UNSW
THE UNIVERSITY OF NEW SOUTH WALES

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EON4202/ECON6201

Advanced Econometric Theory

Course Outline

Semester 2, 2012

Part A: Course-Specific Information

Students are also expected to have read and be familiar with **Part B Supplement to All Course Outlines**. This contains Policies on Student Responsibilities and Support, Including Special Consideration, Plagiarism and Key Dates.

Table of Contents

1 STAFF CONTACT DETAILS

Lecturer-in-charge:	Dr Minxian Yang (Part 1, Weeks 1-6)
Room:	ASB452
Phone No:	93853353
Email:	m.yang@unsw.edu.au
Consultation Times:	Friday 11-14 (or by appointment)

Other Lecturer:	Dr Shiko Maruyama (Part 2, Weeks 8-13)
Room:	Quad 3116
Phone:	9385 3386
Email:	s.maruyama@unsw.edu.au
Consultation Times:	Wednesday 1-4pm

1.1 Communications with staff

You should feel free to contact your lecturer(s) about any academic matter. However, it is strongly encouraged, for efficiency, that all enquiries about the subject material be made at lectures or tutorials or during consultation time. Discussion of course subject material will not be entered into via lengthy emails.

Email correspondence on administrative matters (e.g. advising inability to attend a tutorial) will be responded to within 48 hours, but not over weekends. Please note that the lecturer has no advance notice of the date and time of the exam.

2 COURSE DETAILS

2.1 Teaching Times and Locations

Lectures start in Week 1(Weeks 1-6 for Part 1, Weeks 8-13 for Part 2):
The time and location are: **Tue 10-13, ASB232**

Tutorials start in Week 2 (to Week 13).

2.2 Units of Credit

The course is worth 6 units of credit. This course is taught in parallel to both undergraduate and postgraduate students.

2.3 Summary of Course

Part 1 of this course will introduce some advanced elements in econometrics, including maximum likelihood, GMM, empirical likelihood and simulation techniques. Part 2 will cover structural model based inference. Some of the topics will be based on selected research papers.

2.4 Aims and Relationship to Other Courses

The pre-requisite of this course is ECON3203 (Econometric Theory) or equivalent. This course, building on ECON3203, will introduce advanced elements in econometrics and provide a good background for students to access modern econometric techniques. For MEc students, the pre-requisite is ECON6003 (Econometric Analysis).

2.5 Student Learning Outcomes

On completion of the course, students should be able to:

1. Describe the main features of the econometric methods and their statistical properties covered in the course.
2. Select and implement learned methods to practical problems.
3. Present and interpret the outcome of econometric modelling.
4. Critically appraise empirical studies from the viewpoint of modern econometrics.

Graduate Attributes

Learning Outcomes	ASB Graduate Attributes	Attribute No.
2,3,4.	Critical thinking and problem solving	1
1,2,3,4	Communication	2
1,2,3,4	Teamwork and leadership	3
3,4	Social, ethical and global perspectives	4
1,2,3,4	In-depth engagement with relevant disciplinary knowledge	5
1,2,3,4	Professional skills	6

3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

The philosophy underpinning this course and its Teaching and Learning Strategies are based on "Guidelines on Learning that Inform Teaching at UNSW. These guidelines may be viewed at: www.guidelinesonlearning.unsw.edu.au. Specifically, the lectures, tutorials and assessment have been designed to appropriately challenge students and support the achievement of the desired learning outcomes. A climate of inquiry and dialogue is encouraged between students and teachers and among students (in and out of class). The lecturers and tutors aim to provide meaningful and timely feedback to students to improve learning outcome.

3.2 Learning Activities and Teaching Strategies

The examinable content of the course is defined by the references given in the Lecture Schedule, the content of Lectures, and the content of the Tutorial Program.

Lectures

The purpose of lectures is to provide a logical structure for the topics that make up the course; to emphasise the important concepts and methods of each topic; and to provide relevant examples to which the concepts and methods are applied.

Reading

Each lecture must be supplemented by assigned reading material (relevant sections of the textbook). The aim of reading is to deepen and broaden the major points made in the lectures. Students are advised to complete the reading tasks before attempting tutorial exercises.

Tutorial
Tutorial exercises are provided for students to practise the techniques/knowledge learned from lectures and reading. The weekly tutorial meetings will be used to discuss the problems you encounter in the exercises or/and alternative approaches to the exercises. To effectively take advantage of the tutorial meetings, students must attempt the relevant tutorial questions prior to attending a tutorial meeting. Student will have opportunities to present her/his work and ideas on exercise questions.

Assignments
Assignments enable students to independently practice on the learned materials and demonstrate their understanding and creativity.

Study Strategies
While students may have preferred individual learning strategies, it is important to note that most learning will be achieved outside of class time. Lectures can only provide a structure to assist your study, and tutorial time is limited.

A "model" strategy:

i. Accessing the lecture notes/slides from Blackboard before the lecture. This will give you a general idea of the topic area.
ii. Attendance at lectures. Here the context of the topic in the course and the important elements of the topic are identified. The relevance of the topic will be explained.
iii. Reading the relevant chapter(s) of the textbook and attending tutorials after attempting the tutorial questions.

4 ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- achieve a composite mark of at least 50 out of 100;
- make a satisfactory attempt at ALL assessment tasks. This means attendance at 80% of tutorials (9 out of 12) and a mark of at least 40% in all assessment items.

AND

- Achieve a satisfactory level of performance in the final exam, which means a minimum 46% of the final exam.

4.2 Assessment Details

Assessment Task	Weight	Learning Outcomes assessed	ASB Graduate Attributes assessed	Length	Due Date
Tutorial participation	5% for Part 1	1,2,3,4	1,2,3,5,6		Weekly
Assignments	15% for Part 1 20% for Part 2	1,2,3,4	1,2,5,6	TBA	TBA
Final Exam	60%	1,2,3,4	1,2,5,6	2 hours	University Exam Period
Total	100%				

Employment obligations or holiday/travel plans of any kind are not acceptable reasons for failing to complete any assessment items.

In case of severe sickness, an application for special consideration must be **lodged online through myUNSW within 3 working days of the assessment** (Log into myUNSW and go to My Student Profile tab > My Student Services channel > Online Services > Special Consideration). Then submit the originals or certified copies of your supporting documentation and a completed Professional Authority form (pdf - download here) to Student Central.

4.3 Tutorial Participation

Students have opportunities to present their approaches to some of tutorial exercises, to raise/answer questions and to stimulate discussion.

Marks Guide for Tutorial Participation and Discussion

0	Below 80% of attendance (9 attendances) as required by UNSW and ASB rules. Students must sign on by 10 minutes from start of tutorial to qualify as 'in attendance'. Signing on for another student will be treated as misconduct.
2	Has satisfied the attendance requirement (attended 9 tutorials).
3-5	Has attended more than 9 tutorials and contributed to class discussion in relevant and constructive ways.

4.4 Assignments

The assignments give students opportunities to demonstrate their understanding of the learned principles/techniques and their ability to independently apply them to practical problems.

The assignment topics, format and marking criteria are set out in a separate document on the course website. The due dates and submission procedure of assignments will be announced soon.

4.5 Final Exam Format

This will be held in the University examination period. The final exam will cover the entire course. The purpose of the final exam is to assess students' overall comprehension of concepts, principles, techniques, their appropriate usage, and their interpretations in data analysis.

4.6 Quality Assurance

The ASB is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of ASB programs. All material used for such processes will be treated as confidential and will not be related to course grades.

5 COURSE EVALUATION AND DEVELOPMENT

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student evaluative feedback is gathered. You are strongly encouraged to take part in the feedback process.

6 COURSE RESOURCES

The website for this course is on UNSW Blackboard at:
http://lms-blackboard.telt.unsw.edu.au/webapps/portal/frameset.jsp

Recommended textbook:

Green, William H. (2012), *Econometric Analysis*, 6th Edition, Prentice Hall

Reference books:

[1] Gourieroux, C. and A. Monfor (1989), *Statistics and Econometric Models*, Vol. 1 and 2, Cambridge University Press

[2] Hamilton, J.D. (1994), *Time Series Analysis*, Princeton University Press

[3] Newey, W. K. and D. McFadden (1994), *Large Sample Estimation and Hypothesis Testing*, Handbook of Econometrics, vol. IV, p2113-2245

[5] Train, K.E. (2002), *Discrete Choice Methods with Simulation*, Cambridge University Press (available on line)

Journal articles:

These will be provided during the course.

7 COURSE SCHEDULE

In Part 1 (Dr Yang), we will first review some basic facts about statistical inference to build a foundation for more advanced material. Second, we will introduce general inference techniques and the associated asymptotic theory that are frequently used in modern econometric analysis. These include estimation and testing issues in maximum likelihood (ML), quasi ML, generalised method of moments and simulated ML and empirical likelihood (EL). Third, depending on time, we may also discuss some time-series specific topics and some specific issues with ML inference.

In Part 2 (Dr Maruyama), using the foundations that have been put in place in Part 1, we will discuss "model-based estimation", or so-called "structural estimation". The goal of this series of lectures is to try to explore the connections between economics and metrics that give us the name 'econometrics.' Too often purely statistical results are emphasized in the teaching of econometrics. While it is necessary to have a good grounding in statistics and probability theory to do econometrics, these foundations are really only necessary conditions. Econometrics is meant to be a balanced mixture of economic theory, statistical theory, and last but not least, data. An economic model of a phenomenon is required for us to interpret the relationships we observe in the data. In practice, most high-quality applied econometrics exercises that appear in journals are the result of repeated adjustment of the model to the data, the estimator to the model and the data, etc. The goal of this series of lectures (and accompanying homework exercises) is to give you some sense of this process, by discussing a set of diverse papers that we consider good examples of the model-based approach to empirical microeconomics.

7.1 Lecture Schedule

Lectures start in Week 1 and finish in Week 13.

Week	Topics	Main Reference
Week 1	brief review on probability theory	Greene: Appendices B, D
Week 2	estimation and inference	Greene: Chapter 16, Appendix C
Week 3	maximum likelihood (ML) method	Greene: Chapter 17
Weeks 4-5	extremum estimators: qML and GMM, simulated ML	Greene: Chapter 18, Train: Chapter 10
Week 6	empirical ML, some time series models	to be supplied in the class
Week 8	constructing structural models	selected articles
Week 9	demand, market power, and welfare	selected articles
Week 10	production function, search	selected articles
Week 11	dynamic models	selected articles
Weeks 12-13	multi-agent: equilibrium, non-equilibrium, and contractual models	selected articles