

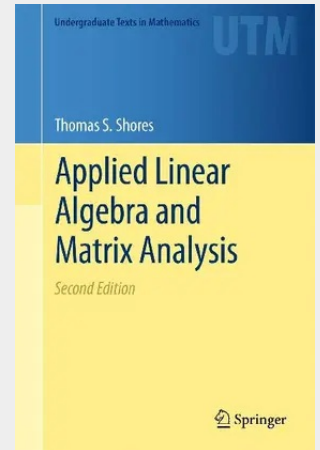
Applied Linear Algebra and Matrix Analysis

In its second edition, this textbook offers a fresh approach to matrix and linear algebra. Its blend of theory, computational exercises, and analytical writing projects is designed to highlight the interplay between these aspects of an application. This approach places special emphasis on linear algebra as an experimental science that provides tools for solving concrete problems.

The second edition's revised text discusses applications of linear algebra like graph theory and network modeling methods used in Google's PageRank algorithm. Other new materials include modeling examples of diffusive processes, linear programming, image processing, digital signal processing, and Fourier analysis. These topics are woven into the core material of Gaussian elimination and other matrix operations; eigenvalues, eigenvectors, and discrete dynamical systems; and the geometrical aspects of vector spaces.

Intended for a one-semester undergraduate course without a strict calculus prerequisite, *Applied Linear Algebra and Matrix Analysis* augments the key elements of linear algebra with a wide choice of optional sections. With the book's selection of applications and platform-independent assignments, instructors can tailor the curriculum to suit specific interests and ensure students across various disciplines are equipped with the powerful tools of linear algebra.

This new book offers a fresh approach to matrix and linear algebra by providing a balanced blend of applications, theory, and computation, while highlighting their interdependence. Intended for a one-semester course, *Applied Linear Algebra and Matrix Analysis* places special emphasis on linear algebra as an experimental science, with numerous examples, computer exercises, and projects. While the flavor is heavily computational and experimental, the text is independent of specific hardware or software platforms. Throughout the book, significant motivating examples are woven into the text, and each section ends with a set of exercises.



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