microbiomes ▪ In-depth knowledge about the diversity of bacteria and archaea, their distribution and taxonomy ▪ Knowledge of methods in microbiome research about drinking and wastewater microbiology 			
Module contents	<ul style="list-style-type: none"> ▪ Structure and function of microbiomes ▪ Methods of microbiome research ▪ Climate change microbiology ▪ Bacteria and archaea: diversity, taxonomy and evolution ▪ Methods and concepts of drinking and wastewater microbiology 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Microbiome research (2 SWS)	30	120	180
	Lecture: Taxonomy, Phylogeny and Biodiversity of microorganisms (1 SWS)	15		
	Lecture: Drinking water and wastewater microbiology (1 SWS)	15		
Assessment components	Assessment component: Written examination 90 M or oral examination 30 M for the lectures Microbiome research (compulsory) and one of the two other lectures (compulsory elective)			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE			

Elective module E1.2 'Microbiomes and Biodiversity 2: Seminar and Lab Course'				
Responsible	Head of the Bacterial Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ In-depth knowledge of methods in microbiome research ▪ Ability to present and critically discuss literature in microbiome research ▪ Ability to create experimental design to test scientific hypotheses 			
Module contents	<ul style="list-style-type: none"> ▪ Laboratory work with high-performance equipment ▪ Methods for identification and quantification of functional and phylogenetic microbiome markers ▪ Analysis and presentation of scientific literature ▪ Bioinformatics 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Seminar: Current topics in microbiome research and biodiversity (1 SWS)	15	90	180
	Practical: Microbiome research and biodiversity (3 SWS)	75		
Assessment components	Assessment component: Protocol 10 p on practical			
	Coursework: Presentation* 20 M in the seminar			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Recommended previous knowledge	Previous attendance of the module Microbiomes and Biodiversity 1 recommended			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE			

Elective module E1.3 'Botanical Species Conservation 1: Lecture and Seminar'				
Responsible	Head of the General and Special Botany working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of important tools and legal regulations in the area of species protection ▪ Interpretation and fundamentals of creating red lists, prioritising species protection measures ▪ Strategies to determine the biological basics of species protection programmes for specific species 			
Module contents	<ul style="list-style-type: none"> ▪ Changes to flora and extinction of species in Germany and other regions of the world ▪ Reasons middle European flora is at risk ▪ Red lists of Germany and the IUCN: Structure, categories, criteria systems ▪ Process of setting priorities in species protection ▪ Collecting data on way of life, distribution and reproductive systems of plants for species protection programmes ▪ Academic work on species protection and species protection programmes 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Botanical Species Conservation (2 SWS)	30	120	180
	Seminar: Investigation of autecological data in plants (2 SWS)	30		
Assessment components	Assessment component: Presentation 20 M in the seminar Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every two years, in alternation with the modules Conservation Genetics of Plants 1 & 2			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E1.4 'Botanical Species Conservation 2: Lecture and Field Experiment'				
Responsible	Head of the General and Special Botany working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of population-biological laws in plants ▪ Managing and creating simple models on population biology ▪ Practical knowledge for collecting population-biological and demographical data of plant populations 			
Module contents	<ul style="list-style-type: none"> ▪ Introduction to population biology ▪ Models in population biology (population and individual-based models, demographic matrices) ▪ Practical on collecting population-biological data for selected populations 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Population Biology of Plants (2 SWS)	30	120	180
	Practical: Field Experiments in Plant Population Biology (2 SWS)	30		
Assessment components	Assessment component: Protocol 10 p on practical			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every two years, in alternation with the modules Conservation Genetics of Plants 1 & 2			
Duration	1 Semester			
Recommended previous knowledge	Previous attendance of the module Botanical Species Conservation 1 recommended			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E1.5 'Conservation Genetics of Plants 1: Lecture and Seminar'				
Responsible	Head of the General and Special Botany working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of the evolution and distribution of various reproductive systems in plants ▪ Evolution of sexual reproduction in interaction with asexual reproduction in higher plants ▪ Knowledge of the roles of reproductive systems in speciation ▪ Experimental approaches for determining the reproductive system and sex distribution in higher plants ▪ Basic knowledge in applying molecular methods for genotyping and population genetics, interpretation of results (AFLP, SSR, GBS) 			
Module contents	<ul style="list-style-type: none"> ▪ Evolution of sexual reproduction, advantages and disadvantages compared with asexual reproduction ▪ Mating types and sexes, generation change ▪ Evolution of monoecy and dioecy, sex ratios in plants and reasons for unequal ratios ▪ Gynodioecy and cytoplasmic male sterility ▪ Influence of polyploidisation on the evolution of the reproductive systems ▪ Apomixis: Causes and consequences for speciation ▪ Sequence and fragment-oriented molecular methods in population genetics 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Plant Breeding Systems (2 SWS)	30	120	180
	Seminar: Molecular Methods in Population Genetics and Plant Systematics (2 SWS)	30		
Assessment components	Assessment component: Presentation 20 M in the seminar Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every two years, in alternation with the modules Botanical Species Conservation 1 & 2			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E1.6 ‘Conservation Genetics of Plants 2: Lecture and Lab Course’				
Responsible	Head of the General and Special Botany working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of population genetics and its application for higher and lower plants ▪ Application of molecular-biological methods in the laboratory to answer population-genetic questions ▪ Evaluation of findings (primary data) for sequence or fragment length analysis to genotype or derive population-genetic parameters 			
Module contents	<ul style="list-style-type: none"> ▪ Passing on various parts of the genome ▪ Hardy-Weinberg equilibrium in various plant reproductive systems ▪ Neutral markers and markers under selection ▪ Gene flow and genetic drift ▪ F-statistic and fragmenting of populations ▪ Laboratory practical to apply molecular-biological methods (DNA extraction, sequencing or fingerprint method) 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Plant Population Genetics (2 SWS)	30	120	180
	Practical: Molecular Methods in Plant Population Genetics (2 SWS)	30		
Assessment components	Assessment component: Protocol 10 p on practical Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every two years, in alternation with the modules Botanical Species Conservation 1 & 2			
Duration	1 Semester			
Recommended previous knowledge	Previous attendance of the module Genetics of Plants 1 recommended			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E1.7 'Conservation and Behaviour 1: Lecture and Seminar'				
Responsible	Head of the Applied Zoology and Nature Conservation working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of interdisciplinary approaches in conservation ▪ Understanding that applied conservation and fundamental research are not contradictory but instead complement one another ▪ Critical discussion of controversial questions from modern, interdisciplinary conservation biology ▪ Reading, understanding, presenting and discussing English-language primary literature 			
Module contents	<p>Lecture 'Conservation and Behaviour' Fundamental concepts of behavioural biology and their application in conservation, e.g.:</p> <ul style="list-style-type: none"> ▪ Searching for food, avoiding predators and conservation ▪ Selecting a habitat, migrating and conservation ▪ Sexual selection, partner selection and conservation ▪ Mating systems and conservation ▪ Caring for the brood, parent investment and conservation ▪ Group life and conservation ▪ Cooperation and conservation ▪ Individual differences and conservation ▪ Human behaviour and conservation <p>Seminar 'Frontiers in Conservation' (compulsory elective)</p> <ul style="list-style-type: none"> ▪ Introduction and discussion of current, controversial academic work from the area of conservation biology. Going into more depth on the topics discussed in the lecture. <p>Seminar 'Conservation Behaviour' (compulsory elective)</p> <ul style="list-style-type: none"> ▪ Introduction to and discussion of current and classic academic work from the intersection of behavioural and conservation biology. ▪ Going into more depth on the topics discussed in the lecture. 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Conservation and Behaviour (2 SWS)	30	120	180
	Seminar: Frontiers in Conservation or Conservation Behaviour (2 SWS)	30		
Regular examination date	3 rd Semester			

Assessment components	Assessment component: Written examination 60 M on the lecture
	Coursework: Presentation*20 M on the selected seminar
On offer	Summer semester, every year
Duration	1 Semester
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module
Module can be selected for	MSc. BEE, MSc. LENC

Elective module E1.8 'Conservation and Behaviour 2: Practical'				
Responsible	Head of the Applied Zoology and Nature Conservation working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Putting the theoretical knowledge obtained in the module Conservation and Behaviour 1 into practice ▪ Initial experience with scientific work; in particular at the cross section of conservation and behavioural biology. 			
Module contents	Exercise Practical 'Behavioural Methods in Conservation' <ul style="list-style-type: none"> ▪ Scientific data collection outdoors or in the laboratory ▪ Working on conservation topics related to behavioural biology, e.g.: working with bats, social insects, host-parasite interactions and other native animal species. Work is typically done outdoors. 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Exercise Practical: Behavioural Methods in Conservation (4 SWS)	60	120	180
Assessment components	Assessment component: Protocol 10 p or poster presentation 15 M			
	Coursework:-			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module; can only be taken at the same time as or following attendance of module Conservation and Behaviour 1			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E1.9 'Conservation Genetics 1: Lecture and Seminar'				
Responsible	Head of the Applied Zoology and Nature Conservation working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Get to know the importance of genetics for conservation and wild animal management ▪ Understanding the potential and problems of genetic methods and the conditions under which their use can be particularly informative ▪ Critical discussion of modern, interdisciplinary conservation genetics ▪ Reading, understanding, presenting and discussing English-language primary literature 			
Module contents	<p>Lecture 'Conservation and Landscape Genetics'</p> <ul style="list-style-type: none"> ▪ Importance of genetics for conservation and wild animal management ▪ Advantages and disadvantages of various population-genetic methods ▪ Genetics and extinction ▪ Genetic diversity: Definitions, detection methods ▪ Population-genetic concepts ▪ Evolutionary genetics of natural populations ▪ Genetic consequences of small population sizes ▪ Maintaining genetic diversity ▪ Inbreeding, demography and extinction ▪ Non-invasive genotyping ▪ Population fragmentation: Importance for conservation FST; Assignment methods ▪ Detection of dispersion with genetic methods ▪ Landscape genetics, dispersion and illnesses ▪ Invasive species ▪ Fundamentals of phylogenetics <p>Seminar 'Evolutionary Conservation Biology' (CE)</p> <ul style="list-style-type: none"> ▪ Introduction and discussion of current and classic academic works from the intersection of evolutionary and conservation biology. Going into more depth on the topics discussed in the lecture. <p>Seminar 'Current Topics in Conservation' (CE)</p> <ul style="list-style-type: none"> ▪ Introduction and discussion of current, controversial academic work from the area of conservation biology. The objective is to discuss current academic topics controversially. 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Conservation and Landscape Genetics (2 SWS)	30	120	180

	Seminar: Current topics in Conservation or Evolutionary Conservation Biology (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M on the lecture			
	Coursework: Presentation* 20 M on the selected seminar			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E1.10 ‘Conservation Genetics 2: Practical’				
Responsible	Head of the Applied Zoology and Nature Conservation working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Putting theoretical knowledge obtained in the module Conservation Genetics 1 into practice ▪ Going into more depth into the practical applications of population genetics in conservation using examples ▪ Evaluating genetic data in the laboratory to answer conservation-biological questions 			
Module contents	Exercise Practical ‘Methods in Conservation and Landscape Genetics’ <ul style="list-style-type: none"> ▪ Application of modern analytical methods of conservation and landscape genetics, e.g.: ▪ Population fragmentation: FST and assignment methods ▪ Detection of dispersion with genetic methods ▪ Landscape genetics, dispersion and illnesses ▪ Phylogeography based on molecular markers 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Exercise Practical: Methods in Conservation and Landscape Genetics (4 SWS)	60	120	180
Assessment components	Assessment component: Protocol 10 p			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module; can only be taken at the same time as or following attendance of module Conservation Genetics 1			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E1.11 'Shaping Sustainability'				
Responsible	Chair of Sustainability Science and Applied Geography			
Language	Deutsch			
Qualification objectives	<ul style="list-style-type: none"> ▪ Broad knowledge of various fields of action in sustainable geography (climate change, biodiversity, conservation) ▪ Knowledge of the principles of environmental policy ▪ Theoretical, content and methodological knowledge of research in the area of global transformation ▪ Practical experience in implementing sustainability science in group discussions and group work ▪ Ability to discuss topics of sustainability science 			
Module contents	<p>Seminar 'Sustainability Problems'</p> <ul style="list-style-type: none"> ▪ Physical and social causes and consequences of global transformation ▪ Insights into numerous scientific perspectives, methods and theories that allow us to recognise and measure global transformation (including syndrome approach) <p>Seminar 'Shaping Sustainability'</p> <ul style="list-style-type: none"> ▪ Working on, analysing and extensively evaluating existing and potential approaches for solutions attempting to mitigate the negative consequences of global transformation, discussion of innovative approaches for solutions including use of the original texts 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Seminar: Sustainability Problems (2 SWS)	30	120	180
	Seminar: Shaping Sustainability (2 SWS)	30		
Assessment components	Assessment component: Presentation 20 M on the seminar Sustainability Problems			
	Coursework: Practice exercises 20 p on the seminar Shaping Sustainability			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE, MSc. NHG			

Elective module E2.1 'Aquatic and Marine Microbiology 1: Basics'				
Responsible	Head of the Microbial Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge and application of theoretical and methodological fundamentals of aquatic and marine microbiology ▪ Understanding microbial life in the marine environment ▪ Knowledge of recent research projects on microbial communities in marine habitats ▪ Ability to present and critically discuss relevant topics in marine microbiology 			
Module contents	<p>Lecture 'Microbiology of Marine Habitats'</p> <ul style="list-style-type: none"> ▪ General introduction to marine microbiology ▪ Characteristic features of pelagic and benthic environments in the ocean (characteristics of seawater, the seafloor and its sediments) ▪ The ocean as a microbial habitat: abundance, distribution and diversity of marine microbes (viruses, bacteria, archaea, fungi, microalgae) ▪ Structure and function of microbial communities in selected pelagic and benthic environments <p>Seminar 'Microbiology of Marine Habitats'</p> <ul style="list-style-type: none"> ▪ Recent scientific literature and projects about research on microbial communities in marine habitats ▪ Oral presentation and discussion of reviews and original papers <p>Lecture 'Methods of Aquatic Environmental Microbiology'</p> <ul style="list-style-type: none"> ▪ Methods in marine microbiology (sampling, experimental approaches, methods for physico-chemical characterisation of the environment, sediment characterisation, methods for isolation, cultivation and identification of microbes, microscopic and molecular methods for microbial abundance, diversity and activity) <p>Exercise Practical 'Methods of Aquatic Environmental Microbiology'</p> <ul style="list-style-type: none"> ▪ Introduction to epifluorescence microscopy ▪ Fixation and staining of environmental samples and microbial cultures ▪ Visualisation and documentation of fluorescence-labelled prokaryotes and eukaryotes ▪ Discussion of advantages/disadvantages of diverse staining techniques 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Microbiology of	15	90	180

	Marine Habitats (1 SWS)			
	Lecture: Methods of Aquatic Environmental Microbiology (1 SWS)	15		
	Seminar: Microbiology of Marine Habitats (2 SWS)	30		
	Exercise Practical: Methods of Aquatic Environmental Microbiology (2 SWS)	30		
Assessment components	Assessment component: Written examination 45 M on the lectures			
	Coursework: Presentation* 20 M on the seminar, protocol* 2 p on the exercise practical			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.2 ‘Aquatic and Marine Microbiology 2: Advanced’	
Responsible	Head of the Microbial Ecology working group
Language	English
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge and application of theoretical fundamentals of aquatic and marine microbiology ▪ Understanding microbial life in extreme marine environments ▪ Knowledge of traditional and modern molecular methods/technologies to analyse microbial communities in aquatic and marine habitats ▪ Ability to present and critically discuss methodological approaches applied in aquatic and marine microbial ecology
Module contents	<p>Lecture ‘Microbiology of Extreme Marine Habitats’</p> <ul style="list-style-type: none"> • Extremophilic microorganisms and their habitats (e.g. hypersaline environments, cryosphere: sea-ice, glaciers, subglacial lakes; oligotrophic environments: deep biosphere, deep-sea, hydrothermal vents, cold vents) • Microbial response/adaptation to extreme environmental conditions (e.g. starvation-survival strategies, invertebrate-bacteria symbiosis) ▪ Biotechnological utilisation of extremophiles <p>Lecture ‘Ecology of the Baltic Sea’</p> <ul style="list-style-type: none"> ▪ Baltic Sea research and research institutes ▪ Development of the Baltic Sea ▪ Bottom topography, sediments ▪ Oceanography of the Baltic Sea (water exchange, stratification, saltwater inflows) ▪ Monitoring of the Baltic Sea (HELCOM recommendations) ▪ Classification and ecological relevance of plankton communities (bacterioplankton, phytoplankton, zooplankton) ▪ Seasonal and local variations of phytoplankton blooms ▪ Cyanobacterial blooms, harmful algae blooms (HABs) ▪ Low oxygen levels (hypoxia) and laminated sediments ▪ Ecologically relevant processes of zooplankton (ingestion, vertical migration) ▪ Long-term changes of plankton communities ▪ Role of benthic communities in the nutrient cycles ▪ Biological invasion ▪ Eutrophication of coastal waters (Bodden) ▪ Anthropogenic impact on the Baltic Sea <p>Seminar ‘Methods of Molecular Microbial Ecology’</p> <ul style="list-style-type: none"> ▪ Recent scientific literature and projects about methods in molecular microbial ecology ▪ Oral presentation and discussion of reviews and original papers

	<ul style="list-style-type: none"> Supplement to the laboratory course 'Methods of Molecular Microbial Ecology' of the module 'Aquatic and Marine Microbiology 3: Practical' 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Microbiology of Extreme Marine Habitats (1 SWS)	15	120	180
	Lecture: Ecology of the Baltic Sea (1 SWS)	15		
	Seminar: Methods of Molecular Microbial Ecology (2 SWS)	30		
Assessment components	Assessment component: Written examination 45 M on the lectures			
	Coursework: Presentation* 20 M on the seminar			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Recommended previous knowledge	Previous attendance of the modules Aquatic and Marine Microbiology 1 & 3 recommended			
Admission requirements	none			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.3 'Aquatic and Marine Microbiology 3: Practical'				
Responsible	Head of the Microbial Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of molecular methods used to characterise microbial communities in aquatic and marine habitats ▪ Essential laboratory skills in microbiology ▪ Data analysis including statistical approaches ▪ Learning how to visualise data scientifically ▪ Ability to present, interpret and critically discuss experimental data 			
Module contents	<p>Practical 'Methods of Molecular Microbial Ecology'</p> <ul style="list-style-type: none"> ▪ Sampling techniques for planktonic and benthic microorganisms at different sites of coastal waters ▪ Measurement of relevant environmental parameters ▪ Molecular methods to analyse pelagic and benthic microbial communities (DNA extraction, PCR-analyses, gel documentation) ▪ Analyses of microbial numbers and biomass ▪ Identification and diversity of microorganisms ▪ Fluorescence <i>in-situ</i> hybridisation technologies ▪ Fingerprinting techniques to analyse the physiological profile of the microbial communities ▪ Characterisation of the enzymatic degradation potential and spectrum of degrading enzymes of heterotrophic prokaryotes ▪ Enzymatic analyses (substrate saturation and temperature optimum of different hydrolytic enzymes) 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Practical: Methods of Molecular Microbial Ecology (5 SWS)	75	105	180
Assessment components	Assessment component: Presentation 15 M on the practical			
	Coursework: Group protocol* 5 p/person on the practical			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Recommended previous knowledge	Previous attendance of the module Aquatic and Marine Microbiology 1 recommended			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE			

Elective module E2.4 'Microbial Ecology 1: Microbial Processes, Energy Fluxes and Elemental Cycles'				
Responsible	Head of the Microbial Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of the evolution of microbial life ▪ Knowledge of microbial processes, and key elemental cycles ▪ Learning basic principles of microbial energy yields ▪ Insights into the diversity of microbial mediated biogeochemical processes ▪ Role of microbes in elemental cycles ▪ Fundamentals of microbial ecology and general microbiology 			
Module contents	<p>Lecture 'Microbial Processes, Energy Fluxes and Elemental Cycles'</p> <ul style="list-style-type: none"> ▪ Origins of life, evolution of microbial life ▪ Microbial processes, energy yields and energy transfer ▪ Microbial primary production and phototrophy ▪ Microbial respiration and fermentation in anoxic environments (supply and concentration of various electron acceptors) ▪ Microbial growth and biomass production ▪ Chemolithotrophy ▪ Methanogenesis and methanotrophy ▪ Microbial interactions in carbon, nitrogen, sulphur, phosphorus, iron and manganese cycles ▪ Role of trace metals in microbial metabolism ▪ Microorganisms and their physiological properties/adaptations ▪ Microbial communities in selected environments ▪ Biogeochemical aspects (biomineralisation, weathering and mineral dissolution by microbes) ▪ Global aspects of microbial energy transfer and elemental cycles 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Microbial Ecology 1: Microbial Processes, Energy Fluxes and Elemental Cycles (4 SWS)	60	120	180
Assessment components	Assessment component: Written examination 90 M on the lecture			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.5 'Microbial Ecology 2: Microbial Biodiversity, Interactions and Molecular Ecology'				
Responsible	Head of the Microbial Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge of microbial ecology, with an emphasis on microbial interactions ▪ Understanding of both classical and novel concepts describing microbial interactions (e.g. symbiosis, microbiome, holobionts) ▪ Application of central concepts of community ecology and biodiversity research in a microbial context ▪ Knowledge of classical and modern methodology to investigate microbial diversity (e.g. cultivation-based approaches, microscopy, molecular marker molecules, metagenomics) 			
Module contents	<ul style="list-style-type: none"> ▪ The (microbial) tree of life, 3 domains, the unseen majority ▪ Microbial interactions, terminology ▪ Symbiosis, mutualism and commensalism ▪ Antagonism and pathogenicity ▪ Trophic interactions in microbial communities ▪ Competition and coexistence on microscopic scales ▪ Measuring microbial diversity (molecular methods, richness, evenness, diversity metrics) ▪ Elements of microbial biodiversity (α-, β-, γ-diversity) ▪ Microbial community ecology ▪ Microbial biogeography, is everything everywhere? ▪ The rare biosphere ▪ Microbe-environment interactions with examples ▪ Microbe-microbe interactions with examples ▪ Microbe-host interactions, holobionts and microbiomes with examples ▪ Cultivation-based microbial biodiversity assessment ▪ Microscopy-based methods to study microbial communities ▪ Classical molecular methods (DNA-DNA hybridisation, DGGE, tRFLP, clone libraries) ▪ Modern molecular methods (NGS-sequencing, SSu amplicon analysis, metagenomics and metagenome assembled genomes) 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Microbial Interactions (2 SWS)	30	120	180
	Lecture: Molecular microbial interactions (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M on the lectures			
	Coursework: -			
Regular examination date	3 rd Semester			

On offer	Summer semester, every year
Duration	1 Semester
Admission requirements	none
Module can be selected for	MSc. BEE, MSc. LENC

Elective module E2.6 'Theoretical Ecology'				
Responsible	Head of the Animal Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of important theoretical concepts in ecology and key modelling approaches ▪ Understanding and ability to interpret and create simple mathematical ecological models ▪ Application of numerical analysis of differential equation models 			
Module contents	<ul style="list-style-type: none"> ▪ Introduction to theoretical ecology ▪ Simple models of population dynamics ▪ Stability and deterministic chaos ▪ Classical competition models and predator-prey systems ▪ Trophic cascades and food webs, resource-based models ▪ Multiple stressors and multiple resource limitation ▪ Numerical analysis of differential equations using modelling software (e.g., R) 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/Practical: Theoretical Ecology– combined Lectures and Exercises (4 SWS)	60	120	180
Assessment components	Assessment component: Written examination 60 M or oral examination 30 M on the lecture			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. NHG			

Elective module E2.7 'Experimental Animal Ecology'				
Responsible	Head of the Animal Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Ability to plan and carry out experiments to test scientific hypotheses and ecological concepts in animal ecology and ecophysiology ▪ Knowledge of data collection, statistical analysis and presentation, and interpretation and presentation of scientific findings ▪ Critical reflection on one's own findings and new scientific articles with relevance to animal ecology and ecophysiology 			
Module contents	<ul style="list-style-type: none"> ▪ Theory-driven experimental approaches in animal ecology ▪ Planning and carrying out laboratory experiments 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/Seminar: Experimental Animal Ecology (1 SWS)	15	120	180
	Exercise Practical: Experimental Animal Ecology - Exercises (3 SWS)	45		
Assessment components	Assessment component: Scientific report 10 p or poster presentation 15 M on the exercise practical			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE			

Elective module E2.8 ‘Functional Animal Ecology 1: Lecture and Seminar’				
Responsible	Head of the Animal Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Overview of important ecological concepts and approaches in functional animal ecology ▪ Critical reflection and presentation of pioneering and current scientific articles relevant to functional animal ecology 			
Module contents	<ul style="list-style-type: none"> ▪ Biodiversity ▪ Multiple resources and competition ▪ Experimental designs and statistical methods ▪ Trophic transfer and trophic cascades ▪ Ecological stoichiometry ▪ Aspects of feed quality ▪ Multiple stressors ▪ Chemical ecology and inducible defence 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Functional Animal Ecology (2 SWS)	30	120	180
	Seminar: Functional Animal Ecology – Seminar (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M or Presentation 20 M on the lecture and seminar			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC, MSc. UWi			

Elective module E2.9 ‘Functional Animal Ecology 2: Exercise’				
Responsible	Head of the Animal Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Ability to plan and carry out experiments to test scientific hypotheses and ecological concepts ▪ Knowledge of data collection, statistical analysis, representation, interpretation, and presentation of scientific findings ▪ Critical reflection on one’s own findings 			
Module contents	<ul style="list-style-type: none"> ▪ Planning and carrying out field recordings or experimental laboratory studies to determine diversity and functioning of e.g., aquatic biocoenoses ▪ Analysis and presentation of data collected in the form of a scientific article 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Exercise Practical: Functional Animal Ecology– Exercises (4 SWS)	60	120	180
Assessment components	Assessment component: Scientific report 10 p or poster presentation 15 M on the exercise practical			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module; can only be taken at the same time as or following attendance of module Functional Animal Ecology 1			
Module can be selected for	MSc. BEE, MSc. LENC, MSc. UWi			

Elective module E2.10 'Experimental Plant Ecology'				
Responsible	Head of the Experimental Plant Ecology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Development and analysis of controlled ecological experiments ▪ Scientific writing 			
Module contents	<ul style="list-style-type: none"> ▪ Developing, maintaining and analysing experiments ▪ Evaluating and interpreting experimental data ▪ Scientific writing (including introduction, methods, findings, discussion, conclusions, reference list) 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Seminar: Ecological Experiments (2 SWS)	30	105	180
	Exercise Practical: Exercise Ecological Experiments (3 SWS)	45		
Assessment components	Assessment component: Scientific report 10 p as group work			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.11 'Evolutionary Ecology 1: Lecture and Exercise'				
Responsible	Head of the General and Systematic Zoology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ conceptual insight into evolutionary ecology ▪ critical reflection on current scientific research in the realm of behavioural ecology, functional morphology and reproductive strategies ▪ special training in comparative morphological analyses ▪ training in team work and group presentations (oral and/or poster) 			
Module contents	<ul style="list-style-type: none"> ▪ lecture and seminar (combined): Introduction and discussion of concepts and showcases of evolutionary ecology ▪ course 'Anatomy of Fitness': investigation of morphological structures connected to reproductive strategies. 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/Seminar: Evolutionary Ecology (2 SWS)	30	120	180
	Exercise Practical: Evolutionary Ecology: Anatomy of Fitness (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M or oral examination 30 M on the lecture/seminar and exercise practical			
	Coursework: Presentation* 15 M on the seminar and poster presentation* 15 M on the exercise practical			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.12 'Evolutionary Ecology 2: Exercises'				
Responsible	Head of the General and Systematic Zoology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge of concepts and research topics in evolutionary ecology. ▪ Critical reflection on current scientific research in the realm of behavioural ecology, functional morphology and reproductive strategies ▪ Knowledge of acquisition, analysis, and interpretation of behavioural data (experimental design, stats) ▪ Scientific writing skills 			
Module contents	<ul style="list-style-type: none"> ▪ Methods in behavioural research ▪ Project on behavioural ecology or functional morphology in an evolutionary framework 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Exercise Practical: Evolutionary Ecology: Analysis of Behaviour (2 SWS)	30	105	180
	Exercise Practical: Evolutionary Ecology Project (3 SWS)	45		
Assessment components	Assessment component: Presentation* 20 M with written part* 10 p on the exercise practical Evolutionary Ecology Project			
	Coursework: (Short) Presentation* 10 M with written part* 10 p on the exercise practical Analysis of Behaviour			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year Alternatively, the practical can also be completed as part of 'International Advanced Behavioural Ecology Field Courses' during which projects are performed away from the university campus, together with students from other universities			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module; can only be taken at the same time as or following attendance of module Evolutionary Ecology 1			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.13 'Vegetation Ecology 1: Lecture and Seminar'				
Responsible	Head of the Landscape Ecology and Ecosystem Dynamics working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> Ability to quantitatively and qualitatively analyse links between vegetation and the environmental parameters that influence them and interpret these with the assistance of autecological and synecological knowledge. 			
Module contents	<p>Lecture / Exercise Practical 'Quantitative Methods in Community Ecology'</p> <ul style="list-style-type: none"> Basic knowledge of the statistics programme R Data types, scale levels, transformations and standardisation Correlation and regression techniques, distance measures Multivariate ordination and classification techniques <p>Seminar 'Vegetation Ecology'</p> <ul style="list-style-type: none"> Introduction and discussion of current hypotheses, theories and concepts in plant and vegetation ecology 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/Exercise Practical: Quantitative Methods in Community Ecology (3 SWS)	45	105	180
	Seminar: Vegetation Ecology (2 SWS)	30		
Regular examination date	3 rd Semester			
Assessment components	Assessment component: Practice exercises 20 p on the lecture/exercise practical			
	Coursework: Presentation* 20 M on the seminar			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.14 'Vegetation Ecology 2: Case Study'				
Responsible	Head of the Landscape Ecology and Ecosystem Dynamics working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ In-depth understanding of the basic landscape ecological components (climate, relief, soil, water, vegetation, humans) of the central European landscape across space and time using a case study ▪ Practical knowledge of data collection in the field and preparing scientific data ▪ Knowledge and practical skills for quantitative analysis of plant communities 			
Module contents	<ul style="list-style-type: none"> ▪ Development of a vegetation-ecological question using a case study ▪ Vegetation-ecological gradient analysis ▪ Laboratory analysis of biomass and location parameters ▪ Data preparation and quantitative-statistical data analysis 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Practical: Case Study Vegetation Ecology (5 SWS)	75	105	180
Assessment components	Assessment component: Scientific report 10 p			
	Coursework: -			
Regular examination date	3. Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.15 ‘Ornithology 1: Lecture and Seminar’				
Responsible	Head of the <i>Vogelwarte</i> working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of ornithology as a scientific discipline through the understanding of avian characteristics, their ecology and evolution ▪ Introduction to current methods in ornithology ▪ Understanding the role of birds in different habitats and their relation to humans 			
Module contents	<p>Lecture ‘Ornithology’</p> <ul style="list-style-type: none"> ▪ Introduction to ornithology, history, definitions and main concepts ▪ Origin and evolution of birds, evolution of flight ▪ Special anatomical and physiological adaptations ▪ Reproduction, growth and development ▪ Breeding behaviour, mating systems ▪ Social systems, territoriality ▪ Foraging, adaptation to different types of habitat ▪ Sexual selection, feathers and colours ▪ Further ways to communicate and explore the environment vocalisation ▪ Circadian and circannual cycles ▪ Migration and navigation ▪ Systematic and phylogeny, current hypothesis and methods ▪ Diversity and biogeography, humans and birds ▪ Management and conservation, case studies <p>Seminar ‘Ornithology’</p> <ul style="list-style-type: none"> ▪ Individual preparation and presentation of selected topics in ornithology 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Ornithology (2 SWS)	30	120	180
	Seminar: Ornithology (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M on the lecture			
	Coursework: Presentation* 20 M on the seminar			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.16 'Ornithology 2: Exercise'				
Responsible	Head of the <i>Vogelwarte</i> working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Identification of local bird species in the collection and the field ▪ Proficiency in current methods in ornithology ▪ Understanding of the role of birds in different habitats and their relation to humans 			
Module contents	Exercise Practical 'In-depth ornithological methods' <ul style="list-style-type: none"> ▪ Introduction to field ornithology ▪ Presentation of methods for the study of birds on field sites. For example: identification of birds based on skin and feathers and in the field, observations, bird counts, mapping, morphological measurements, use of sonograms, telemetry, habitat characterisation 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Exercise Practical: In-Depth Ornithological Methods (4 SWS)	60	120	180
Assessment components	Assessment component: Protocol 10 p on the exercise practical			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module; can only be taken at the same time as or following attendance of module Ornithology 1			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.17 'Climate Change'				
Responsible	Head of the Landscape Ecology and Ecosystem Dynamics working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge of climate change and its consequences ▪ Critical reflection on current scientific works in the area of climate change research ▪ Ability to learn and work in groups (peer learning) Leading group discussions and group presentations (talks or posters) 			
Module contents	<ul style="list-style-type: none"> ▪ Scientific principles of climate change research ▪ The global climate system ▪ Earth's energy budget ▪ Earth's paleoclimate ▪ The global carbon cycle ▪ Global circulation systems and teleconnections ▪ Anthropogenic and natural climate change ▪ Abrupt climate change ▪ Scientific paper on climate change and its consequences 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Climate Change (2 SWS)	30	120	180
	Seminar: Climate Change (2 SWS)	30		
Assessment components	Assessment component: Poster presentation 15 M Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.18 'Dendrochronology'				
Responsible	Head of the Landscape Ecology and Ecosystem Dynamics working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Introduction to tree-ring research ▪ Basic understanding of tree-ring-based reconstructions of climate and environmental conditions ▪ Basic time-series analysis ▪ Ability to plan a scientific study that reconstructs environmental conditions using tree rings 			
Module contents	<ul style="list-style-type: none"> ▪ Design of data collection in the field ▪ Collecting samples from trees, bushes and fossilised wood ▪ Sample processing (sanding, microsections) ▪ Sample analysis (tree-ring width, latewood density) ▪ Chronology-building and time-series analysis ▪ Analysis of environmental influences on tree rings ▪ Reconstruction of environmental parameters ▪ Use of international databases for tree-ring research 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Practical: Dendrochronology (5 SWS)	60	120	180
Assessment components	Assessment component: Presentation* 15 M			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Summer semester/winter semester, every year block 7-8 days			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.19 'General and Applied Aquatic Ecology'				
Responsible	Head of the Biological Research Station Hiddensee			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge in the area of aquatic ecology ▪ Critical reflection on and presentation of current scientific works in the area of aquatic ecology 			
Module contents	<ul style="list-style-type: none"> ▪ Types of water bodies ▪ Physical-chemical parameters in water bodies ▪ Individual organism groups in water bodies ▪ Influence of eutrophication on abiotic and biotic parameters ▪ Influence of eutrophication, acidification and climate change on aquatic ecosystems ▪ Indicator organisms ▪ Trophic interactions in water bodies ▪ Scientific paper on current research questions in aquatic ecology 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Aquatic Ecology – General and Applied Aspects (2 SWS)	30	120	180
	Lecture: Aquatic Ecology – Organism and Trophic Interactions (1 SWS)	15		
	Seminar: Seminar Aquatic Ecology (1 SWS)	15		
Assessment components	Assessment component: Written examination 90 M on the lectures			
	Coursework: Presentation*15 M on the Seminar			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.20 'Aquatic Ecology – Summer course'				
Responsible	Head of the Biological Research Station Hiddensee			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge in the area of aquatic ecology ▪ Practical work with aquatic-ecological experiments ▪ Ability to work in groups (peer learning) Leading group discussions and written presentations 			
Module contents	<ul style="list-style-type: none"> ▪ Examining various types of water bodies ▪ Recording physical-chemical parameters in water bodies ▪ Recording individual organism groups in water bodies ▪ Examining the anthropologic influence on water bodies ▪ Examining trophic interactions in water bodies ▪ Evaluating and presenting collected data 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Practical: Aquatic Ecology - Field Course including seminar (5 SWS)	60	120	180
Assessment components	Assessment component: Group protocol 10 p on the practical			
	Coursework: Presentation* 15 M on the practical			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E2.21 'Remote Sensing'				
Responsible	Head of the Remote Sensing and Geoinformation Processing working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Basic knowledge of creating air and satellite images as well as processing and analysing them including physical and informatic principles ▪ Basic knowledge of digital geodata and image processing to analyse and interpret air and satellite images 			
Module contents	<ul style="list-style-type: none"> ▪ Sample applications of remote sensing in geographic environmental research, physical principles of remote sensing and spectroscopy as well as relevant imaging systems, principles of image interpretation, digital data pre-processing and analysis, vegetation analysis, image classification and change analysis ▪ Computer-aided, problem-based work on lecture content with a large proportion of software-based analyses 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/Exercise Practical: Remote sensing (4 SWS)	60	120	180
Assessment components	Assessment component: Practice exercises 24 p (12 x 2 p) on the lecture/exercise practical			
	Coursework: -			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE			

Elective module E2.22 ‘Applied Remote Sensing/Geoinformation Science with field work’				
Responsible	Head of the Remote Sensing and Geoinformation Processing working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ In-depth knowledge of selected subject content from geoinformation processing and remote sensing, e.g. in the areas of geodata processing and analysis, space-time modelling, land use and land cover analysis, spectroscopy and digital image processing ▪ Transfer of theoretical knowledge and methodological skills to various applied examples ▪ Ability to carry out a project in the area of geoinformation processing and remote sensing including data collection, work in the field and preparing the findings 			
Module contents	<ul style="list-style-type: none"> ▪ Practical: Carrying out a project in the area of geoinformation processing and remote sensing (focus changes annually) including field work 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Practical: Applied Remote Sensing/Geoinformation Science with Field Work (3 SWS)	45	135	180
Assessment components	Assessment component: Scientific report 10 p on the practical			
	Coursework: Practice exercises 15 p			
Regular examination date	3 rd Semester			
On offer	summer semester, every year			
Duration	1 Semester			
Recommended previous knowledge	Previous attendance of the module Remote Sensing or extensive knowledge of GIS required			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE			

Elective module E3.1 'Evolutionary Morphology'				
Responsible	Head of the Cytology and Evolutionary Biology working group/Head of the Zoological Museum			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Conveying in-depth theoretical knowledge in the area of evolutionary morphology and functional morphology of invertebrates ▪ In-depth introduction to the evolution of organ systems, in particular sensory organs, nervous systems and reproductive organs ▪ Introduction to imaging methods ▪ Introduction to reviewing scientific hypotheses; independently conceptualising and carrying out projects 			
Module contents	<p>Lecture 'Evolutionary Morphology'</p> <ul style="list-style-type: none"> ▪ Topics related to the fundamentals of evolutionary morphology ▪ Semantic networks and descriptive morphology ▪ Functional morphology of selected organ systems (including muscles, sensory organs, nervous system, reproductive system, circulatory system) and their phylogenetic relevance and evolution within invertebrates, in particular arthropods ▪ Theoretical principles of imaging methods with a small practical component <p>Seminar 'Evolutionary Morphology'</p> <ul style="list-style-type: none"> ▪ Independently working on and presenting selected topics / research concepts on the evolution of invertebrates, in particular arthropods, from the areas of systematics and morphology 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Evolutionary Morphology (2 SWS)	30	120	180
	Seminar: Evolutionary Morphology (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M on the lecture			
	Coursework: Presentation* 20 M on the seminar			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE			

Elective module E3.2 'Making the Invisible Visible - Introduction to Imaging Methods'				
Responsible	Head of the Cytology and Evolutionary Biology working group/Head of the Zoological Museum			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Introduction to microscopic methods ▪ In-depth theoretical and practical introduction to imaging methods ▪ In-depth theoretical and practical introduction to processing and presenting 2D and 3D data ▪ Introduction to reviewing scientific hypotheses; independently conceptualising and carrying out projects 			
Module contents	<p>Lecture 'From Object to Image - Imaging Methods in Evolutionary Morphology'</p> <ul style="list-style-type: none"> ▪ Accompanying theoretical introduction to imaging methods <p>Exercise Practical 'From Object to Image - Imaging Methods in Evolutionary Morphology'</p> <ul style="list-style-type: none"> ▪ Overview of morphological methods in evolutionary research (e.g., immunohistochemistry, electron microscopy, histology) ▪ Practical introduction to structural analysis with various imaging methods (electron microscopic and fluorescence microscopic examinations, histochemical and immunohistochemical staining, confocal laser scanning microscopy, micro-computer tomography) ▪ 3D reconstruction of selected organ systems, visualisation methods ▪ Experimental design; conceptualisation of a scientific piece of writing; carrying out a project independently ▪ Dealing with scientific literature and creating scientific works / charts 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: From an Object to an Image – Imaging Methods in Evolutionary Morphology (1 SWS)	15	120	180
	Exercise Practical: From an Object to an Image – Imaging Methods in Evolutionary Morphology (3 SWS)	45		
Assessment components	Assessment component: Protocol* 10 p on the exercise practical			
	Coursework: -			
Regular examination date	3 rd Semester			

On offer	Winter semester, every year
Duration	1 Semester
Admission requirements	none
Module can be selected for	MSc. BEE

Elective module E3.3 'Molecular Phylogenetics 1: Theory'				
Responsible	Head of the <i>Vogelwarte</i> working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Knowledge of theories and methods of molecular phylogenetics ▪ Critical reflection on theoretical and empirical publications from the area 			
Module contents	<ul style="list-style-type: none"> ▪ Morphological vs. molecular characteristics ▪ Alignment of DNA sequences ▪ Methods of phylogenetic reconstruction (maximum parsimony, distances, maximum likelihood, Bayesian analysis, networks) ▪ Long branch attraction ▪ Molecular clock ▪ Phylogenomics ▪ Coalescence ▪ Discussion of current problems ▪ Critical discussion of literature 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture/Exercise Practical: Theory of Molecular Phylogenetics (2 SWS)	30	120	180
	Seminar: Molecular Phylogenetics (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M on the lecture/exercise practical			
	Coursework: Presentation 40 M on the seminar			
Regular examination date	3 rd Semester			
On offer	Theory of Molecular Phylogenetics: Winter semester (end of March), every year Molecular Phylogenetics: Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module			
Module can be selected for	MSc. BEE			

Elective module E3.4 'Molecular Phylogenetics 2: Practice'				
Responsible	Head of the <i>Vogelwarte</i> working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Methods of DNA sequencing (Sanger, NGS) ▪ Critical reflection on methods in laboratories and analyses ▪ Identifying problems and sources of errors from the laboratory to publication ▪ Working in small groups 			
Module contents	<ul style="list-style-type: none"> ▪ DNA extraction ▪ PCR ▪ Primer design ▪ Sanger sequencing ▪ New generation sequencing ▪ Comparison of reconstruction methods in project work 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Exercise Practical: Lab Methods in Molecular Phylogenetics (2 SWS)	30	120	180
	Exercise Practical: Reconstructing Phylogentic Trees (2 SWS)	30		
Assessment components	Assessment component: Protocol 10 p on the exercise practicals			
	Coursework: (Short)Presentation* 20 M on the exercise practical Reconstructing Phylogentic Trees			
Regular examination date	3 rd Semester			
On offer	Summer semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, participation only following admission from the member of staff responsible for the module; can only be taken at the same time as or following attendance of module Molecular Phylogenetics 1			
Module can be selected for	MSc. BEE			

Elective module E3.5 'Animal Physiology 1: Lecture and Seminar'				
Responsible	Head of the Animal Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge of animal and cell physiology ▪ Ability to formulate and test scientific hypotheses ▪ Ability to design and conduct suitable experiments ▪ Ability to perform literature searches and analysis ▪ Ability to properly analyse scientific data 			
Module contents	<p>Lecture 'Neuro- and Sensory Physiology'</p> <ul style="list-style-type: none"> ▪ Information transfer within an organism ▪ Nervous systems ▪ Nervous systems and behaviour ▪ Cellular and molecular biology of the neuron ▪ Synaptic transmission ▪ Functional anatomy of nervous systems ▪ Information uptake and processing (sensing) ▪ Receptors ▪ External stimuli and sensory modalities ▪ Sensitivity and thresholds ▪ Mechanical senses ▪ Thermal senses ▪ Optical senses ▪ Electrical sense ▪ Magnetic sense <p>Seminar 'Signal transduction'</p> <ul style="list-style-type: none"> ▪ Cellular information processing through receptors for hormones, transmitters and growth factors ▪ Cell physiological responses to external stimuli ▪ Regulation of gene transcription and protein expression 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Neuro- and Sensory Physiology (2 SWS)	30	120	180
	Seminar: Signal Transduction (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M on the lecture			
	Coursework: Presentation* 20 M on the seminar			
Regular examination date	3 rd Semester			
On offer	Lecture: Summer semester, Seminar: Winter semester, every year			
Duration	1 Semester			
Admission requirements	Passed examination for Introductory Lecture on the Physiology of Animals and Humans			
Module can be selected for	MSc. BEE			

Elective module E3.6 'Animal Physiology 2: Lab Course'				
Responsible	Head of the Animal Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge of animal and cell physiology ▪ Ability to formulate and test scientific hypotheses ▪ Ability to design and conduct suitable experiments ▪ Ability to perform literature searches and analysis ▪ Ability to properly analyse scientific data 			
Module contents	Practical 'Cell Physiology' <ul style="list-style-type: none"> ▪ Experimental testing of hypotheses concerning physiological phenomena in animal and human cells ▪ Experimental design ▪ Performing cell physiological experiments ▪ Data processing ▪ Data interpretation and statistical evaluation 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Practical: Cell Physiology (5 SWS)	75	105	180
Assessment components	Assessment component: Presentation 15 M on the experiments performed in the practical			
	Coursework: Group protocol* 10 p on the experiments performed in the practical			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year Block in March			
Duration	1 Semester			
Admission requirements	Can only be taken at the same time as or following attendance of module Animal Physiology 1			
Module can be selected for	MSc. BEE			

Elective module E3.7 'Plant Stress Physiology: Lecture and Seminar'				
Responsible	Head of the Plant Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge in the area of stress physiology of plants and practical application of this knowledge in biotechnology ▪ Critical reflection on current scientific works in the area of stress physiology ▪ Leading group discussions 			
Module contents	<ul style="list-style-type: none"> ▪ Molecular and biochemical principles of stress perception and stress adaptation in plants ▪ Effects of abiotic stress factors on plants ▪ Applied research / biotechnology 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Basics of Plant Stress Physiology (1 SWS)	30	120	180
	Lecture: Advanced Plant Stress Physiology (2 SWS)	15		
	Seminar: Basics of Plant Stress Physiology (1 SWS)	15		
Assessment components	Assessment component: Written examination 60 M or oral examination 30 M on the lectures			
	Coursework: Practice exercises* 20 p on the seminar			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	2 Semesters			
Admission requirements	none			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E3.8 'Experimental Plant Stress Physiology'				
Responsible	Head of the Animal Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ In-depth understanding of biochemical and molecular mechanisms that enable plants to react dynamically to environmental changes ▪ Practical knowledge in the analysis of molecular and biochemical stress parameters ▪ Preparation, depiction, discussion and presentation of scientific data 			
Module contents	<ul style="list-style-type: none"> ▪ Ability to test scientific hypotheses ▪ Experimental design; conceptualisation, independently carrying out and evaluating scientific experiments on current topics of stress physiology in plants 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Seminar: Experimental Plant Stress Physiology (1 SWS)	15	105	180
	Practical: Lab Course in Experimental Plant Stress Physiology (4 SWS)	60		
Assessment components	Assessment component: Poster presentation 15 M on the practical			
	Coursework: Presentation* 30 M on the seminar			
Regular examination date	3 rd Semester			
On offer	Winter semester, every year			
Duration	1 Semester			
Admission requirements	Limited number of places, can only be taken at the same time as or following attendance of module Plant Stress Physiology			
Module can be selected for	MSc. BEE, MSc. LENC			

Elective module E3.9 'Parasitology 1: Lecture and Seminar'				
Responsible	Head of the Animal Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge of parasitology and human parasitology ▪ Ability to formulate and test scientific hypotheses ▪ Ability to design and conduct suitable experiments ▪ Ability to perform literature searches and analysis ▪ Ability to properly analyse scientific data 			
Module contents	<p>Lecture 'Parasitology/Human Parasitology'</p> <ul style="list-style-type: none"> ▪ Introduction to parasitology ▪ Terms ▪ Life cycles of parasites ▪ Epidemiology ▪ Distribution of parasites ▪ Pathogenicity, clinical considerations, prevention, therapeutic approaches ▪ Endo- and ectoparasites in humans and animals ▪ Protista (Amoeba, Kinoplastida, Apicomplexa) ▪ Helminths (Trematoda, Cestoda, Nematoda) ▪ Immuno-evasion strategies of parasites ▪ Parasite transmission, infection pathways ▪ Arthropods as ectoparasites and vectors of pathogens in human and veterinary medicine <p>Seminar 'Vector Biology and Zoonoses'</p> <ul style="list-style-type: none"> ▪ Presentation of selected topics in vector biology and zoonoses ▪ Analyses of recent publications on relevant topics (hematophagous arthropods, arboviruses, one health approach, vector competence and vector capacity, vector-pathogen-interactions) 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Lecture: Parasitology/Human Parasitology (2 SWS)	30	120	180
	Seminar: Vector Biology and Zoonoses (2 SWS)	30		
Assessment components	Assessment component: Written examination 60 M on the lecture			
	Coursework: Presentation* 20 M on the seminar			
Regular examination date	3 rd Semester			
On offer	Lecture: Winter semester, Seminar: Summer semester, every year			
Duration	1 Semester			
Admission requirements	none			
Module can be selected for	MSc. BEE			

Elective module E3.10 'Parasitology 2: Lab Course'				
Responsible	Head of the Plant Physiology working group			
Language	English			
Qualification objectives	<ul style="list-style-type: none"> ▪ Advanced knowledge in parasitology and human parasitology ▪ Ability to formulate and test scientific hypotheses ▪ Ability to design and conduct suitable experiments ▪ Ability to perform literature searches and analysis ▪ Ability to properly analyse scientific data 			
Module contents	<p>Practical 'Parasitology/Human Parasitology'</p> <ul style="list-style-type: none"> ▪ Experimental testing of hypotheses concerning parasites, vectors and transmitted pathogens ▪ Experimental design, field work, collection of specimens and samples (flagging, traps etc. with focus on ticks, mosquitos, leeches) ▪ Extraction and sequence analysis of DNA or RNA from parasites, vectors or pathogens, barcoding and species identification (etc.) ▪ Intestinal parasites and stool diagnostics ▪ Data processing ▪ Data interpretation and statistical evaluation ▪ Visit to a slaughterhouse 			
Classes (in ECTS, SWS and h)	6 ECTS are available	Contact hours	Self-study	Overall workload
	Practical: Parasitology/Human Parasitology (5 SWS)	75	105	180
Assessment components	Assessment component: Presentation 15 M on the experiments performed in the practical			
	Coursework: Group protocol* 10 p on the experiments performed in the practical			
Regular examination date	3 rd Semester			
On offer	Summer semester as a block course in July , every year			
Duration	1 Semester			
Admission requirements	Can only be taken at the same time as or following attendance of module Parasitology 1			
Module can be selected for	MSc. BEE			

Master's Dissertation:

Master's Dissertation		
Responsible	Chairperson of the Examination Board	
Language	English/German, following consultation	
Qualification objectives	<ul style="list-style-type: none"> ▪ Planning all steps of a research task ▪ Formulating a research programme ▪ Independently carrying out the research programme ▪ Written depiction of the scientific findings in a dissertation ▪ Defence as an oral presentation and discussion of the findings 	
Module contents	<ul style="list-style-type: none"> ▪ Developing a design to solve the assigned task ▪ Review of the literature ▪ Creating a research programme ▪ Carrying out a research programme ▪ Selecting and applying appropriate methods of analysis ▪ Discussing the findings and placing them within the theoretical context ▪ Writing the master's dissertation ▪ Oral summary and defence of the findings of the master's dissertation 	
Classes (in ECTS, SWS and h)	30 ECTS are available	Overall workload
	Master's dissertation (28 ECTS)	900
	Defence (2 ECTS)	
Assessment components	Assessment component: Master's dissertation, Presentation 15 M with discussion 30 M	
Regular examination date	4 th Semester	
Duration	1 Semester	
Admission requirements	Proof that 60 ECTS have already been gained	
Module can be selected for	MSc. BEE	