

<b>Module title</b>		<b>Abbreviation</b>
Geometric Analysis		10-M-GAN-202-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>
5	(not) successfully completed	--
<b>Duration</b>	<b>Module level</b>	<b>Other prerequisites</b>
1 semester	undergraduate	--
<b>Contents</b>		
Submanifolds of $\mathbb{R}^n$ and regular value theorem; submanifolds with and without boundary; orientation; differential forms and exterior derivative; Stokes' theorem for differential forms; Hodge star operator; Stokes' theorem and its special cases Gauss' theorem and Green's theorem; outlook on further topics like density or submanifolds with corners.		
<b>Intended learning outcomes</b>		
The student is acquainted with the fundamental concepts and methods in geometric analysis. He/she is able to apply these methods to practical problems.		
<b>Courses</b> (type, number of weekly contact hours, language – if other than German)		
V (4) + 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)		
a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate) creditable for bonus Language of assessment: German and/or English		
<b>Allocation of places</b>		
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<b>Additional information</b>		
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<b>Workload</b>		
150 h		
<b>Teaching cycle</b>		
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<b>Referred to in LPO I</b> (examination regulations for teaching-degree programmes)		
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<b>Module appears in</b>		
Bachelor' degree (1 major) Mathematical Physics (2020) Bachelor' degree (1 major) Mathematical Physics (2024)		