

Module Name	Module Code
Nutrient Cycling and Sustainability	agrarAEF893-01a
Module Coordinator	
Prof. Dr. Karl H. Mühling	
Organizer	
Institute of Plant Nutrition and Soil Science – Plant Nutrition	
Faculty	
Faculty of Agricultural and Nutritional Sciences	
Examination Office	
Faculty of Agricultural and Nutritional Sciences - Examination Office	
ECTS Credits	6
Evaluation	graded
Duration	1 semester
Frequency	Only in winter semester
Workload per ECTS Credit	30 hours
Total Workload	180 hours
Contact Time	60 hours
Independent Study	120 hours
Teaching Language	English
Recommended Requirements	
Basic knowledge of biology, chemistry, plant and soil biology and chemistry Basic knowledge in plant nutrition (fertilization)	

Module Courses			
Course Type	Course Name	Compulsory/Optional	SWS
Lecture	Nutrient Cycles	optional	2
Seminar	Nutritional Ecology	optional	1
Exercise	Nutritional Ecology	optional	1

Examination(s)				
Examination Name	Type of Examination	Evaluation	Compulsory / Optional	Weighting
Nutrient Cycling and Sustainability	Oral	Graded	Optional	100

Further Information on the Examination(s)

Regular visits of lecture, seminar and exercises are necessary.

Course Content

The student know about:

- Nutrient inputs, nutrient outputs,
- nutrient balance of soils,
- criteria of sustainability,
- roots-soil interaction,
- gas emission (Methan, **NO_x**),
- heavy metal dynamics,

adaption strategies of plants to environmental conditions

Learning Outcome

The students:

- have knowledge of nutrient dynamics of different agroecosystems and an understanding of the complexity of the interaction of location and plants and are familiar with the criteria of sustainable cultivation. They are able to conceptualize cultivation concepts in humid, semi-arid and arid regions and are able to analyse the effects of changes in nutrient management on different crop-rotations

Reading List

Lambers et al: Plant Physiology Ecology
 Larcher: Physiology Plant Ecology
 Schulze et al. Plant Ecology