DESCRIPTION

Praise for the First Edition

"...recommended for the teacher and researcher as well as for graduate students. In fact, [it] has a place on every mathematician's bookshelf." -American Mathematical Monthly

Linear Algebra and Its Applications, Second Edition presents linear algebra as the theory and practice of linear spaces and linear maps with a unique focus on the analytical aspects as well as the numerous applications of the subject. In addition to thorough coverage of linear equations, matrices, vector spaces, game theory, and numerical analysis, the Second Edition features student-friendly additions that enhance the book's accessibility, including expanded topical coverage in the early chapters, additional exercises, and solutions to selected problems.

Beginning chapters are devoted to the abstract structure of finite dimensional vector spaces, and subsequent chapters address convexity and the duality theorem as well as describe the basics of normed linear spaces and linear maps between normed spaces.

Further updates and revisions have been included to reflect the most up-to-date coverage of the topic, including:

• The QR algorithm for finding the eigenvalues of a self-adjoint matrix
• The Householder algorithm for turning self-adjoint matrices into tridiagonal form

• The compactness of the unit ball as a criterion of finite dimensionality of a normed linear space

Additionally, eight new appendices have been added and cover topics such as: the Fast Fourier Transform; the spectral radius theorem; the Lorentz group; the compactness criterion for finite dimensionality; the characterization of commentators; proof of Liapunov's stability criterion; the construction of the Jordan Canonical form of matrices; and Carl Pearcy's elegant proof of Halmos' conjecture about the numerical range of matrices.

Clear, concise, and superbly organized, Linear Algebra and Its Applications, Second Edition serves as an excellent text for advanced undergraduate- and graduate-level courses in linear algebra. Its comprehensive treatment of the subject also makes it an ideal reference or self-study for industry professionals.

ABOUT THE AUTHOR

Peter D. Lax, PhD, is Professor Emeritus of Mathematics at the Courant Institute of Mathematical Sciences at New York University. Dr. Lax is the recipient of the Abel Prize for 2005 "for his groundbreaking contributions to the theory and application of partial differential equations and to the computation of their solutions". * A student and then colleague of Richard Courant, Fritz John, and K. O. Friedrichs, he is considered one of the world's leading mathematicians. He has had a long and distinguished career in pure and applied mathematics, and with over fifty years of experience in the field, he has made significant contributions to various areas of research, including integratable systems, fluid dynamics, and solitonic physics, as well as mathematical and scientific computing.

FEATURES

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Selected solutions to exercises are provided at the end of the book.

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