ECON241

Introductory Econometrics

S1 Day 2018

Dept of Economics

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General Information

Unit convenor and teaching staff
Unit Convenor
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Credit points
3

Prerequisites
15cp at 100 level or above including ((STAT150 or STAT170 or STAT171 or PSY122) and (ECON110 or ECON111))

Corequisites

Co-badged status

Unit description
This unit introduces some basic econometric techniques employed by economists in the analysis of economic relationships. These techniques are also used extensively in marketing and finance. Topics covered will usually include: estimation and hypothesis testing; simple and multiple regression; prediction; the interpretation and evaluation of regression models, including an elementary discussion of nonlinear modelling, heteroscedasticity, auto-correlation, multicollinearity and specification error; and the use of categorical or qualitative data in regression models. Emphasis throughout the unit is on the application of econometric techniques and the interpretation of estimated results rather than formal theoretical proofs and derivations.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
Critically evaluate the assumptions of a classical (or standard) regression model and the consequences of violation of the assumptions.
Demonstrate familiarity with an econometric software program.

Assessment Tasks

Name	Weighting	Hurdle	Due
Tutorial Exercises	10%	No	each week
Homework (Online)	20%	No	Week 5, 9,11 and 13
Major Assignment	20%	No	Week 10, Friday 4pm.
Class Test	50%	No	Week 13

Tutorial Exercises

Due: **each week**
Weighting: **10%**

The tutorial will start in week 2 and finish in week 13. The tutorial questions and solutions will be published during the week following each class. Since we need to provide each enrolled student with a working computer, students are only permitted to attend the class in which they are registered. The tutorial exercises require a total of approximately 10 hours of work.

If you miss more than 4 tutorials due to an unavoidable disruption/s, you should apply for Special Consideration (see the Special Consideration Policy below). If that application is approved you will be required to do an assessment task and this could take the form of an oral task. If the student performance in the assessment task is satisfactory then the attendance requirement will be waived for that tutorial.

Students must bring their Macquarie University campus card to each tutorial and display it in the holder provided. Failure to display a campus card may result in a student being refused access to the tutorial.

On successful completion you will be able to:

- Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
- Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
- Critically evaluate the assumptions of a classical (or standard) regression model and the consequences of violation of the assumptions.
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Homework (Online)

Due: **Week 5, 9,11 and 13**
Weighting: **20%**

Students will be given four homework exercises each worth 5% of the final grade (20% in total). It is intended that students will work on the homework exercises independently. The homework exercises are due in weeks 5, 9, 11 and 13 and must be submitted via the iLearn system. The exercises must be submitted online prior to the due date and time. Each exercise may be submitted up to **two times** prior to the deadline and each attempt has a time limit of **two hours**. Only the **final submission** will be marked. Each homework exercise will require approximately 2 hours of work. At the time of the submission deadline, the mark recorded for the final submission by each student for that homework task will be recorded.

Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task. This penalty does not apply to cases in which an application for Special Consideration is made and approved. A supplementary test in the form of an online quiz or a paper-based test will be made available to those students at a date set by the unit convenor.

Students who have clearly colluded will be awarded a mark of zero, will not be permitted to resubmit, and may be reported to the University Disciplinary Committee for further action.

On successful completion you will be able to:

- Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
- Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
- Critically evaluate the assumptions of a classical (or standard) regression model and the consequences of violation of the assumptions.
- Demonstrate familiarity with an econometric software program.

Major Assignment

Due: **Week 10, Friday 4pm.**
Weighting: **20%**

The assignment is due by 4pm Friday May 18th (week 10). The assignment assesses the understanding of the topics covered in lectures up to the submission deadline and is worth 20% of the final grade. Students must submit both a hard copy and an electronic copy of their assignment. The hard copy must be submitted to the Business and Economics Student Services (BESS, E4B106) and the electronic copy must be through iLearn. Instructions and information about the requirements of the assignment will be provided in class and on iLearn.

Students who have clearly colluded will be awarded a mark of zero, will not be permitted to resubmit, and will be reported to the University Disciplinary Committee for further action. Late assignments will be accepted but will incur a penalty of 10% of the total available marks made from the total awarded mark for each 24 hour period late or part thereof that the submission is late (for example, 25 hours late in submission – 20% penalty). Students who do not submit an assignment will be awarded a mark of zero for that assessment.This penalty does not apply to cases in which an application for Special Consideration is made and approved.

On successful completion you will be able to:

- Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
- Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
- Critically evaluate the assumptions of a classical (or standard) regression model and the consequences of violation of the assumptions.
- Demonstrate familiarity with an econometric software program.

Class Test

Due: **Week 13**
Weighting: **50%**

There is one class test in ECON241. It will be conducted in lectures in Week 13. The test is worth 50% of the final grade. The test will be of 80 minutes duration and will be conducted during the lecture times. Since the purpose of the test is purely summative, students will not be provided with written feedback. Students must be available during the time of the lecture class to sit the class test. The only exception to this is if a student could not do the test because of documented illness or unavoidable disruption. In these circumstances this student may wish to consult the University's Special Consideration' policy- https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

On successful completion you will be able to:

- Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
- Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
- Critically evaluate the assumptions of a classical (or standard) regression model and the consequences of violation of the assumptions.
- Demonstrate familiarity with an econometric software program.

Delivery and Resources

- There is a single two-hour lecture each week of semester There is also a tutorial class held in each week, beginning in week 2.
- Two lecture streams are offered. Students should attend one of these lecture streams.
- The timetable for classes can be found on the University web site at: http://www.timetables.mq.edu.au/
- Students must register in a tutorial class during the first two weeks of semester. After this time class changes will not be permitted. It is vital that students are available to attend the tutorial class at their registered time. Because of resource constraints, students will **not** be generally permitted to attend a tutorial class other than the one in which they are registered.

Required and Recommended texts and/or materials

- Hill, C. H., Griffiths, W. E. and Lim, G. C. (2011) Principles of Econometrics (4th ed.) Wiley. This is the main text used in the unit. It is strongly recommended that students purchase a copy.It may be purchased from the Macquarie University Co-op Bookshop. It is also available in the library.

Additional useful textbooks.

- Gujarati, D.N., and Porter, D.C. (2010) Essentials of Econometrics (4th ed.) McGraw-Hill.
- Stock, J.H., and Watson, M.W. (2007) Introduction to Econometrics (2nd ed.) Addition-Wesley
- Adkins, L. C. (2010) Using Gretl for Principles of Econometrics (3rd ed.). This book is a

free download from http://www.learneconometrics.com/gretl/ebook.pdf.

- A list of prescribed reading will be developed on the website as the unit progresses.
- Students should download the Gretl datasets from http://www.learneconometrics.com/gretl.html. These are the datasets used in examples and exercises in the above two books.

Technology Used and Required

- The main software package used in ECON241 is Gretl (http://gretl.sourceforge.net/). This software is available for use in the 6ER computer labs, and may be freely downloaded for use elsewhere. The Microsoft Windows version is available at http://gretl.sourceforge.net/win32/. A Mac version is available at http://gretl.sourceforge.net/osx.html. Linux users should check their repositories or download the rpm or source from http://gretl.sourceforge.net/.
- The use of a spreadsheet will often be helpful for tasks in this unit. For students who don't own or wish to use Microsoft Excel, a free alternative is provided by OpenOffice (http://www.openoffice.org).
- The unit material has been designed for the (free) Firefox web browser (http://www.mozilla.com/en-US/firefox/upgrade.html). Other browsers may display the unit material properly, but this cannot be guaranteed.
- Course material is available on the learning management system (iLearn).
- Students are strongly advised to check the unit web page regularly for new material and announcements.

Unit Schedule

The unit is taught by lectures, tutorials, homework exercises and quizzes.

Students are expected to attend all lectures and to read the specified references after the relevant lecture. They are expected to attend all tutorials. Students should download the datasets that are used in the textbook and work through all the relevant examples in chapters. Students should submit the homework exercises and quizzes and reflect on the feedback provided.

Weekly Teaching Schedule

Week	Topics
1	Introduction, Review of necessary mathematics.

2	Probability
3	Probability
4	Inference
5	Simple regression (Part I)
6	Simple regression (Part II)
7	Prediction, goodness of fit and modelling issues
8	Multiple regression
9	Multiple regression
10	Heteroscedasticity
11	Indicator variables
12	Dynamics and Autocorrelation
13	Class Test

Assessment Tasks and Due Dates

Weeks	Homework Exercises	Assignment	Class Test
1			
2			
3			
4			
5	Exercise 1		
6			
7			
8			
9	Exercise 2		

10		Assignment	
11	Exercise 3		
12			
13	Exercise 4		Class Test

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(**Note:** The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/study/getting-started/student-conduct

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they

are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
- Demonstrate familiarity with an econometric software program.

Assessment tasks

- Tutorial Exercises
- Homework (Online)
- Major Assignment

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
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- Critically evaluate the assumptions of a classical (or standard) regression model and the consequences of violation of the assumptions.
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Assessment tasks

- Tutorial Exercises
- Homework (Online)
- Major Assignment
- Class Test

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
- Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
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- Demonstrate familiarity with an econometric software program.

Assessment tasks

- Tutorial Exercises
- Homework (Online)
- Major Assignment
- Class Test

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Understand and apply the key statistical concepts, including probability distributions, parameters and estimators, the sampling distribution of an estimator, point and interval estimation, and hypothesis testing.
- Specify, estimate and interpret a regression model. Summarise and interpret the estimation results, and draw valid inferences utilising hypothesis tests.
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Assessment tasks

- Tutorial Exercises
- Homework (Online)
- Major Assignment

- Class Test

Research and Practice

· This unit uses research from both internal and external sources.

· This unit gives students practice in applying research findings in tutorials and homework exercises.