

Georg-August-Universität Göttingen		6 C
Module M.Geo.154: Hydrogeological Modeling		6 WLH
Learning outcome, core skills: This module introduces the student to the commonly used mathematical tools as well as to state-of-the-art numerical groundwater modeling techniques, including visualization of the results. Groundwater modeling allows a consistent assembly of multiple types of data from laboratory and field investigations, environmental system analysis, process understanding, planning of water management and remedial activities, risk assessment, decision making etc.. The courses focus on the numerical modeling of flow and non-reactive as well as reactive transport in porous media (aquifers). It includes topics such as model design, mathematical process formulation (process equations) and numerical methods for solving the governing equations. Simple modeling problems will be discussed and exercised by the students using computer codes in tutorials to complement the presentations given in the lecture.		Workload: Attendance time: 84 h Self-study time: 96 h
Course: M.Geo.154.LV-1 Scientific Programming (Lecture, Exercise) <i>Course frequency: each winter semester</i>		2 WLH
Examination: Practical examination (60 minutes), not graded M.Geo.154.1: Scientific Programming Examination prerequisites: regular attendance in the exercises.		2 C
Course: M.Geo.154.LV-2 Groundwater Flow Modeling (Lecture, Exercise) <i>Course frequency: each summer semester</i>		2 WLH
Course: M.Geo.154.LV-3 Groundwater Transport Modeling (Lecture, Exercise, Seminar) <i>Course frequency: each summer semester</i>		2 WLH
Examination: Term Paper (max. 10 pages) M.Geo.154.2: ModFlow-Kurs		4 C
Examination requirements: Knowledge about theoretic background and state of the art techniques in groundwater modelling, understanding of main concepts of hydrosystem modelling and practical skills.		
Admission requirements: basic knowledge in hydrogeology and mathematics	Recommended previous knowledge: M.Geo.151	
Language: German, English	Person responsible for module: Dr. rer. nat. Jannes Kordilla	
Course frequency: once a year	Duration: 2 semester[s]	
Number of repeat examinations permitted: twice	Recommended semester: from 1	

Maximum number of students:	
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Additional notes and regulations:
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Compulsory module for the certification of the specialization in hydrogeology.
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