Department of Economics
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Economics 241B - Econometrics

This course will cover statistical models for the analysis of economic time series data, with applications in macroeconomics and finance. It is intended both for students specializing in econometric theory and for students interested in applying time series methods to economic data. Economics 240A-B (or equivalent) is prerequisite. Economics 241A is *not* a prerequisite for Economics 241B this semester.

The class will meet Tuesday and Thursday 2-3:30 in 81 Evans. Grading will be based on performance on the (approximately biweekly) problem sets and on two written exams. The first half of the semester will primarily be devoted to analysis of stationary time series data, while the second half will address nonstationarity and nonlinearity/nonnormality/heteroskedasticity in time series.

The principal text for the class is:

- Hamilton, J.D., *Time Series Analysis.* Princeton University Press, 1994 (cited as "Hamilton").

Another (optional) useful reference is:

- Harvey, A.C., *Time Series Models, Second Edition.* MIT Press, 1993 (cited as "Harvey").

More advanced treatments of some of the topics covered can be found in:

- Billingsley, P., *Convergence of Probability Measures, Second Edition.* Wiley, 1999.
- Brockwell, P.J. and R.A. Davis, *Time Series: Theory and Methods, Second Edition.* Springer, 1991
- Davidson, J., *Stochastic Limit Theory.* Oxford University Press, 1994.
- Fuller, W.A., *Introduction to Statistical Time Series, Second Edition.* Wiley, 1996.
- Sargent, T.J., *Macroeconomic Theory, Second Edition.* Academic Press, 1987.
- Harvey, A.C., *Forecasting, Structural Time Series Models and the Kalman Filter.* Cambridge University Press, 1989.
- Tanaka, K., *Time Series Analysis: Nonstationary and Noninvertible Distribution Theory.* Wiley, 1996.
- White, H., *Asymptotic Theory for Econometricians, Second Edition.* Academic Press, 1999.

REFERENCE LIST FOR 241B

1. **Univariate Stationary Time Series I:** Concepts, models, representations, and forecasting.
    - Hamilton, Chapters 1-4 & 6.
    - Harvey, Chapters 1-2 & 6.
2. **Univariate Stationary Time Series II:** Estimation and inference.
    - Hamilton, Chapters 5, 7 & 13.
    - Harvey, Chapters 3-4.
3. **Multivariate Stationary Time Series:** Concepts, VARs, and GMM.
    - Hamilton, Chapters 10-11 & 14.
    - Harvey, Chapter 7.
4. **Univariate Nonstationary Time Series:** Testing for unit roots.
    - Hamilton, chapters 15-17.
    - Stock, J.H. (1994), "Unit Roots, Structural Breaks and Trends," in *Handbook of Econometrics, Volume IV,* ed. by R.F. Engle, and D.L. McFadden. North Holland, 2739-2841.
5. **Multivariate Nonstationary Time Series:** Spurious regressions and cointegration.
    - Hamilton, chapters 18-20.
    - Watson, M.W. (1994), "Vector Autoregressions and Cointegration," in *Handbook of Econometrics, Volume IV,* ed. by R.F. Engle, and D.L. McFadden. North Holland, 2843-2915.