Course Category	TBA	Credits	2
Subject Code	TBA	Taking Year	1st Grade, 2nd Grade
Course Title (Japanese)	リー代数	Course Period	2nd Semester
Course Title	Lie Algebra	Day of the week / Hour	Friday / The fifth period
Registration Code	TBA	Compulsory / Elective	Elective
Instructor(s)	Takumi Yamada Akira Ueda	Course Qualification	Students of Postgraduate Mathematics Course

Course Style	Lecture
Course Aim	The aim is to follow to the basic facts about structure and representations of semisimple Lie algebras, due mainly to S. Lie, W. Killing, E. Cartan, and H. Weyl.
Goals and Objectives (Level of Achievement)	To introduce basic terminology and facts about Lie algebras
Course Plan	1. Basic definitions, examples 2. Structure constants 3. Relations with Lie groups 4. Elementary algebraic concepts 5. Representations; the Killing form 6. Solvable and nilpotent 7. Engel's theorem 8. Lie's theorem 9. Cartan subalgebra 10. Roots 11. Roots for semisimple Lie algebra 12. Root systems, Weyl group 13. Weyl-Chevalley normal form 14. Properties of root systems 15. Classification of fundamental systems
Teaching Methods	Homework assigned in class.
Key Words	Lie algebra, Root system, Semi-simple Lie algebra, Nilpotent, Solvable
Texts	None
Reference Books	Further references are given in class.
Other Teaching Materials	None
Performance Evaluation	Grading is based up on final exam, reports and class attendance.
Notes on the Course	None
Office Hour	Tuesday 14:30 - 16:00
Other Notes	None.