FOBE740

Quantitative Research Approaches in Business and Economics 2

S2 Day 2016

Business and Economics Faculty level units

Contents

Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

General Information

Unit convenor and teaching staff
Unit Convenor
Roselyne Joyeux
roselyne.joyeux@mq.edu.au
Contact via roselyne.joyeux@mq.edu.au
E4A440
Wednesday 11am to 1pm

Credit points
4

Prerequisites
Admission to MRes

Corequisites

Co-badged status

Unit description
This unit focuses on advanced statistical approaches used in Business and Economics and related disciplines. Topics include statistical modelling, time series analysis, ARCH, GARCH model, longitudinal and panel data models, generalized linear models and limited dependent variables. The unit will also consider applications of the above models and techniques to these disciplines.

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 a range of generalizations of regression and how to apply them.

Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.

Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.

Undertand the concepts of unit root and explosive roots.

Test for unit roots and explosive roots.

General Assessment Information

Details of these assessment tasks will be given in the lecturers, and will be posted on iLearn.

Tutorial exercises

The weekly exercises require access to a statistical package. Students are expected to attempt the tutorial exercises.

Midterm test

A 70-minute test covering all of the material up to week 7 will be held in lecture time in week 8.

Student Research Proposal/ Project

Students will outline a quantitative problem, research relevant literature, access data, apply one or more of the techniques discussed in class to address the problem and write up a report on the same. Submission as per the class timetable and to be further discussed in class.

This is to be completed as an individual piece of work. The report should range from between 9-10 pages or 3500-4000 words in length. A hard copy needs to be submitted as well as a copy uploaded to "Turn-it-in" (via iLearn). The project is worth 30% of the course grade.

Final examination

The final exam will be of a two-hour duration and will be held as per exam time table.

Assessment Tasks

Name	Weighting	Due
Participation - class	10%	All session
Tutorial questions	10%	All session
Midterm	20%	Week 8, Lecture time
Project	30%	Week 13
Final Exam	30%	As per exam timetable

Participation - class

Due: **All session**
Weighting: **10%**

Participation in lectures and tutorials.

On successful completion you will be able to:
- Understand a range of generalizations of regression and how to apply them.

- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.
- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.

Tutorial questions

Due: **All session**
Weighting: **10%**

Attempt tutorial questions

On successful completion you will be able to:
- Understand a range of generalizations of regression and how to apply them.
- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.
- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.
- Undertand the concepts of unit root and explosive roots.
- Test for unit roots and explosive roots.

Midterm

Due: **Week 8, Lecture time**
Weighting: **20%**

-

On successful completion you will be able to:
- Understand a range of generalizations of regression and how to apply them.
- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.
- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.
- Undertand the concepts of unit root and explosive roots.
- Test for unit roots and explosive roots.

Project

Due: **Week 13**
Weighting: **30%**

-

On successful completion you will be able to:

- Understand a range of generalizations of regression and how to apply them.
- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.
- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.
- Undertand the concepts of unit root and explosive roots.
- Test for unit roots and explosive roots.

Final Exam

Due: **As per exam timetable**
Weighting: **30%**

-

On successful completion you will be able to:

- Understand a range of generalizations of regression and how to apply them.
- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.
- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.
- Undertand the concepts of unit root and explosive roots.
- Test for unit roots and explosive roots.

Delivery and Resources

Lecture and Tutorial times

Classes for FOBE740 are scheduled as per the class timetable available at http://www.timetables.mq.edu.au/

There will be 3 hours face-to-face teaching per week consisting of one two-hour lecture and one hour tutorial. Lectures and tutorials are held in the computer labs.

Technology used and required

If you are enrolled in this unit, you will be listed in the FOBE740 online unit (iLearn). Login at http://ilearn.mq.edu.au/

The site will be used to post any additional lecture slides, handouts, and assignment.   The site contains a "forum" to which you may contribute.   Please log in to the site on a regular basis.

Required and Recommended Texts and/or Materials

The recommended textbooks for FOBE740 are:

1. Ouliaris, S., Pagan, A. and Restrepo, J. (2016) Quantitative Macroeconomic Modeling with Structural Vector Autoregressions – An EViews Implementation (can be downloaded **for free** from http://www.eviews.com/StructVAR/structvar.html).

2. Hill, C. H., Griffiths, W. E. and Lim, G. C. (2011) *Principles of Econometrics* (4th ed.) Wiley.

3. Wooldridge, J. (2008) *Introductory Econometrics: A Modern Approach (4th ed.)* Cengage Learning.

- A list of prescribed reading will be developed on the website as the unit progresses.

Teaching and Learning Strategy

- Students are expected to complete all pre-class preparation tasks in advance of that particular class.

- Please make notes summarizing the pre-class readings. These notes do not need to be submitted for assessment; however they will permit discussion of the questions and material in class.

- Students are expected to attend and participate in all classes.

Information

Details of the assessment tasks will be given in lectures and posted on iLearn. You should check iLearn regularly.

About this Unit

This unit is one of core courses of the MRes program for FBE students who require advanced quantitative skills in their research. This unit provides students with an introduction to quantitative research approaches within business, economics and finance. It seeks to develop students understanding of the contexts in which quantitative research can be undertaken and the ability to analyse, conduct, and evaluate quantitative forms of research. It is designed for those who have had little or no quantitative training in their undergraduate degree but who needs quantitative skills for specialisations in the areas of business, demography, economics, finance, and marketing.

Assumed background

A one—semester rigorous introduction to probability and statistics is assumed.

Unit Schedule

Week	Topic	Tutorial Topic
1	Stationarity, Integration and ARIMA Models	Introduction to software
2	Testing for unit roots and bubbles	Computer exercise
3	Cointegration	Computer exercise
4	Testing for cointegration	Computer exercise
5	VAR and VECM	Computer exercise
6	VAR and VECM	Computer exercise
7	Testing restrictions in VAR models	Computer exercise
Mid	**Semester**	**Break**
8	SVAR	Mid Term Test
9	Impulse response functions	Computer exercise
10	Impulse response functions	Computer exercise
11	Volatility models	Computer exercise
12	Volatility models	Computer exercise
13	Review	Review

The list of topics above is only provisional and will be changed according to students backgrounds and interests.

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

New Assessment Policy in effect from Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy_2016.html. For more information visit http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/

Assessment Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy prior to Session 2 2016 http://mq.edu.au/policy/docs/grading/policy.html

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

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.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/

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.

Supplementary exam information

The dates and details relating to supplementary exams are at the following link:

http://www.businessandeconomics.mq.edu.au/current_students/undergraduate/how_do_i/special_consideration

Policy regarding late submission of assessments

Late assignments will be accepted, but will incur a penalty of 10% of the total available marks for each 24 hour period late or part thereof.

Students who do not submit an assignment will be awarded a mark of zero for that assessment except for cases in which an application for special consideration is made and approved.

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

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcome

- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.

Assessment tasks

- Participation - class
- Project

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Understand a range of generalizations of regression and how to apply them.
- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.

- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.
- Undertand the concepts of unit root and explosive roots.
- Test for unit roots and explosive roots.

Assessment tasks

- Participation - class
- Tutorial questions
- Midterm
- Project
- Final Exam

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Understand a range of generalizations of regression and how to apply them.
- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.
- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.
- Undertand the concepts of unit root and explosive roots.
- Test for unit roots and explosive roots.

Assessment tasks

- Participation - class
- Tutorial questions
- Midterm
- Project
- Final Exam

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or

practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Understand a range of generalizations of regression and how to apply them.
- Have a broad understanding of modelling and inference in time series analysis including ARIMA and VAR models, unit roots and cointegration, GARCH models.
- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.
- Undertand the concepts of unit root and explosive roots.
- Test for unit roots and explosive roots.

Assessment tasks

- Participation - class
- Tutorial questions
- Project
- Final Exam

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcome

- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.

Assessment tasks

- Participation - class
- Project

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcome

- Understand how linear models, time series models and various generalizations are applied and how empirical results are communicated in practice.

Assessment tasks

- Participation - class
- Project

Research and Practice

- The unit is designed to equip students to embark on their individual higher degree research projects.
- A number of reading, writing and analytical tasks are set. Responses to some of these tasks are discussed in class, whereas others will be submitted for assessment. The tasks will contribute directly to the Research Protocol submission and/or PhD thesis.
- The unit is delivered in accordance with current academic teaching and learning pedagogies.