Department of Mathematics & Statistics
Concordia University

> ## MATH 472 (MAST 692)
> Abstract Algebra IV
> ***Winter 2015***

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Office hours:

Required Textbook: *Abstract Algebra* by Dummit, D.S. and Foote, R. M.
(The textbook is on reserve at the library)

Evaluation:

Assignments	30%
Midterm	30%
Final Exam	40%

Note: This course is open to undergraduate students with a background in abstract algebra (MATH 369 and MATH 470 or equivalent), and to master's students. Some of the prerequisite will be reviewed in the course.

Topics: The topics covered will include:
- Algebraic extensions.
- Separable and inseparable extensions.
- Splitting fields.
- Galois groups of polynomials.
- Fundamental theorem of Galois theory.
- Cyclotomic fields.
- The two basic applications of Galois Theory:
    - The classical straight edge and compass constructions of the Greeks: what numbers can be obtained in that way?
    - Solvability of equations by radicals: given a polynomial of degree n, is there a formula for the roots of the polynomial in terms of roots of expressions with the coefficient of the polynomial, as the well-know formula for the roots of a quadratic polynomial.