Course Outline 2019
ECON721: ECONOMETRICS I (15 POINTS)
Semester 1 (1193)

Course prescription

Core econometrics including theory and applications. The development of the classical linear regression model and extensions to the most general case. Applications to types of linear models involving cross-section and time series data, and simultaneous equations models. The method of maximum likelihood, other extrema estimators, and associated methods of testing.

Course advice

Students taking this course should have a good background in econometrics and statistics to the advanced undergraduate level, and be comfortable with the related mathematics. Little prior knowledge of some topics is assumed, but the course moves quickly quite quickly through the more basic material. The course emphasizes the importance of a knowledge of theoretical underpinnings in practical methods.

Goals of the course

The purpose of this course is to provide students with a graduate level treatment of basic topics in econometrics. Because of the foundational nature of the material, the emphasis is on theoretical underpinnings and unifying themes, to be supplemented with some computer illustrations. Applications will focus on micro-econometric topics. ECON 723 is an ideal complement and focuses on time series topics.

Learning outcomes (LO)

<table>
<thead>
<tr>
<th>#</th>
<th>Learning outcome</th>
<th>Graduate profile capability*</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO1</td>
<td>Understand the foundations of the linear econometric theory</td>
<td>1. Disciplinary knowledge and practice</td>
</tr>
<tr>
<td>LO2</td>
<td>Specify empirical models to test various theories or evaluate policy</td>
<td>2. Critical thinking</td>
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</tbody>
</table>
LO3 | Apply preliminary and post estimation statistical tests and diagnostics including some specification tests. | 1. Disciplinary knowledge and practice  
3. Solution seeking

LO4 | Analyse micro-economic data using linear models | 2. Critical thinking

LO5 | Use econometric methods to analyse various data issues | 3. Solution seeking

* See the graduate profile this course belongs to at the end of this course outline.

**Content outline**

<table>
<thead>
<tr>
<th>Week / Module</th>
<th>Topic</th>
<th>Relevant learning resources/activities</th>
<th>Assessment due this period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 1 (weeks 1-2)</td>
<td>Review of matrix algebra and related statistical ideas</td>
<td>Lecture Notes</td>
<td></td>
</tr>
<tr>
<td>Topic 2 (weeks 3-5)</td>
<td>Development of the general linear regression model</td>
<td>Lecture Notes</td>
<td>Assignment 1</td>
</tr>
<tr>
<td>Topic 3 (weeks 6)</td>
<td>Some applications of the general structure</td>
<td>Lecture Notes</td>
<td>Test</td>
</tr>
<tr>
<td>Topic 4 (week 7-8)</td>
<td>Aspects of asymptotics and some applications</td>
<td>Lecture Notes</td>
<td></td>
</tr>
<tr>
<td>Topic 5 (week 9)</td>
<td>Endogeneity in single and multiple equation setting; identification and estimation</td>
<td>Lecture Notes</td>
<td>Assignment 2</td>
</tr>
<tr>
<td>Topic 6 (week 10)</td>
<td>Panel data Models</td>
<td>Lecture Notes</td>
<td></td>
</tr>
<tr>
<td>Topic 7 (weeks 11-12)</td>
<td>Maximum likelihood and other extremum estimators, GMM</td>
<td>Lecture Notes</td>
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</table>

**Learning and teaching**

The course will be taught in the first semester. There will be three hours of lectures per week.
Teaching staff
Dr Alan Rogers
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e-mail: a.rogers@auckland.ac.nz

Learning resources
1. Lecture Notes posted on CANVAS. These are quite comprehensive.
2. The following books also contain relevant material; the first of these is probably the most useful general reference.

W.H. Greene, *Econometric Analysis, 7th* edition, Prentice Hall, 2012. (other editions are also suitable.)

Assessment information

<table>
<thead>
<tr>
<th>Assessment task</th>
<th>Weight %</th>
<th>Group and/or individual</th>
<th>Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>10%</td>
<td>Individual</td>
<td>In class</td>
</tr>
<tr>
<td>Test</td>
<td>25%</td>
<td>Individual</td>
<td>In class</td>
</tr>
<tr>
<td>Exam</td>
<td>65%</td>
<td>Individual</td>
<td></td>
</tr>
</tbody>
</table>

Pass requirements
A grade of fifty percent or higher is necessary to pass the course. Plussage does not apply.

Description of assessment tasks

<table>
<thead>
<tr>
<th>Assessment task</th>
<th>Learning outcome to be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>1-5</td>
</tr>
<tr>
<td>Test</td>
<td>1-4</td>
</tr>
<tr>
<td>Exam</td>
<td>1-5</td>
</tr>
</tbody>
</table>
Inclusive learning
Students are urged to discuss privately any impairment-related requirements face-to-face and/or in written form with the courses convenor/lecturer and/or tutor.

Academic integrity
The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework as a serious academic offence. The work that a student submits for grading must be the student’s own work, reflecting his or her learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the worldwide web. A student’s assessed work may be reviewed against electronic source material using computerised detection to provide an electronic version of their work for computerised review.

Student feedback
Students will be requested to provide feedback to Class Representatives for Student Staff Consultative Committee Meetings.

In the event of an unexpected disruption
We undertake to maintain the continuity and standard of teaching and learning in all your courses throughout the year. If there are unexpected disruptions, the University has contingency plans to ensure that access to your course continues and your assessment is fair, and not compromised. Some adjustments may need to be made in emergencies. In the event of a disruption, the University and your course coordinators will make every effort to provide you with up to date information via Canvas and the University website.

Graduate profile for BCom (Economics)
The following six themes represent the capabilities that the Business School seeks to foster in all of its graduates. The development of these capabilities does not come all at once, but rather is expected to build from year to year. Each course is not expected to contribute to all capabilities, but each course will have its own goals and learning outcomes that relate to the overall development of this profile.

1) DISCIPLINARY KNOWLEDGE AND PRACTICE - Graduates will be able to demonstrate and apply a breadth of knowledge across disciplines, as well as specialist knowledge within one or more of them, while recognising the relevancy of this knowledge within a global context
   Disciplinary knowledge and practice
2) CRITICAL THINKING - Graduates will be able to analyse and critique theory and practice to develop well-reasoned arguments
   Critical thinking
3) SOLUTION SEEKING - Graduates will be able to identify and frame problems using analytical skills to create and evaluate innovative solutions.
   Solution seeking
   Quantitative reasoning
4) COMMUNICATION AND ENGAGEMENT - Graduates will be able to collaborate and communicate effectively in diverse business contexts using multiple formats.
   Oral communication
   Written communication
   Engagement
5) INDEPENDENCE AND INTEGRITY - Graduates will be able to respond professionally
and ethically, demonstrating a capacity for independent thought and learning.

  Independence
  Integrity

6) SOCIAL AND ENVIRONMENTAL RESPONSIBILITIES - Graduates will recognise the significance of the principles underpinning the Treaty of Waitangi and consider their obligations in relation to sustainability, whilst displaying constructive approaches to diversity.

  Social responsibility
  Environmental responsibilities