STAT 673
Homework 7
due Wed. Nov. 3

Show all work.
Please work in Groups of 2! There are 2 problems.

1. p. 158, Problem 7.1

2. Data: Annual U.S. tobacco production, 1871-1984, in millions of pounds. (This is one of the 6.2 Empirical Examples!)

The data are in a file and you can source the file that will create a time series object named `UStobacco`. Do not assign this to another object, just use the source command:

```
> source("http://www-rohan.sdsu.edu/~babailey/stat673/ustobacco.dat")
```

(You should now have the dataset and can check by typing UStobacco at the R command line and hit return.)

(a) Plot the series. Is the series stationary? Explain.

(b) Plot the log-transformed series. Is the series stationary? Explain.

(c) Plot the difference log-transformed series. Is the differenced log-transformed series stationary? Explain.

(d) From the sample ACF and PACF of the differenced log-transformed series, what is an appropriate model?

(e) Fit the model suggested by (d). Use the R function `arima`.

(f) Looking at the diagnostic plots, how well does your model fit the data? Please include the diagnostic plots from the R function `tsdiag`.