

# MTH G331 Algebraic Combinatorics

Fall 2006

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## Course Information

**Course:** MTH G331 Algebraic Combinatorics  
**Instructor:** [Professor Andrei Zelevinsky](#)  
**Time and Place:** Mon-Wed 7:30-9:00 pm, 544 NI  
**Textbook:** not needed (the course will be based on instructor's notes)

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## Course Description

The subject of algebraic combinatorics is (not very surprisingly) interplay between algebra and combinatorics. This is beneficial for both disciplines. On the one hand, algebraic methods can be used with much success for studying classical combinatorial objects such as graphs, posets, etc. On the other hand, there are many algebraic questions that can be stated in combinatorial terms and solved by combinatorial methods, sometimes bringing to life new combinatorial concepts of independent interest. For instance, the representation theory of symmetric groups is closely related with the combinatorics of partitions and Young tableaux. This course discusses both kinds of development. The main objects to be discussed are graphs and trees on the one side, and posets and partitions on the other, with numerous interactions among them. The prerequisites include basic facts from enumerative combinatorics and good working knowledge of basic linear algebra.

The grade will be based on homework assignments, and possibly students' presentations.

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[Department of Mathematics](#)

[Northeastern University](#)  
Boston, MA, 02115  
Office: 431 LA  
Phone: (617) 373-5648  
Email: [andrei@neu.edu](mailto:andrei@neu.edu)

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