

Course Description

Combinatorics is the art of counting things. This subject is full of tricks as we all know it. However, you never know if the next problem can be solved with given tricks. So, we want to understand on a more conceptual level, what is going on behind the problems and the tricks. In this course, we introduce some algebraic concepts, and explore how they may be used as organizing principles, behind certain types of combinatorics problems.

More specifically, we are going to talk about symmetries and their realizations, and applications to some combinatorics problems. We will see how abstract concepts can be useful in solving combinatorics problems, and how a combinatorics problem could have very different interpretations from different viewpoints.