

TOPICS IN DISCRETE MATHEMATICS

Course description.

The course introduces some basic counting principles after a brief presentation of the necessary elements of set theory. The notion of recurrence relation and its connection with a finite difference equation is briefly presented. The probability and the conditional probability on discrete sample spaces are introduced. The inclusion and exclusion principle, which is a basic tool both in combinatorics and discrete probability theory, is extensively treated.

Textbooks.

There is no required textbook for the course.

Topics.

1. Basic counting principle
2. Recurrence relations
3. Finite differences
4. Discrete probability
5. Inclusion and exclusion principle
6. Generating functions