ECON 205C: Spring Quarter 2019
Econometric Methods III

Instructor: Professor Tae-Hwy Lee, office: SPR 3103, office hours: TR 1–2 pm or by appointment on MWF
LEC: T 10:40 am – 12:00 pm and R 10:10 am – 11:30 am, SPR 2206

TA: Ms. Shahnaz Parsaeian, office: SPR 3126, office hours: W 2–4 pm
DIS: W 11:10 am – 12:00 pm, SPR 2206

Goal: This course covers the econometric methods for economic time series data. It provides a foundation for applied research using time series data. The goal is to acquires knowledge necessary to understand the applied and theoretical econometric literature as exposed in the leading journals.

Course Outline: The course deals with univariate and multivariate, stationary and non-stationary, time series methods. The course contains three parts. The first concerns the standard theory of stationary stochastic processes. The second part concerns the analysis of nonstationary data. We take a close look at the asymptotic distribution theory in the leading case of an AR(1) model and especially the case with an autoregressive unit root. We discuss the characterization, estimation and tests in cointegrated systems. In the third part, if time permits, we discuss the ARCH models and recent issues on forecasting. Lecture notes will be available in iLearn as we progress. The corresponding material in Hamilton (1994) as indicated below will be covered. Hamilton Chapters 3, 4, 5, 6, 10, 11, 15, 16, 17, 21, will be closely followed. Lectures on topics corresponding to Hamilton's Chapters 18, 19, 20, will be discussed using the original publications (references below).

     STATIONARY TIME SERIES
     Lecture 1: Properties of Stationary ARMA Processes (Hamilton Chapters 3, 4, 6)
     Lecture 2: Forecasting (I) Using Stationary ARMA Models (Hamilton Chapter 4)
     Lecture 3: Estimation of Stationary ARMA Models (Hamilton Chapter 5)
     Lecture 4: Multivariate Time Series Processes and VAR (Hamilton Chapters 10, 11)

     NONSTATIONARY TIME SERIES
     Lecture 5: Models of Nonstationary Time Series (Hamilton Chapter 15)
     Lecture 6: Trends (Hamilton Chapter 16)
     Lecture 7: Unit Roots (Hamilton Chapter 17)
     Lecture 8: Spurious Regression (Hamilton Chapter 18, Phillips 1986)
     Lecture 9: Cointegration (Hamilton Chapters 19, 20, Johansen 1991)

     MORE TOPICS
     Lecture 10: ARCH (Hamilton Chapter 21)
     Lecture 11: Forecasting (II): Other issues and recent development.

References:

- James Hamilton (1994), *Time Series Analysis*, Princeton University Press. ISBN 0-691-04289-6
- Bruce Hansen (2019), *Econometrics* Chapters 14, 15, 16
- Graham Elliott and Allan Timmermann (2016), *Economic Forecasting*, Princeton University Press, ISBN: 9780691140131
- Clive Granger and Paul Newbold (1986), *Forecasting Economic Time Series*, 2ed., Academic Press. ISBN: 9780122951848
- Peter Phillips (1987), "Time Series Regression with Unit Roots", *Econometrica* 55, 277-302.
- Peter Phillips (1986), "Understanding spurious regression in econometrics," *Journal of Econometrics* 33, 311-340.
- Robert Engle and Clive Granger (1987), "Co-Integration and Error Correction: Representation, Estimation and Testing", *Econometrica* 55, 251-276.
- Soren Johansen (1991), "Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models", *Econometrica* 59(6), 1551-1580.

Grading: Attendanace in all LEC/DIS is required (needless to say). All exams are mandatory and no make-up exams will be given. The following schedule may be subject to change with a short notice. The final exam is comprehensive. Students are responsible for any announcement and information provided during LEC/DIS.

Assignments	20%	many, weekly
Midterm	30%	5/14/2019 Tuesday, 10:40 am – 12:00 pm, SPR 2206
Final Exam	50%	6/11/2019 Tuesday, 10:00 am – 01:00 pm, SPR 2206

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