Module title			Abbreviation
Overview Algebra and Geometry (Differential Geometry or Projective Geometry) for Teaching Degree (German Gymnasium)			10-M-HAG-Ü-162-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

Algebra (fundamental algebraic structures: groups, rings, fields; Galois theory)
and either
Differential Geometriy (curves in Euclidean spaces, curvature, Frenet equations, local classification, submanifolds in Euclidean spaces, in particular hypersurfaces, curvature of hypersurfaces, geodesics, isometries, main theorem on local surface theory, special classes of surfaces)
or
Projective Geometry (projective and affine planes, theorem of Desargues, fundamental theorems for projective spaces, dualities and polarities of projective spaces).

Intended learning outcomes

The student is acquainted with fundamental concepts and methods in algebra and geometry (differential geometry or projective 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)
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)

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Module appears in

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2020)
Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2025)