

Georg-August-Universität Göttingen Universität Kassel/Witzenhausen Module M.SIA.P06: Soil and water		6 C 4 WLH
Learning outcome, core skills: Students understand soil - water - plant relations and basic soil physical, soil hydrological and soil (micro)biological processes. They are able to critically evaluate soil and water problems and limits of soils as a natural resource and judge soil management options for sustainable land use.		Workload: Attendance time: 60 h Self-study time: 120 h
Course: Soil and water (Lecture, Exercise) <i>Contents:</i> Fundamental physical and hydrological processes; Soil water storage and transport; Physicochemical properties, Soil water in relation to mechanical processes (e.g. workability, deformation, soil strength); Soil – Water - Plant Relations (root water uptake, root growth, transpiration, soil-plant-atmosphere continuum); Field water cycle and management effects (e.g. mulching, tillage, irrigation); Irrigation principles and practices; Soil degradation and conservation (e.g. soil salinisation, compaction, acidification, contamination); Edaphon and its functions; Mycorrhiza; Rhizobia; Methods in soil biology; Indicators of soil fertility; Turnover of the soil microbial biomass; Habitat protection and ecotoxicology; Soil biology and fertility of tropical soils.		4 WLH
Examination: Oral examination (approx. 30 minutes) M.SIA.P06.Mp: Soil and water Examination requirements: Kenntnisse über die Bodendegradation und Bodenerhaltung, das Wassermanagement in nationalem und internationalem Kontext, die Bodenqualität, Prozesse und Funktionen sowie über die Wassergewinnung und –verteilung, Flächenbewässerung, Beregnung, Tropfbewässerung.		6 C
Admission requirements: none	Recommended previous knowledge: Fundamentals of soil science; Module Soil and Plant Science or equivalent.	
Language: English	Person responsible for module: Prof. Dr. Stephan Peth	
Course frequency: each summer semester; Witzenhausen	Duration: 1 semester[s]	
Number of repeat examinations permitted: twice	Recommended semester:	
Maximum number of students: not limited		
Additional notes and regulations: Literature:		

N.C. Brady & R. R. Weil, 2008. *The Nature and Properties of Soils*. 14th ed., Pearson International Press; Hillel, D. (1998): *Environmental Soil Physics*. Academic Press; Jury, W. & Horton, R. (2004): *Soil Physics*. Wiley & Sons; Lal, R. & Shukla, M.K. (2004): *Principles of Soil Physics*, Marcel Dekker Inc.; Ehlers, W. & Goss, M. (2003): *Water Dynamics in Plant Production*, CABI Publishing; Kirkham, M. B. (2005): *Principles of Soil and Plant Water Relations*, Elsevier; Coyne, M. S. (1999). *Soil microbiology: an exploratory approach*, Thomson Press; Paul, E.A., Clark, F.E. (1996). *Soil microbiology and biochemistry*, 2nd ed., New York Academic Press.