lök390 - Experimental designs in ecological field studies

Module label	Experimental designs in ecological field studies
Module code	lök390
Credit points	6.0 KP
Workload	180 h
Used in course of study	• Master's Programme Landscape Ecology > Vertiefungsmodule drittes Fachsemester
Contact person	Module responsibility ◦ Ellen Kiel ◦ Ines Wolpmann Authorized examiners ◦ Ellen Kiel ◦ Ines Wolpmann Module counceling ◦ Ellen Kiel
Entry requirements	• Basic courses of Ecology (1st and 2nd semesters LÖK) • Skills in determining aquatic organisms, e.g. via Bachelor modules o Knowledge of forms o Running water ecology o Aquatic habitats o Master course in the module “Aquatic Ecology“ o Comparable courses at other universities
Skills to be acquired in this module	- Qualification to independently plan field experiments suitable for answering current ecological questions (individuals, populations, communities) - Methodological competence/independence in performing field experiments - Qualification to independently analyse the experiments in the laboratory guided by hypotheses and using adequate methods, materials and statistical methods - Competence in presenting results on a scientific level (scientific report presenting and discussing the method; scientific publication; both in English) - Impartment of manifold methodological skills in the field of aquatic ecology, experimental field research (autecological, population-ecological and synecological research approaches) - Impartment of extended expertise in planning experiments in general and their analysis in the field of animal ecology (application and linking of acquired skills; generalisable knowledge) - Practical experience in analysing field experiments in general (comprising laboratory phases, access to literature and databases, preparation of scientific publications) - Preparation of Master and Ph.D. theses requiring skills in experimental field research
Module contents	1st course phase (theoretical preparation and planning) - Picking up current ecological research topics related to aquatic habitats, e.g. in streams and ditches (the respective system is selected prior to the start of the course and should change) - Specification of questions and frame conditions by the course lecturer concerning current research questions in the fields of autecology, population ecology, and synecology - Instructions for literature research and the respective analysis by students - Summary and presentation of the current standard of knowledge (structured brief reviews presented to the course participants by students and commented by the lecturer as well as preparation of a synopsis as part of the term paper or the oral examination (see below)) - Concrete formulation of questions and working hypotheses based on literature research 2nd course phase (practical preparation and planning; laboratory and field work) - Preparatory inspection of the investigation area accompanied by the lecturer - Independent development of a concept of methods (advised by the lecturer) - Presentation of the planned experiment and of the analysis (treatment of samples, data processing etc.) - Independent practical preparation of experiments (calibrate equipment, prepare solutions, prepare trapping jars, determine aquatic data etc.), analysis steps (e.g. prepare laboratory equipment), and logistics (transportation, entry permissions etc.) - Description of methods for all working steps in writing - Independent realization of planning (advised by lecturer) - Report on all procedures including reflection 3rd course phase (further development and application of acquired knowledge; theoretical phase) - Common discussion about the possibilities of and limits to applying the procedure to concrete questions concerning other habitats, other animal associations etc.
Reader's advisory	Hauer, F. Richard & Lamberti, Gary A. (2007): Methods in Stream Ecology (Elsevier Inc.) Methods in Ecology and Evolution (British Ecological Society):

	http://www.methodsinecologyandevolution.org/view/0/index.html TIEE: http://www.esa.org/tiee/misc/about.html Additional scientific publications and materials with examples of relevant research work will be made available via StudIP as an E-reserve of reference literature prior to the start of the course.
Links	https://www.uni-oldenburg.de/en/biology/aquatic-ecology-and-nature-conservation/
Language of instruction	English
Duration (semesters)	2 Semester
Module frequency	jährlich
Module capacity	unlimited
Reference text	Independent literature research on specific questions and methods by students.
Modullevel	MM (Mastermodul)
Modulart	Wahlpflicht
Lern-/Lehrform / Type of program	
Vorkenntnisse / Previous knowledge	

Examination	Time of examination	Type of examination
Final exam of module	as agreed	Oral examination or housework 1) oral or written presentation of the method design 2) documentation of experimental procedure, data analysis and data processing 3) oral or written subject-specific analysis of the planning in respect of the relevant questions and elaborated hypotheses 4) interdisciplinary analysis of the experiments (oral or in writing)

Course type	Comment	SWS	Frequency	Workload attendance
Lecture		1.00		14 h
Exercises		3.00		42 h
Total time of attendance for the module				56 h