

Methods and Theoretical Concepts in Ecology						
Identification number	Workload	Credit points	Term of studying	Frequency of occurrence	Duration	
MN-B-SM (E 2)	360 h	12 CP	1 st or 2 nd term of studying	Winter term, 2 nd 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 ...					
	<ul style="list-style-type: none"> • 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 in community and in current research of aquatic ecology. • can quantify major freshwater nutrients 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					
	<ul style="list-style-type: none"> • Molecular aquatic ecology (gene silencing, systematic, diversity of protists) • Running water ecology (benthic pelagic coupling, interactions between macroinvertebrates, competition for food and space) • Chemical ecology (stoichiometry in trophic interactions) • Community ecology: molecular and biochemical interactions of soil organisms • Introduction to statistics and analysis of molecular data 					
4	Teaching/Learning methods					
	<ul style="list-style-type: none"> • 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	<p>Requisites for the allocation of credits</p> <p>Regular and active participation; Passed seminar paper; Each examination part at least "sufficient" (see appendix of the examination regulations for details)</p>
8	<p>Compatibility with other Curricula</p> <p>None</p>
9	<p>Significance of the module mark for the overall grade</p> <p>15 % of the overall grade (see also appendix of the examination regulations)</p>
10	<p>Module coordinator</p> <p>Prof. Dr. Hartmut Arndt, phone 470-3100, e-mail: hartmut.arndt@uni-koeln.de</p>
11	<p>Additional information</p> <p>Subject module of the Master´s degree course "Biological Sciences", Focus of research: (E) Ecology and Evolution</p> <p>Participating faculty: Prof. Dr. H. Arndt, Dr. G. Becker, Prof. Dr. M. Bonkowksi, Prof. Dr. E. von Elert, Dr. F. Nitsche, Dr. A. Scherwaß</p> <p>Literature:</p> <ul style="list-style-type: none"> • Reviews and original papers will be handed out during the module. <p>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</p> <p>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.</p> <p>Introduction to the module: December 05, 2016 at 11 a.m., Cologne Biocenter, room - 1.005 (first basement floor)</p> <p>Written examination: February 10, 2017; more details will be given at the beginning of the module</p>