Inspiring Excellence

Algebriac Topology III (MAT484)

Lecture Notes

Preface

This series of lecture notes has been prepared for aiding students who took the BRAC University course **Algebraic Topology III (MAT484)** in Spring 2023 semester. These notes were typeset under the supervision of mathematician **Dr. Syed Hasibul Hassan Chowdhury**. The main goal of this typeset is to have an organized digital version of the notes, which is easier to share and handle. If you see any mistakes or typos, please send me an email at atonuroychowdhury@gmail.com

Atonu Roy Chowdhury

References:

- *Elements of Algebraic Topology*, by James R. Munkres
- *Foundations of Algebraic Topology*, by Samuel Eilenberg & Norman E. Steenrod
- *Axiomatic Approach to Homology Theory*, by Samuel Eilenberg & Norman E. Steenrod. Link to the paper: https://www.pnas.org/content/pnas/31/4/117.full.pdf

Contents

1 Singular Homology Groups

Let R^∞ denote the generalized Euclidean space $\mathbb{E}^J$, with J being the set of positive integers.