

## The Department of Mathematics

2025–26–B term

**Course Name** Topics in Convexity

**Course Number** 201.2.7071

**Course web page**

<https://math.bgu.ac.il/en/teaching/spring2026/courses/convexity>

**Lecturer** Dr. Eli Shamovich, <shamovic@bgu.ac.il>, Office 102

**Office Hours** <https://math.bgu.ac.il/en/teaching/hours>

### Abstract

### Requirements and grading<sup>1</sup>

### Course topics

The course aims to introduce students to the topic of convexity, which underlies a lot of mathematics and applications of mathematics. We will start in the finite-dimensional setting and cover the basics of convexity theory, such as separation, duality, and extreme points. After we have some of the basics, we will discuss examples in convex optimization. In particular, we will see what LMI domains are and what they are useful for. The last part of the course will extend what we have learned to the infinite-dimensional setting. In particular, we will prove Choquet's theorem and see some of its applications. We will also see Edward's separation theorem and what it entails. Lastly, I will discuss infinite-dimensional simplices and their application to dynamics.

---

<sup>1</sup>Information may change during the first two weeks of the term. Please consult the webpage for updates