University of Melbourne  
Department of Economics  

ECOM90005 Advanced Econometric Techniques  
Semester 1, 2015  

Subject Guide  

Lecturer:  
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Office Hours: By appointment (or just drop by)  

Tutor:  
Todd Morris  
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Office: FBE Building (#105), Room 558  
Office Hours: Thursday 1:00pm–2:00pm  

Timetable:  
Lecture: Monday, 9:00am–12:00pm, The Spot-1022 (Level 1 Theatre)  
Tutorial: Tuesday, 4:15pm–5:15pm, The Spot - Room 3014 (Computer Laboratory)  

Requirements:  
Computer exercises, problem sets, allocated reading, and a 2-hour final examination. All continuous assessment will need to be submitted as a pdf document, prepared using \LaTeX{}. Some support for \LaTeX{} will be provided. Also, the final examination will be held in the Department, outside of the standard University timetable arrangements.  

Assessment:  
The computer exercises and problem sets will collectively contribute up to 20% of your final grade with the final examination accounting for the other 80%.  

Textbooks:  
This year there is no prescribed textbook. Some students have found Wackerly et al. (2008) helpful on occasion, and the free ebooks provided by Trench (2012) and Bass (2014) may also prove useful. In respect of MATLAB, Hanselman and Littlefield (2011) may be of use, although a variety of web-based resources will also be provided. Numerous other references will be provided throughout the course, a selection of which are listed at the end of this document.
About the Subject

ECOM90005 is a compulsory subject in the first year of our PhD program and an elective available to suitably prepared second year MEc students. Its primary purpose is to ensure that students have sufficient technical skills to read and appreciate current quantitative research in economics. It provides a foundation that is built upon in ECOM90014 Advanced Econometric Techniques 2, where the focus is much more on current econometric practice.

Subjects taught at this level, to typically small groups, have the advantage of being responsive to the needs of the current group of students. They also tend to reflect the idiosyncrasies of those teaching them. I fully expect that to be the case this year. There is no single resource that covers everything in the subject and students at this level are expected to read widely as well as attend lectures and tutorials.¹ Where available, you should attempt as many problems as you have time for. Only through practice will you master this material. An outline of the major topics is provided below.

In an effort to bridge the gap between analytic, closed-form methods and numerical methods, you will also be introduced to a high-level matrix and programming language, MATLAB, to provide you with a basis to solve problems which have no closed-form solutions.

Computer exercises and problem sets to be handed in for grading will be due every week during the term. These must be handed in at the beginning of the class for which they are assigned due. No late assignments will be accepted.

Topics

The topics to be covered may include:

- Probability and Its Foundations
- Distribution Theory
- Asymptotics
- Principles of Estimation
- Principles of Hypothesis Testing

Selected Further Reading


¹The *Handbook of Econometrics* is freely available on the web at [http://www.sciencedirect.com/science/handbooks/15734412/1](http://www.sciencedirect.com/science/handbooks/15734412/1) and is a great place to start for most things econometric.


Neyman, J. and E. S. Pearson (1933). On the problem of the most efficient tests of statistical hypotheses. *Philosophical Transactions of the Royal Society of London. Series A, Containing Papers of a Mathematical or Physical Character* 231, 289–337.


