ECOM90019 Advanced Studies in Econometrics II

Lecturer in Charge: Professor Jenny Williams
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Lectures: Wednesday 10:00am - 1:00pm FBE-214

Subject Aims
This subject aims to familiarize students with the tools relevant in evaluating programs, and to train students in the skills used to conduct applied microeconometrics research. The literature that is drawn upon largely comes from labour economics, health economics, education economics and development economics. The computer software used is Stata.

By the end of this subject, students should have an understanding of econometric and experimental tools used to evaluate economically relevant policies. In addition, students should be able to critically evaluate program evaluations, analyze data and to derive conclusions regarding the treatment effect of a policy, and be able to present and discuss research findings.

Subject Structure
This subject will make use of several learning formats. The scheduled classes will combine lectures with discussion and presentation of assigned readings. This will be complemented by practical work that requires students to replicate and extend published research. The subject also incorporates sessions on research skills intended to take you beyond coursework and into your thesis research, and publishing.

In the scheduled classes, the format will typically be split between formal lectures and discussion of 2 or 3 research papers. Six formal lectures will give an overview of specific evaluation tools. The discussion of research papers will involve assigned students presenting each paper as their own (20 minutes). This will be followed by a discussion by 3 students who are randomly selected (15 minutes). Each paper will be wrapped up with a general discussion by the audience. Students are expected to prepare for class by reading the lecture notes and the assigned papers and by preparing points to raise in discussion if not presenting a paper, by preparing the presentation. Active participation is mandatory.

Lecture time will be devoted to the development of research skills. These include choosing and triaging research projects (week 1); understanding research from the perspective of an editor and author (guest lecture, Deborah Cobb-Clark, week 9); a writing workshop (week 10); and guest lectures from an advanced year PhD student and a recent PhD graduate on “the PhD after coursework” (week 12).

Lecture time will also be allocated to student’s “pitching” their plans for their major research project (weeks 4 and 5). This not only forces students to organise and structure their thinking, but also provides an opportunity for feedback and suggestions from senior academic(s) and from their colleagues. A final presentation of research project in weeks 11 and 12 will assist students develop their presentation skills as well as get feedback on presentation and organisation of their research before the final research report is submitted.
## Class Schedule

<table>
<thead>
<tr>
<th>week</th>
<th>date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>30-Jul</td>
<td>Lecture: An Introduction to Treatment Evaluation&lt;br&gt;Research Skills: Choosing &amp; Triaging Research Topics</td>
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<tr>
<td>2</td>
<td>6-Aug</td>
<td>Presentations &amp; Discussion of Readings: Experiments&lt;br&gt;Lecture: Selection on Observables, Matching and Propensity Score Matching</td>
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<td>3</td>
<td>13-Aug</td>
<td>Presentations &amp; Discussion of Readings: Propensity Score Matching&lt;br&gt;Lecture: Difference in Difference Estimators &amp; Panel Data Approaches to Treatment Evaluation</td>
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<td>4</td>
<td>20-Aug</td>
<td>The Pitch: Student presentation of proposed research and feedback session</td>
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<tr>
<td>5</td>
<td>27-Aug</td>
<td>The Pitch: Student presentation of proposed research and feedback session&lt;br&gt;Talking Stata</td>
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<td>6</td>
<td>3-Sep</td>
<td>Presentations &amp; Discussion of Readings: DiD &amp; FE estimation&lt;br&gt;Lecture: Instrumental Variables Estimation of Homogenous and Heterogeneous Treatment Effects</td>
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<td>7</td>
<td>10-Sep</td>
<td>Presentations &amp; Discussion of Readings: IV Estimators&lt;br&gt;Lecture: Instrumental Variables Estimation: Issues and Extensions</td>
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<td>8</td>
<td>17-Sep</td>
<td>Presentations &amp; Discussion of Readings: IV Estimators&lt;br&gt;Lecture: Regression Discontinuity Design</td>
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<td>9</td>
<td>24-Sep</td>
<td>Guest Lecturer Deborah Cobb-Clark: Research Advice from the perspective of an editor and author&lt;br&gt;Presentation &amp; Discussion of Readings: RDD&lt;br&gt;Quick update on Research Projects</td>
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<td>1-Oct</td>
<td><strong>non-teaching week</strong></td>
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<td>10</td>
<td>8-Oct</td>
<td>Update on Research Projects&lt;br&gt;Writing workshop</td>
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<td>11</td>
<td>15-Oct</td>
<td>Student Research Presentations</td>
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<tr>
<td>12</td>
<td>22-Oct</td>
<td>Student Research Presentations&lt;br&gt;Presentation from Advanced PhD students on &quot;PhD Life After Coursework&quot;</td>
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## Preparing for Class Presentations and Discussions

The following questions will be the basis for in-class discussion of the assigned readings and papers (the bolded questions should be the focus of presentations):

1. **What is the contribution of this paper? Where does this paper fit in the relevant literature?**
2. **What data are used? Are they reliable/suited to the question being asked?**
3. **What is the identification strategy? What assumptions support a causal interpretation of the findings? Are these assumptions defendable in the context of this application?**
4. **Are the main results and robustness checks convincing – why or why not?**
5. **What is the take away message from this research?**
6. **What would be an ideal research design to answer the question at hand? What would constitute an ideal data set?**
7. **How could one improve upon this study? Is there a better method/sample/context that would enable better answer the question?**

Students are encouraged to propose other discussion questions.
Assessment

15%  Presentation of assigned papers (2 presentations)
10%  Discussion of papers and active class participation
10%  Pitch of Empirical Research Project (weeks 4, 5)
10%  Final presentation of Empirical Research Project (weeks 11, 12)
55%  Empirical Research Project written report (10am 12 November)

• Soft copies of the slides for ALL presentations (including the Pitch) are to be emailed to Jenny no later than 10pm the night before class
• Soft copy of the complete Empirical Project due BEFORE 10am 12 November (55%)

The major component of the subject assessment is an empirical project on a topic to be chosen by the student. The project asks students to review, replicate, and extend an empirical paper from the reading list. The paper should be one that we have not covered in detail in class. The topic should be chosen in close coordination with the lecturer. More details on the format and structure of the paper, along with the “pitch”, will be provided in a separate document. A soft copy of the complete Empirical Project due BEFORE 10am 12 November. The assignments are NOT to be submitted to the Commerce Student Centre.

A soft copy of your Empirical Project is to be emailed to the lecturer BEFORE 2 pm on the due date. The assignments MUST CONTAIN your name and unimelb email address. Each student is to submit a copy of their own assignment. Details of Plagiarism and Collusion are defined below. It is very important that you submit all the assignments by the due dates. Late Assignments will NOT be accepted

Students with a genuine and acceptable reason for not completing an assignment, such as illness, can apply to have their marks for that assignment transferred to the final exam. Suitable evidence, such as a doctor’s certificate is required.

Special Consideration
Students who have been significantly affected by illness or other serious circumstances during the semester may be eligible to apply for Special Consideration. The following website contains detailed information relating to who can apply for Special Consideration and the process for making an application: http://www.ecom.unimelb.edu.au/students/special/

Plagiarism and Collusion
Presenting material from other sources without full acknowledgement (referred to as plagiarism) is heavily penalised. Penalties for plagiarism can include a mark of zero for the piece of assessment or a fail grade for the subject. Plagiarism is the presentation by a student of an assignment identified as his or her own work even though it has been copied in whole or in part from another student’s work, or from any other source (eg. published books, web-based materials or periodicals), without due acknowledgement in the text

Software
Stata
• We will use Stata 13 version in the labs.
• Stata is available:
  • On campus in tutorial rooms and the Faculty computer lab.
  • Off campus via the citrix server
It is recommended that you purchase a 6 Month GradPlan Stata/IC 12 stata license for $71 from http://www.survey-design.com.au/gradplan.html

DO NOT BUY the 6 Month GradPlan Small Stata 13

Email Protocol
While academic staff endeavour to address queries received via email, it is more appropriate to resolve substantive questions face-to-face by making an appointment to see the Lecturer.

Please note that we are only able to respond to student emails coming from a University email address. Please do not use personal email addresses such as Yahoo, Hotmail or even business email addresses. Emails from non-University email addresses may be filtered by the University’s spam filter, which means that we may not receive your email. All correspondence relating to this subject will only be sent to your University email address. Note that you must first activate your University email address before you can send or receive emails at that address. You can activate your email account at this link: http://accounts.unimelb.edu.au/.

Textbooks and Readings
The only required text for the subject is:


Students are also strongly recommended to be familiar with:


A large number of readings for each topic are provided below. These readings provide the basic theory underlying a technique and applications of the relevant method. All students must come to class prepared to discuss the required readings. Required readings and articles for discussion will be chosen from this list and assigned by the lecturer one week before each class. Additional readings may be added to the list during the semester. Students are encouraged to read the recommended readings for a broader and deeper understanding of each topic. Electronic copies of the papers can be downloaded from the University library.

General readings:

**Preliminary List of Readings for each Topic**

**An Introduction to Treatment Evaluation:**

- Causality and Selection in the Potential Outcomes Framework
- The Experimental Ideal

**Readings:**

- A&P Ch 2  
- C&T Ch 25.1-25.3  

**Selection on Observables, Matching and Propensity Score Matching**

**Readings:**

- A&P Ch 3.2-3.3  
- C&T Ch 25.1-25.4  
• Blundell R., L. Dearden and B. Sianesi. 2003, Evaluating the Impact of Education on Earnings in the UK: Models, Methods and Results from the NCDS, IFS Working Paper August


### Difference in Difference Estimators and Panel data approaches to Treatment Evaluation

**Readings:**

A&P Ch 5

• C&T Ch 25.5, Ch 21


Instrumental Variables Estimation of Homogenous and Heterogeneous Treatment Effects

Readings: A&P Ch 4

- C&T Ch 6.4, Ch 25.7

**Instrumental Variables (Issues and Extensions) and Non Standard and Standard Error Issues**

**Readings for IV:** A&P Ch 4.5.1 4.5.2, 4.6.1, 4.6.4

• C&T 4.9

**Readings for Non Standard, Standard Error Issues:** A&P Ch 8

• C&T 24
Regression Discontinuity Design

Readings: A&P Ch 6
- C & T 25.6

Other events you should attend

We strongly recommend that you attend the Econometrics Workshops. The workshops are hosted by the Econometrics Unit during teaching weeks. This semester the weekly workshop will take place in the seminar room on level 6 of the FBE building on Wednesdays from 3:30-4:45pm. The speakers use econometrics to address economic questions in various fields including health, public, trade, labour, IO, development, education, environmental, and so on. The seminars will provide you with a unique opportunity to hear local, national and
international speakers present their empirical work. We also urge you to meet with speakers who are presenting work in your field of interest and/or attend lunch or dinner.