EMET 8005
Economic Models and Introductory Econometrics
Semester 1, 2015

This is a unit in basic econometrics, emphasising the problems involved in the empirical measurement of economic relationships and the techniques used to solve these problems. While the application of econometric techniques is of prime importance, the results are not just presented but derived using a mixture of rigour and intuition so as to leave as few loose ends as possible.

<table>
<thead>
<tr>
<th>Mode of Delivery</th>
<th>On campus, lecture and tutorial based</th>
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<tbody>
<tr>
<td>Prerequisites</td>
<td>Basic knowledge in linear algebra, calculus, and statistics</td>
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<td>Incompatible Courses</td>
<td>-</td>
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<tr>
<td>Course Convener:</td>
<td>Zach Ward</td>
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<td>Office hours for student consultation:</td>
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<td>Relevant Administrator</td>
<td>Ms Karissa Carkeet</td>
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SEMESTER 1
2015

Course URL: Wattle
COURSE OVERVIEW

Course Description
This is a graduate-level course in basic econometrics, which, broadly, is the study of the mathematical and statistical techniques used to analyse economic data – in other words, it is the tools economists use to test economic theories. Part of this course will focus on the theory behind the tools that economists typically use when testing these theories, including the mathematical formulation of estimators and some of their properties. However, more important for this course is learning simple applied techniques that are common in many economic papers.

Accordingly, also important for this course is also learning the statistical (computer) packages that economists use when testing these theories. I will be mostly using Stata for this course, make sure you purchase a copy of it to do problem sets.

Text

Other useful texts (not-required):

Beginner level:
- Stock and Watson, Introduction to Econometrics, Addison Wesley
- Wooldridge, Jeffrey M., Introductory Econometrics: A Modern Approach

More Advanced-level:
- Greene, William H. Econometric Analysis, Pearson Education
- Wooldridge, Jeffrey M. Econometric Analysis of Cross Section and Panel Data

Learning Outcomes
The main objective of this course is to provide students with an introduction to econometric methods needed for graduate-level empirical analysis in economics and related disciplines. At the end of this course, students will:

- be able to conduct a basic empirical analysis of cross sectional data (observations on characteristics of several economic units, such as firms or households, at a single point in time) or time series data (observations on characteristics of one economic unit over time);
- have sufficient background to take EMET8001 Applied Micro-Econometrics or EMET8010 Applied Macro and Financial Econometrics or EMET8002 Case Studies in Applied Econometrics in the second semester.
Assessment Summary

<table>
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<tr>
<th>Assessment Task</th>
<th>Value</th>
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<tbody>
<tr>
<td>1. Assignments</td>
<td>25%</td>
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<tr>
<td>2. Mid-semester examination</td>
<td>35%</td>
</tr>
<tr>
<td>3. Final Examination</td>
<td>40%</td>
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</table>

Feedback

Staff Feedback
Students will be given feedback in the following forms in this course: written comments, verbal comments, and comments to the entire class.

Student Feedback
ANU is committed to the demonstration of educational excellence and regularly seeks feedback from students. One of the key formal ways students have to provide feedback is through Student Experience of Learning Support (SELS) surveys. The feedback given in these surveys is anonymous and provides the Colleges, University Education Committee and Academic Board with opportunities to recognise excellent teaching, and opportunities for improvement.


Policies

ANU has educational policies, procedures and guidelines, which are designed to ensure that staff and students are aware of the University’s academic standards, and implement them. You can find the University’s education policies and an explanatory glossary at: [http://policies.anu.edu.au/](http://policies.anu.edu.au/)

Students are expected to have read the [Student Academic Integrity](http://policies.anu.edu.au/) Policy before the commencement of their course.

Other key policies include:
- Student Assessment (Coursework)
- Student Surveys and Evaluations

Additional course costs

Students will be expected to complete assignments in Stata. You may use Stata in the computer labs, but purchasing your own copy will be helpful in the long run.
COURSE SCHEDULE
The course schedule is tentative and may change based on progress or needs of the class

1. Introduction
2. Review of statistics and inference. (Chapter 1)
   a. Expectation operators
   b. Random variables, conditional mean and distribution
   c. Probability density functions
3. Simple and Multiple Regression (Chapters 2-3)
   a. Common Issues: multiple collinearity, heteroskedasticity,
   b. Analysis and Interpretation of Randomized Trials
   c. Experiments and Potential Outcomes framework
4. Non-Linear Methods (Chapter 4, 6)
   a. Probit, Tobit
5. Controlling for Unobservables
   a. Fixed Effects and Difference-in-Differences
   b. Synthetic Controls
6. Introduction to Applied Econometric Techniques and Issues
   a. Instrumental Variables and Endogenous Regressors (Chapter 5.1-5.2, 5.4, 5.7)
   b. Regression Discontinuity
7. Introduction to macro-econometrics (Chapter 7)

ASSESSMENT REQUIREMENTS
The ANU is using Turnitin to enhance student citation and referencing techniques, and to assess assignment submissions as a component of the University's approach to managing Academic Integrity. For additional information regarding Turnitin please visit the ANU Online website.

Students may choose not to submit assessment items through Turnitin. In this instance you will be required to submit, alongside the assessment item itself, copies of all references included in the assessment item.

Assessment Tasks
There will be the following problem sets, given approximately every two weeks. In addition to these, some problem sets will be based on questions from the text.

1. Loading Data and Basics of Creating Variables
2. Tables, Figures and Descriptive Statistics
3. Regression Analysis part one
4. Regression Analysis part two
5. Binary Dependent Variables
6. Panel Data
7. Instrumental Variables

You will need to upload a .log file from stata for each assignment to Wattle using Turnitin.

Examination(s)
The mid-semester exam will consist of short-answer questions regarding the textbook material and problem sets.
**Assignment submission**

**Online Submission:** Assignments are submitted using Turnitin in the course Wattle site. You will be required to electronically sign a declaration as part of the submission of your assignment. Please keep a copy of the assignment for your records.

**Extensions and penalties**

Extensions and late submission of assessment pieces are covered by the Student Assessment (Coursework) Policy and Procedure.

The Course Convener may grant extensions for assessment pieces that are not examinations or take-home examinations. If you need an extension, you must request it in writing on or before the due date. If you have documented and appropriate medical evidence that demonstrates you were not able to request an extension on or before the due date, you may be able to request it after the due date.

No submission of assessment tasks without an extension after the due date will be permitted. If an assessment task is not submitted by the due date, a mark of 0 will be awarded.

Late submission is not accepted for take-home examinations.

**Returning assignments**

Assignments will be returned within a 2 week time frame.

**SUPPORT FOR STUDENTS**

The University offers a number of support services for students. Information on these is available online from [http://students.anu.edu.au/studentlife/](http://students.anu.edu.au/studentlife/)