Module title			Abbreviation
Lie Theory			10-M=ALTH-102-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	graduate	Registration for the exercise must be made via SB@home at the beginning of the course or as announced by the lecturer in accordance with the specified registration deadlines. Certain prerequisites must be met to qualify for admission to assessment (e. g. successful completion of a certain percentage of exercises). The lecturer will inform students about the respective details at the beginning of the course. Registration for the exercise will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.	

Contents

Linear Lie groups and their Lie algebras, exponential function, structure and classification of Lie algebras, classic examples, applications, e. g. in physics and control theory.

Recommended previous knowledge:
Basic knowledge of the contents of the modules "Functional Analysis" and "Introduction to Topology" is recommended. Furthermore, basic knowledge of the contents of the module "Introduction to Differential Geometry" is useful.

Intended learning outcomes

The student is acquainted with the fundamental results, theorems and methods in Lie theory. He/She is able to apply these to common problems, and knows about the interactions of group theory, analysis, topology and linear algebra.

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

V + Ü (no information on SWS (weekly contact hours) and course language available)

Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)

At the beginning of the course, the lecturer will choose one of the following methods of assessment: a) written examination (90 to 120 minutes), b) oral examination of one candidate each (approx. 20 minutes), c) oral examination in groups (groups of 2, approx. 30 minutes)
Assessment offered: Assessment offered in the semester in which the course is offered and in the subsequent semester, course offered on demand or every four semesters.
Language of assessment: German, English

Allocation of places

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Additional information

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Workload

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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 degree (1 major) Mathematics (2012) Master's degree (1 major) Mathematics (2010) Master's degree (1 major) Physics (2010) Master's degree (1 major) Physics (2011) Master's degree (1 major) Mathematical Physics (2012) Master's degree (1 major) Computational Mathematics (2012)