

## **Econ 513 Empirical Methods for Macroeconomics**

### Spring 2014 Syllabus

Instructor: Prof. Peter Pedroni  
Department of Economics  
Schapiro 303

Class Meeting Times: T,F 2:35-3:50 pm  
Location: Griffen 6

phone: 597-2449  
E-mail: peter.pedroni@williams.edu

Office Hours: T, F 12:00-1:00 pm  
and by appointment.

Teaching Assistant: Vu Le, Vu.Le@williams.edu  
Weekly TA Help Sessions (attendance optional): Wednesdays, 8:00-9:30 pm, Griffen 6.

Course Description: The course covers advanced topics in empirical methods for macroeconomics and related fields, known generally as macroeconometrics, which encompasses time series and panel time series methods. The course emphasizes the econometric concepts as well as the applications of these techniques to topics drawn from the fields of macro, international finance and development.

Course Prerequisites: Students should have a strong background in basic linear OLS econometrics as well as in macroeconomic modeling.

Textbooks and Readings: Since many of the techniques that we will be learning in this course represent recent advances and have only recently developed in the professional and academic literature, there are as yet no comprehensive textbooks available. However, I have made available two reference texts that will be useful for our purposes, plus one software handbook. Beyond these, we will have regular readings and occasional handouts to supplement the lecture material.

(1) Enders, W. APPLIED ECONOMETRIC TIME SERIES, 3<sup>rd</sup> Ed, Wiley Press.

Optional for the course. This is a general text on applied time series analysis, upon which much of macroeconometrics is built. The textbook does not provide specific coverage of the macroeconometrics topics that we will be covering in the course. The level of mathematical detail in this textbook is also somewhat greater than we will be using in the course. Nevertheless, it should provide a useful background for some of the materials that we will need to develop in order to understand the macroeconomic techniques.

(2) Harris, R. and R. Sollis, APPLIED TIME SERIES MODELLING AND FORECASTING, Wiley Press, 2003.

Optional for the course. This is a more recent and up-to-date textbook, with a somewhat different emphasis than the Enders textbook. The text is written in a less technical style than the Enders text, and should be more accessible. It should provide a useful background for some of the material that we will be developing in the later part of the course.

(3) Pedroni, P., EMPIRICAL METHODS FOR MACROECONOMICS, Lecture Notes, 2014.

These are typed and bound copies of the primary lecture material that we will be covering. You should plan on bringing this with you to class so that you can take notes alongside this material. There are two parts.

(4) Additional readings from the literature.

These will be distributed as needed throughout the semester.

Software: We will be using a mix of various software to run programs. However, in contrast to previous versions of this course, you will not be learning the techniques by use of the computer. You will simply use menu driven software such as EViews, or for techniques that are not available in EViews, you will be supplied with programs that have been written for you in other languages. You will simply learn how to run the programs and interpret the results.

Course Requirements: The primary course requirement will consist of two empirical term paper projects and occasional homeworks, some of which will be writing intensive. The computation of the course grade will be based on the following:

Midterm Empirical Term Paper Project: 40% (Date to be announced, approximately week after spring break). If there is unanimous consensus among students and the instructor, we can have a midterm paper in place of the exam.

Final Empirical Term Paper Project: 50% (Due date to be announced, approximately end of semester).

Homeworks: 10% total.

## **Course Outline:**

### **I. General Concepts for Time Series and Panel Time Series Methods**

- contrasts to cross sections and micro panel methods
- challenges of macroeconometric methods
- pitfalls of using micro methods for macro data

### **II. Methods for Short Run Analysis in Macro Panels**

- overview of panel VAR methods
- structural panel VARs
- structural identification from macro models
- group panel analysis
- individual analysis from panels
- numerous empirical illustrations:
  - European regional income dynamics
  - Sources of exchange rate rigidities
  - Monetary Policy in LICs
  - LIC's and Financial Integration

### **III. Methods for Long Run Analysis in Macro Panels; Part I**

- unit root testing and analysis
- bootstrapping for small samples
- treating cross sectional dependence
- pitfalls of factor model approaches
- more general approaches to unit roots
  - block bootstraps
  - nonparametric rank tests
- numerous empirical illustrations:
  - Exchange rate PPP testing
  - Chinese regional income divergence
  - Global income divergence

#### IV. Methods for Long Run Analysis in Macro Panels; Part II

- cointegration testing
- cointegration estimation
- analysis of cointegrated panels
  - nonlinear cointegration  
*(time permitting)*
  - long run causality testing
- numerous empirical illustrations:
  - Exchange rate PPP testing
  - Conditional income convergence
  - Capital account liberalization
  - Infrastructure and growth