

Econometrics 2 (Second Half): Time Series Analysis

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Office Hours: By Appointment
Website: teias.institute/hc/panah

Classes: Su Tu 15:00-16:50, 208
Class Website: <https://goo.gl/Xo3bh4>

Teaching Assistant: M. Javad Shamsi
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Office Hours: Mo We 17:00-19:00
Review Sessions: -

1 Course Description

This is a half-a-semester version of a two-course sequence in time series analysis. It provides an introduction to statistical models for the analysis of economic time series data, with applications in economics and finance. To develop the skills needed to do empirical research, the course will survey different time series methods and examine their application and limitations. We will cover stationary and non-stationary processes, unit root theory and cointegration, different methods of estimation and inference, and structural breaks.

This course relies on Professor Jansson's presentation in the Economics 241B course at University of California at Berkeley.

Prerequisites: Econometrics 1, Econometrics 2 (First Half)

2 Materials

Textbooks:

- Campbell, John Y., and Lo, Andrew W., and MacKinlay, A. Craig, *The Econometrics of Financial Markets*, Second Edition. Princeton University Press, 1996. ISBN-13: 978-0691043012.
- Hamilton, James D., *Time Series Analysis*. Princeton University Press, 1994. ISBN-13: 978-0691042893.

Other Useful References:

- Brockwell, Peter J., and Davis, Richard A., *Time Series: Theory and Methods*, Second Edition. Springer, 1991. ISBN-13: 978-0387974293.

- DeJong David N., and Dave, Chetan, Structural Macroeconometrics, Second Edition. Princeton University Press, 2011. ISBN-13: 978-0691152875.
- Fuller, W.A., Introduction to Statistical Time Series, Second Edition. Wiley, 1996.
- Harvey, A.C., Forecasting, Structural Time Series Models and the Kalman Filter. Cambridge University Press, 1989.
- Harvey, A.C., Time Series Models, Second Edition. MIT Press, 1993.
- Tanaka, K., Time Series Analysis: Nonstationary and Noninvertible Distribution Theory. Wiley, 1996.
- Wooldridge, Jeffrey M., Econometric Analysis of Cross Section and Panel Data, Second Edition. MIT Press, 2010. ISBN-13: 978-0262232586.

3 Topics and Schedule

Weeks	Topics	Tasks and Due Dates
Week 1	Background Knowledge and Motivation	Proj. Phase 1 Due Date: 1397/01/14
Week 2	Introduction: Univariate Stationary Processes	Problem Set 1 Due Date: 1397/01/21
Week 3	<i>ARMA</i> Models	Proj. Phase 2 Due Date: 1397/01/28
Week 4	Introduction: Univariate Non-Stationary Processes	Problem Set 2 Due Date: 1397/02/04
Week 5	Structural Breaks	Proj. Phase 3 Due Date: 1397/02/11
Week 6	Introduction: Multivariate Stationary Processes	Problem Set 3 Due Date: 1397/02/18
Week 7	Introduction: Multivariate Non-Stationary Processes	Proj. Phase 4 Due Date: 1397/02/25
Week 8	Cointegration. GMM.	Proj. Phase 5 Due Date: 1397/03/01
Exam Week	Final Exam & Class Project	Due Date: 1397/03/02

4 Course Policies

Academic Integrity and Honesty

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct.

Accommodations for Disabilities

In order to take advantage of accommodations made for students with verifiable disabilities, students must contact the program office before the instruction begins.

Attendance Policy

For complete attendance and excused absence policies, please refer to the program policies.

Classroom Etiquette

Practicing rules of courtesy and etiquette in the classroom is expected. The following are a few points worth making a note of:

- Please arrive to class on time and come prepared.
- Feel free to ask your questions without asking for permission. The pursuit of knowledge is sacrosanct.
- Electronics used for activities related to the course are allowed in class. Please refrain from using them for anything but those activities. Of course, all electronics have to be in “Do not disturb” mode.
- Drinking is allowed in class, eating is not!
- If you know you might need to leave the class in the middle of the lecture, please choose your seat accordingly.
- Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) and discrimination based on age, color, creed, disability, gender, national origin, race, religion, or status are violations of the laws of decency and will not be tolerated.

Email Etiquette

You are expected to follow the professional email etiquette guidelines. The following are a few points worth making a note of:

- Please state the purpose of your email in the subject line and make it concise.
- Please add a call to action, which is where you provide specific directions regarding what you want the recipient to do next, to the body of your email.
- Please do not expect an immediate response via email. A response will be sent within two business days.

Grading Policy

The typical TeIAS grading scale will be used. The grade will count the assessments using the following proportions:

- **20%**: Problem Sets and Quizzes
- **20%**: Class Participation
- **20%**: Final Exam
- **40%**: Class Project

Note: If a student's submission status for any of the activities assigned is "No Submission", she/he will not pass the class. Also, blank submission is considered "No Submission".

Office Hour Etiquette

Practicing rules of courtesy and etiquette during the office hours is expected. The following are a few points worth making a note of:

- Please state the purpose of your requested office hour meeting when making an appointment.
- Please conduct a short investigation on the subject of your question before the meeting, i.e. Google it!

Policies on Late Assignments and Missed Exams

Late assignments will be accepted for a 50% deduction to the score up to 2 hours after the deadline.

If you are eligible for a deferred exam, an alternate exam sitting will be arranged for you. For complete excused absence policies, please refer to the program policies.