

Modulbezeichnung/ module notation	9. GIS and Hydrology
Modulniveau/ module level	Master
Studiensemester/ semester	2
Kürzel/ abbreviation	GH
Lehrveranstaltungen/ courses	9.1 GIS and Hydrology
	9.2 Advanced Hydrology
	9.3 Geohydraulic design criterias
Modulverantwortlicher/ module responsible	Prof. Dr. rer. nat. habil. Frido Reinstorf
Dozent(in)/ lecturer	Prof. Dr. rer. nat. habil. Frido Reinstorf Dr.-Ing. Peter Grubert
Sprache/ language	english
Zuordnung zum Curriculum/ correlation to curriculum	Compulsory module
Lehrform/SWS/ teaching form/contact hours	6 SWS lecture
Arbeitsaufwand/ amount of work	180 h
Kreditpunkte/ credit points	6
Voraussetzungen nach Prüfungsordnung/ requirements	Bachelor degree
Empfohlene Voraussetzungen/ recommended requirements	Hydrology, Environmental Engineering, Mathematics for Engineers
Form der Prüfung/ form of exam	homework
Angestrebte Lernergebnisse/ target educational objective	Data processing and analysis; mapping and data visualization, Autonomous work with GIS-tools, Hydrological modeling
9.1: GIS and Hydrology (Reinstorf)	GIS is used as vehicle to deliver environmental knowledge and spatial information. The series of courses emphasize students to investigate the environment, use GPS marking geographic locations, and further collect environmental information. The students learn to work with GIS incl. georeferencing, data processing and analysis as well as mapping. All students create in a scientific project their own maps with individual hydrological subjects, integrate environmental information, and adopt the spatial analyses with ArcGIS 10 software. The objective of this courses is to cultivate students' capabilities of collecting, displaying and analyzing spatial information.
9.2: Advanced Hydrology (Reinstorf)	The students learn the basics of high flood prevention and flood protection measures, including the typical buildings and facilities. They learn to create a data base and base maps for determination of hydrological flooding events like flooding maps and damage risk maps.

9.3: Geohydraulic design criterias (Grubert)	Application of an geohydraulic model under seepage aspects of dikes and dam structures. Calculation of dambreak situation.
Medienformen/ used media	Powerpoint presentation, White board
Literatur/ literature	Script