

## Homework Chapter 3 (STA 5015)

**Reading:** Chapter 3

1. Problem 3.1
2. Problem 3.3
3. Problem 3.6
4. Find the mean and autocovariance function of the ARMA(2,1) process,

$$X_t = 2 + 1.3X_{t-1} - .4X_{t-2} + Z_t + Z_{t-1}, \quad Z_t \sim WN(0, \sigma^2).$$

Is the process causal and invertible? (Consider centering the mean first, before you calculate ACVF!)

5. Find the autocovariances  $\gamma(h)$ ,  $h = 0, 1, \dots$  of AR(3) process

$$(1 - .5B)(1 - .4B)(1 - .1B)X_t = Z_t, \quad Z_t \sim WN(0, \sigma^2).$$