

Module Name	Geomicrobiology: accessing the hidden uncultured microbial majority in seafloor habitats	
Module Number	MNF-bioc-279	
Person in Charge	Prof. Dr. Mirjam Perner Phone: +49-(0)431-600-2837, E-mail: mperner@geomar.de	
Semester / Duration	one semester	Status
Regular Cycle	annual in summer semester	Optional
Study Programme	Master of Science in Biological Oceanography	
Classes	Class Title (Teaching Form) Lecturers	Contact Time / Group Size
	metagenomics of seafloor habitats (Lecture) Prof. Dr. Mirjam Perner	1 SWS / 12 students
	metagenomics of seafloor habitats (Seminar) Prof. Dr. Mirjam Perner	1 SWS / 12 students
	metagenomics of seafloor habitats (Practical) Prof. Dr. Mirjam Perner	2 SWS / 12 students Block course 3 weeks / 12 students
Credit Points / Workload	5 ECTS / 150 hours	
Prerequisites	None	
Completion Module	None.	
Following Module	None.	
Educational Objectives	<p>Seminar: In this seminar, students will study basic principles for accessing the uncultured microbial majority in seafloor habitats. Students will get an overview of the work that has been done in this area of research. Techniques, their benefits and drawbacks for accessing the uncultured microbial community will be discussed.</p> <p>Lecture: In the lecture, basic principles of how to analyse the uncultured microbial community will be introduced. Current studies will be addressed and different tools for accessing information from the metagenome will be presented. Students will acquire an integrative view of the metagenome in seafloor habitats and how to link this knowledge to local environmental processes.</p> <p>Practical: Within the practical, students will be trained in modern metagenomic techniques relevant for experimental approaches in Geomicrobiology. Students will be distributed in small groups to conduct experiments.</p>	
Content of Teaching	<p>Lecture topics include the metagenome of different seafloor habitats: sediments, rocks and hydrothermal vents. Both, sequenced-based and activity-based screens will be presented. The drawbacks and benefits of metagenomic technology will be assessed. The role and relevance of these processes for the local benthic habitat and the global Ocean will be discussed.</p> <p>Practical: metagenomic fosmid libraries will be constructed. Metagenomic fosmid inserts will be sequenced and activity-based screens will be performed for seeking enzymes from the metagenome.</p>	
Examination prerequisite	-	
Examination	Graded oral presentation (100%)	
Literature	Relevant literature will be given out during the module.	
Additional Information	None.	