Module title			Abbreviation
Introductory Algebra for Teaching Degree (German Gymnasium)			10-M-ALGL-191-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)
5	(not) successfully completed	--

Duration	Module level	Other prerequisites
1 semester	undergraduate	--

Contents

Topics in Group Theory (particularly finite abelian groups, normal subgroups, sub- and factorgroups, isomorphism theorems, solvability, group operations, Sylow theorems; examples: cyclic groups, alternating and symmetric groups, dihedral groups).

Topics in ring theory (particularly ideals, divisibility, polynomial rings, irreducibility of polynomials).

Topics in number theory (particularly Euclidean algorithm, Fermat's little theorem, Euler's theorem, Chinese remainder theorem, residue class rings and their unit groups, quadratic number rings).

Intended learning outcomes

The student knows and masters the essential methods and basic notions in algebra. He/She is acquainted with the central concepts in this field, and is able to apply the fundamental proof methods independently.

Courses (type, number of weekly contact hours, language — if other than German)

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)

a) written examination (approx. 90 to 180 minutes, usually chosen) or
b) oral examination of one candidate each (15 to 30 minutes) or
c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)
Language of assessment: German and/or English
creditable for bonus

Allocation of places

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Additional information

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Workload

150 h

Teaching cycle

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

§ 73 I Nr. 2 (2 ECTS credits), § 73 I Nr. 5 (3 ECTS credits)

Module appears in

First state examination for the teaching degree Gymnasium Mathematics (2019)
First state examination for the teaching degree Gymnasium Mathematics (2023)
Teaching degree Gymnasium Erweiterung Mathematics (2023)