

Module Number: T@T_SoSe_25	Module Title: Unraveling the role of microorganisms in water		Type of Module: M.Sc. Elective						
Credits (ECTS)	3								
Workload - Contact Time - Private Study	Workload: 90h	Contact Time: 30 h / 2 SWS			Private Studies: 60 h				
Duration Module Coordinator	1 Semester			Lafont					
Regular Cycle	Summer semester 2025								
Language	English								
Learning- / Teaching Forms	Lecture, tutorials and group presentation								
Module Content	<p>This course explores the fascinating and critical role of microorganisms in water systems, bridging the gap between natural ecosystems and engineered solutions. How microbes can contribute to water quality. The course also delves into innovations in water treatment and resource recovery using microbial technologies.</p> <p>Designed to provide a comprehensive understanding of the role of microorganisms in water, the course draws on fields such as geosciences, geoecology, chemistry, and microbiology. Students will analyze real-world scientific projects addressing current water problems, with a focus on the methodologies employed. Through lectures, tutorials, and project analyses, participants will develop critical thinking, research skills, and practical expertise in applying microorganisms to water-related challenges.</p> <p>2 axis:</p> <ul style="list-style-type: none"> • Introduction to microorganisms and metabolisms. • Microorganisms in water systems. 								
Qualification Goals	<p>Students will learn:</p> <ul style="list-style-type: none"> • An introduction to microorganisms, including bacteria, archaea, and fungi. • The classification and taxonomy of microorganisms. • Microbial diversity in water systems and their ecological roles. • Key microbial metabolisms and their significance. • The roles of microorganisms in wastewater treatment and pollution remediation. 								
Requirements for Obtaining Credit, Grading, Weight if appl.	<i>Courses</i>	<i>Type of Lecture</i>	<i>Status</i>	<i>CH</i>	<i>CP</i>	<i>Type of Exam / Study Requirements</i>	<i>Duration of Exam</i>	<i>Grading System</i>	<i>Weighting</i>
	<i>Lecture</i>	<i>L</i>	<i>c</i>	<i>1</i>	1,5	WE		<i>g</i>	<i>50%</i>
	<i>Tutorials</i>	<i>S</i>	<i>c</i>	<i>1</i>	1,5	R		<i>g</i>	<i>50%</i>
Applicability	M.Sc. Geowissenschaften/Geosciences, M.Sc. Geoökologie/Geoecology, M.Sc. Applied & Environmental Geoscience								
Prerequisites	None								