

# Test #2

Note Title

4/5/2007

- ① Virtual office hours 7-8PM Monday, April 9
- ② 11AM - 12:30PM
- ③ Sections 3.5-3.9, Excluding 3.7, Drift notes, Section 5.2  
Excludes 5.3, 5.5
- ④ 100 pts  
① 54 pts, 5 parts  
→ Using data, R code + output  
→ Denica forecast
- ② 14 pts, 2 parts  
→ R code + output
- ③ 32 pts, 5 parts  
→ Short answer
- R code + output, formula sheet

## Section 3.6 - Estimation

- MOM
- MLE
- (normal)
  - $\alpha, \sigma$
  - $X_{reg}$
- Est. cov. matrix
- Hyp. tests + C.I.s for parameters.

## Section 3.5 → Forecasting

- Infinite past
- Notation  $X_n$   
 $X_{n+1}$
- C.I.s → Forecast error variance
- Plots

## Drift term

- why?
- how estimate this in R  $\rightarrow$  treg

## Section 3.8 $\rightarrow$ Model building

- 1 Stationary
- 2 ACF + PACF  $\rightarrow$  Suggest models
- 3 MLEs
- 4 Residuals  $\rightarrow$  Examine assumptions about model.
  - 1 ACF + PACF residuals
  - 2 Stand. residuals
  - 3 Normality  $\rightarrow$  QQ plot + histogram

- Ljung-Box-Pierce test  $\rightarrow$  Groups
- Hyp. tests for  $\rho_1$ 's,  $\theta_1$ 's
- $\rightarrow$  What model to use
  - AIC
  - model parsimony
- Examine. modl)

## Section 3.9

- SAKIMA  $\rightarrow$  write out?
- How to choose?
- ACF + PACF
- Garmel)
- Forecasting

## Section 5.2 ARFIMA

- When to use?
- Write out
- Infinite MA
- Obtain residuals + forecasts
- Model building

→ Fully answer.