Methods „Ecology, Evolution and Environment“					
Identification number	Workload	Credit points	Term of studying	Frequency of occurence	Duration
MN-B-SM (E 2)	360 h	12 CP	1st or 2nd term of studying	Winter term, 2nd half	7 weeks

1	Type of lessons	Contact times	Self-study times	Intended group size
	a) Lectures	21 h	32 h	max. 16
	b) Practical/Lab	155 h	120 h	max. 4
	c) Seminar	8 h	24 h	max. 4

2 Aims of the module and acquired skills

Students who successfully completed this module …

- have acquired detailed knowledge and skills on analysis of molecular data in ecological experiments, enrichment culture, phylogeny and bioinformatic analysis, chromatography and bioassays of infochemicals and stoichiometric analyses.
- have acquired knowledge on current aspects of evolution in ecological systems and its relationships with the aquatic, terrestrial and chemical environment.
- can quantify major nutrients in freshwater and terrestrial systems and assess their impact on bio-geochemical cycling.
- have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level.
- are able to transfer skills acquired in this module to other fields of biology.

3 Contents of the module

- Molecular ecology (gene silencing, systematic, diversity of protists)
- Chemical ecology (stoichiometry of and infochemicals in trophic interactions)
- Community ecology: community assembly, fragmentation of habitats, ecological networks, biodiversity and evolution of communities and trophic interactions
- Introduction to statistics and analysis of molecular data

4 Teaching/Learning methods

- Lectures; Practical/Lab (Project work); Seminar; Guidance to independent research; Training on presentation techniques in oral and written form

5 Requirements for participation

Enrollment in the Master´s degree course “Biological Sciences”

Additionally: Knowledge of fundamental ecological principles and investigation methods are indispensable to participate in this module. In cases of doubt, please contact the module coordinator (see 10) before choosing this subject module.

6 Type of module examinations

The final examination consists of two parts: Two hours written examination about topics of the lectures and the practical/lab part (70 % of the total module mark) and oral presentation (30 % of the total module mark)

7	Requisites for the allocation of credits Regular and active participation; Passed seminar paper; Each examination part at least "sufficient" (see appendix of the examination regulations for details)
8	Compatibility with other Curricula None
9	Significance of the module mark for the overall grade 15 % of the overall grade (see also appendix of the examination regulations)
10	Module coordinator Prof. Dr. Hartmut Arndt, phone 470-3100, e-mail: hartmut.arndt@uni-koeln.de
11	Additional information Subject module of the Master´s degree course "Biological Sciences", Focus of research: (E) Ecology and Evolution Participating faculty: Prof. Dr. H. Arndt, Prof. Dr. M. Bonkowksi, Dr. K. Dumack, Prof. Dr. E. von Elert, Dr. F. Nitsche, Dr. A. Scherwaß Literature: • Reviews and original papers will be handed out during the module. General time schedule: Week 1-5 (Mon.-Fri.): Lectures and practical/lab; Week 5 and 6 (Mon.-Fri): Writing seminar paper and preparation for the seminar talk (held at the end of week 6); Week 7 (Mon.-Fri): Preparation for the written examination Note: The module contains hand-on laboratory work conducted by small groups of students and individually and is taught in course rooms and research laboratories. The module contains computer-based practicals/research as a main component. Introduction to the module: November 29, 2019 at 11 a.m., Cologne Biocenter, room - 1.005 (first basement floor) Written examination: January 31, 2020, second/supplementary examination March 20, 2020; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.