| Module title | | | Abbreviation |
|---|---|---|---|
| **Overview Algebra and Differential Geometry for Teaching Degree (German Gymnasium)** | | | 10-M-ADGL-Ü-152-m01 |
| **Module coordinator** | | **Module offered by** | |
| Dean of Studies Mathematik (Mathematics) | | Institute of Mathematics | |
| **ECTS** | **Method of grading** | **Only after succ. compl. of module(s)** | |
| 10 | numerical grade | -- | |
| **Duration** | **Module level** | **Other prerequisites** | |
| 1 semester | undergraduate | -- | |

**Contents**

Fundamental algebraic structures (groups, rings, fields), Galois theory; 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 algebra 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** (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 the contents of modules 10-M-ALGL and 10-M-DGEL.
Language of assessment: German and/or English

**Allocation of places**

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**Additional information**

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**Workload**

300 h

**Teaching cycle**

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**Referred to in LPO I** (examination regulations for teaching-degree programmes)

§ 73 I Nr. 2 (5 ECTS credits)
§ 73 I Nr. 4 (5 ECTS credits)

**Module appears in**

First state examination for the teaching degree Gymnasium Mathematics (2015)