Lie Algebras

Course: MATH 6324

Semester: Winter 2018

Instructor: Yorck Sommerhäuser

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Class meetings: Tuesday 10:30 am–11:45 am, Thursday 10:30 am–11:45 am, ED 4010

Office hours: Tuesday, 12:15 pm–1:15 pm, Thursday 12:15 pm–1:15 pm and by appointment.

Textbook: J. E. Humphreys: Introduction to Lie algebras and representation theory, Grad. Texts Math., Vol. 9, Springer, Berlin, 1972, ISBN-13: 978-0387900520.

Course description: We discuss the classification of semisimple Lie algebras in terms of root systems and Dynkin diagrams.

Objectives: The objective of the course is to introduce the student to Lie algebras, with emphasis on semisimple Lie algebras. These algebras and their classification is by now a very classical topic in mathematics with connections to many other areas, especially to theoretical physics.

Coverage: We cover the first three chapters of the textbook.

Examinations: There will be a midterm examination and a comprehensive final examination. The midterm examination takes place on Thursday, February 15. The final examination takes place during the examination period from April 11 to April 20 at a time determined by the registrar's office.

Homework: On Tuesday, a weekly exercise sheet will be handed out, containing three or four problems. This has to be completed until the next Tuesday. There will be no exercise sheet during the week of the midterm examination and no exercise sheets during the last two weeks of the semester. In addition, a reading assignment from the textbook will be given in every lecture. While it is allowed to collaborate on the problems, every student is required to write up his solution in his own words.

Marking weights:

Homework:	30 %
Midterm exam:	20 %
Final exam:	50 %