

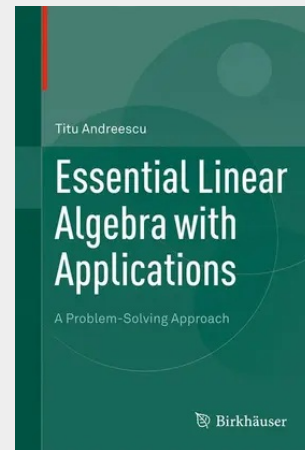
Essential Linear Algebra with Applications

A Problem-Solving Approach

Rooted in a pedagogically successful problem-solving approach to linear algebra, the present work fills a gap in the literature that is sharply divided between elementary texts and books that are too advanced to appeal to a wide audience. It clearly develops the theoretical foundations of vector spaces, linear equations, matrix algebra, eigenvectors, and orthogonality, while simultaneously emphasizing applications and connections to fields such as biology, economics, computer graphics, electrical engineering, cryptography, and political science.

Ideal as an introduction to linear algebra, the extensive exercises and well-chosen applications also make this text suitable for advanced courses at the junior or senior undergraduate level. Furthermore, it can serve as a colorful supplementary problem book, reference, or self-study manual for professional scientists and mathematicians. Complete with bibliography and index, "Essential Linear Algebra with Applications" is a natural bridge between pure and applied mathematics and the natural and social sciences, appropriate for any student or researcher who needs a strong footing in the theory, problem-solving, and model-building that are the subject's hallmark.

Rooted in a pedagogically successful problem-solving approach to linear algebra, this work fills a gap in the literature that is sharply divided between, on the one end, elementary texts with only limited exercises and examples, and, at the other end, books too advanced in prerequisites and too specialized in focus to appeal to a wide audience. Instead, it clearly develops the theoretical foundations of vector spaces, linear equations, matrix algebra, eigenvectors, and orthogonality, while simultaneously emphasizing applications to fields such as biology, economics, computer graphics, electrical engineering, cryptography, and political science. Key features: * Intertwined discussion of linear algebra and geometry * Example-driven exposition; each section starts with a concise overview of important concepts, followed by a selection of fully-solved problems * Over 500 problems are carefully selected for instructive appeal, elegance, and theoretical importance; roughly half include complete solutions * Two or more solutions provided to many of the problems; paired solutions range from step-by-step, elementary methods whose purpose is to strengthen basic comprehension to more sophisticated, powerful proofs to challenge advanced readers * Appendices with review material on complex variables Ideal as an introduction to linear algebra, the extensive exercises and well-chosen applications also make this text suitable for advanced courses at the junior or senior undergraduate level. It can serve as a colorful supplementary problem book, reference, or self-study manual for professional scientists and mathematicians. Complete with bibliography and index, this work is a natural bridge between pure/ applied mathematics and the natural/social sciences, appropriate for any student or researcher who needs a strong footing in the theory, problem-solving, and model-building that are the subject's hallmark.



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