A modernized new edition of one of the most trusted books on time series analysis. Since publication of the first edition in 1970, Time Series Analysis has served as one of the most influential and prominent works on the subject. This new edition maintains its balanced presentation of the tools for modeling and analyzing time series and also introduces the latest developments that have occurred in the field over the past decade through applications from areas such as business, finance, and engineering.

The Fourth Edition provides a clearly written exploration of the key methods for building, classifying, testing, and analyzing stochastic models for time series as well as their use in five important areas of application: forecasting; determining the transfer function of a system; modeling the effects of intervention events; developing multivariate dynamic models; and designing simple control schemes.

Along with these classical uses, modern topics are introduced through the book's new features, which include:

- A new chapter on multivariate time series analysis, including a discussion of the challenge that arise with their modeling and an outline of the necessary analytical tools

- New coverage of forecasting in the design of feedback and feedforward control schemes

- A new chapter on nonlinear and long memory models, which explores additional models for application such as heteroscedastic time series, nonlinear time series models, and models for long memory processes

- Coverage of structural component models for the modeling, forecasting, and seasonal adjustment of time series
A review of the maximum likelihood estimation for ARMA models with missing values

Numerous illustrations and detailed appendices supplement the book, while extensive references and discussion questions at the end of each chapter facilitate an in-depth understanding of both time-tested and modern concepts. With its focus on practical, rather than heavily mathematical, techniques, *Time Series Analysis*, Fourth Edition is the upper-undergraduate and graduate levels. This book is also an invaluable reference for applied statisticians, engineers, and financial analysts.

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**ABOUT THE AUTHOR**


The late **Gwilym M. Jenkins, PHD**, was professor of systems engineering at Lancaster University in the United Kingdom, where he was also founder and managing director of the International Systems Corporation of Lancaster? A Fellow of the Institute of Mathematical Statistics and the Institute of Statisticians, Dr. Jenkins had a prestigious career in both academia and consulting work that included positions at Imperial College London, Stanford University, Princeton University, and the University of Wisconsin-Madison. He was widely known for his work on time series analysis, most notably his groundbreaking work with Dr. Box on the Box-Jenkins models.

The late **Gregory CD. Reinsel, PHD**, was professor and former chair of the department of Statistics at the University of Wisconsin-Madison. Dr. Reinsel's expertise was focused on time series analysis and its applications in areas as diverse as economics, ecology, engineering, and meteorology. He authored over seventy refereed articles and three books, and was a Fellow of both the American Statistical Association and the Institute of Mathematical Statistics.
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• While preserving the general overall structure of the original book, several revisions, modifications, and omissions of text have been made to strengthen the understanding.

• The control section of the book has been reworked to reflect the increasing roles of process monitoring and process adjustment.

• New edition now includes coverage of multivariate statistics, with a new chapter devoted to multivariate time series analysis.

• Incorporates several new topics in an effort to modernize the subject matter. These topics include extensive discussions of multivariate time series, smoothing, likelihood function based on the state space model, autoregressive models, structural component models and deterministic seasonal components, and nonlinear and long memory models.

FEATURES

• The book is lavishly displayed with graphics, exercise sets, and real-life examples from areas of study such as economics, business, engineering, and the natural sciences.

• Chapter appendices present more demanding material that can otherwise be skipped without loss of continuity.

• Extensive references provide ample content for further study.

• Every engineering, financial analyst, and applied statistician should have a copy of this invaluable guide.

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