

MACQUARIE  
UNIVERSITY



FACULTY OF  
BUSINESS AND ECONOMICS

**ECON241**  
**Introductory Econometrics**

**Semester 1, 2012**

*Department of Economics*

**MACQUARIE UNIVERSITY  
FACULTY OF BUSINESS AND ECONOMICS  
UNIT GUIDE**

<b>Year and Semester:</b>	<b>2012, Semester 1</b>
<b>Unit convenor:</b>	<b>Roselyne Joyeux</b>
<b>Prerequisites:</b>	<b>(STAT170 or STAT171) and (ECON110 or ECON111 or BBA103)</b>
<b>Credit points:</b>	<b>3</b>

Students in this unit should read this unit guide carefully at the start of semester. It contains important information about the unit. If anything in it is unclear, please consult one of the teaching staff in the unit.

**ABOUT THIS UNIT**

- 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. In addition to its role as a basis for programs of study in economics, marketing and finance, the unit is the foundation econometric unit for students who wish to undertake a program of study in applied econometrics. 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; 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.
- Unit rationale (why it is significant & any relevant relationship to other units in the program)

**TEACHING STAFF**

- Convenor: Roselyne Joyeux, [roselyne.joyeux@mq.edu.au](mailto:roselyne.joyeux@mq.edu.au), Ph: 9850 8487, Rm: E4A-440.
- Deputy Convenor: Fazeel Jaleel, [fazeel.jaleel@mq.edu.au](mailto:fazeel.jaleel@mq.edu.au), Ph: 9850 8494, Rm: E4A-408.
- Teaching Assistant: Fazeel Jaleel, [fazeel.jaleel@mq.edu.au](mailto:fazeel.jaleel@mq.edu.au), Ph: 9850 8494, Rm: E4A-408.

## CONTACTING STAFF

- The best way to get help with unit material is to post a query on the online discussion forum. The advantage of the forum is that it is continually monitored by the teaching staff in the unit, thereby maximising the chances of getting useful help quickly. In addition to being monitored by staff, the online discussion forum is available to all students, and questions posted to the forum often generate discussion that is of greater benefit than the staff response alone. Furthermore, over the semester, the accumulated postings on the forum provide a searchable list of the problems that students have encountered during the unit, and the solutions that have been found. This is beneficial to both student and staff. For these reasons, the online discussion forum will be the primary form of communication in the unit outside class times.
- The tutorial program in ECON241 provides exercises for students to work on in class, and also allows time for students to seek help with problems that they are having with the unit material. Since all tutorials are held in the computer laboratories they are an ideal venue for seeking help with problems that are related to computational aspects of the unit.
- In the week prior to each of the tests, staff will provide a schedule of consultation hours in their offices during which students are welcome to seek help without making an appointment. The times and venues will be published on the unit website as the unit progresses.
- For matters that cannot be resolved by the above means, and for any personal matters, at any time students are welcome to make an appointment to consult with teaching staff in their offices. The best way to make an appointment is to email the relevant staff member, briefly describing the problem for which help is being sought, and indicating your availability over the next few days.
- Students should be aware that staff do not have time to provide individual students with extensive one-to-one assistance outside class times. The importance of regular class attendance, participation in online discussions, and private study, cannot be overstated. In particular, students who do not regularly attend class and participate in the unit will find that there is little that staff can do to provide them with meaningful help immediately prior to major assessment tasks.
- Students experiencing significant difficulties with any topic in the unit must seek assistance immediately.

## CLASSES

- There is a single two-hour lecture each week of semester. There is also a tutorial class held in each week apart from week 1.
- The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au/>

- Two lecture streams are run simultaneously – a day stream, and an evening stream. Students should attend one of these lecture streams only.
- Students must enrol in a tutorial class during the first two weeks of semester. After this time, class changes will not be permitted. Since the submission of the tutorials will occur during the tutorial times, it is vital that students are available to attend the tutorial class at their enrolled time. Because of resource constraints, and the fact that tutorial work is assessable, students will not generally be permitted to attend a tutorial class other than the one in which they are enrolled except for tutorials held in weeks 6 and 7. In week 6, Easter Friday is a public holiday, and in week 7 Wednesday April 25 is ANZAC public holiday. For those weeks students whose tutorials are on the public holidays will be allowed to attend a tutorial on a different day. Tutorial works in weeks 6 and 7 are **not** assessable.
- It will be assumed that students regularly attend lectures. Students must also be available to sit the class test during their normal lecture class time in week 10.
- Students are also required to attend at least 6 out of the 10 assessable tutorial classes.

#### 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.
- Adkins, L. C. (2012) *Using Gretl for Principles of Econometrics* (4th ed.). This book is a free download from [http://www.learneconometrics.com/gretl/using\\_gretl\\_for\\_POE4.pdf](http://www.learneconometrics.com/gretl/using_gretl_for_POE4.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/index.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 E4B 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>).
- Significant use is made of online material in ECON241. 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.

#### **UNIT WEB PAGE**

- Course material is available on the learning management system (iLearn).

#### **LEARNING OUTCOMES**

The learning outcomes of this unit are:

1. An understanding of the fundamentals of probability, and their relevance for statistical inference.
2. The ability to construct point and interval estimators for regression parameters.
3. The ability to conduct tests of hypotheses about regression parameters.
4. An understanding of alternative regression specifications.
5. The ability to interpret regression output.
6. Familiarity with an econometric software program.

#### **GRADUATE CAPABILITIES**

In addition to the discipline-based learning objectives, all academic programs at Macquarie seek to develop the capabilities the University's graduates will need to develop to address the challenges, and to be effective, engaged participants in their world.

This unit contributes to this by developing the following graduate capabilities:

1. Critical, Analytical and Integrative Thinking
2. Problem Solving and Research Capability
3. Apply economic theories to practical situations or problems
4. Critically evaluate and test competing economic theories, comparing predictions to actual outcomes
5. Build and estimate mathematical models
6. Use estimated models for prediction and evaluation

#### **LEARNING AND TEACHING ACTIVITIES**

- The unit is taught by lectures, tutorials, homework exercises, quizzes and online discussion.
- Students are expected to attend all lectures and tutorials and to read the specified references after the relevant lecture. Students should download the datasets that are used in the textbook and work through all the relevant examples in chapters. Students should submit the tutorials, homework exercises and quizzes and reflect on the feedback provided.

### Approximate Schedule of Topics

Week	Topics
1	Introduction to econometrics. Review of necessary mathematics.
2	Probability
3	Probability
4	Probability
5	Inference
6	Simple regression
7	Simple regression
8	Multiple regression
9	Multiple regression
10	Class Test
11	Heteroscedasticity
12	Dynamics and Autocorrelation
13	Dynamics and Autocorrelation

#### **RESEARCH AND PRACTICE**

- This unit uses research by Macquarie University researchers ((references will be given in the lectures, tutorials and homework exercises)
- This unit uses research from external sources (references will be given in the lectures, tutorials and homework exercises).
- This unit gives you practice in applying research findings in your tutorials and homework exercises.

#### **RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES**

There are four types of assessment task in ECON241.

##### The Diagnostic Test

A 45 minute test will be held in week 4. It will be submitted online using iLearn. This test is worth 5% of the final grade. It will cover some material from the first three weeks of lectures, and material that is assumed knowledge for the unit. The purpose of the diagnostic test is to identify students who may be deemed at risk of poor performance in ECON241 due to an inadequate understanding of the assumed knowledge. Students will be informed if they are viewed as being at risk of poor performance based on their results in this test. The test will be conducted via iLearn and may involve short answer/computational questions and multiple choice. The test can be submitted in the computing laboratories or using your own computing facilities. Students will be provided with their mark via iLearn within a few days of the completion of the test. Students will be provided with written feedback via the iLearn system within two weeks of the completion of the test.

## The Quizzes

Students will be given 8 quizzes during the semester. These will be released after the necessary material has been covered in lectures. Each homework exercise is in the form of a short-answer online quiz, and is conducted via the iLearn system. Questions are chosen randomly by iLearn. Students may attempt each quiz as many times as they wish, up to the submission deadline. Each time an exercise is submitted, the students will receive a mark and some brief feedback. For each quiz, only the submission which attracted the highest mark will be used in the calculation of the final grade. The quizzes are of equal value and contribute a total of 10% towards the final grade. The submission deadlines for the quizzes are in the following table.

quiz	Submission deadline
1	Noon, Thursday, Week 6
2	Noon, Friday, Week 7
3	Noon, Friday, Week 8
4	Noon, Friday, Week 9
5	Noon, Friday, Week 10
6	Noon, Friday, Week 11
7	Noon, Friday, Week 12
8	Noon, Friday, Week 13

The quizzes assess the following learning outcomes.

1. The ability to construct point and interval estimators for regression parameters.
2. The ability to conduct tests of hypotheses about regression parameters.
3. The ability to interpret regression output.

## **Tutorial Exercises (Best 6 out of 10 assessable tutorials)**

Tutorials are worth 9% (1.5% each). Assessable tutorials will be held in weeks 2, 3, 4, 5, 8, 9, 10, 11, 12 and 13. There is no assessable tutorial in weeks 6 and 7. In each assessable tutorial class, students will be given a set of exercises based on the work recently covered in lectures. The answers to the questions must be submitted prior to the end of the class. Students may attempt the exercises multiple times during the class. Students are permitted to consult reference material, and to discuss the questions with the tutor and with other students. 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 enrolled. The tutorial exercises require a total of approximately 8 hours of work. Students who do not submit a tutorial exercise in class will be awarded a mark of zero for that particular exercise and will not be permitted to attempt it for credit at a later date. In cases where a student submits a satisfactory Special Consideration application, which explains their non-attendance at a minimum of 3 tutorial classes, and if the student's prior attendance and performance is satisfactory, the weighting of that student's tutorial component will be adjusted accordingly.

In weeks 6 and 7 tutorials will be held if they do not fall on a public holiday. The work in those tutorials is not assessable. You will be able to access the tutorial work in weeks 6 and 7 from any computer which provides access to iLearn.

### **The Homeworks**

Students will be given four homework exercises each worth 9% of the final grade (36% in total). It is intended that students will work on the homework exercises independently. 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. The homework exercises are due in weeks 5, 8, 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 multiple times prior to the deadline, and only the final submission will be marked. Each homework exercise will require approximately 2 hours of work. A few days after the submission of a homework exercise, students will be provided with their mark via the iLearn system. Students who do not submit a homework exercise will be awarded a mark of zero for that exercise. No extensions will be granted. In cases in which a student submits a satisfactory Special Consideration application, which documents incapacitation for at least 3 consecutive days, and if the student has a satisfactory record of attendance and performance in the previous assessment tasks, the weighting of that student's homework component will be adjusted accordingly.

The following learning outcomes will be assessed in the homework exercises.

1. The ability to construct point and interval estimators for regression parameters.
2. The ability to conduct tests of hypotheses about regression parameters.
3. An understanding of alternative regression specifications.
4. The ability to interpret regression output.
5. Familiarity with an econometric software program.

### **The Class Test**

There is one test in ECON241. It will be conducted in lectures in week 10. The test is worth 40% of the final grade. The test is of 60 minutes duration and will be conducted during the lecture classes. Students must attend the lecture class in which they enrolled in order to sit the test. Since the purpose of the test is purely summative, students will not be provided with written feedback. The test assesses the following learning objectives.

1. An understanding of the fundamentals of probability, and their relevance for statistical inference.
2. The ability to construct point and interval estimators for regression parameters.
3. The ability to conduct tests of hypotheses about regression parameters.
4. An understanding of alternative regression specifications.
5. The ability to interpret regression output.
6. Familiarity with an econometric software program.



- Students must be available during the time of their enrolled lecture class to sit the class test. Students who do not attend at the appropriate time and place for an assessment task will earn a mark of zero for that task. The only exception to this rule will be students who apply for, and are granted, Special Consideration.
- Late homework, quizzes and tutorial submissions will not be accepted. At the time of the submission deadline, the highest mark recorded by each student to date for that homework task will be recorded. The homework task will remain accessible to students for revision, but the results of any subsequent attempts will not be used in the calculation of the grade. The only exception to this rule will be students who apply for, and are granted, Special Consideration.
- There is no final examination in ECON241.

### **Schedule of Work Submission**

<b>Weeks</b>	<b>Tutorial/Test</b>	<b>Quizzes</b>	<b>Homework Exercises</b>
1			
2	Tutorial 1		
3	Tutorial 2		
4	Diagnostic Test Tutorial 3		
5	Tutorial 4		Exercise 1
6		Quiz 1	
7		Quiz 2	
8	Tutorial 7	Quiz 3	Exercise 2
9	Tutorial 8	Quiz 4	
10	Class Test Tutorial 9	Quiz 5	
11	Tutorial 10	Quiz 6	Exercise 3
12	Tutorial 11	Quiz 7	
13	Tutorial 12	Quiz 8	Exercise 4

#### **ACADEMIC HONESTY**

The nature of scholarly endeavour, dependent as it is on the work of others, binds all members of the University community to abide by the principles of academic honesty. Its fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.

Further information on the academic honesty can be found in the Macquarie University Academic Honesty Policy at [http://www.mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://www.mq.edu.au/policy/docs/academic_honesty/policy.html)

## **GRADES**

Macquarie University uses the following grades in coursework units of study:

HD - High Distinction  
D - Distinction  
CR - Credit  
P - Pass  
F - Fail

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy which is available at: <http://www.mq.edu.au/policy/docs/grading/policy.html>

## **GRADING APPEALS AND FINAL EXAMINATION SCRIPT VIEWING**

If, at the conclusion of the unit, you have performed below expectations, and are considering lodging an appeal of grade and/or viewing your final exam script please refer to the following website which provides information about these processes and the cut off dates in the first instance. Please read the instructions provided concerning what constitutes a valid grounds for appeal before appealing your grade.

[http://www.businessandconomics.mq.edu.au/new\\_and\\_current\\_students/undergraduate\\_current\\_students/how\\_do\\_i/grade\\_appeals](http://www.businessandconomics.mq.edu.au/new_and_current_students/undergraduate_current_students/how_do_i/grade_appeals)

## **SPECIAL CONSIDERATION**

The University is committed to equity and fairness in all aspects of its learning and teaching. In stating this commitment, the University recognises that there may be circumstances where a student is prevented by unavoidable disruption from performing in accordance with their ability. A special consideration policy exists to support students who experience serious and unavoidable disruption such that they do not reach their usual demonstrated performance level. The policy is available at: [http://www.mq.edu.au/policy/docs/special\\_consideration/policy.html](http://www.mq.edu.au/policy/docs/special_consideration/policy.html)

## **STUDENT SUPPORT SERVICES**

Macquarie University provides a range of Academic Support Services. Details of these and other services for students can be accessed at <http://www.student.mq.edu.au>.

[Individual Unit Convenors may wish to add Unit/ Faculty specific support eg BESS, Room, PAL, E4B Consultation Room.]

## **IT CONDITIONS OF USE**

Access to all student computing facilities within the Faculty of Business and Economics is restricted to authorised coursework for approved units. Student ID cards must be displayed in the locations provided at all times.

Students are expected to act responsibly when using University IT facilities. The following regulations apply to the use of computing facilities and online services:

- Accessing inappropriate web sites or downloading inappropriate material is not permitted. Material that is not related to coursework for approved units is deemed inappropriate.
- Downloading copyright material without permission from the copyright owner is illegal, and strictly prohibited. Students detected undertaking such activities will face disciplinary action, which may result in criminal proceedings.

Non-compliance with these conditions may result in disciplinary action without further notice.

Students must use their Macquarie University email addresses to communicate with staff as it is University policy that the University issued email account is used for official University communication.