Linear Algebra II

Harsh Prajapati

25.03.26

These notes were prepared between December 2025 and (tentative) **(Last update: January 4, 2026)**.

f you find any mistakes or typos, please report them to **caccacpenguin@gmail.com**. I would really appreciate it.

I often use informal language to make the ideas easier to grasp, but it's important to keep in mind the formalism and not get too attached to the informal ideas. My goal is to make the material feel approachable, while still respecting the rigour that makes mathematics what it is.

I hope you find these notes helpful :D!

Textbook Recommendations

These books will serve as our main references:

- Klaus Jänich. Linear Algebra. Springer-Verlag. 1994. New York.
- Siegfried Bosch. Lineare Algebra. 5. Auflage. Springer-Verlag. 2014. Heidelberg.
- Kenneth Hoffman. Ray Kunze. Linear Algebra. 2nd. Edition

Some other recommendations:

- James B. Carell. Groups, Matrices, and Vector Spaces
- B.L. van der Waerden. Modern Algebra (Vol I)
- Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence. Linear Algebra. 4th. Ed.
- Sheldon Axler. Linear Algebra Done Right, 4th. Edition
- Serge Lang. Linear Algebra. 3rd. Edition
- Saunders MacLane. G. Birkhoff. Algebra. 1967
- Michael Artin. Algebra
- Paul R. Halmos. Finite-Dimentional Vector Spaces

Contents

1 Introduction

This course is a continuation of Linear Algebra I. We will build upon the concepts introduced in the previous course and explore more advanced topics in linear algebra.