Math 6410: Enumerative Combinatorics
Lecturer: Karola Mészáros

This is a graduate class on enumerative combinatorics.

1 Textbook

Many things we will do is contained in:

- *Enumerative Combinatorics*, volumes 1, second edition (referred to as EC1), by R. Stanley.

- *Lectures on polytopes*, G. Ziegler.

- *Computing the continuous discretely*, M. Beck, S. Robins.

2 Material covered thus far

date	topic
Jan 21-Feb 14	Permutation statistics and the fundamental bijection EC1 Sec 1.3, 1.4; Ehrhart polynomial & series of the cube; Catalan numbers, pattern avoidance, EC1 Sec 1.5, counting the number of k-dimensional subspaces of $\mathbb{F}_q^n$ EC1 Secs 1.7; Principle of inclusion-exclusion EC1 Secs 2.1, 2.2; Determinantal formulas, Gessel-Viennot Lemma EC1 Sec 2.7 Posets EC1 Secs 3.1, 3.2
Feb 17-29	EC1 3.3-3.7 and basics concepts on polytopes, some from Section 2.1 of *Lectures on polytopes*
March 1-8	Section 2.2, 2.5 of *Lectures on polytopes*, cyclic polytopes

3 What you are expected to do

You are expected to attend and participate in class. There will be problem sets that you will need to solve and hand in. These will appear on the course website http://www.math.cornell.edu/∼karola/class6410-2020.html. There is also an option to give a presentation in the class instead of solving all problem sets; if interested in this option discuss with the lecturer.

The classroom is a technology-free zone. If you feel you have a serious reason to use some gadget, please discuss this with me in advance.