

MACQUARIE  
UNIVERSITY



FACULTY OF  
BUSINESS AND ECONOMICS

**ECON361**  
**Economic and Business**  
**Forecasting**

**Semester 1, 2012**

*Department of Economics*

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

**Year and Semester:** Semester 1, 2012.

**Unit convenor:** Chris Heaton

**Prerequisites:** (ECON141 or ECON241 or STAT272)  
and (ECON200 or ECON201 or ECON203 or  
ECON204)

**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 introduction to economic forecasting. The topics covered usually include exponential smoothing, ARIMA and vector autoregression. The emphasis of the unit is on producing sound solutions to practical forecasting problems, rather than proving theoretical results for their own sake. The unit material is illustrated with applications to forecasting problems in economics and business, and the assigned work requires students to produce their own forecasts. Practical work is carried out using an econometric software package. The objective of the unit is to produce graduates who understand the nature of forecasting problems and can produce sound forecasts for use in business and economic analysis.

#### **TEACHING STAFF**

- Convenor: Chris Heaton, E4A-414, 9850-9921, [chris.heaton@mq.edu.au](mailto:chris.heaton@mq.edu.au).
- Tutor: Prashan Karunaratne, E4A-449, 9850 8409, [prashan.karunaratne@mq.edu.au](mailto:prashan.karunaratne@mq.edu.au).

#### **CONTACTING STAFF**

- The best way to get help with the unit material in ECON361 is to put a question on the relevant online discussion forum. The forums are continually monitored by the teaching staff and provide the quickest way of getting useful assistance. Attachments (e.g. data sets, spreadsheets, code, screen shots, etc) may be included in forum postings and mathematical notation may be used. 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 7. There is also a 1 hour tutorial class held in weeks 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 13. A class test will be held during the tutorial time in Week 12.
- 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, however this cannot be enforced. Students must attend the tutorial class during the week of the class test. Students are also required to attend at least 9 out of the 11 tutorial classes during the weeks where there is no test.
- The timetable for classes can be found on the University web site at: <http://www.timetables.mq.edu.au/>

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

- Students are not required to purchase a textbook for ECON361. A detailed reading list will be on the unit website, and all references are available via the Library eReserve. Students are expected to read this material.

## 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/>. For a Mac version see <http://gretl.sourceforge.net/osx.html>. Linux users should check their repositories or download the rpm or source from <http://gretl.sourceforge.net/index.html>.
- Students will 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 the tutorials and tests.

## UNIT WEB PAGE

- The web page for this unit can be found at: <http://ilearn.mq.edu.au>

## LEARNING OUTCOMES

The learning objectives of this unit are:

- to understand the nature of forecasting and to recognise forecasting problems in practice;
- to be able to construct forecasts using some standard forecasting models;
- to be capable of assessing competing forecasting models;

The learning outcomes of this unit are:

- the ability to estimate measures of forecast accuracy and rank forecasting models;
- the ability to seasonally adjust and detrend data;
- the ability to choose between alternative smoothing models in practice;
- the ability to implement smoothing models to produce forecasts;
- the ability to identify, estimate and forecast with ARIMA models and their extensions;
- the ability to specify, estimate and forecast with vector autoregressions.

## 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

- ECON361 is taught by lectures, set reading, tutorial exercises (Assessed Coursework), homework (Assignments), an Assignment (Report), class discussion and online discussion. Students are expected to attend lectures, read the relevant material after the lecture, attend tutorial classes, submit tutorial and other exercises regularly, and participate in online discussions and class discussions.

Table 1: An Approximate Schedule of Work

Week	Topic	Tutorials/Test	Work Due
Week1	Introduction		
Week2	Forecast evaluation	Tutorial 1	
Week3	Time series decomposition	Tutorial 2	Homework 1
Week4	Exponential smoothing	Tutorial 3	
Week5	Exponential smoothing	Tutorial 4	Homework 2
Week6	ARIMA	Tutorial 5	
Week7	Anzac Day – no lecture	Tutorial 6	Homework 3
Week8	ARIMA	Tutorial 7	
Week9	ARIMA	Tutorial 8	Homework 4
Week10	ARIMA	Tutorial 9	
Week11	Vector autoregression	Tutorial 10	Assignment
Week12	Vector autoregression	Class Test	Homework 5
Week13	Combined forecasts	Tutorial 11	
Week14			Homework 6

### RELATIONSHIP BETWEEN ASSESSMENT AND LEARNING OUTCOMES

Students are required to complete regular tutorial exercises which explore the material which has been covered in the lecture and the reading in the previous week. Answers must be submitted in the tutorial class. Students must also complete homework exercises throughout the semester, sit for a class test, and submit an assignment. There is no final examination in ECON361.

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

Table 2: List of Assessment Tasks

Task	Value	Due
Tutorial exercises	10% (best 9 out of 11)	Submitted online in enrolled tutorial class in weeks 2 to 11 and Week 13.
Homework	35%	Submitted online by 8am Monday morning in weeks 3, 5, 7, 9, 12 and 14.
Assignment	20%	Submitted online by 8am on Monday in Week 11.
Class test	35%	Held in enrolled tutorial class in Week 12.

**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 and students will have their work returned to them with marks that indicate the number of questions correctly answered. 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. Students must bring their Macquarie University student identification cards to the tutorials and display them at the computer terminal. The tutorial exercises require a total of approximately 11 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, the weighting of that student's tutorial component will be adjusted accordingly.

**Homework Exercises:** The homework exercises will be released progressively throughout the semester, and will cover work done since the previous homework exercise, and occasionally some earlier work. It is intended that students will work on the homework exercises independently. Students who breach the University's Academic Honesty policy 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 homework exercise will require approximately 3 hours of work. Homework exercises will be returned to students with marks and solutions, usually within a few days of submission. The marks that students are awarded for homework exercises indicated the number of questions that they answered correctly. 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, the weighting of that student's homework component will be adjusted accordingly.

**Assignment:** The assignment question will be released after sufficient material has been covered for students to begin working on it productively. Students must work on

the assignment independently. Students who breach the University's Academic Honesty policy 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 assignment must be submitted online prior to the due date and time. The assignment will require approximately 10 hours of work. It is anticipated that the marked assignment will be returned to students prior to the end of Week 13. Students who do not submit the assignment will be awarded a mark of zero. No extensions will be granted except in cases in which a student submits a satisfactory Special Consideration application, which documents incapacitation for at least 3 consecutive days.

**Oral Defences:** Shortly following the submission deadline for each homework exercise and the assignment, a number of students may be required to present an oral defence of their submitted work. Students who are selected to present an oral defence will be contacted via their Macquarie University student email account and must attend at the time and place allocated to them. In the oral defence, the student will be asked to work through the relevant exercise or assignment in the presence of teaching staff from the unit, and to explain how he or she answered each question. The student may also be asked supplementary questions about the exercise or assignment. The student will be assigned a mark for the oral defence that will override the mark that was awarded for the submitted version of the exercise or assignment. Verbal feedback will be provided at the time. A student who does not attend an oral defence that he or she was selected to present will be awarded a mark of zero for that task.

**Test:** The test will cover the work that has been done in class since the start of the semester. The test 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. The test is intended purely as an assessment exercise and the questions and answers will not be returned to students. Students must bring their Macquarie University student identity card to the test. Students should also bring a pen. The test is 'closed book' and calculators are not permitted. Students will be provided with paper for rough work, but 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, 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 for the student.

## 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**

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.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/procedure.html](http://www.mq.edu.au/policy/docs/special_consideration/procedure.html).

For the purposes of Special Consideration, a student's prior performance in the unit will be regarded as satisfactory if the student has been absent from a maximum of two previous tutorial classes, and the student has submitted all previous homework exercises, and the student has achieved an aggregate raw mark of 50% or greater in the tutorial exercises completed to date, and the student has achieved a raw mark of 50% or greater in all the homework exercises to date.

## **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.