DESCRIPTION

Offering a clear, precise, and accessible presentation, complete with MATLAB programs, this new Third Edition of *Elementary Numerical Analysis* gives students the support they need to master basic numerical analysis and scientific computing. Now updated and revised, this significant revision features reorganized and rewritten content, as well as some new additional examples and problems.

The text introduces core areas of numerical analysis and scientific computing along with basic themes of numerical analysis such as the approximation of problems by simpler methods, the construction of algorithms, iteration methods, error analysis, stability, asymptotic error formulas, and the effects of machine arithmetic.

ABOUT THE AUTHOR

NEW TO EDITION

• New Chapter 9 on numerical methods for the classic second order linear partial differential equations in two variables.

• New Section 4.7 on least squares approximation of functions, including an introduction to Legendre polynomials.

• New Section 8.8 on the two-point boundary value problem.

• A rewritten section on computer arithmetic now concentrates on the IEEE floating-point format for representing numbers in computers.

• Programming language changed from Fortran to MATLAB.

• From the text's Web site at www.wiley.com/college/atkinson, instructors and students will have access to online resources: Overhead slides, MATLAB Programs, Numerical Examples, and MATLAB Programs with a Graphical User Interface.

FEATURES

• Flexible: The text offers comprehensive coverage of virtually all major topics in numerical analysis. Its flexible Table of Contents allows instructors to choose exactly what material to cover in a one-semester course.

• Varied end-of-chapter exercises: Some exercises provide additional illustrations of the theoretical results given in the section, and a number of these exercises can be done with either a hand calculator or with a simple computer program.

• MATLAB Programs: For a number of exercises, students are asked to modify the programs in order to solve specific problems. This approach enables students to learn programming more efficiently, and allows them to focus more on technique learning and problem solving.
**Appropriate level:** The mathematical treatment of the material is kept at a manageable level—not too deep, not too elementary. It can be used with students who have had a one-year course in single-variable calculus, although some background in linear algebra and differential equations is helpful for chapters 6-9.

To purchase this product, please visit [https://www.wiley.com/en-us/9780471433378](https://www.wiley.com/en-us/9780471433378)