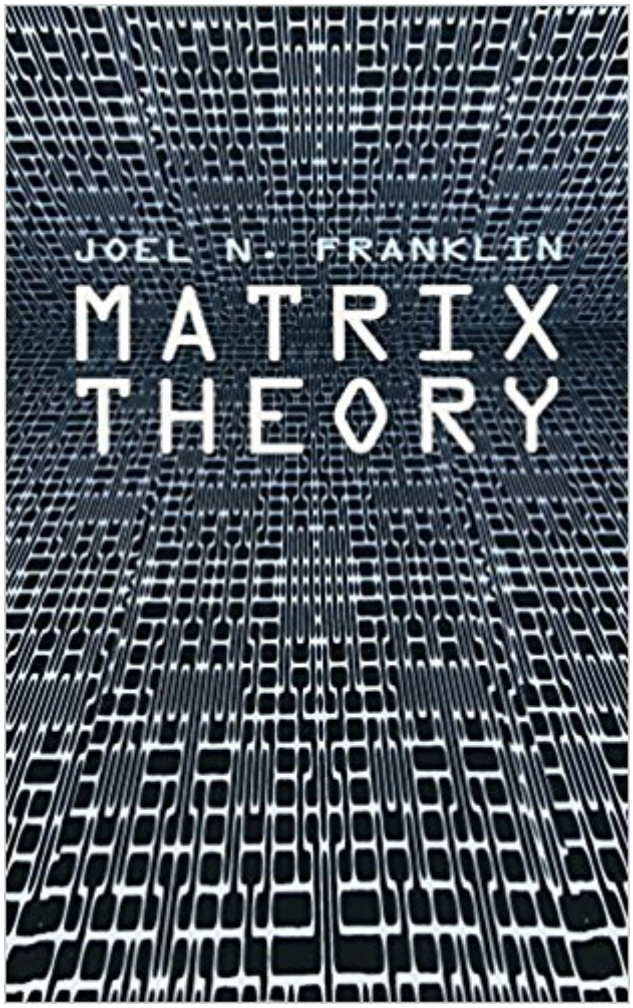
Matrix Theory (Dover Books On Mathematics)



Synopsis

Not only is matrix theory significant in a wide range of fields mathematical economics, quantum physics, geophysics, electrical network synthesis, crystallography, and structural engineering, among others-but with the vast proliferation of digital computers, knowledge of matrix theory is a must for every modern engineer, mathematician, and scientist. Matrices represent linear transformations from a finiteset of numbers to another finite set of numbers.Since many important problems are linear, and since digital computers with finite memory manipulate only finite sets of numbers, the solution of linear problems by digital computers usually involves matrices. Developed from the author's course on matrix theory at the CaliforniaInstitute of Technology, the book begins with a concise presentation of the theory of determinants, continues with a discussion of classical linear algebra, and an optional chapter on the use of matrices to solve systems of linear triangularizations of Hermitian and nonHermitian matrices, as well as a chapter presenting a proof of the difficult and important matrix theory of Jordan. The book concludes with discussions of variational principles and perturbation theory of matrices, matrix numerical analysis, and an introduction to the subject of linear computations.The book is designed to meet many different needs, and because it is mathematically rigorous, it may be used by students of pure and applied mathematics. Since it is oriented towards applications, it is valuable to students of engineering, science, and the social sciences. And because it contains the basic preparation in matrix theory required for numerical analysis, it can be used by students whose main interest is computers. The book assumes very little mathematical preparation, and except for the single section on the continuous dependence of eigenvalues on matrices, a knowledge of elementary algebra and calculus is sufficient.

Book Information

Series: Dover Books on Mathematics
Paperback: 320 pages
Publisher: Dover Publications (February 8, 2000)
Language: English
ISBN-10: 0486411796
ISBN-13: 978-0486411798
Product Dimensions: 5.5 x 0.7 x 8.5 inches
Shipping Weight: 10.4 ounces (View shipping rates and policies)
Average Customer Review: 3.6 out of 5 stars 7 customer reviews

Best Sellers Rank: #801,787 in Books (See Top 100 in Books) #45 inÃ Â Books > Science & Math > Mathematics > Matrices #313 inÃ Â Books > Science & Math > Mathematics > Pure Mathematics > Algebra > Linear #2200 inÃ Â Books > Textbooks > Science & Mathematics > Mathematics > Algebra & Trigonometry

Customer Reviews

This book has little in it that I cannot find in free texts. The exposition in the book is not the easiest to follow.The author seems preoccupied with determinants, but makes an egregious error in chapter 1 problem 2, where he asserts that if (AB) is square, then det(AB) = det(BA), then asks the reader to verify a similar phenomenon for trace(AB) = trace(BA). In fact the trace equality is always the case if AB exists as square. The determinant equality needs qualifications and exists iff A and B are both square, or if both AB and BA are not invertible in the case of A being m x n and B being n x m, where m != n. Otherwise det(AB) != det(BA).Further, for a book to be about "Matrix Theory", talk about numeric stability, etc. and to not even mention the Singular Value Decomposition... is really unacceptable to me.Finally, there are no solutions to the exercises.There are much better free books out there. For instance consider reading "Linear Algebra, Theory And Applications" made freely available by the author, Kenneth Kuttler.In game theoretic terms, this book is dominated by free texts. It is quite an old text, so perhaps it was useful in a pre-internet era. I would not recommend buying this nowadays.

excellent read. take the time to go through this book and you will be rewarded.

When I read this book, I did it to remember some concepts that I had forgotten. So, I got this book more for reference than to learn something new. I was impressed with the succinct presentation. An excellent cost / benefit ratio.

The best reference / refresher text I’ve found. It is written in the "old style" with concise text, proofs, and derivations. Highly recommended to grad students / researchers whose primary field is not necessarily mathematics, or those who teach undergraduate / graduate level math courses involving matrix analysis.

5 star. very comfortable and very fine . Best knives I’ve owned! delivery so quickly. my husband think it is amazing ,

This book is a little, wonderful gem. Assuming that you know some basic stuff (that you have taken a linear algebra course and know how to deal with matrices), this will help you a lot to have a feeling of "matrix analysis".(but not linear algebra).Matrices are widespread in all aspects of science (and especially in computer science) and if your research or work is about processing and analysing large amount of data, you cannot avoid dealing with them. I'm a graduate student in computer scince and my advisor told me that, having read that book carefully I would be equipped with basic necessary skills of matrix theory. (Yep, still reading) By the way, my suggestion is that you may skip the third chapter about differential equations and the last chapter about numerical analysis if you are not interested in these topics. But, chapters 1, 2 and especially 4, 5 and 6 are crucial.This book is good as self study material for math, computer science, electrical engineering and decision science students who has taken suitable undergrad courses. If you are talented in math though, you may want to see the material even in undergrad or in high school. The book presents the material in a theorem-proof style which is quite nice and solid. And if you want to pursue more advanced matrix theory, you may go for a bigger book like Van Golub's book, after digesting the material in this one.And, the best thing is that it's small and cheap. Definitely 5 stars.

Franklin's Matrix Theory gives in-depth explanations of the all techniques used for linear algebra (e.g., determinants, eigenvectors). The book offers detailed proofs that an elementary linear algebra textbook would not provide. Unfortunately, the book is written in a highly abstract fashion with few numerical examples. Furthermore, the book offers a limited number of problems, with no answer keys, thus precluding its use in a classroom setting. Matrix Theory is horrible as a textbook, but could be useful as a reference guide for someone looking for specific linear algebra proofs.

Analysis (Graduate Texts in Mathematics) Mathematics and the Imagination (Dover Books on Mathematics) One Hundred Problems in Elementary Mathematics (Dover Books on Mathematics) Mathematics for Quantum Mechanics: An Introductory Survey of Operators, Eigenvalues, and Linear Vector Spaces (Dover Books on Mathematics) The Nature and Power of Mathematics (Dover Books on Mathematics) Mathematics for the Nonmathematician (Dover Books on Mathematics) Understanding Infinity: The Mathematics of Infinite Processes (Dover Books on Mathematics) Mathematics and the Physical World (Dover Books on Mathematics) Concepts of Modern Mathematics (Dover Books on Mathematics) Undecidable Theories: Studies in Logic and the Foundation of Mathematics (Dover Books on Mathematics) Mathematics for Operations Research (Dover Books on Mathematics) Matrix Algebra: Theory, Computations, and Applications in Statistics (Springer Texts in Statistics)