

**MATH 60610: Basic Discrete Mathematics
Spring 2024**

Meeting Time: MWF 9:25-10:15AM

Location: Hayes-Healy 231

Instructor: Steven Karp

Office: Hayes-Healy 108

Email: skarp2@nd.edu

Office hours: Location: Hayes-Healy 108

TBD

Textbook: The course will loosely follow parts of *Enumerative Combinatorics, Volumes 1 and 2* by Richard P. Stanley.

This course provides an overview of fundamental structures, results, and techniques in enumerative combinatorics at the graduate level. Topics include:

- enumeration of permutations, functions, lattice paths, compositions, and partitions;
- partially ordered sets, lattices, and Möbius inversion;
- graphs, trees, and the adjacency matrix;
- generating functions, recurrence relations, and Lagrange inversion;
- and other material at the discretion of the instructor

Assessment through: biweekly homeworks, final exam, and expository term paper.

Prerequisites: familiarity with formal proofs and linear algebra.