Iök365 - Special Abiotic Factors (Soil/Water)

Module label: Special Abiotic Factors (Soil/Water)
Module code: Iök365
Credit points: 9.0 KP
Workload: 270 h
Used in course of study: Master's Programme Landscape Ecology > Vertiefungsmodule drittes Fachsemester

Module responsibility
- Luise Dorothee Giani
- Janek Greskowiak
- Birte Junge
- Gudrun Massmann

Authorized examiners
- Luise Dorothee Giani
- Janek Greskowiak
- Birte Junge
- Gudrun Massmann

Module counseling
- Luise Dorothee Giani
- Gudrun Massmann

Entry requirements
Basic knowledge of Soil Science, Hydrogeology and Hydrochemistry

Skills to be acquired in this module
E: Applied modelling of water and solute transport in groundwater:

E: Hydrochemical modelling of water-rock interactions using PHREEQC:
Modelling of hydrogeochemical processes (speciation reactions and mineral reactions, pyrite oxidation, oxidation of organic matter, redox reactions, ion exchange, equilibrium reactions and reaction kinetics) using the software PHREEQC (http://wwwbrr.cr.usgs.gov/projects/GWC_coupled/phreeqc/)

L: Major Soils of the World and excursion to the World Soil Museum in Wageningen (The Netherlands):
Impartment of knowledge into distribution, properties and classification of soils of the world. Qualification to apply the World Reference Base for Soil Resources (WRB) and to identify the soils of the world.

E: Special soil science field and laboratory exercises:
Impartment of knowledge into specific field and laboratory methods. Qualification to select and apply specific field and laboratory methods as well as to analyse and interpret results.

E: Applied modelling of water and substance transfer in ground water:

E: Hydrochemical modelling of water-rock interactions using PHREEQC:
Modelling of hydrogeochemical processes (speciation reactions and mineral reactions, pyrite oxidation, oxidation of organic substances, redox reactions, ion exchange, balance reactions and reaction kinetics) using the software PHREEQC (http://wwwbrr.cr.usgs.gov/projects/GWC_coupled/phreeqc/)

L: Major Soils of the World and excursion to the World Soil Museum in Wageningen (The Netherlands):
Application of the international soil classification system "WRB", step-wise familiarization with soils and their properties as well as with the related landscapes and catenas (from polar to tropical soils), study of varnished profiles of globally distributed soils.

E: Special soil science field and laboratory exercises:
Selection of current scientific objectives, construction of a sampling and investigation design, performance of field studies (preferably abroad) and laboratory analysis, analysis and interpretation of results.

Reader's advisory
Balkema.


References to soil classification systems for naming soils and creating legends for soil maps. World Soil Resources Reports No. 106. FAO, Rom; www.fao.org/3/a-i3794e.pdf
- see also announcements in StudIP.

Links
Languages of instruction
German, English
Duration (semesters)
1 Semester
Module frequency
jährlich
Module capacity
unlimited
Reference text
The module can be taken as a 6 CP or a 9 CP module. For the 6 CP module, 2 of the 4 courses offered must be attended, for the 9 CP module, 3 of the 4 courses.

Modullevel
MM (Mastermodul)
Modulart
Wahlpflicht
Lern-/Lehrform / Type of program
Vorkenntnisse / Previous knowledge
Examination
Time of examination
Type of examination
Final exam of module
Before the end of the module
Oral examination or housework

Course type
Comment
SWS
Frequency
Workload attendance
Lecture
5.00
70 h
70 h
Exercises
5.00

Total time of attendance for the module
140 h