

<b>Module title</b>		<b>Abbreviation</b>
Basic Analysis		10-M-GRAN-152-m01
<b>Module coordinator</b>		<b>Module offered by</b>
Dean of Studies Mathematik (Mathematics)		Institute of Mathematics
<b>ECTS</b>	<b>Method of grading</b>	<b>Only after succ. compl. of module(s)</b>
12	numerical grade	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
2 semester	undergraduate	--
<b>Contents</b>		
Convergence and divergence of sequences and series, functions, continuity, differentiation and integration (Riemann integral), Taylor approximation and power series, functions in several variables, total and partial differentiability, inverse and implicit function theorem, curves in $\mathbb{R}^n$ , curve integrals, integration theorems in higher dimensions (Fubini's theorem, transformation rule), examples and applications.		
<b>Intended learning outcomes</b>		
The student is acquainted with methods and concepts in analysis of one and several variables. He/She is able to comprehend the central proof methods, can perform easy mathematical arguments and present them in written form. He/She can analyse basic mathematical problems and employ methods of analysis in one and several variables to solve them.		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
V (4) + Ü (2) + V (2) + Ü (2)		
<b>Method of assessment</b> (type, scope, language – if other than German, examination offered – if not every semester, information on whether module is creditable for bonus)		
written examination (approx. 60 to 120 minutes). If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate). creditable for bonus		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Workload</b>		
360 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
§ 51 I Nr. 1		
<b>Module appears in</b>		
First state examination for the teaching degree Grundschule Mathematics (2015) First state examination for the teaching degree Realschule Mathematics (2015) First state examination for the teaching degree Mittelschule Mathematics (2015) First state examination for the teaching degree Mittelschule Mathematics (2020 (Prüfungsordnungsversion 2015)) exchange program Mathematics (2023)		