

STAT 673
Homework 4
due Wed. Sept. 30

Show all work.
Please work in Groups of 2!

1. (a) p. 66, Problem 3.1 (c)

(b) p. 66, Problem 3.3 for above 3.1 (c). When it says to calculate and study, you do not have to calculate the sample ACF and sample PACF by hand. Just compare the plots and the estimates from R (see Lab1) to your answers for Problem 3.1 c)

2. Consider the MA(1) process: $Z_t = (1 - .8B)a_t$

(a) Find the ACF for the processes for $k=0,1,2$, and 3.

(b) Find the PACF ϕ_{kk} for the processes for $k=0,1,2$, and 3.

(c) Simulate a series of 100 observations from the above model with $\sigma_a^2 = 1$. Please see R Lab 1 for the correct syntax and be careful!

Plot the simulated series, and calculate and study its sample ACF $\hat{\rho}_k$ and PACF $\hat{\phi}_{kk}$ for $k = 0, 1, \dots, 20$. When it says to calculate and study, you do not have to calculate the sample ACF and sample PACF by hand. Just compare the plots and the estimates from R (see Lab1) to your answers for (a) and (b).