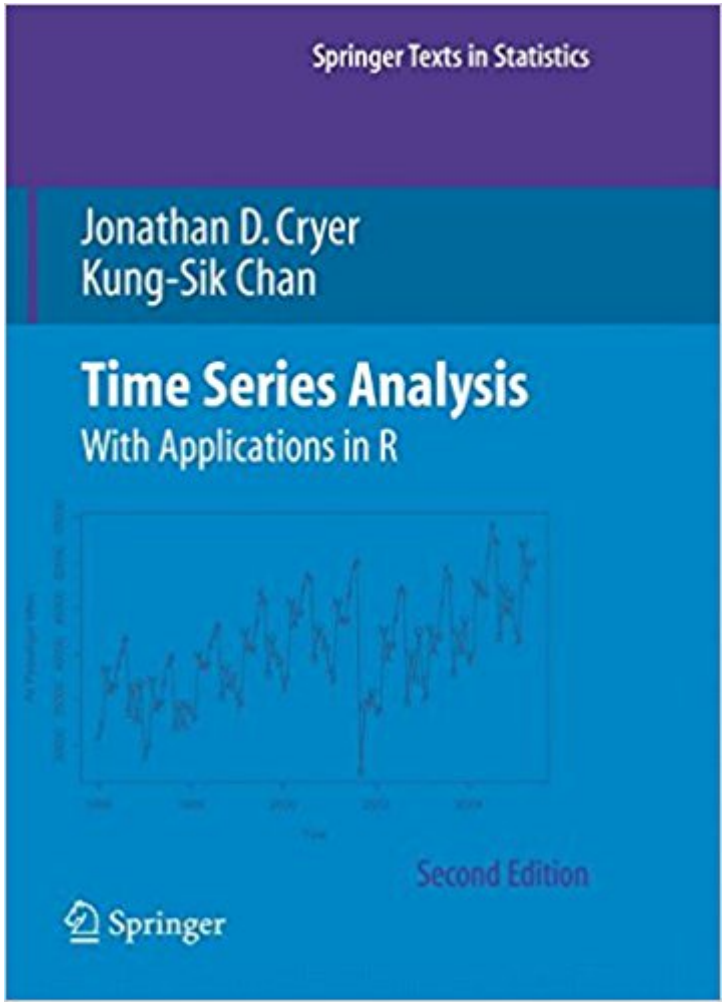
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Time Series Analysis: With Applications In R (Springer Texts In Statistics)



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Synopsis

This book has been developed for a one-semester course usually attended by students in statistics, economics, business, engineering, and quantitative social sciences. A unique feature of this edition is its integration with the R computing environment. Basic applied statistics is assumed through multiple regression. Calculus is assumed only to the extent of minimizing sums of squares but a calculus-based introduction to statistics is necessary for a thorough understanding of some of the theory. Actual time series data drawn from various disciplines are used throughout the book to illustrate the methodology.

Book Information

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Customer Reviews

From the reviews of the second edition."The book is ideal for undergradute and honours time series modules, ...written and structured in such a way that students are introduced to the various concepts and methodologies at a graduate level. . . . more advanced mathematical details are provided in appendices at the end of the chapters. . . .Cryer and new co-author, Kung-Sik Chan, have compiled a comprehensive resource on time series analysis, integrating traditional time series methodologies with newer techniques and procedures. . . . The first ten chapters deal with time-domain analysis of univariate time series. . . . Deterministic trend models. . . . Autoregressive moving average (ARMA) models. . . . The classic model building approach of Box and Jenkins. . . . including multiclative models. . . . The second part of the book consists of new chapters on more advanced topics. Time series regression models. . . . Models of heteroscedasticity. . . . Frequency-domain analysis. . . . The book concludes with nonlinear time series. . . . The fact that R

and the TSA package are freely available . . . contibutes to the accessibility of the book. . . . I would highly recommend this book." (Paul J. van Staden, South African Statistical Association)Ã¢â ¬Å“Intended to serve as an introductory course text in time series analysis, this edition is appropriate for a target audience of upper-division undergraduates and beginning graduate students. Ã¢â ¬Â¦The second edition has undergone substantial revision; the most notable changes are the inclusion of new material and the switch from Minitab to the R programming language (R Development Core Team 2008). In fact, the text makes extensive use of the contributed R package TSA, maintained by one of the authors (KSC), providing sample code throughout. It also boasts an appendix containing an introduction to R along with several of the commands use in each chapter. Since many practical problems in time series analysis are solved using statistical software, the change to R will likely be appreciated by students. Ã¢â ¬Â¦This text is well written and provides thorough coverage of univariate ARIMA modeling. In fact, I will strongly consider adopting this text for my next introductory time series class at the advanced undergraduate/beginning graduate level.Ã¢â ¬Â• (Journal of the American Statistical Association, Dec. 2009, Vol. 104, No. 488) Ã¢â ¬Å“Based on the book on Time Series Analysis by Jonathan Cryer, published in 1968, the new edition, co-authored with K.-S. Chan, contains nearly all of the well-received original in addition to considerable up-to-date new material, numerous new datasets, and new exercises. Hence the book emphasizes the time domain approach and particularly the Box-Jenkins approach. In addition, some of the new topics that are integrated with the original include unit root tests, extended autocorrelation functions, subset ARIMA models, and bootstrapping. Furthermore, the new edition covers completely new chapters on time series regression models, time series models of heteroscedasticity, spectral analysis, and threshold models. Although the level of difficulty in these new chapters is somewhat higher than in the more basic material, the discussion is presented in a way that will make the material accessible and quite useful to a broad audience of users. Ã¢â ¬Â¦ The book is suitable for a one-semester course attended by students in statistics, economics, business, engineering, and quantitative social sciences. Basic applied statistics through multiple linear regression is assumed. Calculus is assumed only to the extent of minimizing sums of squares, but a calculus-based introduction to statistics is necessary for a thorough understanding of some of the theory. The required facts concerning expectation, variance, covariance, correlation, and properties of conditional expectation and minimum mean square error prediction are presented in appendices. Ã¢â ¬Â¦ In conclusion, this book is easy to access. It makes the difficult contexts very concrete. Wonderful work and strongly recommended for a graduate course or for self-study.Ã¢â ¬Â• (Technometrics. August 1,

2010, 52(3), p. 365)Ã¢â ¬Å“This second editionÃ¢â ¬Â¦includes new material on time series regression models, spectral analysis, threshold models, and models of heteroscedasticity; the latter of which are heavily used in econometrics and have traditionally been left out of books on time series. The new chapters on heteroscedasticity and threshold models, in my opinion, are what set this book apart from others. Ã¢â ¬Â¦ Overall, the book is well laid out and well written. The TSA package easily loaded on my Mac and the software and example code ran without any problems. Ã¢â ¬Â¦I have no reservations recommending it as the text for an applied course, which is the intended use of the book.Ã¢â ¬Â• (Biometrics 65, March 2009)

Time Series Analysis With Applications in R, Second Edition, presents an accessible approach to understanding time series models and their applications. Although the emphasis is on time domain ARIMA models and their analysis, the new edition devotes two chapters to the frequency domain and three to time series regression models, models for heteroscedasticity, and threshold models. All of the ideas and methods are illustrated with both real and simulated data sets. A unique feature of this edition is its integration with the R computing environment. The tables and graphical displays are accompanied by the R commands used to produce them. An extensive R package, TSA, which contains many new or revised R functions and all of the data used in the book, accompanies the written text. Script files of R commands for each chapter are available for download. There is also an extensive appendix in the book that leads the reader through the use of R commands and the new R package to carry out the analyses.Jonathan Cryer is Professor Emeritus, University of Iowa, in the Department of Statistics and Actuarial Science. He is a Fellow of the American Statistical Association and received a Collegiate Teaching Award from the University of Iowa College of Liberal Arts and Sciences. He is the author of Statistics for Business: Data Analysis and Modeling, Second Edition, (with Robert B. Miller), the Minitab Handbook, Fifth Edition, (with Barbara Ryan and Brian Joiner), the Electronic Companion to Statistics (with George Cobb), Electronic Companion to Business Statistics (with George Cobb) and numerous research papers.Kung-Sik Chan is Professor, University of Iowa, in the Department of Statistics and Actuarial Science. He is a Fellow of the American Statistical Association and the Institute of the Mathematical Statistics, and an Elected Member of the International Statistical Institute. He received a Faculty Scholar Award from the University of Iowa in 1996. He is the author of Chaos: A Statistical Perspective (with Howell Tong) and numerous research papers.

This book is heavy on theory and formulas. If you are not PhD in math, you will probably have

difficulties following some of the concepts.Even though the authors claim that the book has practical examples in R, the book is mostly theoretical. Most of the formulas are not explained and you will end up guessing what "k", "j", and hundreds of other Greek letters and symbols mean. Most of the time series topics do not have any numerical examples and for each sentence you will end up staring at 5 different formulas. Later, you will end up Googling stuff. The good side of the book is that it includes the most important time series theoretical concepts and it is useful to have this book if you are serious about time series analysis.

I used this in a graduate level course and found the structure of the subjects useful and the addition of R syntax marginally synthetic, particularly in appendices. However, many of the topics covered in chapter exercises include tasks in following chapters; this is NOT useful! Additionally, some of the syntax used in Exhibits are inconclusive and only marginally helpful e.g. incomplete script [clearly a editorial oversight]. When prescribing to this text be prepared to use Cran’s R directories references for assistance; R proficiency dependent. This is a sound text likely as supplemental material but not exclusively.

The book is OK but it falls behind other available texts at comparable or lower prices. I agree with others that the book is not the best introduction and neither a must-have rigorous reference. The main contribution is that it does account for some topics not typically found in most time series textbooks as mentioned in Dr. Chernick’s review. The new edition of the classic by Box et al and the introductory text by Brockwell and Davis (ITSF) are muchl superior to Shumway and Stoffer in terms of introducing the core subject (ARIMA modelling) though not using R. If one wants R material (which by the way has powerful time series resources) than the book by Cryer and Chan does a much better job. If one wants more theory and technical detail, and also a solid introduction to multivariate methods, then the theoretical book by Brockwell and Davis (TSTM) and Hamilton’s text are way better than this book. Applied economists wanting intro material should check Ender’s applied text and engineers serious about time series cannot do better than owning Box et al and the (frequency domain) book by Percival and Walden. Statisticians and advanced readers can go to the two theoretical books I mentioned before.

This book makes heavy use of mathematical proofs in the early chapters to make make its points. This may suit some readers and not suit others. The early chapters describe the core principles.If you’re a person who likes narrative descriptions rather than mathematical proofs, then this book

probably isn't for you. If you're a person who doesn't mind mathematical proofs as long as there's a lot of hand-holding explanations of the proofs, then this book is probably not for you, either.If you're okay with mathematical proofs, then this book is probably okay for you.

Just what I needed for my class!

Very well written, easy to understand. But it is a basic/elementary textbook. If I were learning time series on my own and wanted to use the R language, I would read this book first.

As described

great!

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