


## EMET 3006/4301/8001

# Applied Micro-Econometrics

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### SUMMARY

The overall aim of the course is to introduce students to the practical application of micro-econometric methods. Micro-econometrics is concerned mainly with the analysis of cross-sectional and short panel data from individuals, households, firms, regions etc. The course goes beyond the linear regression models used to estimate simple associations between dependent and independent variables. It covers nonlinear models used to analyse discrete and censored dependent variables, and more importantly, it covers estimation of causal effects as opposed to associations. The necessary econometric theory will be covered/reviewed and numerous applications will be discussed. In addition, practical aspects of data analysis will be discussed using the software Stata.

Mode of Delivery	On campus
Prerequisites	As listed in Programs and Courses
Incompatible Courses	As listed in Programs and Courses
Co-taught Courses	EMET 3006/4301/8001 graduate students attend joint classes with undergraduates but are assessed separately
Course Convener:	Kailing Shen
	
Phone:	02-6125 3903
Email:	kailing.shen@anu.edu.au
Office hours for student consultation:	Regular consultation hours: Mondays 14:00-15:00, Wednesdays 14:00-16:00 or by appointment. Please book your consultation at <a href="https://kailingshen-anu.youcanbook.me">https://kailingshen-anu.youcanbook.me</a>
Research Interests	Labour economics, public policy, applied econometrics, Chinese economics
RSE Student Office Contact	Nicole Millar
Phone:	02 6125 0384
Email:	enquiries.rse@anu.edu
RSE Students Webpage	<a href="http://www.rse.anu.edu.au/students">www.rse.anu.edu.au/students</a>
Lecturer(s)	
Phone(s):	
Email(s):	same as course convener
Office hours for student consultation:	

Tutor(s)	Joseph Marshan details about possible tutor(s) will be updated on course wattle, "administration" section
Phone(s):	will be updated on course wattle when available
Email(s):	joseph.marshan@anu.edu.au
Office hours for student consultation:	will be updated on course wattle when available

## **COURSE OVERVIEW**

### **Course Description**

The overall aim of the course is to introduce students to the practical application of micro-econometric methods. Micro-econometrics is concerned mainly with the analysis of cross-sectional and short panel data from individuals, households, firms, regions etc. The course goes beyond the linear regression models used to estimate simple associations between dependent and independent variables. It covers nonlinear models used to analyse discrete and censored dependent variables, and more importantly, it covers estimation of causal effects as opposed to associations. The necessary econometric theory will be covered/reviewed and numerous applications will be discussed. In addition, practical aspects of data analysis will be discussed using the software Stata.

### **Learning Outcomes**

Students who successfully complete this course will:

1. Explain econometric concepts related to causal inference such as endogeneity, confounding factors, measurement error, sample selection, simultaneity, etc.
2. Recognise and identify issues and problems (such as endogeneity) in empirical applications which may affect the analysis or the interpretation of estimates and tests.
3. Explain modern approaches to identifying causal effects such as instrumental variables methods, regression discontinuity designs, and difference-in-difference models.
4. Analyse economic data for causal relationships using appropriate econometric techniques and computer software.

### **Assessment Summary**

Assessment Task	Value	Due Date	Date for Return of Assessment
1. Assignment 1	15%	week 2 Friday 5pm	week 4 Monday 5pm
2. Assignment 2	15%	week 5 Friday 5pm	week 7 Monday 5pm
3. Assignment 3	15%	week 8 Friday 5pm	week 10 Monday 5pm
4. Final exam	55%	After week 12 in the exam period, as scheduled by ANU timetabling and will	Will follow the relevant ANU's policies

		announced on course wattle as the details become available	
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## **Research-Led Teaching**

Based on all the econometrics tools previously studied, this course prepares students for applying the most appropriate econometric tools in empirical works, especially using micro data. By explaining the advantages and potential problems of common identification strategies, students will develop a sense of how to make choices among different strategies based on available data and economic research questions at hand.

## **Feedback**

### **Staff Feedback**

Students will be given feedback in the following forms in this course:

- written comments
- verbal comments
- feedback to the whole class
- to groups
- to individuals

### **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.

For more information on student surveys at ANU and reports on the feedback provided on ANU courses, go to

<http://unistats.anu.edu.au/surveys/selt/students/> and  
<http://unistats.anu.edu.au/surveys/selt/results/learning/>

## **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/>

Students are expected to have read the Academic Misconduct Rule before the commencement of their course.

Other key policies include:

- Student Assessment (Coursework)
- Student Surveys and Evaluations

## **Required Resources**

Commonwealth supported students and domestic full-fee paying students generally must be able to complete the requirements of their program of study without the imposition of fees that are additional to the student contribution amount or tuition fees.

Provided that its payment is in accordance with the Act, a fee is of a kind that is into any one or more of the following categories:

- a) It is a charge for a good or service that is not essential to the course of study.
- b) It is a charge for an alternative form, or alternative forms, of access to a good or service that is an essential component of the course of study but is otherwise made readily available at no additional fee by the higher education provider.
- c) It is a charge for an essential good or service that the student has the choice of acquiring from a supplier other than the higher education provider and is for:
- d) equipment or items which become the physical property of the student and are not consumed during the course of study; or
- e) food, transport and accommodation costs associated with the provision of field trips that form part of the course of study.
- f) It is a fine or a penalty provided it is imposed principally as a disincentive and not in order to raise revenue or cover administrative costs.

**Examination material or equipment**

Details about the material or equipment that is permitted in an examination room will be updated on course wattle, “Exams related” section

**Recommended Resources**

There will not be designated textbooks, but the following books at the graduate level might be helpful:

- Handbook of Labor Economics, Vol 3A, Orley C. Ashenfelter and David Card, Chapter 23, Empirical Strategies in Labor Economics, by Joshua D. Angrist and Alan B. Krueger (<http://www.irs.princeton.edu/pubs/pdfs/401.pdf> )
- Microeconometrics: Methods and Applications, by Cameron and Trivedi
- Mostly Harmless Econometrics: An Empiricist’s Companion, Joshua D. Angrist and Jörn-Steffen Pischke, Princeton and Oxford: Princeton University Press
- Mastering Metrics, Joshua D. Angrist and Jörn-Steffen Pischke, Princeton and Oxford: Princeton University Press

**COURSE SCHEDULE**

**COURSE SCHEDULE for **EMET3006** students**

Week/ Session	Summary of Activities	Assessment
1	Data types by dimensions and source	lab (Introduction to Stata)
2	Empirical micro-economics research: an overview	lab (More on Stata), assignment 1 due by Friday 5pm

3	Journal paper discussion one: a classical example of descriptive study	lab
4	Identification topic one: choice of control variables (why? Omitted variable bias formula? Potential problems & caveats?)	lab, assignment 1 returned by Monday 5pm
5	Journal paper discussion two: a classical example of dif-dif study	lab, assignment 2 due by Friday 5pm
6	Identification topic two: dif-dif and fixed effect approach (why? How? Potential problems & caveats?)	lab
7	Journal paper discussion two: a classical example of IV study	lab, assignment 2 returned by Monday 5pm
8	Identification topic three: instrumental variable approach (why? How? Potential problems & caveats?)	lab, assignment 3 due by Friday 5pm
9	Journal paper discussion two: a classical example of regression discontinuity study	lab
10	Identification topic four: regression discontinuity approach (why? How? Potential problems & caveats?)	lab, assignment 3 returned by Monday 5pm
11	A more generalized perspective on IV: the concepts of LATE, ATT	lab
12	Propensity matching versus regression	lab
	Examination period	Final exam

**COURSE SCHEDULE for ECON4441/8041 students**

Week/ Session	Summary of Activities	Assessment
1	Discussion of a journal paper on DFL approach	lab (Introduction to Stata)
2	Discussion of a journal paper on the concept of cohort effect (accounting sense)	lab (More on Stata), assignment 1 due by Friday 5pm
3	Discussion of a journal paper on the concept of cohort effect (general equilibrium sense)	lab
4	Discussion of a journal paper on creative usage of omitted variable bias formula for investigation	lab, assignment 1 returned by Monday 5pm

5	Discussion of a journal paper on dif-dif (learn from a debate in the literature)	lab, assignment 2 due by Friday 5pm
6	Discussion of a milestone article on policy evaluation (various econometric approaches)	lab
7	Discussion of a journal paper on constructing the arguments using various empirical evidence	lab, assignment 2 returned by Monday 5pm
8	Presentation of group 1	lab, assignment 3 due by Friday 5pm
9	Presentation of group 2	lab
10	Presentation of group 3	lab, assignment 3 returned by Monday 5pm
11	Presentation of group 4	lab
12	Using big data in economic research	lab
	Examination period	Final exam

The details of the papers will be published at course wattle.

## 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

#### **Participation**

Active participation and discussion will be expected. The participation will be judged by the quantity and quality of discussion on class.

Details of Assessment Tasks will be announced through Wattle and on class.

#### **Examination(s)**

There will be formal midterm and final exams for this course. Details will be announced through Wattle and on class.

#### **Assignment submission**

Online Submission: Unless an exemption has been approved by the Associate Dean (Education) a submission must be through Turnitin. 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.

### **Returning assignments**

Through Turnitin

### **Resubmission of assignments**

Students wish to resubmit some or all assignments will need to get the permission from the course convener.

### **Referencing requirements**

The Chicago Manual of Style's author-date should be used for this course. For guidance, please refer to [http://www.chicagomanualofstyle.org/tools\\_citationguide.html](http://www.chicagomanualofstyle.org/tools_citationguide.html)

### **Scaling**

Your final mark for the course will be based on the **raw** marks allocated for each of your assessment items. However, your final mark may not be the same number as produced by that formula, as marks may be **scaled**. Any scaling applied will preserve the rank order of raw marks (i.e. if your raw mark exceeds that of another student, then your scaled mark will exceed the scaled mark of that student), and may be either up or down.

### **Privacy Notice**

The ANU has made a number of third party, online, databases available for students to use. Use of each online database is conditional on student end users first agreeing to the database licensor's terms of service and/or privacy policy. Students should read these carefully.

In some cases student end users will be required to register an account with the database licensor and submit personal information, including their: first name; last name; ANU email address; and other information.

In cases where student end users are asked to submit 'content' to a database, such as an assignment or short answers, the database licensor may only use the student's 'content' in accordance with the terms of service – including any (copyright) licence the student grants to the database licensor.

Any personal information or content a student submits may be stored by the licensor, potentially offshore, and will be used to process the database service in accordance with the licensors terms of service and/or privacy policy.

If any student chooses not to agree to the database licensor's terms of service or privacy policy, the student will not be able to access and use the database. In these circumstances students should contact their lecturer to enquire about alternative arrangements that are available.

### **Tutorial Seminar Registration**

Tutorial signup for this course will be done via the Wattle website. Detailed information about signup times will be provided on Wattle or during your first lecture. When tutorials are available for enrolment, follow these steps:

1. Log on to Wattle, and go to the course site
2. Click on the link "Tutorial enrolment"
3. On the right of the screen, click on the tab "Become Member of....." for the tutorial class you wish to enter
4. Confirm your choice

If you need to change your enrolment, you will be able to do so by clicking on the tab "Leave group...." and then re-enrol in another group. You will not be able to enrol in groups that have reached their maximum number. Please note that enrolment in ISIS must be finalised for you to have access to Wattle.

### **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/>

### **OTHER INFORMATION**

#### **Building Access Hours**

Both CBE and HW ARNDT are:

TEACHING PERIOD = Mon-Fri 07.45 to 21.15 and SAT, SUN and Public Holidays is not accessible by students.

Both CBE and HW ARNDT are:

NON TEACHING PERIOD = Mon-Fri 08.00 to 18.00 and SAT, SUN and Public Holidays is not accessible by students.

#### **RSE has a Frequently Asked Questions page where you can find relevant policies and information on a broad range of topics**

<https://www.rse.anu.edu.au/students/students/frequently-asked-questions/>