ECO 341, Fall 2017, Required Homework Assignment #1
Due at the start of class on Tuesday, September 26

The goal of this assignment is to coerce you into collecting some time series and performing some introductory statistical analysis. You are asked to run some regressions. You are free to use any software you wish, although Stata would be the best use of your time because future assignments will require its use.

Collect at least two time series with similar timeframes. You may pick any two you wish, but the St. Louis Fed's FRED database has an extraordinary collection.

1. Report the mean and variance of each time series, as well as the correlation between a pair of them.

2. Does your correlation from #1 demonstrate a causal relationship between those two variables?

3. Plot one of your time series. Based on a visual inspection, do you think it is ergodic?

4. Do you think your time series from #3 is stationary?

5. Propose a potential causal relationship between any two of your variables. Run a simple OLS regression that includes one of these variables as your dependent variable and another as an independent variable. Report your regression coefficient and standard error.

6. I now claim that a one unit change in your independent variable causes a β (your regression coefficient from #5) unit change in your independent variable. Provide one source of misspecification that casts doubt upon my claim.

7. Provide a second source of misspecification that casts doubt upon my claim from #6.

8. Choose one of your time series. Regress it on a lag of itself. Report the results.

9. Do your results from #8 suggest that your time series has oscillatory dynamics? If not, what results would?

10. Do your results from #8 suggest that your time series has explosive dynamics? If not, what results would?