**University of Cincinnati**
**Econ 8011 Time Series Econometrics**

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Office Hours: Mon. 1:30-2:30 & Wed. 11:00-12:00

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Wed. 6:00-9:50pm
Lindner 209

**Course Description**
This is the second course in the MS econometrics sequence, continuing where Econ 8010 left off. This course requires knowledge of the material covered in the previous course. If you did not take Econ 8010, then you cannot take this class except in exceptional circumstances – please see me if you did not take 8010.

This course considers the problems that arise in practice when attempting an econometric analysis of time series data. The goal of the class is to teach students how to successfully carry out an empirical project to analyze time series data, and how to deal with the problems that are likely to arise when conducting empirical research.

**Attendance Policy**
Students are expected to attend all classes and actively participate in the class. All students must be formally enrolled in the class to attend. If you are auditing the class you **must** do so formally, and I will only report the successful auditing of the course if you attend the majority of classes. Class cancellations due to inclement weather will be handled on a case by case basis.

**Textbooks**
The main texts for the class are:

Cowpertwait and Metcalfe (2009) *Introductory Time Series with R*. Springer.
* The above text is available free via the UC library website.

Kleiber and Zeileis (2008) *Applied Econometrics with R*. Springer.
* The above text is available free via the UC library website.

Asteriou and Hall *Applied Econometrics, Second Edition.* Palgrave Macmillan.

An alternative useful text:
Wooldridge, J. M. *Introductory Econometrics: A Modern Approach. 6$^{th}$ ed.* Thomson South-Western.

If you want a more advanced book, then a good one is:
Heij, Boer, Franses, Kloek & van Dijk *Econometric Methods with Applications.* Oxford University Press.

**Grade Structure and Policy**
The overall grade will be determined by your performance on **homeworks and term empirical project (40%)**, a mid-term exam (30%), and a final exam (30%).

**NO electronic submission of any assignments – only printed copies please.**

**A term project, using the methods learned during the course, will be incorporated as part of the homework assignments.**

Marginal grading decisions will be determined by your attendance and participation in class. The mid-term will be held sometime during the $6^{th}$ or $7^{th}$ week, and the final exams will be as scheduled by the University.

**Consistent effort to complete homeworks is essential.** Econometrics cannot be learned by just coming to class and reading the book. You are strongly encouraged to spend considerable time working on the homework assignments by yourself, though you should feel free to work with others once you have tried the problems yourself. Every student must turn in their own answers to the homeworks. Late homeworks will be downgraded by one letter grade for each day late.

**Submitted assignments must represent independent work.** Two or more persons submitted almost identical work is considered plagiarism and must be reported to the College as such.

**Tentative Schedule**

1. (Bayesian) Inference for regression and time series models

**2.** Stationarity, nonstationarity and spurious regression

**3.** Dynamic regression models

**4.** Trends and simple forecasting models

**5.** Univariate ARMA processes

**6.** Dynamic regression, TFARIMA, ARMAX models

**7.** Serial Correlation and Dynamic Specification.

**8.** Cointegration and Error Correction Models.

**9.** VAR and VECM Models.

**10.** ARCH and GARCH models

**11.** Forecasting.

**12.** DLMs

**13.** Testing for Structural Change.