

# Algebraic combinatorics course description

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Algebraic combinatorics is an area of mathematics where combinatorics and algebra interacts. Combinatorics primarily concerns counting the number of elements in a finite set. On the other hand, algebra is the study of specific structures including order, multiplication, etc. In the course, we will apply algebraic methods to solve counting problems and also study interesting algebraic structures arising from combinatorics. After introducing some basic concepts and examples, we will focus on combinatorial questions about collection of hyperplanes, for example, the number of pieces of a cake can be cut into with a fixed number of cuts and the coloring of a graph.