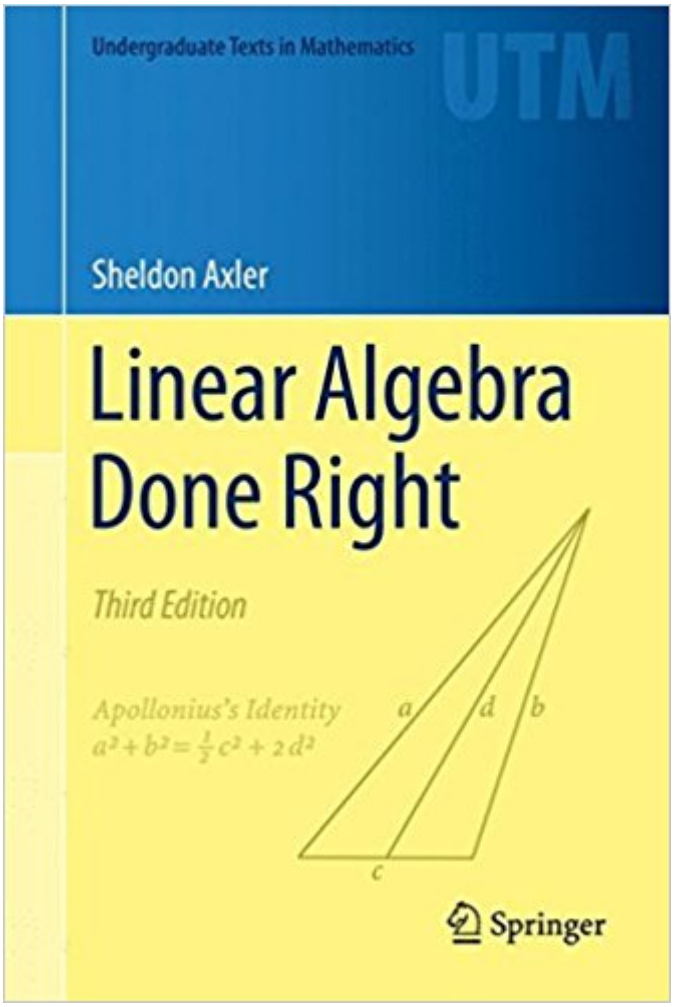
Linear Algebra Done Right (Undergraduate Texts In Mathematics)



Synopsis

This best-selling textbook for a second course in linear algebra is aimed at undergrad math majors and graduate students. The novel approach taken here banishes determinants to the end of the book. The text focuses on the central goal of linear algebra: understanding the structure of linear operators on finite-dimensional vector spaces. The author has taken unusual care to motivate concepts and to simplify proofs. A variety of interesting exercises in each chapter helps students understand and manipulate the objects of linear algebra.The third edition contains major improvements and revisions throughout the book. More than 300 new exercises have been added since the previous edition. Many new examples have been added to illustrate the key ideas of linear algebra. New topics covered in the book include product spaces, quotient spaces, and dual spaces. Beautiful new formatting creates pages with an unusually pleasant appearance in both print and electronic versions.No prerequisites are assumed other than the usual demand for suitable mathematical maturity. Thus the text starts by discussing vector spaces, linear independence, span, basis, and dimension. The book then deals with linear maps, eigenvalues, and eigenvectors. Inner-product spaces are introduced, leading to the finite-dimensional spectral theorem and its consequences. Generalized eigenvectors are then used to provide insight into the structure of a linear operator.

Book Information

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Customer Reviews

Ã¢â ¬Å“This is the third edition of this well-known introduction to linear algebra. The main changes,

apart from the usual improvements during a new edition, are the number of exercises which has more than doubled, new formatting including color printing, new sections on product spaces, quotient spaces, duality, and the chapter on Ã¢â ¬ËœOperators on Real Vector SpacesÃ¢â ¬â„¢ Ã¢â ¬Â¦. if you liked the previous editions, you will like this new edition even better!Ã¢â ¬Â• (G. Teschl, Monatshefte fÃƒÂ r Mathematik, 2016)Ã¢â ¬Å“This third edition, appearing eighteen years after the second edition, is a further polishing of the existing approach. This book was and still is an interesting and useful text for a second course in linear algebra, concentrating on proofs after the concepts and mechanics have been covered in a first course.Ã¢â ¬Â• (Allen Stenger, MAA Reviews, maa.org, May, 2016)AMERICAN MATHEMATICAL MONTHLY"The determinant-free proofs are elegant and intuitive."CHOICE "Every discipline of higher mathematics evinces the profound importance of linear algebra in some way, either for the power derived from its techniques or the inspiration offered by its concepts. Axler demotes determinants (usually quite a central technique in the finite dimensional setting, though marginal in infinite dimensions) to a minor role. To so consistently do without determinants constitutes a tour de forces in the service of simplicity and clarity; these are also well served by the general precision of AxlerÃ¢â ¬â„¢s prose. Students with a view towards applied mathematics, analysis, or operator theory will be well served. The most original linear algebra book to appear in years, it certainly belongs in every undergraduate library." ZENTRALBLATT MATH "Altogether, the text is a didactic masterpiece."MATHEMATICAL REVIEWS"Clarity through examples is emphasized Ã¢â ¬Â¦ the text is ideal for class exercises Ã¢â ¬Â¦ I congratulate the author and the publisher for a well-produced textbook on linear algebra."

This best-selling textbook for a second course in linear algebra is aimed at undergrad math majors and graduate students. The novel approach taken here banishes determinants to the end of the book. The text focuses on the central goal of linear algebra: understanding the structure of linear operators on finite-dimensional vector spaces. The author has taken unusual care to motivate concepts and to simplify proofs. A variety of interesting exercises in each chapter helps students understand and manipulate the objects of linear algebra.The third edition contains major improvements and revisions throughout the book. More than 300 new exercises have been added since the previous edition. Many new examples have been added to illustrate the key ideas of linear algebra. New topics covered in the book include product spaces, quotient spaces, and dual spaces. Beautiful new formatting creates pages with an unusually pleasant appearance in both print and electronic versions.No prerequisites are assumed other than the usual demand for suitable mathematical maturity. Thus the text starts by discussing vector spaces, linear independence, span,

basis, and dimension. The book then deals with linear maps, eigenvalues, and eigenvectors. Inner-product spaces are introduced, leading to the finite-dimensional spectral theorem and its consequences. Generalized eigenvectors are then used to provide insight into the structure of a linear operator.

I completed this book as an undergraduate introductory course to linear algebra and formal proofs. The lucid explanations make the book ideal for someone without a lot of mathematical background. It was a joy to read, and the exercises are usually accessible and assume no prior knowledge ÃƒÂ¢Ã â ¬Ã â • only a small fraction of problems are very involved.But the material is mostly theoretically interesting, and does not cover many of the computational tricks in a normal linear algebra class ÃƒÂ¢Ã â ¬Ã â • Gauss-Jordan elimination, a hugely important topic, is not even mentioned. There are so many other things missing, like calculations. You work more with operators and vector spaces than with matrices, and finishing this book won't help you understand the matrix terminology that's common in linear algebra. The book is more suited as a primer to a higher-level theoretical class, like operator theory, functional analysis, or modern algebra. It cannot be a prerequisite to practical/applied courses, like, say, statistics or machine learning. I feel like I've learned a lot after finishing the book, but I don't feel prepared for courses that require a 'working knowledge' of linear algebra.If you're at all interested in theoretical aspects of algebra or being gently introduced to good proofs, this book will appeal to you. I had never done theoretical math before, and this book was interesting and accessible.

I love this book so much. It was my first exposure to "real" math and I continue going back to it when I need my fill of linear algebra. The writing is lucid, the layout very easy on the eyes, and the approach very natural. It isn't for everyone (particularly those looking for a more applied study) and the weak coverage of the determinant is unfortunate (read the determinant chapter in Treil's linear algebra book to see what you missed), but it's a book that I'd recommend to any math major or lover of math wanting a clean presentation of the major results of linear algebra.

This is a very good book IMO. It's written in a way that is easy to follow, but at the same time is written in a way that requires you to fill in blanks on your own. I'm not an algebraist, but this book helped develop a liking for Algebra.

Clear exposition and playful at all the right times. This book will serve the student looking to

advance to a more abstract linear algebra class very well.

I used this book in my second course in linear algebra, and I absolutely loved it.One of my biggest points of irritation in my first course in linear algebra was the fact that we first defined determinant as some unintuitive, computational nonsense and then defined eigenvalues from there. Judging off of the foreword, Axler essentially wrote this book so that students like myself could gain some peace of mind.The material is developed wonderfully, in my opinion -- it was much more intuitive than my first pass at linear algebra, and the problems within the book (at least those that my professor assigned) were commonly quite good. On top of that, it was one of the first math textbooks I've owned that I could legitimately sit down and read rather than, say, fall asleep or come away more confused than when I first started reading. The proofs are *mostly* quite readable, and Axler definitely has an enjoyable writing style. Whether it's the little surprises like getting to page 22 and seeing it labeled "~7pi" (there are other easter eggs of that variety, by the way) or writing an anecdote from the supreme court where one of the justices is caught up on the word "orthogonal" inside the chapter on inner products and norms (p. 174), he certainly does his best to make reading the book enjoyable.Apart from the material itself, though, as others have mentioned, the book is also just plain looks nice. I purchased a hardcover edition (which I believe may be the only style printed for the 3rd edition), and whether it's the outer cover or the typeset they use inside, everything just has a nice, colorful pop to it. Coming in at ~330 pages and ~6.5W x 9.5H x 0.8D inches, the book is also compact, an aspect that made carrying it to and from campus each day a trivial task.As a whole, I have essentially nothing but praise for this text. Some may have wanted a linear algebra text that's more computationally intensive, but I'd rather gain the conceptual understanding that Axler has to offer than manually row reduce or invert some arbitrary matrix any day. I absolutely don't want to sell my copy -- this text is one that I'm going to be happy to leave on my bookshelf and use as a reference whenever I find myself needing to freshen up on my linear algebra later in life.

Algebra (Introductory)) Linear Algebra With Applications (Jones and Bartlett Publishers Series in Mathematics. Linear) Ideals, Varieties, and Algorithms: An Introduction to Computational Algebraic Geometry and Commutative Algebra (Undergraduate Texts in Mathematics) Mathematics and Technology (Springer Undergraduate Texts in Mathematics and Technology) The Mathematics of Nonlinear Programming (Undergraduate Texts in Mathematics) The Art of Proof: Basic Training for Deeper Mathematics (Undergraduate Texts in Mathematics) Discrete Mathematics: Elementary and Beyond (Undergraduate Texts in Mathematics) Proofs and Fundamentals: A First Course in Abstract Mathematics (Undergraduate Texts in Mathematics) Mathematics and Its History (Undergraduate Texts in Mathematics) Reading, Writing, and Proving: A Closer Look at Mathematics (Undergraduate Texts in Mathematics) The Mathematics of Medical Imaging: A BeginnerÃ¢â ¬â„¢s Guide (Springer Undergraduate Texts in Mathematics and Technology) Undergraduate Commutative Algebra (London Mathematical Society Student Texts) An Introduction to Mathematical Finance with Applications: Understanding and Building Financial Intuition (Springer Undergraduate Texts in Mathematics and Technology) Combinatorics and Graph Theory (Springer Undergraduate Texts in Mathematics and Technology)