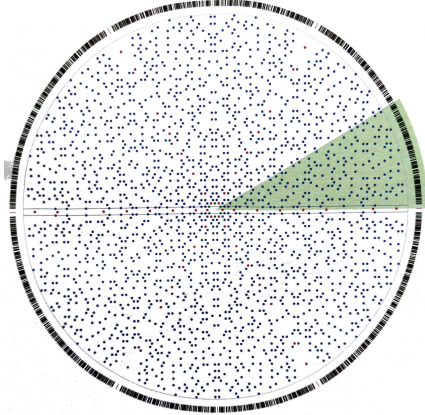


# *MAT 500 Spring 2025*

## *Algebraic Number Theory*



- Are you a grad student with some abstract algebra knowledge?
- Are you an undergrad confident in MAT 463 and/or MAT 464 material?

## *Welcome!*

This class explores the arithmetic of the integers and primes. Many phenomena are easy to state but require deep and diverse tools from algebra, geometry, and analysis to prove.

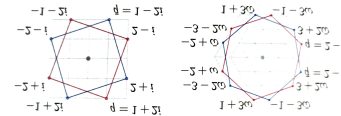
Instructor: Gil Moss  
MWF 9-10am, Neville 421



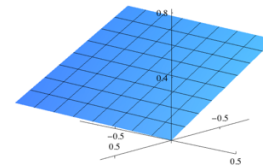
Number fields and algebraic numbers.



Integrality.



Ideals and behavior of primes.



Dirichlet's unit theorem.

$$\lim_{s \rightarrow 1} (s-1)\zeta_K(s) = \frac{2^{r_1} \cdot (2\pi)^{r_2} \cdot \text{Reg}_K \cdot h_K}{w_K \cdot \sqrt{|D_K|}}$$

Finiteness of the class number.