



ECON141
Introductory Econometrics
First Semester, 2009

UNIT OUTLINE

1. Overview of ECON141

The aim of ECON141 is to acquaint students with econometric techniques frequently used in the analysis of economic, financial and marketing data. A basic level of competence in using these techniques, together with an appreciation of their strengths and limitations, is essential for economists, financial analysts and market researchers.

The unit builds on statistical techniques covered in STAT170 (Introductory Statistics) with emphasis given to applications in economics, finance and marketing. Mathematical proofs and derivations are considered only to the extent necessary to facilitate an understanding of key concepts and the interpretation of results.

During the semester students will be required to use the WINDOWS based computer program ECSTAT, which runs in EXCEL. The use of this computer program is an integral component of tutorial exercises, supplementary and revision exercises, and the assignment. Instruction in the use of the computer program will be given in lectures, tutorials and practicals as required. The computing component of the unit is not examinable in the within-semester class test, the two mid-semester examinations or end-of-semester examination.

"Louis Armstrong was an economist. Every note was important, and it counted for something."

–ABC television program on Jazz.

"Econometrics is the quantitative arm of economics. It is the closest that economics gets to being a science."

–Roger Tonkin
Lecturer in Econometrics
Macquarie University

2. Prerequisites

ECON141 has two prerequisites. Students must have obtained at least a PC (or CQ) in:

(i) STAT170, or STAT171;

and

(ii) ECON110, or ECON111, or BBA103

2a. Mathematics prerequisite for ECON141

Prior to 2009 students enrolling in ECON141 must have obtained a pass grade in mathematics at a level equivalent to 2 Unit Mathematics for the New South Wales Higher School Certificate (HSC). Commencing in the first semester, 2009, that formal mathematics prerequisite will no longer apply. However, an understanding of the material covered in ECON141 is greatly enhanced if students are familiar with elementary concepts associated with the use of exponentials, logarithms, and calculus. For students who have not previously studied these aspects of mathematics, or for students who feel they need to revise their High School mathematics, a set of notes and exercises with worked solutions will be provided on Blackboard and on e-Reserve. There will also be a non-examinable, optional, mathematics *Workshop* as part of the tutorial program. ECON141 students do not need to become experts in the use of exponentials, logarithms or calculus, but they do need to appreciate how results obtained using these mathematical tools are constructed, and more importantly, how those results should be interpreted. Calculus is **not** examinable in the End-of-Semester examination.

3. ECON141 Web Page

The web address for the Online Teaching Facility at Macquarie University is: <http://learn.mq.edu.au>. Students enrolled in ECON141 can access the Blackboard web site for ECON141 from the Online Teaching Facility.

4. Workload

Students are expected to devote AT LEAST nine hours each week to ECON141, including attendance at Lectures, Tutorials and the Computing Practical.

5. Text-book

The prescribed text-book for the unit is:

Gujarati, D.N.
ESSENTIALS OF ECONOMETRICS, Third Edition
McGraw-Hill/Irwin, 2006

Bound copies of the Lecture Notes used in ECON141 can be purchased from the University Cooperative Bookshop. The Lecture Notes, together with the lectures and text-book references, provide students with a clear indication of the content and scope of the unit.

Students enrolled in ECON141 are strongly advised to purchase a copy of the Lecture Notes and a copy of the text-book.

6. Recommended Reference Books

The following reference books are highly recommended for all students enrolled in ECON141:

Studenmund, A.H.
USING ECONOMETRICS: A PRACTICAL GUIDE, Fifth Edition,
Pearson/Addison-Wesley, 2006

Dougherty, C.
INTRODUCTION TO ECONOMETRICS, Third Edition,
Oxford University Press, 2007

These two books have excellent non-technical discussions of the material discussed in ECON141. Some of the notation and some of the mathematical conventions used in formulae and equations in Studenmund's book differ from the notation and conventions used in many introductory econometric text-books and in ECON141. For that reason, and only for that reason, Studenmund's text-book cannot be recommended as a prescribed text-book for ECON141. However, there is a strong argument that students should be made aware of the differences in notation and conventions that exist in the econometric literature. The book by Studenmund serves that purpose for students enrolled in ECON141, in addition to providing a clear non-technical discussion of basic econometric concepts and procedures.

7. Supplementary Reading

There are a number of introductory books on Economic Statistics, Regression Analysis and Econometrics. Students may find the following books useful:

Bechtold, B., and R. Johnson,
STATISTICS FOR BUSINESS AND ECONOMICS,
PWS-Kent, 1989

Berenson, M.L., and D.M. Levine
BASIC BUSINESS STATISTICS, 5th Edition,
Prentice-Hall, 1992

Berry, W.D., and S. Feldman
MULTIPLE REGRESSION IN PRACTICE
Sage Publications, 1985

- * *Cameron, S.*
ECONOMETRICS
McGRAW-Hill, 2005

- Croucher J.S., and E. Oliver*
STATISTICS: A MODERN INTRODUCTION FOR BUSINESS AND
MANAGEMENT,
McGraw-Hill, 1986

- * *Halcoussis, D.,*
UNDERSTANDING ECONOMETRICS,
South-Western (Thompson), 2005

- * *Eastman, B.D.*
INTERPRETING MATHEMATICAL ECONOMICS AND
ECONOMETRICS
St Martin's Press, 1984

- * *Griffiths, W., R.C. Hill & G.G. Judge*
LEARNING AND PRACTICING ECONOMETRICS
Wiley, 1993

- * *Harrison, S.R., and R.H.U. Tamaschke*
APPLIED STATISTICAL ANALYSIS
Prentice-Hall, 1984

- * *Harrison, S.R., and R.H.U. Tamaschke*
STATISTICS FOR BUSINESS, ECONOMICS AND MANAGEMENT
Prentice-Hall, 1993

- Hebden, J.*
STATISTICS FOR ECONOMISTS
Philip Allan, 1981

- Hey, J.D.*
STATISTICS IN ECONOMICS
Martin Robertson, 1974

- ** *Hill, C., W. Griffiths and G. Judge*
UNDERGRADUATE ECONOMETRICS
John Wiley & Sons, 1997

- ** *Kelejian, H.W., and W.E. Oates*
INTRODUCTION TO ECONOMETRICS, 2nd Edition
Harper & Row, 1981

- * *Kennedy, P.*
A GUIDE TO ECONOMETRICS, 5th Edition
Blackwell, 2003

- Kenkel, J.L.*
INTRODUCTORY STATISTICS FOR MANAGEMENT & ECONOMICS,
3rd Edition, PWS-Kent, 1984

- ** *Kmenta, J.*
ELEMENTS OF ECONOMETRICS
Macmillan, 1971

- * *Koutsoyiannis, A.*
THEORY OF ECONOMETICS, 2nd Edition
Macmillan, 1977.

- * *Lewis-Beck, M.S.*
APPLIED REGRESSION: AN INTRODUCTION
Sage Publications, 1980

- * *Lewis, D.E., D.T. O'Brien and D. Thampapillai*
STATISTICS FOR BUSINESS AND ECONOMICS
Harcourt Brace Jovanovich, 1990.

- Mansfield, E.*
STATISTICS FOR BUSINESS & ECONOMICS, 2nd Edition
Norton, 1983

- ** *Mirer, T.W*
ECONOMIC STATISTICS & ECONOMETRICS,
Macmillan, 1983

- ** *Pindyck, R.S., and D.L. Rubinfeld*
ECONOMETRIC MODELS AND ECONOMIC FORECASTS, 4th Edition,
McGraw-Hill International, 1998

- Round, D.K., and A.J. Arnold*
ECONOMIC AND BUSINESS STATISTICS PRACTICAL APPLICATIONS
WITH MINITAB AND SAS,
Harper & Row, 1988

- * *Schroeder, L.D., D.L. Sjoquist and P.E. Stephan*
UNDERSTANDING REGRESSION ANALYSIS: AN INTRODUCTORY
GUIDE,
Sage Publications, 1986

Selvanathan, A., Selvanathan S., Keller G., Warrack B., and H. Bartel
AUSTRALIAN BUSINESS STATISTICS
Thomas Nelson Australia, 1994

Thomas, J.J.
AN INTRODUCTION TO STATISTICAL ANALYSIS FOR ECONOMISTS
Weidenfeld and Nicolson, 1983

** *Thomas, R.L.*
MODERN ECONOMETRICS: AN INTRODUCTION
Addison-Wesley, 1997.

Webster, A.
APPLIED STATISTICS FOR BUSINESS AND ECONOMICS
Irwin, 1992

Wonnacott, T.H., and Wonnacott R.J.
INTRODUCTORY STATISTICS FOR BUSINESS AND ECONOMICS,
4th edition, Wiley, 1990

* Very good non-technical references

** Very good technical references

8. Other Entry-Level and Intermediate-Level Econometric Text-books

Students who are majoring in Economics, Applied Econometrics or Applied Finance, or who are considering a major in these areas, may find the following recently published books useful:

Gujarati, D.N.
BASIC ECONOMETRICS, 4th Edition,
McGraw-Hill, 2003

Koop, G.
ANALYSIS OF ECONOMIC DATA, 2nd Edition,
Wiley, 2005

Heij, C., P. de Boer, P.H. Franses, T. Kloek and H.K. van Dijk
ECONOMETRIC METHODS WITH APPLICATIONS IN BUSINESS AND
ECONOMICS, Oxford University Press, 2004

Murray, M.P.
ECONOMETRICS: A MODERN INTRODUCTION
Addison-Wesley / Pearson International, 2006

Patterson, K.
AN INTRODUCTION TO APPLIED ECONOMETRICS: A TIME SERIES APPROACH, Palgrave, 2000

Schmidt, S.J.
ECONOMETRICS
McGraw-Hill Irwin, 2005

Stock, J.H., and M.W. Watson
INTRODUCTION TO ECONOMETRICS, 2nd Edition,
Addison-Wesley / Pearson International, 2007

Verbeek, M.
A GUIDE TO MODERN ECONOMETRICS, 2nd Edition,
Wiley, 2004

Vogelvang, B.
ECONOMETRICS: THEORY AND APPLICATIONS WITH EVIEWS
Pearson Education / Prentice-Hall, 2005

Wooldridge, J.M.
INTRODUCTORY ECONOMETRICS: A MODERN APPROACH, 2nd Edition,
South-Western College Publishing / Thomson Learning, 2005

9. Learning Outcomes

All academic programs at Macquarie University seek to assist students develop generic skills in a range of areas. One of the aims of ECON141 is to assist students develop skills in numeracy, information technology, critical analysis and problem solving.

10. Teaching, Learning and Assessment Strategy

The purpose of the final examination for ECON141 is to assess each student's understanding of the concepts and procedures discussed in lectures and tutorials.

A major aim of the within-semester assessment in ECON141 is to encourage and develop in students the capacity for self-motivated and self-directed learning.

11. Class Arrangements

It is strongly recommend that students enrolled in ECON141 attend lectures and tutorials. There are twenty-six hours of lectures (i.e. two hours each week), 10 one-hour tutorial classes, a one-hour computing practical (for students who have not previously used EcStat), and an optional Mathematics Workshop.

Lectures	Evening Stream	Monday 6 – 8 pm, E7B, Mason Theatre
	Day Stream	Tuesday 2 – 4 pm, W5A, Price Theatre
Tutorial Classes		Weeks 2, 3, 6, 7, 8, 9, 10, 11, 12 and 13
Computing Practical		Week 4
Mathematics Workshop		Week 5 (In Tutorial Classrooms)

The class timetable is on the University web site at: <http://www.timetables.mq.edu.au>

Lectures, tutorials and computing practicals commence at 5 minutes past the hour and end at 5 minutes to the hour.

The twenty-six hours of formal lectures will be available from **i-Lecture**. In addition, students will also be able to access more detailed discussions of the lecture topics via ‘talking’ Power Point slides which will be posted on Blackboard.

Week	Date	Tutorial Exercise	Tutorial Class	Computing Exercise	Computing Practical
1	February 23 – 27	*			
2	March 2 – 6	*	*		
3	March 9 – 13	*	*		
4	March 16 – 20	*		*	*
5	March 23 – 27			*	
6	March 30 – April 3	*	*	*	
7	April 6 – 9	*	*	*	
April 10 – 26 Mid-Semester Recess					
8	April 27 – May 1	*	*	*	
9	May 4 – 8	*	*	*	
10	May 11 – 15	*	*	*	
11	May 18 – 22	*	*	*	
12	May 25 – 29	*	*	*	
13	June 1 – 5	*	*	*	

April 10: Easter Friday public holiday (Week 7)

April 13: Easter Monday public holiday (Mid-Semester Recess)

April 25: Anzac Day public holiday (Mid-Semester Recess)

June 8: Queen's Birthday public holiday (Examination Period)

12. Prerequisite Revision Topics

Measures of Central Location in Populations and Samples
Measures of Variability in Populations and Samples
Summation Notation
Mathematical Expectation
The Relative Frequency definition of Probability
The Normal Distribution
The t-distribution
Sampling Distributions
Basic procedures in statistical inference
Type I and Type II errors
The Power of a Test
Properties of Estimators: Unbiasedness and Efficiency

13. Lecture Program

A full list of the lecture topics for ECON141 is provided on the next page.

Week 1	Introduction, Topics 1, 2 & 3
Week 2	Topics 4 & 5
Week 3	Topic 6
Week 4	Topics 7 & 9
Week 5	Topics 13 & 14
Week 6	Topics 11 & 12
Week 7	Topics 15
Week 8	Topics 17 (Examples 1 & 3), 18 & 19
Week 9	Topics 20, 21 & 22
Week 10	Topics 23 & 24
Week 11	Topics 25, 16 & 17 (Example 2)
Week 12	Revision Examples
Week 13	Exam Briefing

Topic 8 will be dealt with in the Computing Practical in Week 4.
Aspects of Topic 10 will be discussed in the relevant lectures in Weeks 6 to 11.

14. Lecture Topics

TOPIC 1	Basic Statistical Concepts Standard Normal (Z) and Students t Tables
TOPIC 1B	Basic Mathematical Concepts and Procedures
TOPIC 2	Confidence Interval Estimation
TOPIC 3	Hypothesis Testing
TOPIC 4	Mathematical Expectation
TOPIC 5	Desirable Properties of Estimators
TOPIC 6	Two-Variable Regression Analysis The Model and Assumptions Estimation of the Two Variable Regression Model
TOPIC 7	Statistical Inference and Prediction in Regression Analysis
TOPIC 8	Computing in ECON141 – Getting Started with ECSTAT
TOPIC 9	An example of Regression Analysis using ECSTAT Appendix: Interpolation using the t tables
TOPIC 10	Additional Computing Procedures using ECSTAT
TOPIC 11	Non-Linearities in Regression Models
TOPIC 12	An example of Non-Linearity using ECSTAT
TOPIC 13	Correlation and Regression
TOPIC 14	ANOVA in the Two-Variable Regression Model F tables
TOPIC 15	Multiple Regression Analysis The Model and Assumptions Estimation and Statistical Inference
TOPIC 16	Structural Change in Regression Models Dummy Variables in Regression Models
TOPIC 17	Polynomial Regression Models Examples of Multiple Regression using ECSTAT
TOPIC 18	ANOVA in Multiple Regression Models Appendix: Interpolation using the F tables
TOPIC 19	Heteroscedasticity
TOPIC 20	Autocorrelation
TOPIC 21	The Durbin-Watson Test DW Tables
TOPIC 22	Examples of Autocorrelation using ECSTAT Appendix: Interpolation using the DW tables
TOPIC 23	Multicollinearity
TOPIC 24	Specification Error
TOPIC 25	Examples of Specification Error using ECSTAT
TOPIC 26	Seasonality in Regression Analysis

References for these topics are provided in Appendix (2).

NOTE: Topic 1B, Basic Mathematical Concepts and Procedures, will be discussed in the optional Mathematics Workshop in the Tutorial Classrooms in Week 5.

NOTE: Topic 26, Seasonality in Regression Analysis, will not be discussed in the Lecture Program in the First Semester, 2009, and is not examinable.

15. Tutorial/Computing Exercises, Classes & Labs

Tutorial and computing exercises commence in Week 1. Students are required to attempt tutorial and/or computing exercises each week from Week 1 to Week 13, inclusive, except for Week 5, when there is an optional Mathematics Workshop. From Week 6 the tutorial exercises are based on computing exercises which must be completed before the tutorial exercise can be attempted.

Tutorial classes commence in Week 2. Tutorial classes continue in Week 3, followed in Week 4 by a Computing Practical.

Computing Practicals replace tutorial classes in Week 4 only. Computing Practical groups are exactly the same as Tutorial Groups. Locations for the Computing Practicals will be advised on the ECON141 Blackboard web site.

An optional Mathematics Workshop will be held in the Tutorial Classrooms in Week 5.

After Week 5, tutorial classes continue in Weeks 6, 7, 8, 9, 10, 11, 12 and 13.

NOTE: There are no **tutorial classes** or computing practicals in Week 1.

Although there are no tutorial classes in Week 1, **students should note that tutorial exercises have been set for Week 1.** These exercises revise essential aspects of the (STAT170) statistical prerequisite material for the unit. They are an important part of the tutorial program and should not be neglected simply because there are no tutorial classes in that week. Students are expected to be able to complete the tutorial exercises set for Week 1 without assistance from staff. The solutions for these exercises will be placed on e-Reserve in the library, and on the ECON141 Blackboard web site. Students may discuss any issues or difficulties arising from these exercises with staff during staff consultation hours.

Students should attempt as many exercises as possible before attending their tutorial classes so that they can more effectively benefit from the discussion. It is important that students be in a position when they attend tutorial classes to indicate which aspects of the exercises should be given priority.

Details of the **Tutorial and Computing Practical Exercises** are provided in a separate handout. They can also be accessed on the ECON141 Blackboard web site. Detailed tutorial solutions will be available on the ECON141 Blackboard web site, and on e-Reserve, on the Friday following the relevant tutorial.

Students are strongly advised to attend tutorials. The best advice that can be given to an ECON141 student is to attend lectures and tutorials, and to attempt the tutorial exercises **before** attending tutorials and **before** looking at the solutions on e-Reserve or on the ECON141 Blackboard web site.

16. Assessment

There are three types of assessment in ECON141: an **optional** within-semester self-assessment component, an **optional** within-semester objective component, and a **compulsory** end-of-semester objective examination.

NOTE

It is the policy of the Economics Department that students enrolled in a unit offered by the Economics Department must pass the final examination to pass the unit.

Grades in ECON141 (S1, 2009) will be based entirely on the End-of-Semester Examination. That is, the weight of the End-of-Semester Examination in the grade for ECON141 is 100%.

Students who do not attend the End-of-Semester ECON141 Examination will be given a grade of FA for the unit.

17. Optional Within-Semester Self Assessment

The optional within-semester self-assessment component consists of a series of Supplementary and Revision Exercises which students may work through in their own time, and which students mark themselves. Details of the Supplementary and Revision Exercises are provided in a separate handout. They can also be accessed from the ECON141 Blackboard web site.

Detailed solutions for the Supplementary and Revision Exercises will be available on e-Reserve in the Library, and on the ECON141 Blackboard web site.

The purpose of the Supplementary and Revision Exercises is to enable students to judge for themselves how well they understand the lecture and tutorial material. The Supplementary and Revision Exercises are an extensive and exhaustive set of exercises. Many of the exercises are repetitive. **It is not intended that students work through all of the Supplementary & Revision exercises.** Students should use these exercises to the extent that they believe they need additional practice, repetition and reinforcement in using the techniques and procedures discussed in the ECON141 lectures and tutorials, and in interpreting the results.

18. Optional Within-Semester Objective Assessment

The optional within-semester objective component consists of:

- (a) an optional Online Test of Revision Material
- (b) an optional Take-Home Mid-Semester Assignment
- (c) two optional Online Within-Semester Examinations

These three aspects of the assessment are entirely optional in the sense that students must decide for themselves whether they submit the Test of Revision Material, submit the Assignment, submit the two Within-Semester Examinations, or do none of these. If students elect to submit the Test, submit the Assignment or submit the two Within-Semester Examinations, their work will be marked objectively. The Test and the two Within-Semester Examinations will be submitted and marked electronically on Blackboard. The Assignment will be marked by staff and returned to students.

The purpose of these three optional aspects of the within semester assessment is to enable students to obtain an objective measure of how well they have understood the material covered in the relevant sections of the lecture and tutorial program.

19. Optional Online Test of Revision Material

Distribution to students: Blackboard, Week 5, Monday 23rd March.

Blackboard online submission deadline: Sunday 29th March, 11:55 pm.

20. Optional Take-Home Mid-Semester Assignment

Distribution to students: Lectures, Week 7, Monday 6th and Tuesday 7th April.

Submission deadline: BESS, Friday 1st May, 4:30 pm.

The Assignment must be placed in the ECON141 box at the FBE student services centre (BESS), E4B-106. After-hours submissions may be placed in the BESS after-hours box. Do **not** submit assignments directly to the lecturer or to tutors. Do **not** submit assignments under the lecturer's door or under a tutor's door. Even if your assignment is late it must be submitted via BESS, in BESS's after-hours box, or directly to the counter staff in BESS.

21. Two Optional Online Within-Semester Examinations

First Online Within-Semester Examination

Distribution to students: Blackboard, Week 9, Tuesday 5th May.

Blackboard online submission deadline: Sunday 10th May, 11:55 pm

Second Online Within-Semester Examination

Distribution to students: Blackboard, Week 12, Tuesday 26th May.

Blackboard online submission deadline: Sunday 31st May, 11:55 pm

22. End-of-Semester Examination

The final component of the assessment is compulsory. It is the End-of-Semester Examination. All students enrolled in ECON141 are required to attend the End-of-Semester Examination. The purpose of the End-of-Semester Examination is to objectively determine the grade for each student enrolled in ECON141.

23. Format of the End-of-Semester Examination

The End-of-Semester Examination will have two sections: a multiple choice section, worth 40 marks, and a written-answer section, worth 60 marks. In the first section there will be 40 questions, each worth 1 mark. In the second section there will be 10 questions, each worth 6 marks, requiring short written answers.

The examinable content for the End-of-Semester examination consists of all the material discussed in lectures and tutorials from Weeks 1 – 13 (inclusive) except those tasks directly related to obtaining ECSTAT computing output. ECSTAT computing procedures are not examinable. However, students are required to be able to identify, summarise and discuss ECSTAT computer output.

24. Formulae Sheet

A formulae sheet will be provided to students in the End-of-Semester Examination. A copy of the formulae sheet will be available on the ECON141 Blackboard web site for inspection by students at least two weeks prior to the examination.

25. Calculators

Some numerical calculations will be required in the End-of-Semester Examination. A basic calculator is all that will be required to carry out these calculations. Students will be permitted to take **non-programmable calculators only** into the ECON141 End-of-Semester Examination. A calculator is non-programmable if it does not have memory, or if it is capable of storing only numerical data in memory. Calculators that are capable of storing alphabetic characters in memory will **NOT** be permitted in the ECON141 End-of-Semester Examination.

26. Supplementary Assessment

Students who are prevented by circumstances beyond their control from attending the End-of-Semester Examination, or whose performance in the examination is affected by circumstances beyond their control, may submit a request for special consideration to be allowed to sit for a Supplementary End-of-Semester Examination, or to have these circumstances taken into account in determining the student's grade. (See Section 27 on Special Consideration.)

Students will not be able to request special consideration for the optional within-semester components of assessment. That is, students will not be able to request permission to submit a Supplementary or Deferred Test of Revision Material, a Supplementary or Deferred Assignment, or Supplementary or Deferred Within-Semester Examinations.

27. Special Consideration

The rules and procedures governing Special Consideration are set out on pages 42-43 of the Macquarie University *2009 Handbook of Undergraduate Studies*. It is the responsibility of all students enrolled in ECON141 to ensure that they have read and understand the rules and procedures governing Special Consideration.

Note: The University Senate has determined that minor illnesses are **NOT** sufficient grounds for being granted special consideration.

Note: The University Senate has determined that students in a unit will not be granted special consideration if their coursework for that unit is unsatisfactory, or if their participation in the unit is unsatisfactory.

In ECON141, results in the Optional Online Test of Revision Material, the Optional Take-Home Mid-Semester Assignment, and the Optional Online Within-Semester Examinations will be used as an indicator of the extent to which a student's coursework in the unit can be deemed satisfactory. Attendance at Tutorials will be used as an indicator of the extent to which a student's participation in the unit can be deemed satisfactory.

28. Attendance at Lectures and Tutorials

Attendance at Lectures and Tutorials is not compulsory, **but is strongly recommended**. Attendance at Tutorials will be recorded, and will be used, if necessary, together with the results of the Optional Within-Semester Objective Assessment, as an indicator of the extent to which a student's participation and coursework in the unit can be deemed satisfactory.

29. University Policy on Examination Attendance

Students are expected to attend the End-of-Semester examination at the time and place designated in the University Examination Timetable. The timetable will be available in draft form approximately eight weeks before the commencement of the examinations and in final form approximately four weeks before the commencement of the examinations. The Draft and Final Examination Timetable will be available at: <http://www.timetables.mq.edu.au/exam>

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances a student may apply for Special Consideration. Information about unavoidable disruption and the Special Consideration process is available on pages 42-43 of the Macquarie University *2009 Handbook of Undergraduate Studies*, on the FBE web-site, and at: <http://www.reg.mq.edu.au/Forms/APScons.pdf>

If a Supplementary Examination is granted as a result of the Special Consideration process the examination will be scheduled after the conclusion of the official examination period. Supplementary examinations conducted by the Faculty of Business and Economics for first semester units are normally scheduled during the period between the release of the examination grades and the start of the second semester.

It is Macquarie University policy not to set special early examinations for particular individuals or groups of students. All students are expected to ensure that they are available for examinations until the end of the teaching semester; that is, until the final day of the official examination period.

If a student is granted a Supplementary Examination but does not attend the examination on the scheduled date, the student will be given a grade of FA for the unit.

30. University Policy on Appeals by Students Against Grades

The rules and procedures governing Appeals by Students Against Grades are set out on pages 44-45 of the Macquarie University *2009 Handbook of Undergraduate Studies*, and on the FBE web site. It is the responsibility of all students enrolled in ECON141 to ensure that they have read and understand the rules and procedures governing Appeals by Students Against Grades.

31. Lecturer-In-Charge

Roger Tonkin E4A-524 Ph: 9850-8494
email: roger.tonkin@mq.edu.au

32. Tutor-In-Charge and Web-Master

Rebecca Reeve E4A-420 Ph: 9850-8495
email: rdreeve@efs.mq.edu.au

33. Other ECON141 Staff

A list of room numbers, University phone numbers and email addresses for other full-time staff teaching in ECON141 will be provided to students on the ECON141 Blackboard web site as soon as the teaching arrangements have been finalised.

34. Staff Consultation Hours.

Students are encouraged to consult the teaching staff of ECON141 on all matters relating to the unit, particularly issues or difficulties arising from the lecture and tutorial content, during staff consultation hours. Details of consultation hours will be displayed on the office doors of the full-time ECON141 staff and on the ECON141 Blackboard web site.

35. After-Hours Consultation

Part-time and evening students may contact the Lecturer-in-Charge, Roger Tonkin, or the Tutor-In-Charge, Rebecca Reeve, to arrange a suitable time for an appointment outside the scheduled staff consultation hours, particularly after 5 pm if consultation before 5 pm is not possible because of employment, etc.

Roger Tonkin
Lecturer-In-Charge
February, 2009

APPENDICES

- (1) Greek Alphabet
- (2) References
- (3) Standardised Numerical Grades (SNGs)
- (4) Plagiarism
- (5) Student Support Services
- (6) Ten Key Points in a Strategy for Surviving and Passing ECON141

APPENDIX (1): GREEK ALPHABET

Listed below are the upper and lower case letters of the Greek alphabet and their names. Greek symbols are used extensively in the discussion of econometric methods.

<i>Large character</i>	<i>Small Character</i>	<i>Name</i>	<i>Large character</i>	<i>Small Character</i>	<i>Name</i>
A	α	Alpha	N	ν	Nu
B	β	Beta	Ξ	ξ	Xi
Γ	γ	Gamma	O	\omicron	Omicron
Δ	δ	Delta	Π	π	Pi
E	ϵ	Epsilon	P	ρ	Rho
Z	ζ	Zeta	Σ	σ	Sigma
H	η	Eta	T	τ	Tau
Θ	θ	Theta	Y	υ	Upsilon
I	ι	Iota	Φ	ϕ	Phi
K	κ	Kappa	X	χ	Chi
Λ	λ	Lambda	Ψ	ψ	Psi
M	μ	Mu	Ω	ω	Omega

APPENDIX (2): TEXT-BOOK REFERENCES

A detailed list of references for ECON141 from the current text-book is provided below, supplemented, where necessary, with references from two previous text-books written by Harrison & Tamaschke. The sources for these references are:

Gujarati, D.
ESSENTIALS OF ECONOMETRICS
Third Edition
Irwin/McGraw-Hill, 2006

Harrison S.R. and H.U. Tamaschke
APPLIED STATISTICAL ANALYSIS
Prentice-Hall, 1984

Harrison, S.R. and Tamaschke R. H. V.
STATISTICS FOR BUSINESS, ECONOMICS AND MANAGEMENT
Prentice-Hall, 1993

Unless stated otherwise, the references are from Gujarati, **Third Edition**, 2006.

INTRODUCTION

Chapter 1, pages 1-5

TOPIC 1 - BASIC STATISTICAL CONCEPTS

Chapter 2, Sections 2.1 - 2.5
(Omit Bayes' Theorem, page 32)
Chapter 3, Section 3.7
Chapter 4, Sections 4.1 - 4.2

TOPIC 2 - ESTIMATION

Chapter 5, Sections 5.1 - 5.3

TOPIC 3 - HYPOTHESIS TESTING

Chapter 5, Section 5.5

TOPIC 4 - MATHEMATICAL EXPECTATION

Chapter 3, Sections 3.1 - 3.4
(Omit Chebyshev's Inequality, page 57)
(Omit Coefficient of Variation, page 58)

TOPIC 5 - PROPERTIES OF ESTIMATORS

Chapter 5, Section 5.4
(Omit Consistency, pages 113-114)

TOPIC 6 - TWO-VARIABLE LINEAR REGRESSION ANALYSIS

Chapter 1, Sections 1 - 3

Chapter 6, Sections 1 - 5, and 8 - 11

Chapter 7, Sections 7.1 and 7.3

TOPIC 7 - STATISTICAL INFERENCE IN TWO-VARIABLE LINEAR REGRESSION

Chapter 7, Sections 7.2, 7.4, 7.5, 7.7 - 7.8, and 7.10 - 7.12

TOPIC 9 - See TOPICS 6 & 7

TOPICS 11 & 12 - NONLINEAR RELATIONSHIPS

Chapter 6, Section 6

Chapter 9, Sections 1 - 2 and 4 - 5

Chapter 9, Appendix 9A

TOPICS 13 & 14 - THE ANALYSIS OF VARIANCE IN THE TWO-VARIABLE LINEAR REGRESSION MODEL

Chapter 3, Sections 3, 4, and 7

(Omit Sample Skewness and Kurtosis, page 72)

Chapter 4, Section 4

Chapter 7, Section 6

NOTE:

A basic understanding of the concept of Covariance is essential for a full understanding of Correlation (in both Populations and Samples).

Similarly, a basic familiarity with the relationship between Chi-Square distributions and the F distribution is essential for a full appreciation of the theoretical features and construction of F distributions.

Covariance, and the Chi-Square distribution, are not examinable in ECON141.

Specific text-book references for the Analysis of Variance in Linear Regression models are provided with the references for TOPIC 15 and TOPIC 18.

ADDITIONAL REFERENCES FOR TOPICS 13 & 14 - THE ANALYSIS OF VARIANCE IN THE TWO VARIABLE REGRESSION MODEL

Harrison S.R. and H.U. Tamaschke, APPLIED STATISTICAL ANALYSIS, Prentice-Hall, 1984

Chapter 12, Section 5.4, and Sections 7-9

TOPIC 15 - MULTIPLE REGRESSION ANALYSIS

Chapter 1, Section 3

Chapter 6, Section 7

Chapter 8, Sections 1 - 8, and Section 13

(Omit equations 8.17 - 8.25, 8.27 - 8.28, and 8.31)

ANOVA IN MULTIPLE REGRESSION – See TOPIC 18

TOPIC 16 - QUALITATIVE VARIABLES IN MULTIPLE REGRESSION ANALYSIS

Chapter 10, Sections 1 - 5

TOPIC 17 - POLYNOMIAL REGRESSION MODELS

Chapter 9, Section 7

TOPIC 18 - ANOVA IN MULTIPLE REGRESSION MODELS

Chapter 8, Section 4 and Section 8

ADDITIONAL REFERENCES FOR TOPICS 15 & 18 - ANOVA IN MULTIPLE REGRESSION ANALYSIS

Harrison S.R. and H.U. Tamaschke, APPLIED STATISTICAL ANALYSIS,
Prentice-Hall, 1984

Chapter 13, Section 6

Harrison S.R. and R.H.U. Tamaschke, STATISTICS FOR BUSINESS,
ECONOMICS AND MANAGEMENT, Prentice-Hall, 1993

Chapter 10, Sections 1, 2, 3 and 4

TOPIC 19 - HETEROSCEDASTICITY

Chapter 13, Section 1, Section 2 and pages 399-402 of Section 3

(Omit the Park Test)

TOPIC 20 - AUTOCORRELATION

Chapter 14, Section 1 and Section 2

TOPICS 21 - THE DURBIN-WATSON TEST FOR FIRST-ORDER AUTOCORRELATION

Chapter 14, Sections 3, 4 and 6

(Omit The First Difference Method, pages 442-443)

TOPIC 22 - See TOPICS 20 & 21

TOPIC 23 - MULTICOLLINEARITY

Chapter 12, Sections 1 - 9

(Omit Subsidiary, or Auxiliary, Regressions, page 373)

(Omit the Variance Inflation Factor, VIF, page 374)

TOPICS 24 & 25 - SPECIFICATION ERROR IN REGRESSION ANALYSIS

Chapter 8, Section 9

Chapter 11, Sections 2 - 5, Section 7 and Section 8

(Omit the MWD Test, pages 353-353)

Chapter 14, Section 1, page 430 (Model Specification Errors)

TOPIC 26 - MODELLING SEASONAL EFFECTS USING DUMMY VARIABLES

Chapter 10, Section 6

DUMMY VARIABLE TRAP

Chapter 10, Section 10.1, page 295

APPENDIX (2) CONTINUED: OTHER REFERENCES

A detailed list of references for ECON141 is given in the tables on the next two pages. The two sources for these references are the **second edition** of the current text-book written by Gujarati, and a previous text-book, written by Harrison and Tamaschke:

Gujarati, D.

ESSENTIALS OF ECONOMETRICS

Second Edition

Irwin/McGraw-Hill, 1999

Harrison, S.R. and Tamaschke R. H. V.

STATISTICS FOR BUSINESS, ECONOMICS AND MANAGEMENT

Prentice-Hall, 1993

Topics	Reference in Gujarati 2 nd Edition	Reference in Harrison & Tamaschke
The role of Econometrics in Economic Analysis	Chapter 1	
Basic Statistical Concepts: A Review		
1. Random variables	2.3	2.1, 2.2, 2.4
2. Probability density function	2.5	
3. Rules of summation	2.1	3.1, 3.2
4. Mean of a random variable	2.7	
5. Variance of a random variable	2.7	4.1, 4.2, 4.3
6. Standard deviation of a random variable	2.7	
7. Populations and samples	2.8	5.2, 5.3, 5.4.4
8. Normal distribution	3.1	
9. t-distribution (using t tables)	3.4	6.1, 6.2, 6.3
Statistical Inference		
1. Statistical Inference	4.5	7.3.1, 7.3.3
2. Estimation of Parameters: Point vs. Interval	4.5	7.4.1-7.4.3
3. Hypothesis Testing	4.5	
4. Properties of Point Estimators	4.4	8.1-8.5
The Two –Variable Regression Model		
1. Purpose	5.1	9.2, 9.3, 9.4
2. Assumptions		9.5, 9.7.1
3. The error term	5.4	
4. Population and sample regression	5.5	
5. Least squares estimates	5.8	
6. Interpretation of the coefficients	5.8	
7. Elasticities	8.1	
8. Prediction	6.11	
Properties of Least Squares Estimators		
1. Mean and variance of the LS estimators	6.3	9.6.1
2. Gauss Markov Theorem	6.3	9.6.2
3. Probability distribution of the LS estimators	6.4	
Inference in the Simple Linear Regression Model		
1. Confidence intervals for the coefficients of the regression model	6.5	9.6.3
2. Hypothesis testing	6.5	9.7.3
3. Prediction intervals	6.11	
Analysis of Variance and Coefficient of Determination in the Two -Variable Model		
1. Analysis of Variance	6.6	9.6.4
2. Coefficient of determination	6.6	9.8
3. Sample correlation coefficient	6.6	9.9
4. Comparing correlation and regression analysis	6.6	
5. Reporting regression results	6.7	

APPENDIX (3): STANDARDISED NUMERICAL GRADES

The Academic Senate has a set of guidelines on the distribution of grades across the range from fail to high distinction. Your final result will include one of these grades plus a standardised numerical grade (SNG).

Your raw mark for a unit (i.e. the total of your marks for each assessment item) may not be the same as the SNG which you receive. Under the Senate guidelines, results may be scaled to ensure that there is a degree of comparability across the university, so that units with the same past performances of their students should receive similar results.

It is important that you realise that the policy does not require that a minimum of students be failed in any unit. In fact it does something like the opposite, in requiring examiners to explain their actions if more than 20% of students fail in a unit.

The process of scaling does not change the order of marks among students. A student who receives a higher raw mark than another will also receive a higher final scaled mark.

For an explanation of the policy see page 43 of the Macquarie University 2009 *Handbook of Undergraduate Studies*, and:

<http://www.mq.edu.au/senate/rules/Guidelines2003.doc> or
<http://www.mq.edu.au/senate/rules/detailedguidelines.doc>

APPENDIX (4): PLAGIARISM

The University defines plagiarism in its rules: ‘Plagiarism involves using the work of another person and presenting it as one’s own’. Plagiarism is a serious breach of the University’s rules and carries significant penalties. You must read the University’s practices and procedures on plagiarism. These can be found in the Macquarie University *2008 Handbook of Undergraduate Studies* (pages 17 and 46) or on the web at: <http://www.student.mq.edu.au/plagiarism/>

The policies and procedures explain what plagiarism is, how to avoid it, the procedures that will be taken in cases of suspected plagiarism, and the penalties if you are found guilty. Penalties may include a deduction of marks, failure in the unit, and/or referral to the University Discipline Committee.

APPENDIX (5): 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>.

APPENDIX (6):

TEN KEY POINTS IN A STRATEGY FOR SURVIVING ECON141 AND PASSING

1. **Attend as many lectures as possible.**
2. **Attempt as many tutorial exercises as possible.**
3. **Attend as many tutorials as possible.**
4. Attempt the tutorial exercises **before** attending the relevant tutorials and **before** you inspect the answers on e-Reserve or on Blackboard.
5. If you miss a tutorial, make sure you attempt the exercises as soon as possible, and that you attempt the exercises **before** you inspect the answers on e-Reserve or on Blackboard.
6. **Attempt the Optional Within-Semester Assessment.**
7. After each tutorial, if you need additional practice exercises, attempt as many of the relevant Supplementary & Revision exercises as required until you feel you have mastered the techniques contained in those exercises.
8. Attempt the Supplementary & Revision exercises **before** you inspect the answers on e-Reserve or on Blackboard.
9. If you don't understand the material in the tutorials, the computing practical, or the material in the Supplementary & Revision exercises, consult the ECON141 staff as soon as possible. Don't wait till later in the semester.
10. **Keep up to date with the work. Don't fall into the trap of thinking you will be able to catch up with the work later.**