ECON4106 / ECON6202
Policy Evaluation Methods

Course Outline
Semester 2, 2015

Part A: Course-Specific Information
Note: Students are also expected to have read and be familiar with **Part B Supplement to All Course Outlines**. This contains Policies on Student Responsibilities and Support, Including Special Consideration, Plagiarism and Key Dates. It also contains the BUSINESS SCHOOL PROGRAM LEARNING GOALS.
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1 STAFF CONTACT DETAILS

Lecturer-in-charge: Professor Pauline Grosjean  
Room: BUSINESS SCHOOL 442A  
Phone No: 9385 7482  
Email: p.grosjean@unsw.edu.au  
Consultation Times – TBA

1.1 Communications with staff  
The lecturer-in-charge is responsible for the course content as well as the overall administration of the course. You should feel free to approach her about any academic matter related to the course. However, for efficiency reasons, all enquiries about the subject material should be made during consultation time or at lectures or tutorials. Discussion of course subject material will not be entered into via email.

Email correspondence on administrative matters (e.g. advising inability to attend tut) will be responded to within 48 hours, but not over weekends. Please note that the lecturer has no advance notice of the date and time of the exam.

2 COURSE DETAILS

2.1 Teaching Times and Locations  
Each student should enrol in the lecture and the tutorial. The combined lecture/tutorial meets on Thursdays 6pm – 9pm in BUSINESS SCHOOL 205. Lectures will run from week 1 to week 12 inclusively. Tutorials will run from week 1 to week 12 inclusively.

2.2 Units of Credit  
The course is worth 6 units of credit. This course is taught in parallel to both Honours and postgraduate students.

2.3 Summary of Course  
The objective of that course is for students to learn a set of statistical tools and research designs that are useful in conducting high-quality empirical research on topics in applied microeconomics and related fields. Since most applied economic research examines questions with direct policy implications, this course will focus on methods for estimating causal effects. We will critically discuss various techniques and indicate strengths and weaknesses. Different types of data will be discussed along with the tools appropriate for the various forms of data. This course differs from many other econometrics courses in that it is oriented towards applied practitioners rather than future econometricians. It therefore emphasizes research design (relative to statistical technique) and applications (relative to theoretical proofs), although it covers some of each.

During the course, we will review several different approaches to program evaluation and apply these methods to real data. We will examine policies and programs in a
broad range of areas including development, labour markets, health care, political economy, social welfare and poverty, education, and crime.

2.4 Aims and Relationship to Other Courses

The course aims to endow students with tools relevant in evaluating programs, and to train students' skills in conducting economic research. ECON 4106/6202 is an option available for students enrolled in an Honours or Post-graduate program in economics or commerce. The course relies considerably on methods of data analysis; tools learned in an intermediate econometrics course such as ECON2206 are assumed knowledge in the course. The subject is suitable both for those students interested in evaluation techniques for any type of program or policy to students interested in the conduct of applied microeconometric work generally.

2.5 Student Learning Outcomes

The Course Learning Outcomes are what you should be able to DO by the end of this course if you participate fully in learning activities and successfully complete the assessment items.

The Learning Outcomes in this course also help you to achieve some of the overall Program Learning Goals and Outcomes for all students in the BUSINESS SCHOOL. Program Learning Goals are what we want you to BE or HAVE by the time you successfully complete your degree. You demonstrate this by achieving specific Program Learning Outcomes - what you are able to DO by the end of your degree.

For more information on the Program Learning Goals and Outcomes, see Part B of the course outline.

The following table shows how your Course Learning Outcomes relate to the overall Program Learning Goals and Outcomes, and indicates where these are assessed:
<table>
<thead>
<tr>
<th>Program Learning Goals and Outcomes</th>
<th>Course Learning Outcomes</th>
<th>Course Assessment Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>This course helps you to achieve the following learning goals</strong></td>
<td><strong>On successful completion of the course, you should be able to:</strong></td>
<td><strong>This learning outcome will be assessed in the following items:</strong></td>
</tr>
</tbody>
</table>
| 1 Knowledge                        | Have an in-depth understanding of econometric/experimental tools to evaluate economically relevant policies. | • Oral presentation  
• Participation in group discussions  
• Problem sets  
• Final exam |
|                                    | Know how to choose, defend and apply the appropriate estimation model(s) to the estimation of treatment effects taking into account the structure of the data. | |
| 2 Critical thinking and problem solving | Be able to critically evaluate experimental designs and program evaluations. | • Oral presentation  
• Participation in group discussions  
• Problem sets  
• Final exam |
|                                    | Know how to analyse the data collected from the field or created in an experiment, and to derive conclusions. | |
|                                    | Know how to choose, defend and apply the appropriate estimation model(s) to the estimation of treatment effects taking into account the structure of the data. | |
| 3a Written communication          | Critically evaluate experimental designs and program evaluations. | • Problem sets  
• Final exam |
|                                    | Analyse the data collected from the field or created in an experiment, and to derive conclusions | |
|                                    | Be able to present and discuss your findings. | |
| 3b Oral communication              | Choose, defend and apply the appropriate estimation model(s) to the estimation of treatment effects taking into account the structure of the data, | • Oral presentation  
• Participation in group discussions |
|                                    | Be able to present and discuss your findings. | |
| 4 Teamwork                         | Work collaboratively to complete a task. | • Participation in group discussions |
| 5a Ethical, environmental and sustainability considerations | Not specifically addressed in this course. | |
| 5b Social and cultural awareness   | Have an in-depth understanding of econometric/experimental tools to evaluate economically relevant policies. | • Oral presentation  
• Participation in group discussions  
• Problem sets  
• Final exam |
3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

The philosophy underpinning this course and its Teaching and Learning Strategies are based on “Guidelines on Learning that Inform Teaching at UNSW. These guidelines may be viewed at: www.guidelinesonlearning.unsw.edu.au. Specifically, the lectures, tutorials and assessment have been designed to appropriately challenge students and support the achievement of the desired learning outcomes. A climate of inquiry and dialogue is encouraged between students and teachers and among students (in and out of class). The lecturers and tutors aim to provide meaningful and timely feedback to students to improve learning outcome.

Quantitative information and statistics are pervasive not only in the study of economics and business but in understanding a wide range of phenomena. Every attempt will be made to demonstrate the relevance of the course to understanding such phenomena.

General principles or guidelines for undertaking applied work are discussed. In particular, we stress careful data analysis, the need to evaluate estimated models and the importance of the links between econometric models and the underlying substantive knowledge or theory associated with the particular application. These issues will be related to applications drawn from various fields.

3.2 Learning Activities and Teaching Strategies

There will be five basic learning activities utilised in this course: studying of lecture material, reading of additional material, presentation of relevant material, discussion of issues, and paper writing.

In the lectures, the lecturer will give an overview of the specific meeting topic, emphasise the challenges faced in research and practise, introduce state-of-the-art research tools to tackle the problems, discuss relevant background literature, and point to open research questions.

Students are expected to prepare the class by reading the assigned literature for the meeting. Open questions or difficulties in understanding should be brought to the attention of the class so that they can be discussed and resolved.

In each tutorial, students will make presentations. These presentations will consist of either a summary and critique of a core paper, or the results from an econometric exercise illustrating one of the techniques reviewed in class. Each presentation should be about 20-25 minutes. Presenting in class improves your organizational and communication skills. The number of students presenting each week will depend on the size of the class.

During and after presentations and lectures, all students in class are expected to actively discuss the material being presented and the relevant open questions.
4 ASSESSMENT

4.1 Formal Requirements

In order to pass this course, you must:

- achieve a composite mark of at least 50 out of 100; and
- make a satisfactory attempt at ALL assessment tasks.

Assessment Details

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Weight</th>
<th>Length</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Oral presentation</td>
<td>15%</td>
<td>20-25 minutes</td>
<td>See 4.2 below</td>
</tr>
<tr>
<td>2. Participation in group discussions</td>
<td>5%</td>
<td>See 4.2 below</td>
<td>See 4.2 below</td>
</tr>
<tr>
<td>3. Problem Sets (4, 20% each)</td>
<td>80%</td>
<td>See 4.3 below</td>
<td>Weeks 3, 6, 9, 11</td>
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</table>

4.2 Oral presentations and participation in group discussions

Each week students will be asked to present pre-assigned papers or empirical results. Papers available for presentation are marked with a * in Section 7. Each student is required to present at least one paper. Depending on the class size, students may be allowed to present in groups. Presentation should be done using computer support and should be mainly focused on the econometric techniques used in the papers: why the authors applied that method, how they applied it, what are the main advantages and drawbacks of using that method, the limitations of the methods used in the paper and what other methods could have been used and the drawbacks of other methods in the case at hand. Presentations will be posted on the website and be made available to others for further study. Students may post the final version of the assignment in the week following the presentation. (This will allow the incorporation of any useful comments from the class discussion.) In general, the presentations are to be concise and to last around 15-20 minutes. Students who do not present will be given a mark of zero for this component of the assessment. Marking is done continuously based on content and style of presentation and participation in discussions.

All students are expected to participate in class discussions. Students should come to tutorials prepared to participate in the class discussion; i.e. they are expected to ask questions on the assignments and contribute to the discussion surrounding the presentations.

4.3 Problem Sets

A major component of the course assessment will be problem sets. Four problem sets will be assigned two weeks before they are due and must be turned in the day they are due, at the beginning of class. Problems sets will be given out in Weeks 3, 6, 9 and 11 (due in weeks 5, 7, 11 and 13, respectively). I will provide you with the data for the problem set and you will have to run some analysis using the techniques seen in class. You will have to turn in your programming (do-files if you are using stata) and your answers to questions on separate sheets. Each problem set will take a long time to prepare. Hence, you should not leave it to the last minute, or you will be unable to
complete it. Students may work together on the project and teams of up to a **maximum of 3 students** and can submit a joint project. There are no requirements for students to present joint projects and students may choose to submit individual problem sets.

### 4.4 Quality Assurance

The BUSINESS SCHOOL is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will 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 will not be related to course grades.

### 5 Course Evaluation and Development

Each year feedback is sought from students and other stakeholders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student evaluative feedback is gathered. You are strongly encouraged to take part in the feedback process.

### 6 Course Resources

The website for this course is on UNSW Moodle at: [http://moodle.telt.unsw.edu.au](http://moodle.telt.unsw.edu.au)

The website contains: the course outline; the tutorial documents; the lecture notes; data used in the tutorial problems and project; past exam papers; course announcements; and other course hand-outs.

Students should consult this website at least once a week as it contains important information about the course. It will be assumed that all students have seen any notice posted on the course website.
The textbook for the course is:


A copy of this text has been placed on reserve at the library and copies are available at the bookstore.

Material from the textbook will be complemented with journal articles that can be downloaded from the respective journal websites through UNSW’s library system.

For background knowledge in intermediate econometrics, it is recommended that you consult either:


Both texts will be available in the Open Reserve Section of the library. Also they will be available for purchase from the bookstore.

**Computing work**

Computing is an important component of policy evaluation. Apart from tutorial problems that require computing, the major project may require using econometric software. The econometric software that I will be using is Stata. Stata is available in the BUSINESS SCHOOL computing labs; alternatively, you can obtain a copy of the Stata and install it on your own PC. To purchase your own copy, you will need to fill out a form and to pay the price of the version of Stata you choose to buy. For more information on Stata prices in Australia, see: [http://www.survey-design.com.au/gradplan.html](http://www.survey-design.com.au/gradplan.html)

There are lots of resources and support for Stata on the web. Particularly useful are the following websites:

- For general help, browse through: [http://www.ats.ucla.edu/stat/stata/](http://www.ats.ucla.edu/stat/stata/)
- You can work through a tutorial at: [http://data.princeton.edu/stata/](http://data.princeton.edu/stata/)
- [http://personal.lse.ac.uk/mcmahonm/Stata.htm](http://personal.lse.ac.uk/mcmahonm/Stata.htm), specifically class 3, 4 and 5.

The manual: A.C. Acock, “A Gentle Introduction to Stata”, 2nd edition, Stata Press, 2008 may be helpful and is available on open reserve at the library.

Note that students do not need to buy their own copy of Stata and can choose to conduct their computing work on campus in the computer labs. Also, it is possible to complete the course using alternative software such as SHAZAM, SAS or E-Views. However, EXCEL will not be sufficient.
7 COURSE SCHEDULE

A large number of readings are provided below for each topic covered in class. These readings provide the basic theory underlying a technique and applications of the relevant methodology.

In what follows, MHE indicates the “Mostly Harmless Econometrics” text mentioned above. Required readings are indicated below main headers. Additional readings are suggested in bullet points. Required readings for discussion will be chosen from this list and assigned for the following week’s meeting. Additional readings may be assigned during the semester.

1. **Policy Evaluation Tools: Surveys, Sampling, Experiments (Week 1)**

Required readings:
- Lecture notes 0, available on UNSW Moodle

2. **Causality and Randomized Designs (Week 2)**

Required readings:
- Lecture notes 1, available on UNSW Moodle
- MHE: Chapters 1 and 2

2.1 The fundamental problem of causal inference

2.2 Randomized designs

3. **Controlling for selection bias by controlling for observables (Weeks 3 and 4)**

Required readings:
- Lecture notes 2, available on UNSW Moodle
- MHE: Chapters 3 and 8
3.1. Inference with OLS: Heteroskedasticity, clustering, omitted variable bias, over controlling, under controlling

CT chapter 24

3.2. Matching

CT Chapter 25.4.
JW Chapter 18.3.2


3.3. Non parametric techniques

CT Chapters 4.1 - 4.5.
WNE Lecture 1, Section 3.1.
JW Chapters 4, 18.3.1.
CT Chapter 9.


PROBLEM SET 1 (Week 3)

4. Selection on Unobservables Design: Difference in Differences type estimators (Weeks 5 and 6)

Required readings:
- Lecture notes 3, available on UNSW Moodle
- MHE: Chapter 5

4.1 Difference in Differences

CT Chapter 22
WNE Lecture 10.
JW Chapter 10.


4.2. Case studies with Synthetic Controls

CT Chapter 25.5.


4.3. Fixed effects

CT Chapter 21


⇒ **PROBLEM SET 2 (Week 6)**

5. **Instrumental Variables methodology (Weeks 7 and 8)**

Required readings:
- Lecture notes 4, available on UNSW Moodle
- MHE: Chapter 4

5.1 The IV estimator

*CT* Chapter 4.8.
*JW* Chapter 5.

5.2 Heterogeneous Treatment Effects

*CT* Chapter 25.7.
*WNE* Lecture 5.
*JW* Chapter 18.4.

5.3 2SLS and Weak Instruments

*CT* Chapter 4.9.
*WNE* Lecture 13.

5.4 Control function approach

**Week 9: More on Experiments: Randomized, Natural, Historical**

- Dell M. Path Dependence in Development: Evidence from the Mexican Revolution. 2012
- Fuchs-Schundeln, N. and T. Hassan. 2015. Natural Experiments in Macroeconomics. NBER working paper 21228
6. Regression Discontinuity Design and Regression Kink Design (Weeks 10 and 11)

Required readings:
- Lecture notes 5, available on UNSW Moodle
- MHE: Chapter 6
- CT Chapter 25.6

7. Elements in Spatial Econometrics and Analysis of Networks (Week 12)

Required readings:
- Lecture notes 7, available on UNSW Moodle