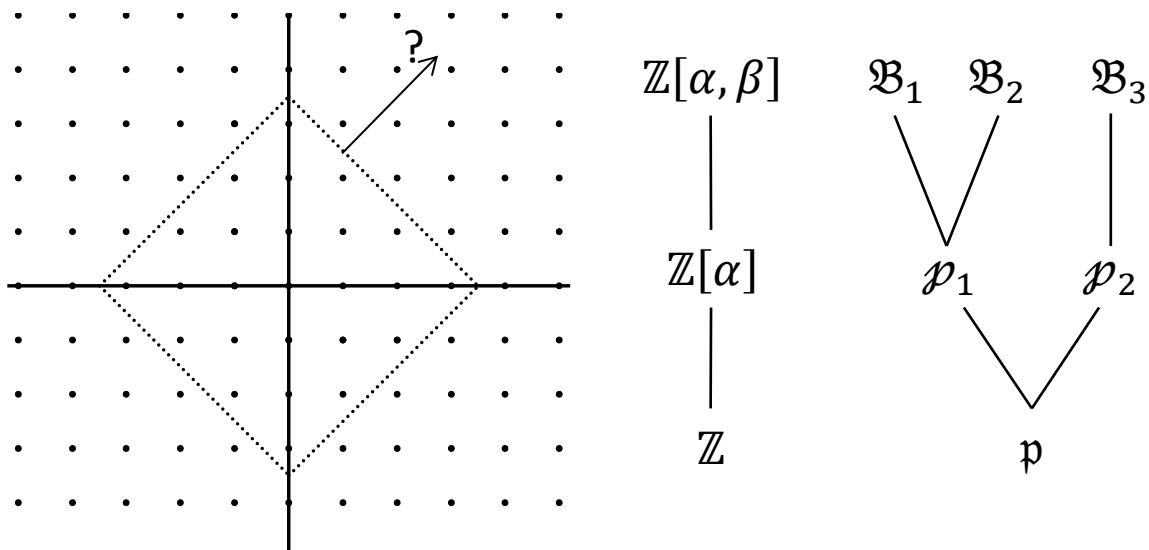# A Survey of Algebraic Number Theory

Fall 2016

This is a 1-credit survey course in Algebraic Number Theory being offered by professor Beyerl.

What is algebraic number theory? It is the application of algebraic structures to number theory. But more informally, consider it as the field of mathematics that creates and then solves the following problem:

Do integers factor uniquely?

First we'll expand the notion of integers until the answer is "NO!" Then we'll fix it up, duct tape it, and shake it around until the answer is a resounding "Yes!!!" It will be a wondrous tour into fixing a problem you never knew existed by applying some of the most advanced algebraic structures available to us.

$$\mathbb{Z}[\alpha,\beta]$$
$$|$$
$$\mathbb{Z}[\alpha]$$
$$|$$
$$\mathbb{Z}$$

$$\mathfrak{B}_1 \quad \mathfrak{B}_2 \qquad \mathfrak{B}_3$$

$$\mathscr{P}_1 \qquad \mathscr{P}_2$$

$$\mathfrak{p}$$

Prerequisite: Rings and Fields (MATH 3360) previously taken, or enrolled concurrently.
Course Meetings: 1 hour, once per week. Time TBD (we'll choose a time the week classes start)
How to enroll: Talk to professor Beyerl if you think you might be interested!
Further Information: https://en.wikipedia.org/wiki/Algebraic_number_theory