



ECON361

Economic and Business Forecasting

S1 Day 2014

Economics

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General Information

Unit convenor and teaching staff

Unit Convenor

Chris Heaton

chris.heaton@mq.edu.au

Contact via chris.heaton@mq.edu.au

E4A-414

By appointment (currently enrolled students should consult the section on contacting staff in iLearn. Others should email the Unit Convenor at the above email address).

Credit points

3

Prerequisites

27cp including (6cp at 200 level including (ECON241 or STAT272))

Corequisites

Co-badged status

Unit description

This unit provides an introduction to quantitative economic forecasting. The broad topics covered include exponential smoothing, ARIMA and vector autoregression. The emphasis of the unit is on the practical aspects of forecasting. Theory is developed only to the point necessary to understand the forecasting procedures introduced in the unit. Students are given regular forecasting exercises throughout the unit. 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.

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:

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.

The ability to specify, estimate and forecast with vector autoregressions.

Basic literacy in the R programming language.

Assessment Tasks

Name	Weighting	Due
Tutorial Exercises	10%	Week 2-13
Homework	50%	Weeks 7, 10 and 14
Assignments	40%	Weeks 8 and 12

Tutorial Exercises

Due: **Week 2-13**

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 assesses work that has been covered in previous lectures, with an emphasis on the most recent work. Students are permitted to re-attempt questions that they have incorrectly answered any number of times during the class, but a penalty of 20% will apply to each question, each time that each question is re-attempted (i.e. the maximum available marks from each question decays linearly as the number of attempts increases). The best 10 out of 12 tutorial results will contribute 1% each to the final grade.

Extension

No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task, except for cases in which an application for Special Consideration is made and approved. Since only 10 out of the 12 tutorials count towards the final grade, to be valid, an application for Special Consideration must account for a student's absence from at least 3 tutorial classes.

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. **Note that tutorial attendance is required.** Students who do not attend at least 9 out of the 12 tutorials without a successful application for Special Consideration may be deemed to have unsatisfactory attendance and consequently be refused permission to continue in the unit and awarded a grade of F irrespective of their performance in other components of the assessment. 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:

- 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.
- The ability to specify, estimate and forecast with vector autoregressions.
- Basic literacy in the R programming language.

Homework

Due: **Weeks 7, 10 and 14**

Weighting: **50%**

Each homework exercise assesses work covered in lectures up to the the submission deadline and contributes equally to the final assessment. The deadlines are in weeks 7, 10 and 14 on Mondays at 8am.

Submission

Each homework exercise will be a web-based task made available on iLearn once sufficient material has been covered in lectures to enable students to start the work. Responses to the homework questions must be submitted via the iLearn interface for the homework task. Each homework exercise may be submitted once only. Shortly following the submission deadline for each homework exercise, 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 (at short notice) via their Macquarie University student email account and must attend at the time and place allocated to them. In the oral defence, the student may be asked to work through the relevant exercise 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 same topics. 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. 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. Students must read their Macquarie University email at least every 24 hours. Failure to read the relevant email cannot will not be accepted as a valid

excuse for not attending an oral defence.

Extension

No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task, except for cases in which an application for Special Consideration is made and approved.

What is required to complete the unit satisfactorily

Students must demonstrate satisfaction of the learning objectives assessed in each particular homework exercise. Students will be awarded a numerical mark for each exercise that indicates the proportion of the questions that they answered correctly. It should be noted that the final grade for a student will not be computed simply by summing the marks attained in individual assessment tasks. Rather, the grading process will take into account which questions were answered correctly or incorrectly and what that indicates about the extent to which the student has achieved the learning outcomes of the unit. Many questions in the homework exercises will be quite close to work that has been covered in the lecture program and in tutorials (i.e. they ask the student to do little more than replicate the unit material as presented to them). The responses to these questions will be of most interest in determining whether the student is awarded a grade of P. The homework exercises will also contain several questions that ask students to extend the unit material, or approach it in a way that is in some sense different to what was covered in the lectures (i.e. they seek evidence of learning that goes beyond replication of content). The responses to these questions will be of most interest when determining whether the student is awarded a grade of Cr.

Consequently, while the aggregate mark attained in homework exercises will be broadly indicative of the level of student achievement, there is no exact functional relationship between the total mark and the grade awarded. Students are encouraged to read the grade descriptors in the grading policy and reflect on the extent to which their submitted work corresponds to each of the descriptors. Students are welcome to contact the Unit Coordinator at any time to discuss their work and the evidence that is provides of their learning achievement.

It is intended that students will work on the homework exercises independently. Students who collude or otherwise violate the Academic Honesty Policy will face further action which may result in failure in the unit (with an SNG of zero) and more severe penalties.

On successful completion you will be able to:

- 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.
- The ability to specify, estimate and forecast with vector autoregressions.
- Basic literacy in the R programming language.

Assignments

Due: **Weeks 8 and 12**

Weighting: **40%**

Each assignment assesses work covered in lectures up to the the submission deadline and contributes equally to the final assessment.

Submission

Each assignment must be submitted via the relevant links in iLearn prior to the deadline. No other form of submission is acceptable. Each assignment may be submitted once only. Submission instructions and information about the requirements of the assignments will be provided in class and on iLearn. Following the submission deadline for each 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 (at short notice) and must attend at the time and place allocated to them. In the oral defence, the student may be asked to work through the relevant assignment in the presence of teaching staff from the unit, and to explain how he or she completed the assignment. The student may also be asked supplementary questions. 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 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. Students must read their Macquarie University email at least every 24 hours. Failure to read the relevant email cannot will not be accepted as a valid excuse for not attending an oral defence.

Extension

No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task, except for cases in which an application for Special Consideration is made and approved.

What is required to complete the unit satisfactorily

For each assignment, students will be awarded a mark that reflects their level of achievement indicated by the grade descriptors and the cut-off marks for the SNG described in the Grading Policy. For example, a mark of less than 50% would indicate a failure to demonstrate achievement of the learning outcomes under consideration; a mark of greater than 84% would indicate the achievement of deep and critical understanding; etc. The primary purpose of the assignments is to assess students for the grades of D and HD. It is not necessary for students to

perform well in the assignments in order to pass the unit since they may demonstrate satisfactory achievement of the learning outcomes in the homework exercises. Nonetheless, in cases where inadequate evidence of learning achievement was presented in the homework, it may be possible for the required evidence to be presented in the assignments.

It is intended that students will work on the assignments independently. Students who collude or otherwise violate the Academic Honesty Policy will face further action which may result in failure in the unit (with an SNG of zero) and more severe penalties.

On successful completion you will be able to:

- 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.
- The ability to specify, estimate and forecast with vector autoregressions.
- Basic literacy in the R programming language.

Delivery and Resources

Classes

- There is a single 2 hour lecture class per week. There is also a 1 hour tutorial class held in each of weeks 2 to 13. Students must enrol in a tutorial class at the start of the semester.
- Students will not be permitted to change tutorial classes after COB on Friday in Week 2. Because of resource constraints, and the fact that tutorial work is assessable, students will generally not 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 are required to attend at least 9 out of the 12 tutorial classes. Students who attend fewer classes may be refused permission to continue in the unit and/or may not be considered for a passing grade in the unit.
- 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 ECON361 is the R programming language. The Windows and Mac versions may be freely downloaded from <http://www.r-project.org/>. Linux users may find R in their distribution's repositories, but since this version is likely to be old, it is recommended that students follow the instructions on the R website to add an R mirror to their repositories.
- 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. The assignments may require the submission of an spreadsheet which must be in a recent Excel format.

Unit Web Page

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

Teaching and Learning Strategy

ECON361 is taught by lectures, set reading, tutorial exercises (Assessed Coursework), homework (Assignments), Assignments (Reports), 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.

What has changed?

The homework tasks are now worth 50% instead of 60% and the assignments are worth 40% instead of 30%.

Unit Schedule

Week	Topic	Tutorials/Test	Work Due
Week 1	Introduction		
Week 2	Forecast evaluation	Tutorial 1	
Week 3	Time series decomposition	Tutorial 2	
Week 4	Exponential smoothing	Tutorial 3	
Week 5	Exponential smoothing	Tutorial 4	

Week 6	ARIMA	Tutorial 5	
Week 7	ARIMA	Tutorial 6	Homework 1
Week 8	ARIMA	Tutorial 7	Assignment 1
Week 9	ARIMA	Tutorial 8	
Week 10	ARIMA	Tutorial 9	Homework 2
Week 11	Vector autoregression	Tutorial 10	
Week 12	Vector autoregression	Tutorial 11	Assignment 2
Week 13	Combined forecasts	Tutorial 12	
Week 14			Homework 3

Note: This schedule is approximate and is subject to change according to the rate of progress made.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of 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/support/student_conduct/

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

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

During the semester, if you wish to query a mark awarded to you for a particular assessment task then you should email the Unit Convenor within 1 week of the marked task being returned to you. Your email should clearly state the nature of your query and any grounds you have for suspecting that an error has been made in the calculation of your mark. 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/

Note that the instructions on this page assume the existence of a final examination. For ECON361, the requirement that students request an exam script viewing prior to lodging a grade appeal does not apply.

Special Consideration Policy

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

The policy states that "For an application to be valid, the student must have been performing satisfactorily in the unit prior to experiencing serious and unavoidable disruption." In this context, satisfactory performance will be defined as: 1. Submission of all prior homework and assignments, and 2. Absence from at most two prior tutorials, and 3. An average mark of at least 50% in all homework tasks to date, and an average mark of at least 50% in all assignments to date, and an average mark of at least 50% in all tutorial exercises submitted to date.

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://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

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

- 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.
- The ability to specify, estimate and forecast with vector autoregressions.
- Basic literacy in the R programming language.

Assessment tasks

- Tutorial Exercises
- Homework
- Assignments

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:

Assessment task

- Assignments

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:

Assessment task

- Assignments