

LINEAR ALGEBRA

"The distinguishing feature of the book is that it offers a unified treatment, encompassing both the basics of computations with matrices and the abstract theory, and accentuating the overlaps between the matrix-oriented viewpoint and abstract linear algebraic concepts whenever possible. If you want to learn or teach undergraduate Linear Algebra, this is an amazing book. I highly recommend it!"

Prof. Rajiv Aggarwal,
Principal, Deshbandhu College, University of Delhi

About the Book

Primarily written for a proof-based linear algebra course, this textbook lays down the necessary theoretical foundation of linear algebra. Our aim has been to cover the senior undergraduate mathematics course, meeting the curriculum requirements of most universities. To this end, this book has taken shape from our lecture notes, continuously modified and improved year after year through interaction with students in the classroom and during individual discussions. It is supported by the cumulative weight of our combined teaching experience, which ensures that the final product is uniquely equipped to cater to the needs of students as well as teachers. Another distinguishing feature of the book is that it offers a unified treatment, encompassing both the basics of computations with matrices and the abstract theory, and accentuating the overlaps between the matrix-oriented viewpoint and abstract linear algebraic concepts whenever possible. It is written in an accessible style, with careful thought to the motivation behind new ideas, and close attention to the exploration of difficult definitions and results, once they have been formally stated. In an effort to make our book more inviting and stimulating than others, we have incorporated interesting tidbits from the History of the concepts we have tackled into our discussions of those concepts.

Contents

1. Vector Spaces 2. Basis and Dimension 3. Linear Transformations 4. Matrices of Linear Transformations 5. Dual Spaces 6. Diagonalization 7. Inner Product Spaces 8. More on Inner Product Spaces. Appendix I: Echelon Form, Appendix II: Applications of Diagonalization, Appendix III: Least Squares Approximations, Appendix IV: Minimal Solutions to System, Appendix V: Rigid Motions and Conic Sections, Selected Bibliography, Index

About the Authors

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