# Economic Forecasting
# Econ 493 A1 - Fall 2018

### Term Paper Guidelines

## Overview

A term paper, worth **30% of the final grade**, is required for all students taking Econ 493. The finished document can be no more than 10 pages (double spaced, with graphs and tables). An appendix (which doesn't count against the 10-page limit) should include the commands used to get the results together with the results that you obtained using R. The paper should include the following:

1. An introduction that provides a brief summary of the series being predicted as well as the main results.
2. A clear description of your data set, including references to the exact source(s) of your data and a presentation of summary statistics.
3. A brief discussion of the particular procedures implemented.
4. Presentation of your final results, forecasts, and evaluation of the results.
5. References.

## Getting Started

- You need to find an economics, business, or financial time series to model and forecast. Since the course focuses mostly on univariate methods, you only need to pick ONE time series. However, you may want to also consider potential predictors in order to produce more accurate out-of-sample forecasts.
- Look for a time series that shows some or all the patterns discussed in class (that is, trend, seasonality, etc.). Do not use annual data; use monthly or quarterly data. Higher frequencies are also okay.
- Make sure that the time series is long enough. You will need to leave a few years out of your sample to evaluate your out-of-sample forecasts. Aim for **at least 100 observations** for your time series and each of your potential predictors. Larger sample sizes are generally preferred. All of the data will need to be of the same frequency (usually monthly, quarterly, or annual). Although monthly data can be aggregated to a quarterly or annual series, and quarterly data can be aggregated into an annual series, it is not possible to disaggregate

from annual to quarterly or monthly series. If you use monthly or quarterly (or weekly or daily) data, you will need considerably more data to allow for estimation of seasonal effects.

- In addition to choosing variables generally (for example, price, income), you will need to decide exactly what form these variables will take. For example, should prices and income be measured in real rather than nominal terms?

# Due Dates and Requirements

1. After determining a potential topic you can discuss your choice with me to assess its feasibility. However, any such discussions should occur **prior** to submitting the proposal. A one-page proposal should identify the time series you plan to work on, including data source. You should also use R to report summary statistics and a time series plot. The research proposal is worth 10% of your final mark for the paper and is due on **Friday October 19 at 11:59 am**. A change in topic resulting from an inadequately researched proposal will result in a grade reduction.

2. Students will also be required to give a short presentation (under 10 minutes) on their forecasting project. Students should prepare 5 slides with the selected time series, some preliminary results (mainly graphs and tables), and a brief discussion of any problems being faced. Presentations will start on **Tuesday November 20** and will continue until every student has presented. The order in which students will be presenting will be determined using a random number generator and submitted to the class two weeks before Tuesday November 20.

3. The final version of the paper is due on **Friday December 7 at 11:59 am**.

4. Late paper proposals and papers will be assessed a penalty. The total mark ($TM$) for the paper will be reduced according to the following formula:

$$FM = TM \times \left[1 - \frac{DLateProp^2 + 10 \times DLatePaper}{100}\right]$$

   where $DLateProp$ = number of days or part days that a paper proposal is late (that is, submitted after Friday October 19 at 11:59 am), $DLatePaper$ = number of days or part days that a paper is late (that is, submitted after Friday December 7 at 11:59 am), $0 \leq TM \leq 30$, and $FM \leq TM$. $FM$ is the final mark. Papers received on the due date but after the due time will be considered to be 1 day late.

5. The finished document can be no more than **10 double-spaced pages** (with graphs and tables). An appendix (which doesn't count against the 10-page limit) should include a data appendix with definitions of all variables used and

their sources, R code used to get the results, and any additional results that you obtained.

6. Two copies of the paper must be submitted along with your data, command files, and output files that correspond to the results reported in your paper. You should ensure that command files run correctly. One copy must be a printed hard copy. The other copy should be submitted by email in electronic format (pdf, R code, data).

7. Keep back-up copies of your data, code, and your paper write-up on a separate data storage device (for example, Dropbox, USB memory stick). Late penalties will not be waived because you lose or misplace your data and/or results, or because a computer can no longer read your files.

8. Be sure to acknowledge any ideas or quotations obtained from others by the proper use of footnotes and/or references.

9. The grade will depend on both analysis and writing. Everything else equal, interesting and challenging projects will get better grades. Technical errors will affect your grade, even if they are minor. The same applies for less than professional writing. You are expected to write every word in the paper. Quoted material from books and notes must be properly cited. You need to cite your data source. All students are expected to be familiar with the aspects of the Code of Student Behaviour contained.

10. Note that you cannot submit a paper used in another course as your term paper in Econ 493, but you can build on earlier work, although in this case you would also need to submit your earlier work.