

Old Dominion University  
Mathematics-Statistics Department  
Fall 2011 Semester  
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Stat 630 Homework 5

Due date: November 10<sup>th</sup>

Explain your answers.

1. Problem 5.1
2. Problem 5.2
3. Problem 5.3
4. Problem 5.4
5. Problem 5.9
6. Problem 5.11
7. For a series of length 169, we find that  
 $r_1 = 0.41, r_2 = 0.32, r_3 = 0.26, r_4 = 0.21,$  and  $r_5 = 0.16$ .  
What ARMA model fits this pattern of autocorrelations?
8. From a time series of 100 observations, we find that  
 $r_1 = -0.49, r_2 = 0.31, r_3 = -0.21, r_4 = 0.11,$  and  $|r_k| < 0.09$  for  $k > 4$ .  
On this basis alone, what ARMA model would we tentatively specify for the series?
9. A stationary time series of length 121 produced sample partial autocorrelation of  
 $\widehat{\alpha}_1 = 0.8, \widehat{\alpha}_2 = -0.6, \widehat{\alpha}_3 = 0.08,$  and  $\widehat{\alpha}_4 = 0.00$ .  
On this basis alone, what ARMA model would we tentatively specify for the series?

Let me know if you have any questions.