Year and Semester: Semester 2, 2011.

Unit convenor: Chris Heaton

Prerequisites: ECON141 or ECON241 or STAT272

Credit points: 3

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 provides an overview of econometric principles of relevance to applied economic/financial research. This unit serves two purposes. Firstly, it may be taken as a general overview for students who do not intend to study further econometrics but who would wish to benefit from an exposure to econometrics beyond the level attainable from ECON241 Introductory Econometrics. As such, students majoring in economics, finance, accounting, business and marketing would find this unit valuable. Secondly, the unit is designed as a prerequisite for more advanced econometrics courses such as ECON333 Econometric Methods. Students who do not wish to pursue ECON333, may nevertheless make use of the background knowledge acquired in this unit to pursue more quantitative works in both academic and business fields. At the end of this unit students are able to apply basic econometric tools to modelling, estimation, inference and forecasting in practice; critically evaluate empirical econometric work; and engage in further studies in econometrics.

TEACHING STAFF

- Unit Convenor: Chris Heaton, E4A-414, 9850-9921, chris.heaton@mq.edu.au
- Teaching Assistant/Tutor: Fazeel Jaleel, fazeel.jaleel@mq.edu.au
- Tutor: Leroy Qian, Leroy.qian@mq.edu.au
- Tutor: Werner Fortmann, Werner.fortmann@mq.edu.au

CONTACTING STAFF

- The best way to get help with the unit material in ECON232 is to put a question on the online discussion forum. This forum is continually monitored by the teaching staff and it provides the quickest way of getting useful assistance. Attachments (e.g. data sets, spreadsheets, code, screen shots, etc) may be included in forum
postings and the website includes instructions for entering mathematical notation. 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 is structured in such a way as to leave time for students to seek help from tutors during class time. Since all tutorials are conducted in the computer laboratories, this will sometimes be the best way to seek help with a problem.

- In general, staff will not respond to individual emails about the unit material since such matters should be discussed in the online discussion forum or in class. Having said this, students are welcome to email staff at any time about personal matters or anything else that is not appropriate for class discussion, and can expect a prompt response. Students who wish to make an appointment to see a staff member in his office should send an email outlining the student’s availability to meet over the following couple of days.

- Students experiencing significant difficulties with any topic in the unit must seek assistance immediately.

### CLASSES

- There is a single 2 hour lecture class per week, each week of semester except Week 13. There is also a 1 hour tutorial class held in weeks 2, 3, 4, 6, 7, 8, 10, 11 and 12. Tests will be held during the tutorial time in weeks 5, 9 and 13.

- Students must enrol in a tutorial class at the start of the semester. Students will not be permitted to change classes at a later date. 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.

- It will be assumed that students regularly attend lectures. Students are also required to attend at least 7 out of the 9 tutorial classes during the weeks where there is no test. Students must also be available to sit the tests during their normal tutorial times in weeks 4, 8 and 13. The timetable for classes can be found on the University web site at: [http://timetables.mq.edu.au/](http://timetables.mq.edu.au/).

- Students who miss classes put themselves at a significant disadvantage for several reasons, including:

  (i) Not all the material in the text is covered in the unit, and not all the material in the unit is covered in the text. In some places the text deals with issues in greater
depth than is necessary for the unit, and in other places it doesn’t go far enough. The lectures contain all the unit material taught at the level required for the assessment tasks, and are your guide to the unit content.

(ii) The approaches to some problems that are recommended by the lecturer are different to those in the text.

(iii) The lectures will include significant guidance about the style and content of the assessment tasks and recommendations about study technique.

(iv) Staff are not able to provide extensive help to students outside class time, and will generally not provide assistance to students whose problems are caused by a failure to attend class and participate in the unit.

**REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS**

- Material such as lecture slides, examples, etc will be made available on the unit website as the unit progresses.

**TECHNOLOGY USED AND REQUIRED**

- The main software used in this unit is gretl. The Windows version may be freely downloaded from [http://gretl.sourceforge.net/win32/](http://gretl.sourceforge.net/win32/). For a Mac version see [http://gretl.sourceforge.net/osx.html](http://gretl.sourceforge.net/osx.html). Linux users should check their repositories (Debian and Ubuntu users can install from standard repos) or download the rpm or source from [http://gretl.sourceforge.net/index.html](http://gretl.sourceforge.net/index.html).
- The online material used in this unit has been tested on Firefox 4. The use of other browsers is possible but not supported.
- Students may need to use a spreadsheet for some parts of this unit. Microsoft Excel will be provided in the computing laboratories and must be used in some tutorials and tests.

**UNIT WEB PAGE**

- The web page for this unit can be found at: [http://econometrics.mq.edu.au/moodle/](http://econometrics.mq.edu.au/moodle/).
- A Blackboard site will also exist for ECON232. However, this will only be used in the unlikely event of a sustained failure of the main website.
LEARNING OUTCOMES

The learning objectives of this unit are to be able to:

- apply basic econometric tools to modelling, estimation, and inference;
- Critically evaluate applied econometric work;
- Engage into further studies in econometrics.

The learning outcomes of this unit are:

- An understanding of basic probability theory as taught in the unit, and the ability to correctly compute probabilistic quantities as taught in the unit.

- An understanding of estimation in general and the estimation of the linear regression model in particular. The ability to estimate linear regression models and interpret the estimation results.

- An understanding of the nature and consequences of heteroskedasticity. The ability to conduct tests for heteroskedasticity and the ability to conduct valid estimation and inference in linear regression models with heteroskedasticity.

- An understanding of the nature and consequences of autocorrelation. The ability to conduct tests for autocorrelation and the ability to conduct valid estimation and inference in linear regression models with autocorrelation.

- An understanding of the nature and consequences of stochastic regressors. An understanding of, and the ability to carry out, Method of Moments estimation, Instrumental Variable estimation and 2SLS estimation. An understanding of endogeneity and its consequences. The ability to test for endogeneity, instrument validity and instrument weakness.

- An understanding of the concepts of stationarity, integration and cointegration. The ability to test for integration and cointegration. An understanding of the consequences of integration and cointegration for the performance of the OLS estimator.

- An understanding of panel structure, the pooled regression model, the seemingly unrelated regression model, the fixed effects model and the random effects model. The ability to test for random effects and endogeneity in panel models, and the ability to compute the fixed effects and random effects estimators and to interpret the estimation results.

- If the Limited Dependent Variable topic is included: An understanding of the linear probability, logit and probit models, their estimation and interpretation. The ability
to estimate the linear probability, logit and probit models and to interpret the estimation results.

**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. Numeracy skills;
2. Computing skills;
3. Critical, Analytical and Integrative Thinking;
4. Problem Solving and Research Capability.

**TEACHING AND LEARNING STRATEGY**

- ECON232 is taught by lectures, set reading, tutorial exercises, class discussion and online discussion. Students are expected to attend lectures, read the texts after the lecture, attend tutorial classes, submit tutorial and homework exercises regularly, and participate in online discussions and class discussions.

**Table 1: An Approximate Schedule of Work**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Tutorials/Tests</th>
<th>Homework Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Probability</td>
<td>Tutorial 1</td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td>Probability</td>
<td>Tutorial 2</td>
<td>Homework 1</td>
</tr>
<tr>
<td>Week 3</td>
<td>Estimation, Regression</td>
<td>Tutorial 3</td>
<td></td>
</tr>
<tr>
<td>Week 4</td>
<td>Heteroskedasticity</td>
<td>Test 1</td>
<td>Homework 2</td>
</tr>
<tr>
<td>Week 5</td>
<td>Heteroskedasticity, Autocorrelation</td>
<td>Tutorial 4</td>
<td></td>
</tr>
<tr>
<td>Week 6</td>
<td>Autocorrelation</td>
<td>Tutorial 5</td>
<td>Homework 3</td>
</tr>
<tr>
<td>Week 7</td>
<td>Stochastic Regressors</td>
<td>Tutorial 6</td>
<td>Homework 4</td>
</tr>
<tr>
<td>Week 8</td>
<td>Stochastic Regressors</td>
<td>Test 2</td>
<td></td>
</tr>
<tr>
<td>Week 9</td>
<td>Stochastic Regressors</td>
<td>Tutorial 7</td>
<td>Homework 5</td>
</tr>
<tr>
<td>Week 10</td>
<td>Integrated Time Series</td>
<td>Tutorial 8</td>
<td></td>
</tr>
<tr>
<td>Week 11</td>
<td>Panel Data</td>
<td>Tutorial 9</td>
<td>Homework 6</td>
</tr>
<tr>
<td>Week 12</td>
<td>Panel Data</td>
<td>Test 3</td>
<td>Homework 7</td>
</tr>
</tbody>
</table>

If this work is completed ahead of schedule then, Limited Dependent Variable models will be studied as a final topic.

**RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES**

Students are required to complete regular tutorial exercises which explore the material which has been covered in the lectures and the reading in previous
weeks. Answers must be submitted in the tutorial class. Students must also complete homework exercises throughout the semester and sit for 3 tests in the computer laboratories. There is no final examination in ECON232.

A list of assessment tasks, their value, and their submission times is presented in Table 2.

Table 2: List of Assessment Tasks

<table>
<thead>
<tr>
<th>Task</th>
<th>Value</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutorial exercises</td>
<td>5% (best 7 out of 9)</td>
<td>Submitted online in enrolled tutorial class in weeks 2, 3, 4, 6, 7, 8, 10, 11 and 12</td>
</tr>
<tr>
<td>Homework</td>
<td>20%</td>
<td>Submitted online by 10am Monday morning in weeks 3, 5, 7, 8, 10, 12, 13</td>
</tr>
<tr>
<td>Test 1</td>
<td>15%</td>
<td>Held in enrolled tutorial class in Week 5</td>
</tr>
<tr>
<td>Test 2</td>
<td>25%</td>
<td>Held in enrolled tutorial class in Week 9</td>
</tr>
<tr>
<td>Test 3</td>
<td>35%</td>
<td>Held in enrolled tutorial class in Week 13</td>
</tr>
</tbody>
</table>

**Tutorial Exercises:** In each 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 9 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.

**Homework Exercises:** Each homework exercise will be released when a sufficient proportion of the necessary work has been covered in class. 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 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. Marks and solutions to the homework exercises will be released within a few days of submission. 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 first homework exercise, which is due in Week 3 is regarded as an early, low risk diagnostic task to provide feedback for students and teachers to address likely learning challenges. Students who perform poorly in this task are encouraged to contact the unit convenor immediately to discuss strategies for completing the unit successfully.

**Tests:** Each test will cover the work that has been done in class since the previous test. The tests will be completed in the tutorial class at the specified times and will be 45 minutes long. Students must attend the tutorial class in which they are enrolled in order to sit the test. Marks will be released within a few days of the completion of the test. Students must bring their Macquarie University student identity card to the test. Students should also bring a pen. The tests are ‘closed book’ and calculators are not permitted. The answers will be submitted online. Exam conditions will be strictly enforced. Students must follow the examiner’s instructions. In cases where students seek to access any form of reference material, communicate with any person other than the examiner, or in any other way gain an unauthorised advantage, the students involved will be awarded a mark of zero for that particular test, will not be permitted to resit the test, and may be reported to the University Disciplinary Committee for further action. If a student does not sit a test, then a mark of zero will be awarded for that particular test, and the student will not be permitted to sit the test at another time. The only exception to this rule is in cases where a student makes a successful application for Special Consideration. In such cases, a supplementary test will be scheduled, which the student must sit. Students will not be granted Special Consideration for a test if their prior attendance and/or performance in assessment tasks is unsatisfactory.

**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:

**GRADING APPEALS**

If, at the conclusion of the unit, you have performed below expectations, and are considering lodging an appeal of grade, 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.businessandeconomics.mq.edu.au/new_and_current_students/undergraduate_current_students/how_do_i/grade_appeals

Since there is no final exam in ECON232, it is assumed that all issues with the assessment tasks have been resolved prior to the release of the final grades.

**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/procedure.html

**STUDENT SUPPORT SERVICES**

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at http://www.student.mq.edu.au.

**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 utilising 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 unit 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.