THE UNIVERSITY OF
NEW SOUTH WALES

Australian School of Business

School of Economics

ECON6003 Econometric Analysis

ECON4207 Elements of Econometrics

Course Outline

Semester 1, 2010

Table of Contents

1   STAFF CONTACT DETAILS

Lecturer-in-charge:	Associate Professor Garry Barrett
	Office: ASB434
	Phone No: 9385-3366
	Email: G.Barrett@unsw.edu.au
Consultation Hours:	Tues 1.00-4.00pm (or by appointment)

Lecturer:	Dr. Shiko Maruyama
	Office: Quad 3116
	Phone No: 9385-3386
	Email: S.Maruyama@unsw.edu.au
Consultation Hours:	t.b.a.

1.1   Communications with staff

Associate Professor Garry Barrett is the Lecturer-in-Charge for the course and is responsible for the overall content and administration of the course. You should feel free to approach your current lecturer about any academic matter. Associate Professor Garry Barrett will present the lectures for Weeks 1-6 and Dr. Shiko Maruyama will present the lectures for Weeks 7-12. The lecturers may be contacted by email. The lecturers will have specific consultation times which will be posted on the course website.

2   COURSE DETAILS

2.1   Teaching Times and Locations

The course meets for a 3 hour block of time each week: Wednesday 2 p.m.-5 p.m. in ASB119. The meeting time will comprise a 2-hour lecture and a 1-hour tutorial. In most weeks the tutorial (which reviews the lecture material from the previous week) will precede the lecture.

Lectures will run from Week 1 to Week 12 inclusively.
Note: in Week 1, the lecture will start at 2pm.

Tutorials will run from week 2 to week 13 inclusively.
Note: in Week 13 the class will meet for just 1 hour (2-3 p.m.) for the tutorial component.

2.2   Units of Credit
The course is worth 6 units of credit.

2.3   Summary of Course

The simple and multivariate regression models will be developed and illustrated with a range of economic applications which emphasis practical aspects of model building. Extensions of multiple regression models when the classical assumptions are relaxed will be considered. The

extensions include simultaneous equation models, instrumental variables and limited dependent variable models.

2.4　Aims and Relationship to Other Courses

The aim of the course is to help you develop a working knowledge of econometrics and its applications to real-world economic data. By the end of session you will be able to read and understand most analyses performed by other econometricians. More importantly, you will be able to do your own empirical research.

ECON6003 and ECON 4207 are equivalent courses which aim to provide an introduction to econometrics which involves the application of statistical methods in the analysis of economic data. ECON6003 is typically the first specialised course in econometrics that students beginning the PhD and MEc programs will take if they have not previously studied econometrics. It is assumed that students have taken previous courses in quantitative methods with cover basic statistics and calculus. ECON6003 is a prerequisite for more advanced econometric courses taught in the post-graduate programs in the School of Economics.

ECON4207 is a fourth year Honours course for students who have completed ECON1202 QMA and ECON1203 QMB (which provide requisite mathematical background) but have not completed ECON2206 Introductory Econometrics (the first specialised econometrics course in the undergraduate program).

2.5　Student Learning Outcomes

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

1.	list and explain the assumptions underlying the simple and multiple regression models
2.	interpret the estimates from the application of regression models
3.	conduct hypothesis testing using the regression model
4.	describe and explain the limitations of the regression model
5.	identify and apply extensions to the regression model which address special features of different data structures
6.	describe and explain maximum likelihood estimation (MLE) techniques and appreciate the advantages and disadvantages of MLE compared to regression methods
7.	apply the regression model, extensions to the regression model, and MLE to economic data using a specialised econometric software package

Graduate Attributes

Learning Outcomes	ASB Graduate Attributes	Attribute No.
1-7	Critical thinking and problem solving	1
2, 3, 7.	Communication	2
2,7.	Teamwork and leadership	3
4, 5, 6.	Social, ethical and global perspectives	4
2, 4, 5, 6, 7.	In-depth engagement with relevant disciplinary knowledge	5
1-7.	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 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.

Tutorials
One important purpose of tutorials is to give you the opportunity to raise questions about difficult topics or problems encountered in studying the course. You should come prepared with questions of your own. A set of exercises will also be assigned each week. You should attempt all of them. You will not gain a proper understanding of the topics unless you master the tutorial assignments. The tutorial exercises are a good indication of the kind of questions that can be expected in examinations.

Out-of-Class Study
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.

An "ideal" strategy (on which the provision of the course materials is based) might include:
- Reading of the relevant chapter(s) of the text and accessing the lecture notes from the course website before the lecture. This will give you a general idea of the topic area.
- 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.
- Attempting the tutorial questions and checking their solutions. This will identify the things you need to do to demonstrate your understanding of a topic, and guide your re-reading of specific parts of the text. This also provides a self-test of your understanding, identifying those parts of the topic with which you have problems.
- Attending Tutorials. Go to the tutorial with your own solutions neatly prepared (these will be collected and marked in specific weeks of the session).
- Attempt additional problems from the end-chapter questions in the textbook. The tutorial and examination questions have a similar structure to the textbook questions. By attempting additional questions, you are able to test your own knowledge and, through practice and experience, improve your understanding of the material.

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; and
- make a satisfactory attempt at ALL assessment tasks (see below).

4.2 Assessment Details

Assessment Task	Weighting	Learning Outcomes assessed	ASB Graduate Attributes assessed	Length	Due Date
Tutorial Assignment s	20%	1-7	1-6	See below	See Section 4.3 below
Mid-Session Exam	15%	1-6	1-6	1 hour	Week 6 14th May
Final Exam	65%	1-6	1-6	2 hours	University Exam Period
	100%	1-7	1-6		

4.3 Tutorial Assessment

Tutorials start in Week 2.

Tutorial Program questions will be posted on the course web site. Each week a series of exercises based on the lecture material of the previous week will be set. One important purpose of tutorials is to give you the opportunity to raise questions about specific topics or difficulties encountered in your study of the course material - you are encouraged to come prepared with questions of your own each week. The assigned exercises will facilitate discussion – and you should attempt all of the exercises.   The tutorial exercises are also a good guide to the kind of questions that can be expected in examinations. Some of the exercises will require you to complete computing tasks.

The tutorial exercises are designed to assess your understanding of regression models, your ability to interpret regression results and appraise the quality of a model. The tutorial exercises are based on replicating and evaluating published empirical studies. The criteria used for marking the assignments are correctness and clarity of the answers presented. The tutorial assignments are designed to assess progress toward learning objectives 1-7; the tutorial assignments are the main form of assessment for objective 7 (performing regression and MLE analysis using specialised econometric software).

Answers to four (4) tutorial assignments will be collected and marked during the session; two tutorial assignments will be collected during Weeks 2-7 (based on the 1st half lecture material) and two will be collected during Weeks 8-13 (based on the 2nd half of the lecture material). The four tutorial assignments (5% weight on each) combined will count towards 20% of your total mark for the course. Assignments are to be handed in at the beginning of the class (otherwise a mark of 0 will be given). If you are unable to make it to class, you should submit your solutions to the lecturer before the class meets.

You should keep a copy of all work submitted for assessment and keep returned marked answers.

4.4   Mid-Session Exam

   There will be one 60 minute mid-session examination. The mid-session exam will be held on
Wednesday 14/04/09 (Week 6 of session - covering lecture topics from weeks 1-5). This
examination will be held during the regular lecture time, and will commence at the start of the
class (2pm). A lecture will follow the mid-session exam.
   The mid-session exam is designed to assess progress toward learning objectives 1-6. The
criteria used for marking are correctness and clarity of written answers.

   Note there will be no supplementary exam offered for the mid-session examination. Students
who fail to attend the mid-session examination will need to apply for Special Consideration
through UNSW Central Administration. Special Consideration applications must be made
within 3 days of the assessment component affected (and you should advise the Lecturer in
Charge that you have made an application). You will need to provide full documentation of the
reason for the absence (e.g., illness).
   Those students whose request is granted for Special Consideration for the mid-session
examination will have their final mark reweighted according to the weight of the missed piece
of assessment. (e.g. if consideration is granted for a student's absence from the mid-session
examination, the combined marks on all the other pieces of assessment will be scaled up by a
factor of 10/8.5).

4.5   Final Examination

 The final exam will be held in the University examination period (June) and will be 2 hours
long. The final exam will cover the entire course. Further information on the content and
structure of the Final Exam will be provided towards the end of session.
         The purpose of the final exam is to assess knowledge of econometric concepts, your
understanding of the regression and MLE models and the application of methods to real world
problems.
         It is important to note that a satisfactory performance in the Final Examination is
required to pass this course.
         A sample exam in the same format as the final exam will be posted on Course website
by week 4. Past exam papers can be useful for student's preparation.

5   ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules
regarding plagiarism. For UNSW's policies, penalties, and information to help you avoid
plagiarism see: http://www.lc.unsw.edu.au/plagiarism/index.html as well as the guidelines in the
online ELISE tutorial for all new UNSW students:
http://info.library.unsw.edu.au/skills/tutorials/InfoSkills/index.htm.
To see if you understand plagiarism, do this short quiz:
http://www.lc.unsw.edu.au/plagiarism/plagquiz.html
For information on how to acknowledge your sources and reference correctly, see:
http://www.lc.unsw.edu.au/onlib/ref.html
For the ASB Harvard Referencing Guide, see:
http://wwwdocs.fce.unsw.edu.au/fce/EDU/harvard_ref_guide.pdf

In the School of Economics all cases of substantial plagiarism are reported to the Associate
Head of School. The following penalties will apply:
   * Reduction in marks for the assessment item, including zero;
   * Failure in the course [00FL] in extreme cases;

- Other additional penalties in accordance with the UNSW Procedures for Dealing with Student Plagiarism, may be considered in extreme cases;
- All cases will be recorded on the UNSW Plagiarism Central Register

6   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.

7   STUDENT RESPONSIBILITIES AND CONDUCT

Students are expected to be familiar with and adhere to university policies in relation to class attendance and general conduct and behaviour, including maintaining a safe, respectful environment; and to understand their obligations in relation to workload, assessment and keeping informed.

Information and policies on these topics can be found in the 'A-Z Student Guide': https://my.unsw.edu.au/student/atoz/ABC.html. See, especially, information on 'Attendance and Absence', 'Academic Misconduct', 'Assessment Information', 'Examinations', 'Special Consideration', 'Student Responsibilities', 'Workload' and policies such as 'Occupational Health and Safety'.

7.1   Workload

It is expected that you will spend at least **ten hours** per week studying this course. This time should be made up of reading, research, working on exercises and problems, and attending classes. In periods where you need to complete assignments or prepare for examinations, the workload may be greater.

7.2   Attendance

Your regular and punctual attendance at lectures and seminars is expected in this course. University regulations indicate that if students attend less than 80% of scheduled classes they may be refused final assessment.

7.3   Keeping Informed

You should take note of all announcements made in lectures, tutorials or on the course web site. From time to time, the University will send important announcements to your university e-mail address without providing you with a paper copy. You will be deemed to have received this information. It is also your responsibility to keep the University informed of all changes to your contact details.

7.4   SPECIAL CONSIDERATION AND SUPPLEMENTARY EXAMINATIONS

You must submit all assignments and attend all examinations scheduled for your course. You should seek assistance early if you suffer illness or misadventure which affects your course progress. For advice on UNSW policies and procedures for granting special consideration and supplementary exams, see:

'UNSW Policy and Process for Special Consideration':
https://my.unsw.edu.au/student/atoz/SpecialConsideration.html

Policy and Process for Special Consideration

1. Applications for special consideration (including supplementary examinations) must go through UNSW Central administration within 3 working days of the assessment to which it refers – applications will **not** be accepted by teaching staff;

2. Applying for special consideration **does not** automatically mean that you will be granted a supplementary exam.

3. Special consideration requests **do not allow** lecturers-in charge to award students additional marks;

4. If you are making an application for special consideration (through UNSW Central Administration) please notify your Lecturer in Charge

Policy re requests for Special Consideration

The policy of the School of Economics is that the Lecturer-in-charge will need to be satisfied on each of the following before agreeing to or supporting a request for special consideration:

1. For a medical certificate to be accepted, the degree of illness <u>must be stated</u> by the medical practitioner (severe, moderate, mild). A certificate without this will not be valid;

2. Has the student performed satisfactorily in the other assessment items? Satisfactory performance would require at least 40% in each assessment item specified in the Course Outline and meeting the obligation to have attended 80% of lectures and tutorials;

3. History of previous applications for special consideration. Previous applications may preclude a student from being granted special consideration;

Special Consideration and Assessments other the Final Exam

For the application of special consideration to assessment items other than the final exam, refer to the specific policies outlined. The School of Economics does not provide supplementary assessment items other than for the final exam.

Requests for special consideration in relation to the final exam are determined by an ASB Faculty panel to which Lecturers-in-charge provide their recommendations for each request. If the Faculty panel grants a special consideration request, this may entitle the student to sit a supplementary examination. In such cases the following procedures will apply:

1. Supplementary exams will be scheduled centrally and will be held approximately two weeks after the formal examination period. Actual date will be advised by mid-semester;

2. Where a student is granted a supplementary examination as a result of a request for special consideration, the student's original exam (if completed) <u>will not be marked</u> and only the mark achieved in the supplementary examination will count towards the final grade. To be clear, failure to attend the supplementary exam will not entitle the student to have the original exam paper marked and will result in a zero mark for the final exam.

The 'ASB Policy and Process for Special Consideration and Supplementary Exams in Undergraduate Courses' is available at:
http://wwwdocs.fce.unsw.edu.au/fce/current/StudentSuppExamProcedure.pdf .

8   STUDENT RESOURCES AND SUPPORT

The University and the ASB provide a wide range of support services for students, including:

ASB Education Development Unit (EDU) (www.business.unsw.edu.au/edu)
Academic writing, study skills and maths support specifically for ASB students. Services include workshops, online and printed resources, and individual consultations. EDU Office: Room GO7, Ground Floor, ASB Building (opposite Student Centre); Ph: 9385 5584; Email: edu@unsw.edu.au
UNSW Learning Centre (www.lc.unsw.edu.au)
Academic skills support services, including workshops and resources, for all UNSW students. See website for details.
Library training and search support services: http://info.library.unsw.edu.au
UNSW IT Service Desk: Technical support for problems logging in to websites, downloading documents etc. Library, Level 2; Ph: 9385 1333.
 Website: www.its.unsw.edu.au/support/support_home.html
UNSW Counselling Service (http://www.counselling.unsw.edu.au)
Free, confidential service for problems of a personal or academic nature; and workshops on study issues such as 'Coping with Stress' and 'Procrastination'.
Office: Level 2, Quadrangle East Wing; Ph: 9385 5418
Student Equity & Disabilities Unit http://www.studentequity.unsw.edu.au)
Advice regarding equity and diversity issues, and support for students who have a disability or disadvantage that interferes with their learning.   Office: Ground Floor, John Goodsell Building; Ph: 9385 4734

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

The course website contains copies of: All Course Handouts; Brief Lecture Notes; Tutorial Questions; and Data sets required for the tutorial questions; Notes on "How to Use SHAZAM"; Examples of SHAZAM programs and output; and Announcements. Students should consult this website at least once a week as it contains important information about the course. It will be assumed that all students have seen any notice posted on the course website.

The textbook for this course is:
> J.M. Wooldridge (2009) *Introductory Econometrics: A Modern Approach*, South-Western, 4th edition.

This book is denoted by "W" in the lecture outline below. This textbook is currently in stock at the UNSW bookstore, and copies are held in Open Reserve in the Main Library.

The 2nd and 3rd editions of the textbook are very similar to the 4th edition, and are fine to use.

There is a companion book for the text that may be useful to refer to throughout the session:
> J.M. Wooldridge (2009) *Student Solutions Manual to Introductory Econometrics: A Modern Approach*, South-Western.

This companion book is available electronically via the textbook website: access to the solution manual is free with the purchase of the book. Older, hardcopy versions of the Student Solution Manual are held in the Main Library.

The following book provides an alternative presentation of similar *material:*
> J.H. Stock and M.W. Watson (2007) *Introduction to Econometrics*, Addison Wesley, 2nd edition.

More advanced treatments of the topics covered in the course are presented in the textbooks:
> W. Greene (2007) *Econometric Analysis*, 6th edition, Prentice Hall.
> A.C. Cameron and P. Trivedi (2005) *Microeconometrics: Methods and Applications*, Cambridge University Press.

10 COURSE SCHEDULE

10.1 Lecture Schedule

Lectures start in Week 1and finish in Week 12. Weekly lecture notes will be posted on the course website.

LECTURE SCHEDULE		
Week	Topic	Reference
Week 1 3nd March	Introduction; Simple Regression Model	W: chapter 1, 2
Week 2 10th March	Multiple Regression: Estimation	W: chapter 3
Week 3 17th March	Multiple Regression: Inference	W: chapter 4
Week 4 24th March	Asymptotics, Further Issues	W: chapter 5, 6
Week 5 31st March	Qualitative Information	W: chapter 7
Mid-Session Break: 2-11 April		
Week 6 14th April	Heteroskedasticity; Specification issues	W: chapters 8, 9
Week 7 21st April	Regression analysis of time series data	W: chapter 10
Week 8 28th April	Panel Data	W: chapter 13, 14
Week 9 5th May	Instrumental Variables	W: chapter 15
Week 10 12th May	Simultaneous Equation Models	W: chapter 16
Week 11 19th May	Limited Dependent Variable Models	W: chapter 17
Week 12 26th May	Conducting and Understanding Empirical Projects	W: chapter 19

10.2 Tutorial Schedule

Tutorials start in Week 2 and finish in Week 13. The material covered in tutorials reviews and builds on the lecture material of the previous week.

11 KEY DATES AND STUDENT RESPONSIBILITIES

It is your responsibility to ensure that:

1. You are recorded by the University as being correctly enrolled in all your courses.

2. You have successfully completed all prerequisite courses. Any work done in courses for which prerequisites have not been fulfilled will be disregarded (unless an exemption has been granted), and no credit given or grade awarded.

3. You abide by key dates:
    Monday 1 March is the first day of Semester 1 lectures. **Sunday 7 March** is the last day you can enrol in Semester 1 courses.

    Sunday 7 March is the due date for Semester 1 fees.
    Wednesday 31 March (Week 5) is the last day for students to discontinue without financial penalty (and the last date to finalise arrangements for HECS-HELP and FEE-HELP).
    Sunday 25 April (end Week 7) is the last day to discontinue without academic penalty**.**

4. You organise your affairs to take account of examination and other assessment dates where these are known. Be aware that your final examination may fall at any time during the semester's examination period. The scheduling of examinations is controlled by the University administration. No early examinations are possible. The examination period for Semester 1, 2010, falls between **Friday 11 June** and **Monday 28 June** (**provisional dates subject to change).**

5. When the provisional examination timetable is released, ensure that you have no clashes or unreasonable difficulty in attending the scheduled examinations. The final examination timetable for Semester 1 is released in May (date TBA).

6. Note that some Schools schedule a common date for any **supplementary exams** that may be required – it is your responsibility to check the School websites and ensure that you are available to take the exam on the scheduled date.

A full list of UNSW Key Dates is located at:
https://my.unsw.edu.au/student/resources/KeyDates2.html