**Module title** | **Overview Ordinary Differential Equations and Partial Differential Equations**  
**Abbreviation** | **10-M-GDPA-Ü-152-m01**

**Module coordinator** | **Module offered by**  
Dean of Studies Mathematik (Mathematics) | Institute of Mathematics

<table>
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<tr>
<th><strong>ECTS</strong></th>
<th><strong>Method of grading</strong></th>
<th><strong>Duration</strong></th>
<th><strong>Module level</strong></th>
<th><strong>Other prerequisites</strong></th>
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<tr>
<td>12</td>
<td>numerical grade</td>
<td>1 semester</td>
<td>undergraduate</td>
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**Contents**
Existence and uniqueness theorem, continuous dependence of solutions on initial values, systems of linear differential equations, matrix exponential series, linear differential equations of higher order; examples of partial differential equations and partial differential equations of first order, existence and uniqueness theorems, basic equations of mathematical physics, boundary value problems, maximum principle and Dirichlet problem.

**Intended learning outcomes**
The student is acquainted with fundamental concepts and methods in the theory of ordinary and 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)