

## MA4198 PROJECT PROPOSAL (PROJECT CUM SEMINAR GROUP)

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### SUPERVISOR'S INFO

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**PROJECT ID: PS2510-08**

### TITLE

Lie algebras

### BRIEF DESCRIPTION OF PROJECT

Lie algebras are a central part of Lie theory, which studies continuous symmetry through algebraic methods. Many consider Lie algebras to be the most accessible entry point into the subject, especially because they can be studied without any background in algebraic geometry—unlike Lie groups, which often require a more advanced toolkit. With roots in linear algebra and basic abstract algebra, Lie algebras provide a clear and structured path into deeper areas of pure mathematics.

The project will involve understanding the basic mathematical concepts in Lie algebras.

### EXPECTATION/S

Students are expected to gain a good understanding of the basic concepts in Lie algebras.

### PREREQUISITE/S (at level 3000 or below, with at most one course at level 3000)

MA2101/MA2101S, MA3201

### READING REFERENCE/S

Erdmann and Wildon, *Introduction to Lie Algebras*, Springer.

Henderson, *Representations of Lie Algebras*, Cambridge University Press.