

As an applied scientist you are constantly looking for new and better ways to solve problems

This book shows how Mathematica^{AE}, the powerful mathematical software system, can be used to solve problems in the applied sciences. Written by two authors who have been teaching Mathematica courses to scientists and engineers for years, this book is a must for anyone who needs to use Mathematica to solve complex problems in the applied sciences

The book tackles complex, practical problems, and shows how to solve them from start to finish

After presenting a "quick start" chapter designed to get up and running with Mathematica, the authors show how Mathematica can be used as a data analysis and visualization system

Topics in this section include importing information to Mathematica, organizing information, visualizing data in both 2-D and 3-D, processing information, and exporting results from Mathematica

Next, the authors guide you through programming in Mathematica

Included here are topics such as programming styles, important built-in structures, function definitions, procedural methods, rule-based schemes and iteration, contexts and packages, and increasing efficiency

Also included is a separate section detailing several case studies that explore and apply Mathematica to particular areas

These areas include engineering, finance, environmental modeling, and image processing

The case studies span a wide range of applications--from serious data analysis using robust regression theory and maximum entropy theory, to an enjoyable exploration of the Mandelbrot set using MathLink to create a movie

Features Shows students in the applied sciences how to use Mathematica to solve problems encountered in a variety of applications areas

Explains how to use Mathematica in data analysis, visualization, modeling, programming, or teaching in a wide range of disciplines

Sample applications are included in the form of case studies.
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