

School of Mathematics

Course 114 — An Introduction to Abstract Algebra
(JF Mathematics)

2007-08

Lecturer: Dr. D.P. O'Donovan

Requirements/prerequisites:

Duration: 24 weeks

Number of lectures per week: 3

Assessment: Homework assignments, exams at end of Michaelmas and Hilary Terms.
Grade: Max(100% Final, 80% Final + 20% Continuous Assessment)

End-of-year Examination: 3-hour end of year exam

Description:

The course is an introduction to groups, rings and fields. One of the aims of the course is to introduce students to and give them practice in formulating rigorous mathematical proofs. Topics to be covered include: mappings, invertibility, operations, groups, permutations, dihedral groups, equivalence relations, congruence, the division algorithm, the Euclidean algorithm, \mathbb{Z}_n , Lagrange's Theorem, Isomorphism, Cayley's Theorem, The first isomorphism theorem for groups.

Rings, integral domains, fields, polynomials, quotient rings, the first isomorphism theorem for rings.

Textbooks: Modern Algebra, an introduction. John Durbin. 5th Ed. John Wiley & Sons

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