

Math 590: Discrete Geometry
Fall 2026
Lecture Schedule

Instructor: Christopher O'Neill
E-mail: cdoneill@sdsu.edu

Below is a list of the topics we intend to cover, along with a rough schedule. Actual schedule is subject to change without notice. Last updated January 20, 2026.

| Week | Topic |
|---------------------------------|--|
| 1/21 – 1/23 | Introduction and Roadmap |
| 1/26 – 1/30 | Preview of Polyehdral Geometry |
| Generating Functions | |
| 2/2 – 2/6 | Generating Functions |
| 2/9 – 2/13 | Generating Functions - Deep Cuts |
| 2/16 – 2/20 | Rational Generating Functions Quasipolynomials |
| 2/23 – 2/27 | The Bridge from Power Series to Geometry |
| Polyhedral Geometry | |
| *3/2 – 3/6 | Polytopes, Polyhedra, and Cones |
| *3/9 – 3/13 | Faces of Polyhedra |
| 3/16 – 3/20 | Face Lattice Combinatorics |
| 3/23 – 3/27 | Ehrhart Series of Polytopes Ehrhart Quasipolynomials |
| 3/30 – 4/3 | <i>Spring Break: No Classes</i> |
| 4/6 – 4/10 | Catch-up Week |
| 4/13 – 4/17 | Midterm Exam: Monday, April 13 A Case Study: Stanley Nonnegativity |
| Proving the Big Theorems | |
| 4/20 – 4/24 | Triangulations |
| *4/27 – 5/1 | A Proof of Ehrhart's Theorem |
| *5/4 – 5/6 | A Proof of Ehrhart-Macdonald Reciprocity |
| 5/11 | Final Presentations: Monday, May 11 |