The topics addressed in this course are the structure theory of reductive algebraic groups, their associated Lie algebras, the related finite groups of Lie type, and the representation theory of all of these objects.

Content
We start with the basic structure theory of reductive algebraic groups and proceed to study:

• their representations, the subgroup structure, conjugacy classes, structural results on their Lie algebras,
• the related finite groups of Lie type, generation problems.
• The working group is based on advanced textbooks and journal articles.

Keywords
semisimple, reductive, algebraic groups, Lie algebras

Learning Prerequisites
Important concepts to start the course
Advanced abstract algebra and group theory, representation theory, preferably some knowledge of Lie theory.