

STAT 443: Assignment 2

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Question 1

```
set.seed(443)
var = 0.8
h = 0:15
A1 = 45/13
d1 = 3/5
A2 = -32/13
d2 = 1/2
rho_h <- A1 * d1^h + A2 * d2^h
sim_data = arima.sim(n = 1000,
                     list(ar = c(11/10, -3/10)),
                     sd = sqrt(var))
acf(sim_data, lag.max = 15, main = "Sample ACF for simulated data")
lines(x = h, y = rho_h, col = "red")
legend("topright",
      fill = c("black", "red"),
      legend = c("Simulated acf value", "Theoretical acf value"))
```

Sample ACF for simulated data

