ECON4205/6205

Microeconometric Modelling

Course Outline
Semester 1, 2015

Part A: Course-Specific Information

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 Denzil Fiebig  
Room: ASB444  
Phone No: 9385 3958  
Email: d.fiebig@unsw.edu.au  
Consultation Times: Monday 2-5 pm, or by appointment.

Feel free to approach Denzil about any academic matter in the consultation times or by appointment. Denzil may also be contacted by telephone or e-mail.

2 COURSE DETAILS

2.1 Teaching Times and Locations
Lecture: Monday 6-9 pm ASB130

There will be a combination of lectures and tutorial discussions but all will be integrated into the allocated time.

2.2 Computing
This subject requires econometric/statistical software for most homework problems and assignments. The preferred software is Stata and you may only use another statistical package with the explicit permission of the lecturer. Some introductory material is available on the website for those students who have not used Stata before.

Stata 13 is the most recent version and is currently available on computers used by honours and graduate students and is available in the Business School computing labs for all students formally enrolled in the course. (Stata 12 is likely to be adequate.)

If students want to purchase their personal copy of Stata they can do so directly from the provider at http://survey-design.com.au through the Australian GradPlan arrangements at a cost that varies depending on plan chosen.

2.3 Units of Credit
The course is worth 6 units of credit.

There is no parallel teaching in this course.

2.4 Summary of Course
This course covers the specification, estimation, and use of econometric methods that are necessary to model discrete choices made by individuals, households, firms, etc. Situations where data are available either as a cross section or as a panel will be covered. Special emphasis will be placed on illustrating the appropriate use of such data and application of associated models using case studies drawn from health, labour, and environmental economics as well as business disciplines such as finance and marketing. The course will equip students with the necessary knowledge to be able to conduct research in the specialized area of micro-econometrics and to be informed consumers of such research.

2.5 Aims and Relationship to Other Courses
This course is an elective subject for the Economics Honours program and the MPhil, MEc and PhD programs in Economics. It may also be taken to satisfy the requirements
for an Econometrics major within the Honours program. The prerequisite is Applied Econometric Methods (ECON3208) or Econometric Analysis (ECON6003). In particular, students are expected to have a good basic knowledge of regression analysis and some familiarity with binary choice models (logit and probit).

Building on the foundations provided by these prerequisites, this course aims to equip students with modern microeconometric skills that are widely used and increasingly demanded in commercial, public and academic sectors.

2.6 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 undergraduate coursework 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 Postgraduate 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>This course helps you to achieve the following learning goals</td>
<td>On successful completion of the course, you should be able to:</td>
<td>This learning outcome will be assessed in the following items:</td>
</tr>
<tr>
<td>1 Knowledge</td>
<td>Understand what constitutes an appropriate approach to modelling a range of discrete, qualitative and limited dependent variables and why it is necessary to consider extensions to the classical linear regression model.</td>
<td>• Major assignments • Project</td>
</tr>
<tr>
<td></td>
<td>Implement econometric tools and skills to interpret characteristics of panel and choice data relevant to problems in economics and business.</td>
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<td></td>
<td>Identify some of the pitfalls, problems and solutions that arise in estimating choice models and using panel data.</td>
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<td></td>
<td>Make the distinction between stated and revealed preference data.</td>
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<td></td>
<td>Use Stata effectively for choice modelling and panel data problems.</td>
<td></td>
</tr>
<tr>
<td>2 Critical thinking and problem solving</td>
<td>Formulate and solve real problems amenable to econometric analysis using methods appropriate to the problem and data available.</td>
<td>• Major assignments • Project</td>
</tr>
<tr>
<td></td>
<td>Critically evaluate applied econometric research using choice models and panel data.</td>
<td></td>
</tr>
<tr>
<td>3a Written communication</td>
<td>Construct written work which is logically and professionally presented.</td>
<td>• Major assignments • Project</td>
</tr>
<tr>
<td></td>
<td>Convey complex econometric ideas and results so that non-experts can understand the key outcomes of analysis.</td>
<td></td>
</tr>
<tr>
<td>3b Oral communication</td>
<td>Communicate ideas in a succinct, clear and understandable manner.</td>
<td>• In class exercises • Project</td>
</tr>
<tr>
<td>4 Teamwork</td>
<td>Work collaboratively to complete an econometric research task.</td>
<td>• In class exercises • Project</td>
</tr>
<tr>
<td>5a. Ethical, environmental and sustainability considerations</td>
<td>Identify and assess environmental and sustainability considerations in problems in economics and business.</td>
<td>• Major Assignments • Project</td>
</tr>
<tr>
<td></td>
<td>Understand the ethical responsibilities associated with reporting econometric results.</td>
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<tr>
<td>5b. Social and cultural awareness</td>
<td>Not applicable in this course.</td>
<td></td>
</tr>
</tbody>
</table>
3 LEARNING AND TEACHING ACTIVITIES

3.1 Approach to Learning and Teaching in the Course

Lectures will be interactive and students will be expected to be active participants in these exchanges. The lecture material will be supplemented by problems, case studies, computer exercises and readings and it is essential that students prepare for lectures by working through this assigned material even when it is not directly assessable. There will be considerable scope for extending their subject matter knowledge and understanding by conducting extra reading and reporting on topics related to but not directly covered in lectures.

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 lecturer aims to provide meaningful and timely feedback to students to improve learning outcome.

3.2 Learning Activities and Teaching Strategies

The lectures are aimed at providing students with some guidance and tools to be able to produce reliable and useful empirical results and to be able to appraise the work of others. Lecture material will be integrated with assigned reading material and tutorial exercises in order to deepen and broaden the major points made in the lectures. An essential component of the course will be the completion of a variety of research projects/assignments to enable students to gain experience in putting these tools into practice and to demonstrate their understanding and creativity.

It is essential that the discussion of how to use econometric tools effectively be complemented with practice in analysing choice data. The software package Stata will be used for modelling and instruction in the use of the package will be provided. Even though many of the modelling tasks may be tackled using other packages, exposure to a range of software alternatives is a key learning strategy.
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 (see below).

(For graduate students other rules apply with regard to satisfactory progress.)

4.2 Assessment Details

Assessment will consist of:

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Weighting</th>
<th>Length</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1: Binary choice</td>
<td>15%</td>
<td>&lt;1500</td>
<td>Week 4 Mon Mar 23</td>
</tr>
<tr>
<td>Assignment 2: Contingent valuation</td>
<td>15%</td>
<td>n/a</td>
<td>Week 6 Mon Apr 13</td>
</tr>
<tr>
<td>Assignment 3: Panel binary choice</td>
<td>15%</td>
<td>n/a</td>
<td>Week 9 Mon May 4</td>
</tr>
<tr>
<td>Assignment 4: Multinomial choice</td>
<td>15%</td>
<td>n/a</td>
<td>Week 13 Mon June 4</td>
</tr>
<tr>
<td>Major Project</td>
<td>40%</td>
<td>&lt;4000 words</td>
<td>Mon Jun 15</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3 Assignment Details

Assignments are integrated into a broader set of problems. Students must submit a hard copy of assignments to Denzil by 6 pm of the due date. In the case of late submission, 10% of the value of each assignment will be deducted for each day (24 hours) or part thereof after the deadline.

There will be no final exam. Instead students will undertake independent research in the form of a major project on a topic chosen by the student. This project must involve econometric analysis using choice models and/or panel data. The project will be presented in the form of a (short) research article. Students must consult with Denzil and get prior approval of the topic by Week 7 and then confirm their topic by providing a one page proposal by the end of Week 8 (Friday, May 1). This proposal must include the title, a brief description of the proposed research and details of the data to be used.

Further details of these assignments, problems and the project are provided in separate documents.

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 Moodle at: http://moodle.telt.unsw.edu.au

The course will not follow the development in any one textbook. Three books have been recommended as the prime reference books.

   (Basic intermediate econometrics text. Useful for other econometrics courses and as a general reference.)
   (Specialist text in the area of limited dependent variables pitched at about the same level of this course but is expensive.)
   (Very good microeconometric text that is value for money as a general reference book. It is much more comprehensive than the current course and pitched at a higher level.)

Previous editions of these texts will also be suitable, but be aware that in the case of Greene chapter numbers have changed considerably between editions. As a further aid to your study, copies of lecture overheads will be available on the course webpage.

For Stata the following book may also be useful:

7 LECTURE SCHEDULE

Lectures will be divided into 5 broadly defined parts.

1. **Microeconometrics (Week 1, March 2)**
   - Introduction and overview
     - Micro-economic questions (individual behaviour, treatment effects)
     - Features of micro data
     - Types of data (revealed and stated preference)
     - Using econometrics to solve real problems – motivating examples
   - Primary references

2. **Modelling probabilities – binary choice (Weeks 1-3, March 2, 9 & 16)**
   - Brief introduction to binary choice
     - Binary choice in a random utility framework
     - Linear probability model
   - Logit and probit models
     - Maximum likelihood estimation
     - Identification issues
     - Interpretation issues
   - Primary references
     - Greene (2008), Ch 16, 23.1-23.4
     - Winkelmann and Boes (2009) Ch 3, 4.1-4.3
   - Extra references

3. **Stated preference discrete choice methods and panel data (Weeks 4-6, March 23, March 30 & April 13)**
   - Motivation and overview of principles
     - Stated versus revealed preference data
   - Contingent valuation
     - MLE for extension to binary choice
   - Review of linear panel data models
     - Fixed or random effects?
     - Hausman test
   - Discrete choice experiments
     - Binary choice with panel data – random effects probit
   - Primary references
     - Greene (2008), Ch 9, 23.3, 23.5.1-23.5.2
     - Winkelmann and Boes (2009) Ch 4.3
     - Wooldridge (2010) Ch 10, 13, 15.8
   - Extra references
4. **Multinomial choice (Weeks 7-10, April 20 & 27, May 4 & 11)**
   - MNL
     - Specification and estimation
     - IIA property and testing
   - Extending the MNL model
     - Multinomial probit and mixed logit models
     - Maximum simulated likelihood
   - Primary references
     - Greene (2008), Ch 23.11
     - Winkelmann and Boes (2009) Ch 5
   - Extra references

5. **Alternative choice structures (Weeks 11-12, May 18 & 25)**
   - Multivariate models
     - Bivariate probit (BVP)
     - Selection
     - Endogenous regressors
   - Primary references
     - Greene (2008), Ch 23.7-23.9
     - Winkelmann and Boes (2009) Ch 7.3-7.4
     - Wooldridge (2010) Ch 15.7-15.8
   - Extra references

**References**


Miscellaneous applied papers further demonstrating the scope of choice modelling

*Suziedelyte, A. (2012),“How does searching for health information on the Internet affect individuals’ demand for health care services?”, *Social Science and Medicine* 75, 1828-1835.

* Early versions of these papers were presented as projects for this course.