# Module Description

## Module title
Overview Geometric Analysis and Differential Geometry

### Abbreviation
10-M-GADG-Ü-152-m01

## Module coordinator
Dean of Studies Mathematik (Mathematics)

## Module offered by
Institute of Mathematics

## ECTS
<table>
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<th>ECTS</th>
<th>Method of grading</th>
<th>Other prerequisites</th>
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<tbody>
<tr>
<td>12</td>
<td>numerical grade</td>
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## Method of grading
Only after succ. compl. of module(s)

## Duration
1 semester

## Module level
undergraduate

## Contents
Fundamentals in analysis on manifolds, submanifolds, calculus of differential forms, Stoke's theorem and applications in vector analysis and topology; curves in Euclidean spaces, curvature, Frenet equations, local classification, submanifolds (hypersurfaces in particular) in Euclidean spaces, curvature of hypersurfaces, geodesics, isometries, main theorem on local surface theory, special classes of surfaces.

## Intended learning outcomes
The student is acquainted with fundamental concepts and methods in geometric analysis and differential geometry. He/She is able to relate these concepts with one another, and realises the advantages of thinking across the borders of different branches in mathematics.

## Courses

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of Weekly Contact Hours</th>
<th>Language</th>
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<tbody>
<tr>
<td>V</td>
<td>4</td>
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<td>Ü</td>
<td>2</td>
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## Method of assessment
oral examination of one candidate each (20 to 40 minutes)
Assessment will have reference to two topics in pure mathematics as agreed upon with the examiner. Each topic may only be selected as the subject of one examination in the sub-fields Gesamtüberblick (Overview). Language of assessment: German and/or English

## 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) Mathematics (2015)
Bachelor' degree (1 major) Computational Mathematics (2015)