

Fields and Galois Theory, Math 422/501, January-April 2015.

- **Instructor:** Rachel Ollivier
- **Email:** ollivier@math.ubc.ca

- **Time and Location:** MWF 1pm-1:50pm in Math Building 102
- **Office hours:** Wednesday and Friday at 12pm in Math Building 235
- **Homework:** Please check [here](#) for the weekly assignments (due Mondays in class). Here you will also find the midterm and homework policies.
- **Grading:** Homework 25%, Midterm 25%, Final 50%.
- **Midterm date:** to be decided.

- You should have some reference **book** on algebra. All basic algebra text books (Lang, Artin, Dummit & Foote) contain more or less the same material. For example, in Dummit & Foote, we will cover the material of Chapters 13 and 14.

After motivating the course with historical problems involving ruler and compass constructions and the solvability of equations by radicals, we will briefly review some basic material on rings, polynomials and fields. We will then move on to the following topics: fields extensions, algebraicity, algebraic closure, Galois groups, finite and perfect fields, Galois correspondence, cyclotomic polynomials and Kummer theory. Lastly we will discuss inverse Galois problems.