### Module title
Basic Analysis

### Abbreviation
10-M-GRAN-152-m01

### Module coordinator
Dean of Studies Mathematik (Mathematics)

### Module offered by
Institute of Mathematics

### ECTS
12

### Method of grading
numerical grade

### Only after succ. compl. of module(s)
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### Duration
2 semester

### Module level
undergraduate

### Other prerequisites
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### Contents
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.

### Intended learning outcomes
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.

### Courses
(V (4) + Ü (2) + V (2) + Ü (2))

### Method of assessment
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

### Allocation of places
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### Additional information
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### Referred to in LPO I
(examination regulations for teaching-degree programmes)

§ 51 I Nr. 1

### Module appears in
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)