# ECON 2007: Quantitative Economics and Econometrics
# Term 1, Fall 2016

Professor Eric French
201 Drayton House
Office hours: 13:00-13:30 and 15:00-16:30 Friday

## Aim:

To provide students with a thorough understanding of core techniques of quantitative economics and econometrics and their application to test economic theories and measure magnitudes relevant for economic policy. The course serves as a foundation for subsequent study of quantitative topics. The main focus will be on econometric methods that are useful to analyze individual level cross sectional data using OLS regression techniques.

## Objectives:

At the end of the module, students should:

- Understand the main techniques (most importantly, OLS regression) of quantitative economics and econometrics, including their strengths and limitations.
- Understand how these techniques can be applied to test economic theories and measure economic magnitudes.
- Have some practical experience of the application of econometric methods using Stata.

## Prerequisites:

ECON 1001: Economics, ECON 1002: Applied Economics and ECON 1003: Statistical Methods in Economics

## Teaching and Assessment:

Taught by: Eric French (Term 1—fall) and Aureo de Paula (Term 2—winter)

- In Term 1, the course introduces main techniques of quantitative economics and econometrics. Term 2 introduces further topics and applications.
- The course comprises a total of 40 hours of lectures in all (20 in each term).
- There will also be 10 practical sessions (5 per term) and 16 compulsory smaller-group tutorial/practical classes (8 per term) with accompanying exercises/assignments.
- The practical sessions and tutorial classes will be taught by the teaching assistants.
- There will 8 problem sets in Term 1. For four of the problem sets, there is no need to turn them in. Four of the problem sets will be turned in and graded. These will be posted Friday by 19:00, are due the following Wednesday by 19:00, and will be returned the following week.
- The problem sets will include both analytical problems and empirical problems that will require the use of Stata.
- Course materials (slides, problem sets, answer keys, lecturecasts, etc.) will be uploaded onto the Moodle course page.
- Assessment: There will be a single 3-hour written examination for the whole course in Term 3. The final mark is solely based on the exam.

## Textbook:

Jeffrey Wooldridge: Introductory Econometrics: Europe, Middle East, & Africa (EMEA) Edition, 1st edition. This textbook is available at Waterstones, 82 Gower Street for about £54, and also online at http://edu.cengage.co.uk/catalogue/product.aspx?isbn=1408093758 (for about the same price). Buy it! It is a great investment. There are 4 copies of this at the Main Library on 1 week loan and 1 copy in short loan, with 2 at SSEES. This is the inexpensive version of Wooldridge's textbook which does not have technical appendices. There is a very nice version of Wooldridge's textbook you can purchase on Amazon that has great extra technical appendices but costs a little more: http://www.amazon.co.uk/Introductory-Econometrics-Jeffrey-Wooldridge/dp/111153439X

## Computers:

This class will make heavy use of Stata. A good resource for Stata is http://www.ats.ucla.edu/stat/stata/

10 Lectures: 2-hour lectures held on Fridays, 11:00-13:00. Topics covered and approximate dates:

1. Introduction to OLS: Simple Regression (chapter 1-2, and also Appendix B & C of the longer version of Wooldridge), 7 October.
2. OLS: Simple Regression (chapter 2), 14 October.
3. OLS: Multiple Regression (chapter 3), 21 October.
4. OLS: Inference (ch4) t-test, confidence intervals, F-test, 28 October.
5. OLS: Asymptotics (everything in chapter 5 except "the Lagrange multiplier statistic") consistency, efficiency, 4 November.
6. OLS: Specification (everything in chapter 6 except "Beta Coefficients"), 18 November.
7. OLS: Qualitative data (chapter 7), measurement error (chapter 9.4), 25 November.
8. OLS: Heteroscedasticity and robust s.e.'s (everything in chapter 8.1-8.3 except "Heteroskedasticity-Robust LM Tests", "White Test for Heteroskedasticity"), 2 December.
9. Pooled regression (chapter 13), 9 December.
10. Panel data (chapter 14.1-14.3), 16 December.

5 Practical sessions: Monday 10:00-11:00. Held on the following dates: 17 Oct, 24 Oct, 28 Nov, 5 December, 12 December.

8 tutorial sessions: see your timetable for details.