

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

**Instructor** J. Isaac Miller millerjisaac@missouri.edu  
**Course** MW 3:30-4:45PM Middlebush 11  
**Office Hours** by appointment Professional 221  
**Website** [courses.missouri.edu](http://courses.missouri.edu)

The objective is to familiarize the student with econometric tools commonly used in time series analysis, and essential for some applied and empirical research in econometrics, macroeconomics, finance, and other fields.

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

**Recommended Text:** Hamilton, J.D. (1994). *Time Series Analysis*.

**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

**Grade Composition**

*Empirical Project* ..... 20% of the course grade  
Due **Wednesday, November 13.**

*Presentation (in-class, end of semester)* ..... 10% of the course grade

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

Homework assignments will require programming using a statistical package. I expect you to complete HW assignments *on your own* with only *limited* collaboration. 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.

*Test #1 (in-class, closed-book)* ..... 25% of the course grade  
**3:30-4:45PM, Wednesday, October 16**

*Test #2 (in-class, closed-book)* ..... 25% of the course grade  
**8:15-9:30AM, Thursday, December 12** (not cumulative, scheduled during final exam week)

**Academic Integrity:** 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.

**Accommodation of 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 establish an accommodation plan with the [MU Disability Center](#), S5 Memorial Union, 573-882-4696, and then notify me of your eligibility for reasonable accommodations. For other MU resources for persons with disabilities, click on "Disability Resources" on the MU homepage.

**Intellectual Pluralism:** The University community welcomes intellectual diversity and respects student rights. Students who have questions or concerns regarding the atmosphere in this class (including respect for diverse opinions) may contact the departmental chair or divisional director; the director of the [Office of Students Rights and Responsibilities](#); the [MU Equity Office](#), or [equity@missouri.edu](mailto:equity@missouri.edu). All students will have the opportunity to submit an anonymous evaluation of the instructor(s) at the end of the course.

**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 make audio or video recordings of course activity unless specifically prohibited by the faculty member. However, the redistribution of audio or video recordings of statements or comments from the course to individuals who are not students in the course is prohibited 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.

**Title IX:** University of Missouri policies prohibit discrimination on the basis of race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, pregnancy, age, genetic information, disability and protected veteran status. Discrimination includes any form of unequal treatment such as denial of opportunities, harassment, and violence. Sex-based violence includes rape, sexual assault, unwanted touching, stalking, dating/interpersonal violence, and sexual exploitation. If you experience discrimination, you are encouraged (but not required) to report the incident to the MU Office for Civil Rights & Title IX. Learn more about your rights and options at [civilrights.missouri.edu](http://civilrights.missouri.edu) or call 573-882-3880. You also may make an anonymous report online. Students may also contact the Relationship & Sexual Violence Prevention (RSVP) Center, a confidential resource, for advocacy and other support related to rape or power-based personal violence at [rsvp@missouri.edu](mailto:rsvp@missouri.edu) or 573-882-6638, or go to [rsvp.missouri.edu](http://rsvp.missouri.edu). Both the [Office for Civil Rights & Title IX](#) and the [RSVP Center](#) can provide assistance to students who need help with academics, housing, or other issues.