

The Department of Mathematics

2023–24–B term

Course Name Algebraic Topology

Course Number 201.2.5131

Course web page

<https://www.math.bgu.ac.il/en/teaching/spring2024/courses/algebraic-topology>

Lecturer Dr. Ishai Dan-Cohen, <ishaida@bgu.ac.il>, Office 214

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

Abstract

Requirements and grading¹

Course topics

The course is designed for M.Sc. students. The prerequisite is “Introduction to Topology” .201-1-0091 Also recommended is the course “Complex Analysis”. Excellent B.Sc. students can participate upon approval of lecturer.

The aim of the course is to give the students a working knowledge of the tools of algebraic topology. The point of view is that algebraic topology is essential for the deep understanding of many modern areas of mathematics. Many examples shall be provided.

Topics:

- .1 Review of material from topology and algebra.
- .2 Categories and functors.
- .3 Homotopy.
- .4 Fundamental group.

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



- .5 Covering spaces.
- .6 Brouwer and Jordan Theorems in the plane.
- .7 Local systems and representations of the fundamental group.
- .8 Complexes and homology.
- .9 Singular homology.
- .10 The theorems of Brouwer, Jordan and Lefschetz.