Stat 519 – Time Series Analysis

Don Percival, Instructor
http://faculty.washington.edu/dbp/s519/

• office hours in C-310, Padelford
  – Mondays 11:30AM to 12:20PM and 1:30PM to 2:20PM
  – Wednesdays 11:30AM to 12:20PM

• textbooks: Introduction to Time Series and Forecasting by Brockwell & Davis; Time Series Analysis: With Applications in R by Cryer & Chan; and Time Series Analysis and Its Applications: With R Examples by Shumway & Stoffer

• eight homework assignments (60% of course grade)
• term project (40%), with written report (5–10 pages) and oral presentation (8 minutes)
Software

• you are encouraged to use R (but you don’t have to)
  – any code I post will be in R (will post code for reproducing material on lecture overheads)
  – Cryer & Chan and Shumway & Stoffer books use R
Topics to Be Covered: I

• introduction to time series analysis
• simple time series models and stationary processes
• simple methods for handling trend and seasonality
• basic theory for ARMA processes
• modeling and forecasting time series with ARMA processes
• nonstationary models with stationary differences
• long-memory models
• seasonal time series models
• regression models with time series errors
• state-space models and Kalman filtering
Topics to Be Covered: II

- nonlinear models and ARCH models (if time permits)
- multivariate time series (if time permits)
  - note: will not be covering spectral analysis (Stat/EE 520)
Dates to Note

• presentation of course projects
  – March 17 (during 2+ hours set aside for final exam)
  – if need be, March 11, 9, 7 (during final week of classes)