

## Module Handbook

TUK MODHB Homepage

# Course BIO-ECO-04-K-7

Molecular Ecology (L, 12.0 LP)

## Course Type

SWS	Type	Course Form	CP (Effort)	Presence-Time / Self-Study	
-	L	Laboratory course	12.0 CP	160 h	200 h
(L)			12.0 CP	160 h	200 h

## Basedata

SWS	L
CP, Effort	12.0 CP = 360 h
Position of the semester	1 Sem. in WiSe
Level	[7] Master (Advanced)
Language	[EN] English
Lecturers	Filker, Sabine, Jun. Prof. Dr. (PROF   DEPT: BIO) Stoeck, Thorsten, Prof. Dr. (PROF   DEPT: BIO)
Area of study	[BIO-ECO] Ecology
Lifecycle-State	[NORM] Active

## Contents

Characterization of microbial communities and relation of these communities to their natural habitats. Focus will be on unicellular eukaryotes. Samples will be taken by students during a field trip (such as the Wadden Sea, Sylt). In the field, a detailed habitat characterization will be conducted for sampling sites. Samples (such as water or sediment) will be prepared in the field for detailed analyses in the lab. Among others, nucleic acids of microbial communities will be extracted from environmental samples, followed by targeted PCR of taxonomic marker gene regions, quantitative RT-PCR of cDNA to quantify specific functional microbial processes, high-throughput sequencing, computational massive sequence data processing and

community statistical analyses (using for example the program package R). These data will then be placed in context to environmental habitat characteristics to explain organism-environment relationships and the occurrences of specific microbes in specific habitats. Further techniques will include for example flow-cytometry, epifluorescence microscopy, single-cell PCR and phylogeny.

### Requirements for attendance (informal)

None

### Requirements for attendance (formal)

Passed examination of [BIO-ECO-01-K-5] "*Molecular Ecology*" and [BIO-ECO-07-K-4] "*Molecular Ecology*"

### References to Course [BIO-ECO-04-K-7]

Course-Pool	Name
[BIO-VM_Eco-KPOOL-7]	Advanced Practical Eco