

Module Name	Module Code
Principles in Soil Ecology	AEF-EM034
Module Coordinator	
Dr. agr. Claus-Georg Schimming	
Organizer	
Institut für Natur- und Ressourcenschutz - Hydrologie und Wasserwirtschaft	
Faculty	
Faculty of Agricultural and Nutritional Sciences	
Examination Office	
Prüfungsamt Agrar- und Ernährungswissenschaftliche Fakultät	

ECTS Credits	6
Evaluation	Graded
Duration	one semester
Frequency	Only takes place during winter semesters
Workload per ECTS Credit	30 hours
Total Workload	90 hours
Contact Time	30 hours
Independent Study	60 hours
Teaching Language	English

Recommended Requirements			
Basic knowledge of soil types and soil genesis			
Module Courses			
Course Type	Course Name	Compulsory/Optional	SWS
Lecture	Ecology of Soils, Physics	Compulsory	1
Lecture	Ecology of Soils, Mikrobiologie	Compulsory	1
Lecture	Ecology of Soils, Fauna	Compulsory	2

Examination(s)				
Examination Name	Type of Examination	Evaluation	Compulsory / Optional	Weighting
Written Exam: Principles Soil Ecology	Written Examination	Graded	Compulsory	100
Further Information on the Examination(s)				
1.+2. period in wintersemester 1. period in summersemester examiner: Dr. Schimming QIS: 72201 with number of Examination 72220				

Course Content
<p>Brief introduction into the nature of soil, physico-chemical properties of soil colloids and its factors, importances of soil texture components and secondary structure effects on sorptivity, surface reactivity in soil, speciation of total element (nutrient) and water contents into available nutrient and water fractions in the soil-ecosystem complex, cation-exchange capacity (CEC) and soil water retention concepts, Practise in basics of soil microscopy and soil respiration. Soil bacteria will be visualized, counted and estimates for biovolumes will be performed by easy techniques. An introduction to soil respiration by analysis of carbon dioxide evolution from soils by infra red gas analysis (IRGA) will serve and introduced as an overall indicator for soil activity</p>
Learning Outcome
<p>Knowledge of soil and pedosphere (Genesis, soil forming factors, soil types and classification). The students can identify the relevant soil functions in the complex with the ecosystem and the biosphere regarding nutrient and water availability as the primary conditions of productivity as the prerequisite of ecosystem development. Soil ecological interrelations/processes and are able to recognize the function of biological components and their interactions, and can estimate the impacts of agriculture to the soil micro organisms. The practical part of this module deals with methods of detection of soil microbiological parameters and with the influences of different types of land use measures.</p>
Reading List
<p>Hillel D: (2007); Soil in the Environment. Elsevier Amsterdam Miller, WR., Gardiner D.T. (2007): Soils in Our Environment. Prentice Hall, Eaglewo Cliffs, N.J. D.C. Coleman, D.A. Crossley, P.F. Hendrix: Fundamentals of Soil Ecology (Elsevier) U. Gisi: Bodenökologie (Thieme Verlag) G. Brucker, D. Kalusche: Bode und Umwelt (Quelle &eyer) W. Dunger, H.J. Fiedler: Methoden der Bodenbiologie</p>
Additional Information
<p>Institute for Natural Resource Conservation Olshausenstr. 75 24118 Kiel Room:213 a Phone: +49 431 880-4034 Fax: +49 431 880-4038 Mail: cschimming@ecology.uni-kiel.de</p>

Use	Compulsory / Optional	Semester
Master, 1-subject, Agricultural Sciences, Agricultural Economics, (Version 2013)	Optional	-
Master, 1-subject, Agricultural Sciences, Agribusiness, (Version 2013)	Optional	-
Master, 1-subject, Agricultural Sciences, Crop Sciences, (Version 2013)	Optional	-
Master, 1-subject, Agricultural Sciences, Animal Sciences, (Version 2013)	Optional	-
Master, 1-subject, Agricultural Sciences, Environmental Sciences, (Version 2013)	Optional	-
Master, 1-subject, Environmental Management, (Version 2013)	Optional	-
Master, 1-subject, Nutritional and Food Science, (Version 2013)	Optional	-
Master, 1-subject, Nutritional and Consumer Economics, (Version 2013)	Optional	-
Master, 1-subject, Sustainability, Society and the Environment, (Version 2013)	Optional	-