

Module title		Abbreviation
Overview Higher Analysis for Teaching Degree (German Gymnasium) (Differential Equations and Complex Analysis, or Advanced Analysis and Complex Analysis)		10-M-HHA-Ü-162-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)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	undergraduate	--
Contents		
<p>Complex Analysis (complex differentiability and the Cauchy-Riemann differential equation, path integrals and Cauchy integral theorems, isolated singularities, meromorphic functions and Laurent series, residue theorem and applications, Weierstrass factorization theorem and Mittag-Leffler theorem, conformal maps) and either</p> <p>Advanced Analysis (advanced analysis in several variables, Lebesgue integration) or</p> <p>Ordinary Differential Equations (existence and uniqueness theorem, continuous dependence of solutions on initial data, systems of linear differential equations, matrix exponential series, higher order linear differential equations).</p>		
Intended learning outcomes		
The student is acquainted with fundamental concepts and methods in complex analysis and a further topic in higher analysis (theory of ordinary differential equations or Lebesgue integration). He/She is able to relate these concepts with one another, and realises the advantages of thinking across the borders of different branches in mathematics.		
Courses (type, number of weekly contact hours, language – if other than German)		
V (4) + Ü (2)		
Method of assessment (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)		
oral examination of one candidate each (20 to 40 minutes) Language of assessment: German and/or English		
Allocation of places		
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Additional information		
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Workload		
300 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016) Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)		