

<b>Module Name</b>	<b>Module Code</b>
Plant-Soil Microbiome Interactions for Sustainable Agriculture	agrarAEF871-01a
<b>Module Coordinator</b>	
Dr. rer. nat. Baharsadat Razavidezfuly	
<b>Organizer</b>	
Faculty of Agricultural and Nutritional Sciences - Institute of Phytopathology	
<b>Faculty</b>	
Faculty of Agricultural and Nutritional Sciences	
<b>Examination Office</b>	
Faculty of Agricultural and Nutritional Sciences - Examination Office	

<b>ECTS Credits</b>	6
<b>Evaluation</b>	Graded
<b>Duration</b>	1 Semester
<b>Frequency</b>	Only takes place during winter semesters
<b>Workload per ECTS Credit</b>	30 hours
<b>Total Workload</b>	180 hours
<b>Contact Time</b>	60 hours
<b>Independent Study</b>	120 hours
<b>Teaching Language</b>	English

<b>Module Courses</b>			
<b>Course Type</b>	<b>Course Name</b>	<b>Compul- sory/Optional</b>	<b>SWS</b>
Lecture	Plant-Soil microbiome Interactions for Sustainable Agriculture	Compulsory	2
Seminar	Plant-Soil Microbiome Interactions for Sustainable Agriculture	Compulsory	2
<b>Prerequisites for Admission to the Examination(s)</b>			
The prerequisite for admission to the oral examination is a presentation that has been passed and graded, 25% of which is included in the final grade in an exclusively grade-improving manner.			

<b>Examination(s)</b>				
<b>Examination Name</b>	<b>Type of Examination</b>	<b>Evaluation</b>	<b>Compulsory / Optional</b>	<b>Weighting</b>
Oral Examination: Plant-Soil Microbiome Interactions for Sustainable Agriculture	Oral Examination	Graded	Compulsory	100
<b>Further Information on the Examination(s)</b>				
1. + 2. Period in winter semester 1. Period in summer semester  QIS: 69100 with number of Examination 69110				

<b>Course Content</b>
Soil microbiome diversity, including beneficial and non-beneficial. Plant-soil interface properties and characteristics. Soil microbiome functions including enzymatic activities. Role of microbiome in ecosystem scale. Beneficial soil microbes which reduce plant stresses against biological stressors such as pathogens and environmental factors such as drought. Biotic and abiotic factors affecting microbial communities in agriculture. Advanced novel approaches for plant-soil microbiome interactions studies.
<b>Learning Outcome</b>
Advanced knowledge in importance of soil microorganisms in agro-ecosystem which includes Plant Growth Promoting Rhizo-bacteria, Fungi, Symbiotic Biopesticides and Bioremediation. Biotic and abiotic controls on microbiome functionality in agro-ecosystem
<b>Reading List</b>
Printed content outlines, lecture-related review articles and textbooks. Course materials are available online. Two textbooks: 1) Soil microbiology, ecology and biochemistry, 4th Edition. (2014) Edited by E.A. Paul. 2) Interactions between non-pathogenic soil microorganisms and plants Edited by Y.R.Dommergues and S.V. Krupa

<b>Use</b>	<b>Compulsory / Optional</b>	<b>Semester</b>
Master, 1-Subject, Agricultural Sciences, Specialisation Agricultural Economics, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Agricultural Economics, (Version 2013)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Agribusiness, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Agribusiness, (Version 2013)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Crop Sciences, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Crop Sciences, (Version 2013)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Animal Sciences, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Animal Sciences, (Version 2013)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Environmental Sciences, (Version 2017)	Optional	-
Master, 1-Subject, Agricultural Sciences, Specialisation Environmental Sciences, (Version 2013)	Optional	-
Master, 1-Subject, Nutritional and Food Science, (Version 2013)	Optional	-
Master, 1-Subject, Nutritional and Consumer Economics, (Version 2017)	Optional	-
Master, 1-Subject, Nutritional and Consumer Economics, (Version 2013)	Optional	-