

# The Department of Mathematics

2024–25–A term

**Course Name** Introduction to Differential Topology

**Course Number** 201.2.7961

**Course web page**

<https://math.bgu.ac.il/en/teaching/fall2025/courses/differential-topology>

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

## Abstract

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

## Course topics

Differential Topology studies topological and smooth properties of manifolds. The first questions and ideas appeared at the end of 19th century, and the field flourished through the whole 20th century. Our course is a modest introduction to the area, starting from minimal prerequisites and with the goal towards some great results of the mid-20th century.

### The (preliminary) syllabus:

- 1 Basics of manifolds and smooth maps.
- 2 Regular values. Theorems of Sard and Brown.
- 3 Transversality and intersections. Degree of a mapping.
- 4 Morse theory, surgery, cobordisms, handle decomposition.

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