

**Enumerative Combinatorics, 8.0 credits**

Enumerativ kombinatorik, 8.0 hp

Third-cycle education course

MAI0102

Dept of Mathematics

Valid from: First half-year 2023

**Approved by**  
Head of Department

**Approved**

**Registration number**

## Entry requirements

Basic abstract algebra and discrete mathematics.

## Contents

Basic methods in enumerative combinatorics. "The twelvefold way" (counting functions subject to various restrictions), sieve methods such as different versions of inclusion-exclusion, the involution principle and determinantal lattice path counting. Various aspects of the theory of partially ordered sets, e.g. lattice theory. Möbius inversion in posets and connections to topology.

## Educational methods

Lectures.

## Examination

Homework assignments. Literature project.

## Grading

One-grade scale

## Course literature

R.P. Stanley, *Enumerative combinatorics, vol. 1*, Cambridge Univ. Press, 1997 or  
R.P. Stanley, *Enumerative combinatorics, vol. 1*, 2nd ed., manuscript 2011,  
available at <http://www-math.mit.edu/~rstan/ec/ec1/>.