

Modulbezeichnung		Wahlpflichtpraktikum Environmental Microbiology				
Kürzel		M-PR				
Modulniveau		Fortgeschrittenenveranstaltung				
Turnus jährlich im SS	Dauer 1 Semester	Studiensemester 1 und 2	Credits 9	Zuordnung Curriculum M. Sc. Chemische Biologie		
Modulstruktur						
Lf.Nr.	Lehrveranstaltung	Typ	CP	SWS	Präsenzzeit	Eigenstudium
1	Practical course and Lectures in Environmental Microbiology	P	6	8	120 h	60 h
2	Seminar in Environmental Microbiology	S	3	2	30 h	60 h
Summe			9	10	150 h	120 h
Modulverantwortliche(r)		Prof. Dr. M. Spiteller				
Dozent(in)		Dr. S. Kusari, Prof. Dr. M. Spiteller, Dr. S. Zühlke				
Sprache		Englisch				
Voraussetzungen nach Prüfungsordnung						
Empfohlene Voraussetzungen		B. Sc. Chemische Biologie				
Studien-/Prüfungsleistungen		Daily colloquium prior experiments, seminars on selected publications, and protocol to the experiments (report) at the end of the course Teilleistung A (Gewichtung 70%): Abschlussprotokoll zum Praktikum, Teilleistung B (Gewichtung 30%): Seminarvortrag				
Studienziele		Nach Abschluss dieses Moduls sollen die Studierenden nachweisen, dass sie die speziellen Arbeitsmethoden der Mikrobiologie beherrschen und in der Lage sind, einen wissenschaftlichen Artikel in einem Seminarvortrag vorzustellen.				
Angestrebte Lernergebnisse		See below				
Vermittelte Schlüsselkompetenzen		<ul style="list-style-type: none"> Exposure of the students to broad spectra of current environmental problems like antibiotic resistance in microorganisms and contamination of drinking water (portability). 				

	<ul style="list-style-type: none"> • The students will learn all the basic to advanced techniques, through a combination of especial lectures and hands-on practical courses, about environmental microbiology that will enable them to independently assess the problems of antibiotic resistance in natural resources (like soil, water, etc.) and evaluate the portability of water from any given source. • The course modules are being designed by considering the present internationally accepted indicator values. For example, one aspect adhered to in the course will be to test the portability of water by considering the accepted value (current acceptable concentration for coliforms in drinking water is 5.0%) officially represented as the Maximum Contaminant Level (MCL) by the USA-EPA (http://www.epa.gov) and WHO (http://www.who.int). This will enable the students to independently assess real samples in the future from any country, within the highest internationally accepted norms.
Inhalt	<ul style="list-style-type: none"> • General Introduction to Environmental Microbiology • Importance and impact of microorganisms to the environment • Useful and harmful microorganisms • Relationships between microorganisms and microbial ecology • Biodegradation and bioremediation and their practical implications • The principle of Infallibility • Antibiotics • Sensitivity and resistance of microorganisms • Impact and utilities of microbes to humans • Fermentation technology • Latest research news on Environmental Microbiology • Future of Environmental Microbiology
Medienformen	PowerPoint presentation, electronic script, 1 selected publication for each student for seminar (all students will get all other's publications for discussion), all students will get everyone's seminar including course lectures slides
Literatur	<ul style="list-style-type: none"> • Environmental Microbiology script, S. Kusari and S. Zühlke