Field Methods in Biogeography

Geländemethoden in der Biogeographie

Bachelor – Summer Term (Sommersemester)

The course will be given in English

Module 8	**Field Methods in Biogeography** *Geländemethoden in der Biogeographie*	Study Points (SP) 10

Almost all empirical work in biogeography requires field data on species' assemblages, distributions, or populations. In this module, students get to know techniques and tools to design and implement a field campaign, considering statistical sampling design, sampling effort, and costs. Students will get acquainted with a wide range of methods to collect primary ecological field data, ranging from simple to more advanced techniques, and covering a wide range of taxa. Students will train particular methods in an intensive field course, where students will implement projects they design prior to the field trip. Course participants will also deepen their analytical skills in primary data analyses to answer research questions and test hypothesis, as well as to document their findings, and critically reflect on them in the context of the primary literature.

Prerequisites: Modules M3 (Statistics) M6 (GIS) and M8 Biogeography

Type	**SWS**	**Workload (SP)**	**Topics**
Seminar	2	<u>150 hours (5 SP)</u> 25 hours in the classroom, 125 hours preparation, exercises and readings	- Introduction to empirical data collection and the role of experiments in biogeography - Planning and implementing a survey - Statistical sampling design and sampling methods (incl. sampling bias, representativeness, repeatability, sample size) - Introduction to field data collection techniques, for example, to assess forestry structure and biomass surveys, vegetation surveys, invertebrate trapping, point and transect counts, mark and recapture analyses, camera trapping, or radio telemetry - Documentation of field surveys and organization of field data - Statistical analyzes of data gathered in the field (e.g., descriptive analyses and hypothesis testing)
Field excursion	5 days	<u>120 hours (4 SP)</u> 40 hours in the field, 80 hours preparation, readings, and analyses of collected data	The five-day field excursion will serve to deepen particular methods introduced in the seminar, and to gather the necessary data and implement the associated sampling design for two to three experiments (e.g., assessing species' assemblages along gradients of land use intensity or forest fragmentation). Students will get additional hands-on experience on data acquisition techniques (e.g. arthropod trapping, camera trapping) and in identifying the species they capture.
Final exam (MAP)		<u>30 hours (1 SP)</u>	Exam, 90 min (1 SP) <u>*or*</u> Project report (5-7 pages ~ 8,000 – 10,000 characters without appendices) (1 SP)
Duration		☒ 1 term	☐ 2 terms
Start		☐ Winter term or	☒ Summer term