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Linear algebra for everyone. (Algebra lineare per tutti.)

Unitext 28. La Matematica per il 3 + 2. Milano: Springer (ISBN 978-88-470-0446-7/pbk). xv, 210 p. (2007).

This is a gentle introduction in linear algebra at the undergraduate level and meant to be used by people with an interest in understanding the basics of this discipline. The material covered in this book is standard: systems of linear equations, operations with matrices, determinant, methods to solve linear systems, quadratic forms, vector spaces and their linear transformations, scalar products, orthogonality, projections, eigenvectors and eigenvalues. In addition, there are many examples and comments on numerical calculations in linear algebra: LU and QR factorizations, algorithms for inverting matrices, Gauss method, and so on. The exercises at the end of each of the eight chapters are mostly referring to calculations, either symbolic or numeric. This book is addressed “to everybody” in the sense that the author tries to welcome a large category of people that might find linear algebra useful. In order to illustrate this idea, there are included many “real life” examples.

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Classification: H65

Keywords: systems of linear equations; matrix; vector space; linear operator; eigenvalue; eigenvector; determinant; textbook; LU factorization; matrix inversion; quadratic forms; scalar products; orthogonality; QR factorizations, algorithms; Gauss method