

MAS712 Algebraic Methods

Learning Objective

Ensure that students share a common basic background in abstract algebra.

Syllabus

Classical topics in abstract algebra will be covered, namely basic concepts of group theory, of commutative ring theory, of field theory and of Galois theory, particularly useful for those who plan to work in algebraic coding theory, or in cryptography using algebraic methods.

Academic Units

4 AU

Pre-requisite

Approval by the division

Student Assessment

Examinations: 50%

Continuous Assessment: 50%

Additional Information

This class will not go very deep into a particular algebra topic, but instead cover several basic concepts from scratch, including :

- Group theory: quotient group, group action, Sylow Theorems
- Commutative ring theory: ideals, principal ideal domain, unique factorization domain, Euclidean domain
- Field and Galois theory: field extension, finite fields, normality, separability, Galois correspondance