Unit Outline*

ECON3371

Econometrics

Semester 2, 2011
Campus: Crawley

Unit Coordinator
Winthrop Professor Darrell Turkington

Business School
www.business.uwa.edu.au

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UNIT DESCRIPTION

Unit content

The course can be divided into several parts. Initially, we review matrix algebra and cover the statistical prerequisites needed for the study of econometrics. We then move onto the linear regression model.

These first sections involve a revision and upgrading of the material covered in previous courses. The third part of the course deals with econometric theory proper. The topics covered here will include generalized least squares, heteroscedasticity, serial correlation, seemingly unrelated regression equations model, the linear simultaneous equations model, identification, instrumental variable estimation, reduced-form estimation and diagnostic testing.

The next section of the course covers an introduction to time series models. The topics covered are univariate time series models, nonstationary models, cointegration, VAR processes. The final section of the course (if we have time) will cover a number of special topics such as logit and probit analysis, specification errors and panel data models.

The goal of the unit

This course has two main aims:

1. To provide a reasonable rigorous introduction to the theory of econometrics.
2. To help provide the student with the insights needed to undertake and to critically evaluate applied econometric research.

Matrix algebra and statistical prerequisites

Properties of symmetric idempotent matrices, positive definite matrices, partitioned matrices, Kronecker products, matrix differentiation.

Rational behind statistical inference, random variables, independence, random samples, properties of estimators, maximum likelihood estimation, the multivariate normal distribution.
- Hayashi, pp.88-97, 109-123.
- Johnston and Di Nardo, Appendices A2, B.
- Maddala 2.3 – 2.11, Appendix to Chapter 2, Chapter 16.

The linear regression model

Assumptions of the model, properties of ordinary least squares estimation, confidence regions, the F test, analysis of variance, multicollinearity.
- Greene Chapters 2, 3, 4.
- Hayashi, Chapter 1.
- Johnston and Di Nardo, Chapter 3, pp142-146.
- Maddala, and Lahiri Chapter 4, Chapter 7.

Classical econometrics

Generalised least squares, heteroscedasticity, serial correlation, seemingly uncorrelated regressions equations model, independent variables correlated with disturbance terms, the limited information model and 2SLS, the full information model and 3SLS, reduced form estimation, diagnostic testing.
- Greene, Chapters 8, 10, 12, 13, 19.
- Hayashi, pp. 186-207, 226-244, 276-283.
- Johnston and Di Nardo, Chapters 6, 9.4 – 9.5, Appendix 9.1.
- Maddala, and Lahiri, Chapters 5, 6, 9.
Time series models
Stationary and nonstationary processes, autoregressive and moving average processes, unit roots and
the Dicky Fuller test, cointegration, error correction model, vector autoregressive processes.
• Greene, Chapters 20, 21, 22.
• Hayashi, pp.363-386, Chapters 9, 10.
• Johnston and Di Nardo, Chapter 9.
• Maddala, and Lahiri, Chapters 12, 14.
• Enders, Chapter 2, 4.1-4.10, Chapter 6.

Special topics
• Logit and probit analysis, panel data models, specification errors.
• Greene, Chapters 9, 23.
• Hayashi, Chapter 5.
• Johnston and Di Nardo, Chapter 12, 73.1 – 13.7.
• Maddala, and Lahiri, Chapter 15, 8.9 – 8.10.

TEACHING AND LEARNING RESPONSIBILITIES

Teaching and learning evaluation
You may be asked to complete two evaluations during this unit. The Student Perception of Teaching (SPOT) and the Students’ Unit Reflective Feedback (SURF). The SPOT is optional and is an evaluation of the lecturer and the unit. The SURF is completed online and is a university wide survey and deals only with the unit. You will receive an email from the SURF office inviting you to complete the SURF when it is activated. We encourage you to complete the forms as your feedback is extremely important and can be used to make changes to the unit or lecturing style when appropriate.

Attendance
Participation in class, whether it be listening to a lecture or getting involved in other activities, is an important part of the learning process. It is therefore important that you attend classes. More formally, the University regulations state that ‘to complete a course or unit students shall attend prescribed classes, lectures, seminars and tutorials’. Students should not expect to obtain approval to miss more than two classes per unit unless there are exceptional circumstances.
**CONTACT DETAILS**

We strongly advise students to regularly access their student email accounts. Important information regarding the unit is often communicated by email and will not be automatically forwarded to private email addresses.

<table>
<thead>
<tr>
<th><strong>Unit coordinator/lecturer</strong></th>
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<tbody>
<tr>
<td>Name:</td>
<td>Darrell Turkington</td>
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<td>Email:</td>
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<td>Phone:</td>
<td>6488 2880</td>
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<tr>
<td>Office:</td>
<td>Room 113, 1st Floor, UWA Business School</td>
</tr>
</tbody>
</table>
| Consultation hours:           | Wednesday 11:00am – 1:00pm  
                                  | Friday 11:00am – 1:00pm |
| Lecture times:                | Please check: http://www.timetable.uwa.edu.au |
| Lecture venue:                | Please check: http://www.timetable.uwa.edu.au |
| Tutorial times:               | http://www.olcr.uwa.edu.au/ |
| Tutorial venue:               | http://www.olcr.uwa.edu.au/ |

**TEXTBOOK(S) AND RESOURCES**

**Unit website**

You access WebCT via [http://www.webct.uwa.edu.au](http://www.webct.uwa.edu.au) using your WebCT student login and the course should be available to you.

**Recommended/required text(s)**

The course is rather diverse in nature so there is no one textbook that is ideal. Instead, references will be made to several books during the course.

Books that are useful for references but should not be purchased are:

For the section of the course, on modern time series analysis an excellent book is:

All these books are placed in the reserve section of the Business Library.
ASSESSMENT MECHANISM

The course consists of three lectures a week and one tutorial a week. Students will be required to hand in weekly assignments, (probably no more than ten in total) and sit a one hour mid semester exam and a two hour final exam. The weighting given to the course work and the final exam will be decided by majority vote in the first week of the course. Once certain econometric techniques have been acquired, some of the exercises we do are designed to help us in criticizing applied econometric research constructively.

Ratchet system

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Assignments</td>
<td>30%</td>
<td>1 x 10 weeks</td>
</tr>
<tr>
<td>Mid semester test</td>
<td>20%</td>
<td>1 hour</td>
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<tr>
<td>Semester mark</td>
<td>50%</td>
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</tr>
<tr>
<td>Final exam</td>
<td>50%</td>
<td>2 hours</td>
</tr>
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- If final exam mark > semester mark, final exam mark makes up 100% of grade.
- If final exam mark < semester mark, 50% semester mark, 50% final exam mark make up the final grade.

Note 1: Results may be subject to scaling and standardisation under faculty policy and are not necessarily the sum of the component parts.

Note 2: Your assessed work may also be used for quality assurance purposes, such as to assess the level of achievement of learning outcomes as required for accreditation and audit purposes. The findings may be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential, and the outcome will not affect your grade for the unit.

Submission of assignments

Submit your assignment during class or tutorial. Please remember to attach an Assignment Cover sheet to the front of your assignment. You can download the relevant Assignment Cover sheet from the Business School Current Students web page http://www.business.uwa.edu.au/students/assessments.

Student Guild

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Website: http://www.guild.uwa.edu.au

Charter of Student Rights and Responsibilities

Appeals against academic assessment

The University provides the opportunity for students to lodge an appeal against assessment results and/or progress status (refer [http://www.secretariat.uwa.edu.au/home/policies/appeals](http://www.secretariat.uwa.edu.au/home/policies/appeals)).