

*PREFACE TO STUDENT PROJECTS ON TIME SERIES*

(The attached PDF file has better formatting.)

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This forum explains the student projects on time series.

- Some statistical techniques, such as regression analysis, have specified forms. The textbook gives formulas for ordinary least squares estimators and explains how to test hypotheses.
- Time series analysis is as much art as science. Several models may be reasonable, and selecting a model is subjective.

The postings have two guiding principles:

- They show the *range* of student projects that you can do. They give guidance on each type of project so that you can complete it easily.
- They provide project templates for interest rates and daily temperature, with Excel files of the needed data, so you can complete a reasonable project.

Several NEAS faculty members and advisors have contributed to these postings. We have revised some postings for consistency in the recommendations, but you may notice slight differences in the emphasis on one procedure or another.

- Some statisticians emphasize first differences; others explicitly detrend the time series.
- Some statisticians prefer simpler models; others choose the model with the best Box-Pierce Q statistic.
- Some statisticians prefer structural models; others use ARIMA models.

In general, the recommendations emphasize simple, structural models with explicit trend and seasonal adjustments. We emphasize intuition and parsimony over multi-parameter models. The project templates and other suggestions on this discussion forum will help you complete a statistical project that shows the rationale of ARIMA modeling and helps you understand the economic and mathematical foundations of common time series.