Module title			Abbreviation
Overview Analysis for Mathematical Physics			10-M-ANP-Ü-202-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)
16	numerical grade	--

Duration	Module level	Other prerequisites
2 semester	undergraduate	--

Contents

Real numbers and completeness; complex numbers; basic topological notions; convergence and divergence of sequences and series; power series and Taylor series; basics in differential calculus in one variable; basics of integral calculus in one variable (Riemann integral and improper integral).
Further topological considerations, normed and metric spaces; basics in differential calculus in several variables, Taylor's theorem for multivariate functions, Banach's fixed point theorem; inverse function theorem, implicit function theorem.

Intended learning outcomes

The student knows and masters the essential methods and proof techniques of analysis and is able to apply them independently, He/She has an overview over the fundamental notions and concepts of analysis, their analytic background and geometric interpretation, and can interconnect them and express them adequately in written and oral form.

Courses (type, number of weekly contact hours, language — if other than German)

V (4) + 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)
Assessment will have reference to the contents of modules 10-M-ANAP1 and 10-M-ANAP2.
Language of assessment: German and/or English

Allocation of places

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Additional information

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Workload

480 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

Bachelor's degree (1 major) Mathematical Physics (2020)
Bachelor's degree (1 major) Mathematical Physics (2024)
Bachelor's degree (1 major) Mathematical Physics (2026)