**Overview Geometric Analysis and Partial Differential Equations**

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview Geometric Analysis and Partial Differential Equations</td>
<td>10-M-GAPA-Ü-152-m01</td>
</tr>
</tbody>
</table>

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

**Module offered by**
Institute of Mathematics

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

**Duration**
1 semester

**Module level**
undergraduate

**Other prerequisites**
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**Contents**
Basics in analysis on manifolds, e. g. submanifolds and calculus of differential forms, Stoke's theorem and its applications in vector calculus and topology, examples of first order partial differential equations, existence and uniqueness theorems, basic equations in mathematical physics, boundary value theorems, maximum principle and Dirichlet problem.

**Intended learning outcomes**
The student is acquainted with fundamental concepts and methods in geometric analysis and the theory of partial differential equations. 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**
(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)

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)