

ZMATH 2009e.00484

Knop, Larry E.

Linear algebra. A first course with applications.

Textbooks in Mathematics. Boca Raton, FL: CRC Press (ISBN 978-1-58488-782-9/hbk). xix, 725 p. (2009).

This textbook investigates the classical ideas of linear algebra, including vector spaces, subspaces, basis, span, linear independence, linear transformation, eigenvalues, and eigenvectors. It includes a variety of applications integrated into the text, from inventories to graphics to Google's PageRank. This classroom-tested book has an early focus on the structure of linear algebra, giving students as much of the semester as possible to absorb the difficult parts of the material. Computational aspects provide changes of pace. Moving from the specific to the general, the author raises questions, provides motivation, and discusses strategy before presenting answers. Discussions of motivation and strategy include content and context to help students learn. Moreover, this book provides the option to use computational technology: The text offers just-in-time and just enough introductions to MapleTM, MATLAB, and T1-83 Plus for numerical calculations of matrix row reduction, matrix inverses, determinants, eigenvalues, and eigenvectors. *Qing-Wen Wang (Shanghai)*

Classification: H65 N35

Keywords: linear algebra; textbooks; vector spaces; basis; linear independence; linear transformation; eigenvalues; eigenvectors; Google's PageRank; matrix row reduction; matrix inverses; determinants; numerical linear algebra