

THE UNIVERSITY OF NEW SOUTH WALES



Australian School of Business
School of Economics

ECON6003 ECONOMETRIC ANALYSIS / ECON4207 ELEMENTS OF ECONOMETRICS Course Outline and Lecture Schedule Session 1, 2009

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1. TEACHING STAFF

The Lecturers for the course are Associate Professor Garry Barrett (ASB 434; Ph.9385-3366, Email: G.Barrett@unsw.edu.au) and Dr Shiko Maruyama (Quad 3116; Ph.: 9385-3386, Email: S.Maruyama@unsw.edu.au). 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 hours - which will be posted on the course website.

2. INFORMATION ABOUT THE COURSE

2.1 UNITS OF CREDIT AND CLASS HOURS

This course is worth 6 units of credit.

There are 2 hours of lectures per week and 1 x 1 hour tutorial class.

2.2 LECTURE TIME AND LOCATION

Wednesday 6-8pm, ASB 220.

2.3 TUTORIAL TIME AND LOCATION

Wednesday 5-6pm, ASB 220.

The Tutorial Program will commence in Week 1.

Tutorial questions will be provided in a separate handout and will be posted on the course web site.

2.4 RELATIONSHIP OF THIS COURSE TO OTHER COURSES

ECON6003 and ECON 4207 are equivalent courses which provide an introduction to econometrics which involves the application of statistical methods in analysing economic data. ECON6003 is typically the first specialised course in econometrics that students beginning the PhD and MEd programs will take if they have not previously studied econometrics. It is assumed that students have taken previous courses in quantitative methods which 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 APPROACH TO LEARNING AND TEACHING

The philosophy underpinning this course and its Teaching and Learning Strategies (see 3.3 below) are based on "Guidelines on Learning that Inform Teaching at UNSW". These guidelines may be viewed at : www.guidelinesonlearning.unsw.edu.au. The lectures, tutorials and assessment components have been designed to engage student interest and promote the achievement of the 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 helpful and timely feedback to students to improve learning outcome.

3. COURSE AIMS AND OUTCOMES

3.1 COURSE AIMS

The aim of the course is to help you develop a working knowledge of econometrics and its applications to real-world economic data. The course will cover a range of topics from simple and multivariate regression methods, instrumental variables, simultaneous equation models, limited dependent variable models and maximum likelihood methods. 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.

3.2 STUDENT LEARNING OUTCOMES

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. explain the limitations of the regression model,
5. identify and apply extensions to the regression methods which address special features of the data,
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 specialised econometric software.

Student Learning Outcomes and ASB Graduate Attributes

<i>Learning Outcomes</i>	<i>ASB Graduate Attributes</i>
1-7.	1. Critical thinking and problem solving
2, 3, 7.	2. Communication
2, 7.	3. Teamwork and leadership
4, 5, 6.	4. Social, ethical and global perspectives
2, 4, 5, 6, 7.	5. In-depth engagement with relevant disciplinary knowledge
1-7.	6. Professional skills

3.3 TEACHING AND LEARNING STRATEGIES

The examinable content of the course is defined by the Text 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 overheads from the course website before the lecture. This will give you a general idea of the topic area.
- Attendance at lecture. Here the context of the topic in the course and the important elements of the topic are identified. The relevance of the topic should 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 will also provide a self-test of your understanding, and identify those parts of the topic with which you have problems. This should be done after the lecture and before the following week’s tutorial.
- Attending Tutorials. Go to the tutorial with your own solutions neatly prepared (these may be collected and marked in any given week).
- 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. STUDENT RESPONSIBILITIES AND CONDUCT

4.1 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 prepare for a Tutorial Presentation or an examination, the workload may be greater.

Over-commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

4.2 ATTENDANCE

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

4.3 GENERAL CONDUCT AND BEHAVIOUR

You are expected to conduct yourself with consideration and respect for the needs of your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing of mobile phones or arriving late, is not acceptable and students may be asked to leave the class. More information on student conduct is available at: www.my.unsw.edu.au.

4.4 KEEPING INFORMED

You should take note of all announcements made in lectures, tutorials or on the course web site. In particular you should check “Announcements” on the course website at least once a week. From time to time, the University will send important announcements to your university email address without providing you with a paper copy. You will be deemed to have received this information.

5. ASSESSMENT

5.1 FORMAL REQUIREMENTS

In order to pass this course, you must:

- achieve a composite mark of at least 50; and
- make a satisfactory attempt at all assessment tasks (see below).

5.2 ASSESSMENT DETAILS

Assessment Task	Weighting	Learning Outcome Assessed	ASB Graduate Attributes Assessed	Length
Tutorial Assessment	20%	1-7	1-6	See Section
Mid-session Exam	15%	1-6	1-6	1 hour
Final Examination	65%	1-6	1-6	2 hours
TOTAL	100%	1-7	1-6	

TUTORIAL ASSESSMENT

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. To further facilitate discussion, a set of exercises will be assigned each week. You should attempt all of them. You will not gain a proper understanding of the topics unless you master the assignments. 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.

Answers to four (4) tutorial assignments will be collected and marked during the session. The four tutorial assignments (5% weight on each) 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.

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).

Each week you should come with prepared answers to the tutorial questions. Two tutorial assignments will be collected during Weeks 1-6, and two will be collected during Weeks 7-12 of the session.

MID-SESSION EXAMINATION:

There will be one 60 minute mid-session examination. The mid-session exam will be held on Wednesday 22/04/09 (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 (5pm). 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).

FINAL EXAMINATION:

This will be held in the University examination period (June/July) 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.

5.3 SPECIAL CONSIDERATION AND SUPPLEMENTARY EXAMINATIONS

UNSW Policy and Process for Special Consideration

(see <https://my.unsw.edu.au/student/atoz/SpecialConsideration.html>)

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 cannot be accepted by teaching staff;

- Applying for special consideration does not automatically mean that you will be granted additional assessment or that you will be awarded an amended result;
- If you are making an application for special consideration (through UNSW Central Administration) please notify the Lecturer in Charge;
- Please note that a register of applications for Special Consideration is maintained. History of previous applications for Special Consideration is taken into account when considering each case.

In the ASB, requests for special consideration are determined by a Faculty wide panel which advises the Lecturer in Charge of the appropriate action. 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:

- 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.
- Where a student is granted a supplementary examination as a result of a request for special consideration, the student's original exam (if completed) will not be marked and only the mark achieved in the supplementary examination will count towards the final grade.

Further information concerning supplementary examinations is available on the ASB website.

6. ACADEMIC HONESTY AND PLAGIARISM

The University regards plagiarism as a form of academic misconduct, and has very strict rules regarding plagiarism. For full information regarding policies, penalties and information to help you avoid plagiarism see: <http://www.lc.unsw.edu.au/plagiarism/>

Plagiarism is the presentation of the thoughts or work of another as one's own.* Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does not amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne.

7. STUDENT RESOURCES

7.1 COURSE WEBSITE

The Econometric Analysis website may be found among others of your courses when you log into WebCT Vista. You can access WebCT Vista through the link to

<http://vista.elearning.unsw.edu.au/webct/entryPageIns.dowebct>. The course website contains copies of: all Course Handouts; Copies of Lecture Slides; Tutorial Program Questions; Data sets required for the tutorial questions; Notes on How to Use SHAZAM; Copies of SHAZAM 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.

7.2 TEXTBOOK

The required textbook for the 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 also suitable 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 (see the insert inside the front cover of the textbook: 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 books provide an alternative presentation of similar material:

J.H.Stock and M.W. Watson (2003) *Introduction to Econometrics*, Addison Wesley.

R.C. Hill, W. Griffiths and G.G. Judge (2001) *Undergraduate Econometrics*, 2nd Edition, Wiley.

These books may be useful to consult to supplement the presentation and development of the material in Wooldridge

More advanced treatment of the topics covered in the course are presented in the textbooks:

W.Greene (2003) *Econometric Analysis*, 5th edition, Prentice Hall.

A.C.Cameron and P.Trivedi (2005) *Microeconometrics: Methods and Applications*, Cambridge University Press.

7.3 OTHER RESOURCES, SUPPORT AND INFORMATION

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

Learning and Study Support:

ASB Education Development Unit

The Education Development Unit (EDU) provides learning support and assistance to all students in the ASB, to enable them to enhance the quality of their learning. The EDU services are free, and tailored to meet the academic needs of students in the Australian School of Business.

The role of the EDU is to provide

- A range of support initiatives for students from the Australian School of Business in relation to their transition to university;
- Learning skills development, resources and activities for Business students
- Academic writing and skills workshops throughout the session;

- Printed and online study skills resources, such as referencing guides, report writing and exam preparation;

- A drop-in EDU Office containing books and resources that can be borrowed;
- A limited consultation service for students with individual or small group learning needs.

The EDU website www.business.unsw.edu.au/edu contains information, online resources and useful links as well as providing information and dates for workshops. More information about the EDU services including resources, workshop details and registration, and consultation request forms are available from the EDU Office.

EDU Contact Details

Location Room G07, Ground Floor, West Wing, Australian School of Business Building

Telephone: 9385 5584

Email: Edu@unsw.edu.au

Website www.business.unsw.edu.au/edu

UNSW Learning Centre (<http://www.lc.unsw.edu.au>)

In addition to the EDU services, the UNSW Learning Centre provides academic skills support services for all UNSW students. The Learning Centre is located on Level 2 of the Library and can be contacted by phone: 9385 3890 or through their website.

Technical support

For any technical support issues (difficulty logging in to websites, problems downloading documents, etc) you can contact the UNSW IT Service Desk at:

(02) 9385 1333 ; Email: servicedesk@unsw.edu.au

Counselling support - <http://www.counselling.unsw.edu.au>

Students experiencing problems of a personal or academic nature are encouraged to contact the Counselling Service at UNSW. This consultation service is free and confidential and run by professional counsellors. The Counselling Service also conducts workshops on topics such as 'Coping With Stress' and 'Procrastination'. The Counselling Service is located on Level 2, Quadrangle East Wing, and can be contacted on 9385 5418.

Library training and support services - <http://info.library.unsw.edu.au>

Disability Support Services – Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the Course Coordinator or the Equity Officer (<http://www.studentequity.unsw.edu.au/disabil.html>). Early notification is essential to enable any necessary adjustments to be made.

In addition, it is important that all students are familiar with University policies and procedures in relation to such issues as:

- **Examination procedures** and advice concerning illness or misadventure:
<https://my.unsw.edu.au/student/academiclife/assessment/examinations/examinationrules.html>
- **Occupational Health and Safety** policies and student responsibilities;
<https://my.unsw.edu.au/student/atoz/OccupationalHealth.html>

8. CONTINUAL COURSE IMPROVEMENT

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. The current structure and content of the course has been shaped by student feedback from recent years. For example, last year students felt that there were too many separate pieces of assessment. In response, we have attempted to streamline the number of pieces of assessment, and now only 1 mid-session exam has been scheduled this session.

9. LECTURE SCHEDULE

Table 1. Guide to Lecture Topics

Week	Date	Topic	Reading
1	11/03/09	Introduction The Simple Regression Model	W: 1 W: 2
2	18/03/09	Multiple Regression Analysis: Estimation	W: 3
3	25/03/09	Multiple Regression Analysis: Inference	W: 4
4	01/04/09	Asymptotics, Further Issues	W: 5,6
5	08/04/09	Qualitative Information	W: 7
6	22/04/09	Heteroskedasticity + Mid-session Exam	W: 8, 9
7	29/04/09	Regression analysis of time series data	W: 10
8	06/05/09	Panel Data	W: 13,14
9	13/05/09	Instrumental Variables	W: 15
10	20/05/09	Simultaneous Equation Models	W: 16
11	27/05/09	Limited Dependent Variable Models	W: 17
12	03/06/09	Conducting and Understanding Empirical Projects	W: 19