GEORGIA INSTITUTE OF TECHNOLOGY
School of Electrical and Computer Engineering

ECE 4260A

Problem Set #6

Date assigned:	February 24, 2017
Date due:	March 3, 2017

Reading: Read Chapter 8 in Stark and Woods.

Problem 6.1:

Consider the stationary random process $X[n]$ with mean function $\mu_X[n] = 0.5$ and autocorrelation function $R_X[m] = \exp(-|m|/5) + 0.25$.

(a) Find $\overline{X^2[m]}$.

(b) Find $\sigma^2_{X[m]}$ and the power in $X[m]$.

(c) Let $Y = X[3]$, and $Z = X[1]$. Find the covariance matrix for Z and Y.

(d) Let $W[n] = X[n] - \alpha X[n-1]$. Find $\mu_W[n]$ and $R_W[m]$

Problem 6.2: Work problem 8.2 in Stark and Woods.

Problem 6.3: Work problem 8.6 in Stark and Woods.

Problem 6.4: Work problem 8.14 in Stark and Woods.

Problem 6.5: Work problem 8.15 in Stark and Woods.

Problem 6.6: Work problem 8.17 in Stark and Woods.