# Module description

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<th>Module title</th>
<th>Abbreviation</th>
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<tr>
<td>Geometric Analysis</td>
<td>10-M-GAN-202-m01</td>
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## Module coordinator
Dean of Studies Mathematik (Mathematics)

## Module offered by
Institute of Mathematics

## ECTS
5

## Method of grading
(only after succ. compl. of module(s))

## Duration
1 semester

## Module level
undergraduate

## Other prerequisites
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## Contents
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.

## Intended learning outcomes
The student is acquainted with the fundamental concepts and methods in geometric analysis. He/she is able to apply these methods to practical problems.

## 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)

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
Assessment offered: In the semester in which the course is offered and in the subsequent semester

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

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## Module appears in
Bachelor' degree (1 major) Mathematical Physics (2020)