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Titolo	Time Series Analysis and Its Applications : With R Examples // by Robert H. Shumway, David S. Stoffer
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Soggetti	Statistics Biometry Statistical Theory and Methods Biostatistics Series temporales Análisis temporal Estadística Biometria Anàlisi de sèries temporals Llibres electrònics
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	1. Characteristics of Time Series -- 2. Time Series Regression and Exploratory Data Analysis -- 3. ARIMA Models -- 4. Spectral Analysis and Filtering -- 5. Additional Time Domain Topics -- 6. State-Space Models -- 7. Statistical Methods in the Frequency Domain -- 8. Appendix A: Large Sample Theory -- Appendix B: Time Domain Theory -- Appendix C: Spectral Domain Theory -- Appendix R: R Supplement.
Sommario/riassunto	This 5th edition of this popular graduate textbook presents a balanced and comprehensive treatment of both time and frequency domain methods with accompanying theory. It includes numerous examples using nontrivial data illustrate solutions to problems such as discovering natural and anthropogenic climate change, evaluating pain perception experiments using functional magnetic resonance imaging,

and monitoring a nuclear test ban treaty. The R package 'astsa' has had major updates and the text will reflect those updates. In general, the graphics have been improved. New topics include random number generation, modeling and fitting predator-prey interactions, more emphasis on structural models, testing for linearity, discussion of EM algorithm is more extensive, Bayesian analysis of state space models and MCMC is more extensive (including new scripts in astsa), particle methods are introduced, stochastic volatility coverage is expanded, changepoint detection is introduced (new topic). The book is designed as a textbook for graduate level students in the physical, biological, and social sciences and as a graduate level text in statistics. Some parts may also serve as an undergraduate introductory course. Theory and methodology are separated to allow presentations on different levels. In addition to coverage of classical methods of time series regression, ARIMA models, spectral analysis and state-space models, the text includes modern developments including categorical time series analysis, multivariate spectral methods, long memory series, nonlinear models, resampling techniques, GARCH models, ARMAX models, stochastic volatility, and Markov chain Monte Carlo integration methods. This edition includes R code for each numerical example.
