Linear Algebra Labs with MATLAB (3rd Edition)

By Hill, David; Zitarelli, David

Pearson, 2003. Book Condition: New. Brand New, Unread Copy in Perfect Condition. A+ Customer Service! Summary: This work has two primary parts. One consists of the 13 LABS and three Projects in this manual. The other is a set of instructional M-files that harness the power of the software package MATLAB to render it appropriate for an educational setting. The LABS and Projects are meant to supplement a standard sophomore level course in linear algebra. They follow the general outline for such a course, introducing instructional routines and appropriate MATLAB commands to solve problems related to each concept. Our primary goal is to use the laboratory experiences to aid in understanding the basic ideas of linear algebra. As such we use instructional M-files that provide a tool kit for working with linear algebra without the need for programming in the MATLAB command set. Although no programming background is assumed, those students with computing skills can further enhance their skills within MATLAB. We have found that students initially rely on the tool kit, but many quickly begin to use MATLAB commands directly, even though we provide little formal instruction in this area. We recommend an instructional approach that integrates the language...

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the most frequently occurring problems in numerical linear algebra • Examples from engineering and science applications DESCRIPTION • Contains all the material necessary for a first year graduate or advanced undergraduate course on numerical linear algebra with numerous applications to engineering and science. It provides necessary mathematical background information for those who want to learn to solve linear algebra problems, and offers a thorough explanation of the issues and methods for practical computing, using MATLAB as the vehicle for computation. The proofs of required results are pro Relevant to Linear Algebra. By Stormy Attaway. Reference: Stormy Attaway, MATLAB: A Practical Introduction to Programming and Problem Solving, pp.452+x, Burlington, MA, Elsevier Inc., 2009. MATLAB Basics. MATLAB is written to work with vectors and matrices; the name MATLAB is short for "Matrix Laboratory". A matrix looks like a table with rows and columns; an m by n (or m x n) matrix has m rows by n columns (these are the dimensions of the matrix). Vectors are a special case in which one of the dimensions is 1: a row vector is a single row, or in other words it is 1 by n (1 row by n columns), and a column vector is m by 1 (m rows by 1 column). The LABS and Projects are meant to supplement a standard sophomore level course in linear algebra. They follow the general outline for such a course, introducing instructional routines and appropriate MATLAB commands to solve problems related to each concept. Our primary goal is to use the laboratory experiences to aid in understanding the basic ideas of linear algebra. As such we use instructional M-files that provide a tool kit for working with linear algebra without the need for programming in the MATLAB command set. Although no programming background is assumed, those students with computi Each "lab" addresses a topic in linear algebra (e.g., vector spaces) or an extended application of linear algebra (e.g., several labs discuss differential equations and another is devoted to graph theory and the adjacency matrix). The projects consist of additional applications of the material taught in the labs for that chapter; they are do-it-yourself affairs, each broken up into subparts that the reader is to work through, often using MATLAB. After an initial lab discussing MATLAB, the book covers all the standard topics in linear algebra: matrices and their arithmetic, determinants, vector spaces, linear transformations, inner product spaces, etc.

This title is out of print. Linear Algebra Labs with MATLAB, 2nd Edition. David R. Hill, Temple University. David E. Zitarelli, Temple University. Instructional M-files provide a tool kit for working with linear algebra without the need for programming experience in MATLAB. The tool kit provides a good lead-in to the use of MATLAB commands. Contains 3 distinct LABSâ€". LAB 5 examines a set with addition and scalar multiplication while investigating the defining properties of a vector space. LAB 8 saves class time through a presentation of the defining properties of the determinant. LAB 11 serves as an independent supplement to the standard classroom coverage of linear transformations by examining the geometry of plane linear transformation Spring 2018 -- MAT 205: Linear Algebra, Theory and Applicationsâ€Ž > â€Ž. MATLAB Labs. Date. Lab Files. NOTE: The commands "replace", "swap", and "scale" are not Matlab commands, but are programs provided by the publisher of your textbook that have been installed on the lab computers. You will ONLY be able to use these commands in the instructional lab (P201), but they will not be available on your own machine or on other computers on campus. Relevant to Linear Algebra. By Stormy Attaway. Reference: Stormy Attaway, MATLAB: A Practical Introduction to Programming and Problem Solving, pp.452+x, Burlington, MA, Elsevier Inc., 2009. MATLAB Basics. MATLAB is written to work with vectors and matrices; the name MATLAB is short for â€œMatrix Laboratoryâ€. A matrix looks like a table with rows and columns; an m by n (or m x n) matrix has m rows by n columns (these are the dimensions of the matrix). Vectors are a special case in which one of the dimensions is 1: a row vector is a single row, or in other words it is 1 by n (1 row by n columns), and a column vector is m by 1 (m rows by 1 column). Linear algebra functions in MATLAB® provide fast, numerically robust matrix calculations. Capabilities include a variety of matrix factorizations, linear equation solving, computation of eigenvalues or singular values, and more. For an introduction, see Matrices in the MATLAB Environment. Functions. expand all.