Introduction and overview
Examples of time series
Dependence within and between time series
Some of the challenges of time series modeling
Feedback and cycles
Challenges of high frequency sampling
Causal modeling and structure
Some practical considerations
Lagged regression and autoregressive models
Stationary discrete time series and correlation
Autoregressive approximation of time series
Multi-step autoregressive model prediction
Examples of autoregressive model approximation
The multivariate autoregressive model
Autoregressions for high lead time prediction
Model impulse response functions
The covariances of the VAR model
Partial correlations of the VAR model
Inverse covariance of the VAR model
Autoregressive Moving Average models
State space representation of VAR models
Projection using the covariance matrix
Lagged response functions of the VAR model
Spectral analysis of dependent series
Harmonic components of time series
Cycles and lags
Cycles and stationarity
The spectrum and cross-spectra of time series
Dependence between harmonic components
Bivariate and multivariate spectral properties
Estimation of spectral properties
Sample covariances and smoothed spectrum
Tapering and pre-whitening
Practical examples of spectral analysis
Harmonic contrasts in large samples
The estimation of vector autoregressions
Methods of estimation
The spectrum of a VAR model
Yule-Walker estimation of the VAR(p) model
Estimation of the VAR(p) by lagged regression
Maximum likelihood (ML) estimation
VAR models with exogenous variables, VARX
The Whittle likelihood of a time series model
Graphical modeling of structural VARs
The structural VAR
The directed acyclic graph: DAG
The conditional independence graph: CIG
Interpretation of CIGs
Properties of CIGs
Estimation and selection of DAGs
Building a structural VAR (SVAR)
Properties of partial correlation graphs
Simultaneous equation modeling
An SVAR model for the Pig market: the innovations
A full SVAR model of the Pig market series
VZAR: an extension of the VAR model
Discounting the past
The generalized shift operator
The VZAR model
Properties of the VZAR model
Approximating a process by the VZAR model
Yule-Walker fitting of the VZAR
Regression fitting of the VZAR
Maximum likelihood fitting of the VZAR
VZAR model assessment
Continuous time VZAR models
Continuous time series
Continuous time autoregression: the CAR()
The CAR(p) model
The continuous time generalized shift
VCZAR: the continuous time VZAR model
Properties of the VCZAR model
Approximating a continuous process by a VCZAR
Yule-Walker fitting of the VCZAR model
Regression and ML estimation of the VCZAR
Irregularly sampled series
Modeling of irregularly sampled series
The likelihood from irregularly sampled data
Irregularly sampled univariate series models
The spectrum of irregularly sampled series