

## Math 430 – Applied Algebra

**Course Description (Bulletin):** Introduction to groups, homomorphisms, group actions, rings,  
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stabilizers. Application to structure of groups. Application to combinatorics: count labellings and graphs.	
Introduction to rings: elementary properties, subrings and ideals, integral domains, division rings, fields. Principal ideal domains. Unique factorizations.	6
Introduction to the theory of fields: field extensions, constructions with ruler and compass, finite fields.	5
Galois theory: solvability of equations by radicals.	3
Further topics: Introduction to error correcting codes.	2

**Note:** Some of the last three topics may be covered in less depth depending on time constraints. In some semesters, emphasis may be placed on one of the three final topics more so than the other two, in order to cover it in more depth.

**Assessment:**

Homework 10-30%

Quizzes/Tests 20-50%

Final Exam 30-50%

Project 0-20%

**Syllabus prepared by**

2/28/2015