Course Information
Course Number/Section: R852600
Course Title: TIME SERIES ANALYSIS
Days and Times: Friday 07:10 pm to 10:00 pm

Professor Contact Information
Professor: Alan T. Wang
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Office Location: Accounting 63322
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Prerequisite
Statistics and Econometrics

Course Description
The purpose of this course is to introduce the basics of time series analysis for the applications in economics and finance. This course will be very helpful for those who will write theses regarding empirical research in financial markets such as equity markets and international finance. Students taking this course require the background of basic probability theories especially in regression, economics and finance. The basic skills in computer programming will be needed for the homework.

References
Required textbook:
Suggested textbooks:
(a) Time series analysis, by James D. Hamilton, Princeton University Press, 1994. Solid theoretical foundations, extensively used in the doctoral programs in U.S. top schools. The main disadvantage is that it is very theoretical and does not provide clues in applications with computer software.)
(b) Analysis of financial time series 2nd edition, by Ruey S. Tsay, John Wiley & Sons, Inc. (Some newer topics are covered such as high-frequency data analysis and
market micro structure, extreme values, continuous-time models, value-at-risk, Markov chain Monte Carlo methods, etc. Some application examples of RATS programs. The book originates from the lecture notes in MBA course in the U. of Chicago. However, many traditional time series models are not described in details.)

Applied software: EViews.

Course Contents:
(a) Difference equations
(b) Box-Jenkins stationary ARMA processes
(c) Forecasting
(d) Modeling economic time series of heteroskedasticity: Trends and volatility including basic ARCH-type (such as GARCH, ARCH-M, and EGARCH) models
(e) Maximum likelihood estimation in time series
(f) Nonstationary time series: trends and unit roots
(g) Multiequation time series models: transfer function models and vector autoregression (VAR)
(h) Cointegration models
(i) Error-correction models
(j) others

Project:
A group project is required. Proposal should be submitted by the Mid-term. Proposal should cover who are team members (3-4), topic and what model to be used. Proposal should be composed of at least three pages. Each group will present their project before the Final exam. Presentation time is between 20 to 30 minutes. The project should be between 15 to 20 pages including tables and figures.

Grading Policy

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<thead>
<tr>
<th>Component</th>
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<tr>
<td>Mid-term Exam</td>
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<td>Final Exam</td>
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<td>Participation</td>
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<td>Project report</td>
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