ECON241

Introductory Econometrics

S2 Day 2018

Dept of Economics

Contents

General Information

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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	Weeks 2-7 and 9-13
Homework (Online)	20%	No	Weeks 5, 9, 11 and 13
Assignment	20%	No	Week 10, Friday 5pm.
Class Test	50%	No	University Examination Period

Tutorial Exercises

Due: **Weeks 2-7 and 9-13**
Weighting: **10%**

Submission

The tutorial exercises must be attempted and submitted during the tutorial class in which the student is officially enrolled each week. The exercises will not be made available for assessment at any other time. Each tutorial exercise assesses work that has been covered in previous lectures, with an emphasis on the most recent work. Students who attain a mark of at least 50% in each of at least 8 tutorials will be awarded the full marks available for the tutorial program. Students who attain a mark of at least 50% in fewer than 8 tutorials will lose one-eighth of the full marks available for the tutorial program for each affected tutorial.

Following a brief review by the tutors, the tutorial results will be released each week shortly after the last tutorial has concluded.

The tutorials are an important component of ECON241. In addition to providing students with weekly formal feedback on their progress, the tutorials give students a regular point of contact with their tutor and other students. Students who prepare for class each week will generally be able to finish the formal tutorial work with time to spare, providing ample opportunity to discuss the unit material with the tutor and other students. Following the release of the tutorial results each week, students are expected to review their work and raise any outstanding issues with their tutor the following week.

Extensions

No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of zero for the task, except for cases in which the student is granted Special Consideration by the University. In such cases, if the relevant disruption results in the student submitting fewer than 8 tutorial exercises, for the affected tutorial the student will be awarded full marks.

What is required to complete the unit satisfactorily

Students must demonstrate satisfaction of the learning objectives assessed in each particular

tutorial exercise. Students are welcome to consult reference material during the tutorial and may discuss the work with other students and the tutor. However, the responses that students submit must reflect their own ideas and work. In particular, students who submit the answers of other students, without making any contribution to the derivation of the answers, will be deemed to have violated the Academic Honesty Policy. 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:
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- 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.

Homework (Online)

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

Students will be given four homework exercises each worth 5% of the final grade (20% in total). Each is due at 5pm on the Friday of the relevant week. It is intended that students will work on the homework exercises independently. The homework exercises must be submitted via the iLearn system prior to the deadline. Each exercise has a time limit of **two hours**.

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. In such cases, a supplementary test in the form of an online quiz will be made available to affected students with a deadline 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 face further action.

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- 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.

Assignment

Due: **Week 10, Friday 5pm.**
Weighting: **20%**

The assignment will consist of a set of questions requiring short written answers. It will be based on material covered in the lectures prior to the submission deadline.

Submission

The assignment must be submitted via the relevant links in iLearn prior to the deadline. No other form of submission is acceptable. The assignment may be submitted once only. Submission instructions and information about the requirements of the assignment will be provided in class and on iLearn.

Extensions

No extensions will be granted. There will be a deduction of 10% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission – 20% penalty). This penalty does not apply to cases in which the University grants the student Special Consideration. No submission will be accepted after the marked assignments have been returned to the students. Students who wish to submit the assignment after the deadline should contact the unit convenor so that the necessary arrangements may be made.

It is intended that students will work on the assignments independently. Students who submit an assignment that is substantially copied from another source may receive a mark of zero, and may be referred to the Faculty 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.

Class Test

Due: **University Examination Period**
Weighting: **50%**

The final examination is of 90 minutes duration and will be held in the official Macquarie University examination period. All students must attend the examination at the time and place designated in the University Examination Timetable. The examination will be closed-book and will include short answer questions that require both calculation and written responses. Details of the structure of the final examination will be provided when available during the semester.

Students who do not attend the final examination will be awarded a grade of FA (Failed Absent). The only exceptions to this are cases in which the University grants the student Special Consideration. In such cases, the affected student will be required to sit a supplementary examination at the place and time nominated by the University.

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.
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- Demonstrate familiarity with an econometric software program.

Delivery and Resources

- There is a single two-hour lecture each week of semester except for Week 8 (due to the public holiday). There is also a tutorial class held in each week except weeks 1 and 8 (Week 8 is affected by a public holiday).
- The timetable for classes can be found on the University website: http://www.timetables.mq.edu.au/
- Students must register in a tutorial class during the first two weeks of the 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.
- Students are expected to attend all lectures and tutorials, read the text, and attempt the set exercises. Students who do not do this will not be provided with assistance outside class time to help them catch up. It is expected that students will spend an average of approximately 10 hours per week working on ECON241 (including class time).

Required and Recommended texts and/or materials

- Hill, C. H., Griffiths, W. E. and Lim, G. C. (2018) Principles of Econometrics (5th 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.

- Hill, C. H., Griffiths, W. E. and Lim, G. C. (2011) Principles of Econometrics (4th ed.) Wiley may be used instead of the 5th edition.

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).

- 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

Approximate Weekly Teaching Schedule

Week	Topics
1	Introduction, Review of necessary mathematics.
2	Probability
3	Probability
4	Inference
5	Inference
6	Simple linear regression
7	Prediction, goodness of fit and modelling issues
8	Multiple regression
9	Multiple regression
10	Heteroscedasticity
11	Indicator variables
12	Dynamics and Autocorrelation
13	Unit Review

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)
- 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)
- 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.
- 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

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