

Econ 9474  
**Topics in Advanced Econometrics I**  
*Spring 2019*

**Instructor** J. Isaac Miller millerjisaac@missouri.edu  
**Course** MW 3:30-4:45PM Middlebush 212  
**Office Hours** by appointment Professional 221  
**Website** [courses.missouri.edu](http://courses.missouri.edu) (Canvas)

**Objectives**

The objective is to familiarize the student with econometric tools commonly used in time series analysis. These tools are essential for applied and empirical research in econometrics, macroeconomics, finance, and other fields. Moreover, they are often starting points for theoretical inquiry.

**Prerequisite:** Econ 9473 or instructor's consent.

**Grade Composition**

*HW Assignments* ..... 20% of the course grade

Homework assignments will require programming using a statistical package. I will provide documentation, sample programs, and *limited* classroom instruction for GAUSS. Free or heavily discounted options for students are available from <http://www.aptech.com/>. You may use an alternative software package at your own risk.

I expect you to complete HW assignments *on your own* with only *limited* collaboration.

*Test #1* ..... 25% of the course grade

**3:30-4:45, Wednesday, March 20.**

*Test #2* ..... 25% of the course grade

**12:30-1:45, Monday, May 13.**

*In-Class Presentation* ..... 10% of the course grade

*Empirical Project* ..... 20% of the course grade

**Due Wednesday, April 24.**

All grades will be assessed using a +/- scale.

**Topics Covered:**

**I. Stationary Series in the Time Domain**

- Preliminaries and Time Domain Analysis
- Some Limit Theory for Stationary Series
- Estimation and Forecasting
- Stationary Vector Autoregression (VAR)

**II. Integrated Series**

- Basic Statistical Theory for Integrated Series and Cointegration
- Testing for Unit Roots
- Inference from Cointegrating Regressions
- Systems of Cointegrating Regressions

**III. Topics in Time Series**

- State Space Models and the Kalman Filter
- Autoregressive Conditional Heteroskedasticity (ARCH) and Variations

**Recommended Text:**

- Hamilton, J.D. (1994). *Time Series Analysis*.

**Some Additional Sources:**

- Fuller, W.A. (1976). *Introduction to Statistical Time Series Analysis*.
- Brockwell, P.J. and R.A. Davis (1987). *Time Series: Theory and Methods*.
- Harvey, A.C. (1990). *The Econometric Analysis of Time Series*.

**Statement on Academic Dishonesty:**

Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

**Statement on Disabilities:**

If you anticipate barriers related to the format or requirements of this course, if you have emergency medical information to share with me, or if you need to make arrangements in case the building must be evacuated, please let me know as soon as possible. If disability related accommodations are necessary (for example, a note taker, extended time on exams, captioning), please register with the [Disability Center](#), S5 Memorial Union, 882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for students with disabilities, click on "Disability Resources" on the MU homepage.

**Statement on Intellectual Pluralism:**

The University community welcomes intellectual diversity and respects student rights. Students who have questions concerning the quality of instruction in this class may address concerns to either the Departmental Chair or Divisional leader or Director of the Office of Students Rights and Responsibilities (<http://osrr.missouri.edu/>). All students will have the opportunity to submit an anonymous evaluation of the instructor at the end of the course.

**Statement on Academic Inquiry, Course Discussion and Privacy**

University of Missouri System Executive Order No. 38 lays out principles regarding the sanctity of classroom discussions at the university. The policy is described fully in section 200.015 of the Collected Rules and Regulations. In this class, students may not make audio or video recordings of course activity, except students permitted to record as an accommodation under section 240.040 of the Collected Rules. All other students who record and/or distribute audio or video recordings of class activity are subject to discipline in accordance with provisions of section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters. Those students who are permitted to record are not permitted to redistribute audio or video recordings of statements or comments from the course to individuals who are not students in the course without the express permission of the faculty member and of any students who are recorded. Students found to have violated this policy are subject to discipline in accordance with provisions of section 200.020 of the Collected Rules and Regulations of the University of Missouri pertaining to student conduct matters.