



Linear Algebra

Core Topics for the Second Course



ABOUT THE BOOK

This is a book for the second course in linear algebra whereby students are assumed to be familiar with calculations using real matrices. To facilitate a smooth transition into rigorous proofs, it combines abstract theory with matrix calculations.

This book presents numerous examples and proofs of particular cases of important results before the general versions are formulated and proved. The knowledge gained from a particular case, that encapsulates the main idea of a general theorem, can be easily extended to prove another particular case or a general case. For some theorems, there are two or even three proofs provided. In this way, students stand to gain and study important results from different angles and, at the same time, see connections between different results presented in the book.

READERSHIP

Undergraduate students taking a second course in linear algebra.

CONTENTS

- Preface
- Vector Spaces
- Linear Transformations
- Inner Product Spaces
- Reduction of Endomorphisms
- Appendices:
 - Permutations
 - Complex Numbers
 - Polynomials
 - Infinite Dimensional Inner Product Spaces

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Piotr Mikusiński is a professor of mathematics at the University of Central Florida, Orlando, Florida, USA. His research interests include generalized functions, real analysis, and harmonic analysis. He is also interested in the pedagogy of mathematics and in the use of technology in teaching entry-level college mathematics courses. He has coauthored undergraduate-level textbooks on mathematical analysis and linear algebra and a graduate-level textbook on Hilbert spaces. He is a member of the editorial boards of *Fractional Calculus and Applied Analysis* and *International Journal of Applied Mathematics*.

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