MATH 538: Algebraic Number Theory

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MWF: 1-2 pm, MATH 225

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Course outline: This will be a standard graduate course in Algebric number theory. One of the basic theorems in Arithmetic is Euclid's theorem on prime factorisation of integers. Note that the ring of integers is an integral domain whose quotient field os the field of rational numbers. The origins of Algebraic Number Theory studies the analogue of this phenomenon for algebraic number fields, which are finite extension fields of rational numbers. This leads to the definition of an important invariant of number fields, called the Class group. The techniques introduced in this study have connections to Algebraic Geometry as well.

The pre-requisites are basic algebra (323) and basic number theory (312).

Textbook: J. Neukirch: Algebraic Number Theory.

Evaluation: There will be periodic assignments. Each student is expected to give 1-2 lectures on an assigned topic within the framework of the course. The final grade will be based on these and classroom participation. There will be no final exam for the course.