

Module title		Abbreviation
Advances in Mathematics (German Grundschule/Hauptschule/Realschule)		10-M-M2GHR-092-m01
Module coordinator		Module offered by
Dean of Studies Mathematik (Mathematics)		Institute of Mathematics
ECTS	Method of grading	Only after succ. compl. of module(s)
18	numerical grade	--
Duration	Module level	Other prerequisites
3 semester	undergraduate	--
Contents		
Advanced topics in the two most important fields of mathematics: applications of linear algebra in analytic geometry; extension of analysis from one to several variables, basics in ordinary differential equations and application of methods of analysis and linear algebra in this field.		
Intended learning outcomes		
The students is acquainted with advanced methods, concepts and results in linear algebra and analytic geometry, as well as in analysis in several variables and the theory of ordinary differential equations. He/She is able to comprehend the central proof methods, can perform easy mathematical arguments and present them orally and in written form. He/She can analyse basic mathematical problems and employ methods of analysis in one and several variables, linear algebra, analytic geometry and the theory of ordinary differential equations to solve them.		
Courses (type, number of weekly contact hours, language – if other than German)		
This module has 4 components; information on courses listed separately for each component. <ul style="list-style-type: none"> • 10-M-M2GHR-P-092: M (no information on language and number of weekly contact hours available) • 10-M-M2GHR-1-092, 10-M-M2GHR-2-092, and 10-M-M2GHR-3-092: V + Ü (no information on language and number of weekly contact hours available) 		
Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)		
This module has the following 4 assessment components. Unless stated otherwise, students must pass all of these assessment components to pass the module as a whole.		
<p>Assessment in module component 10-M-M2GHR-P-092: Aufbau Mathematik - Prüfung (Grund-, Haupt- und Realschule) (Assessment Advanced Mathematics, Grundschule, Hauptschule and Realschule)</p> <ul style="list-style-type: none"> • 1 ECTS credit, numerical grading • written examination (approx. 120 minutes); if announced by the lecturer, the written examination may be replaced by an oral examination of one candidate each (approx. 30 minutes) or an oral examination in groups (groups of 2: approx. 45 minutes, groups of 3: approx. 60 minutes) or by a written and/or multi-media portfolio (as announced). • Only after successful completion of module components: Module component 10-M-M2GHR-P can only be taken by students who successfully completed the three module components 10-M-M2GHR-1, 10-M-M2GHR-2 and 10-M-M2GHR-3. <p>Assessment in module component 10-M-M2GHR-1-092: Aufbau Mathematik - Analysis in mehreren Variablen (Grund-, Haupt- und Realschule) (Advanced Mathematics - Analysis in Several Variables, Grundschule, Hauptschule and Realschule), in module component 10-M-M2GHR-2-092: Aufbau Mathematik - Differentialgleichungen (Grund-, Haupt- und Realschule) (Advanced Mathematics - Differential Equations, Grundschule, Hauptschule and Realschule), and in module component 10-M-M2GHR-3-092: Aufbau Mathematik - Differentialgleichungen (Grund-, Haupt- und Realschule) (Advanced Mathematics - Differential Equations, Grundschule, Hauptschule and Realschule) :</p> <ul style="list-style-type: none"> • 5 ECTS credits (10-M-M2GHR-2-092: 7 ECTS credits), pass / fail • exercises: at the beginning of the course, the lecturer will specify the type and scope of exercises to be successfully completed over the course of the semester for the module component to be considered successfully completed. 		

Allocation of places

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Additional information

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Workload

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Teaching cycle

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Referred to in LPO I (examination regulations for teaching-degree programmes)

§ 51 (1) 1. Mathematik Differential- und Integralrechnung, Gewöhnliche Differentialgleichungen

§ 51 (1) 2. Mathematik Lineare Algebra und Analytische Geometrie

Module appears in

First state examination for the teaching degree Grundschule Mathematics (2009)

First state examination for the teaching degree Hauptschule Mathematics (2009)

First state examination for the teaching degree Realschule Mathematics (2009)

First state examination for the teaching degree Mittelschule Mathematics (2013)