

---

# The probabilistic method

Mat 598 Topics in Discrete Mathematics

Department of Mathematics and Statistics, Fall 2004.

Instructor: Dr. A. Czygrinow

---

The probabilistic method is a set of tools in combinatorics that allows to prove the existence of a desired object without constructing it explicitly.

In this course, we will discuss main tools of the probabilistic method including the second moment method, Lovasz local lemma, or the Azuma's inequality. Additional topics include the pseudo-randomness and randomized algorithms.

The course will be mainly based on the excellent book by N. Alon and J. Spencer *The probabilistic method*. Additional results will come from recent research papers.