Course Outline 2018
ECON 212: GAME THEORY (15 POINTS)
Semester 2 (1185)

Course prescription
An introduction to the fundamental concepts of non-cooperative and cooperative game theory: the concept of strategy; two person constant sum non-cooperative games and the minmax value; n-person non-cooperative games and Nash equilibrium; examples and applications in auctions, bargaining and other economic models, political science and other fields; the idea of backward induction and sub-game perfection; introduction to games in coalitional form; the core and the Shapley value.

Course advice
Prerequisites: ECON 101 Microeconomics or ECON 191 Business Economics or MATHS 108 General Mathematics 1 or MATHS 150 Advancing Mathematics 1 or MATHS 153 Accelerated Mathematics or PHIL 101 Introduction to Logic.

Goals of the course
Students will be introduced to the basic concepts and taught to analyse simple examples. Emphasis will be very much on basic understanding rather than formal statements of results. Some formal definitions will be examined, but only after a thorough examination of the concepts in the context of examples.

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 basic issues in theories of strategic decision-making</td>
<td>1. Disciplinary knowledge and practice</td>
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<tr>
<td>LO2</td>
<td>Explain how to recognise strategic situations and represent them as games</td>
<td>1. Disciplinary knowledge and practice</td>
</tr>
<tr>
<td>LO3</td>
<td>Solve simple games using various techniques</td>
<td>3. Solution seeking</td>
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<tr>
<td>LO4</td>
<td>Analyse various economic situations using game theoretic techniques</td>
<td>2. Critical thinking</td>
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<tr>
<td>#</td>
<td>Learning outcome</td>
<td>Graduate profile capability*</td>
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<tr>
<td>LO5</td>
<td>Understand, through a basic introduction, the more formal aspects of the theory</td>
<td>1. Disciplinary knowledge and practice</td>
</tr>
</tbody>
</table>

* 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>Week 1</td>
<td>Historical Introduction</td>
<td></td>
<td></td>
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<tr>
<td>Week 2</td>
<td>Basic Concepts, and Terminology</td>
<td></td>
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<tr>
<td>Week 3</td>
<td>Normal Form Games</td>
<td></td>
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<tr>
<td>Week 4</td>
<td>Zero-sum Games and the Minmax Value</td>
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<td>Assignment 1</td>
</tr>
<tr>
<td>Week 5</td>
<td>Equilibrium</td>
<td></td>
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<td>Week 6</td>
<td>Extensive Form Games</td>
<td></td>
<td>Test</td>
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<td>Week 7</td>
<td>Information Sets and Perfect Information</td>
<td></td>
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<tr>
<td>Week 8</td>
<td>Perfect Recall</td>
<td></td>
<td>Assignment 2</td>
</tr>
<tr>
<td>Week 9</td>
<td>Backward Induction and Subgame Perfect Equilibrium</td>
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<tr>
<td>Week 10</td>
<td>Coalitional Games</td>
<td></td>
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<td>Week 11</td>
<td>Core</td>
<td></td>
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<tr>
<td>Week 12</td>
<td>Shapley Value</td>
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<td>Assignment 3</td>
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</table>

**Learning and teaching**
This course will be taught in the second semester. There will be 3 hours of lectures per week.

**Teaching staff**

Associate Professor John Hillas  
Office: OGGB 6111  
Tel: 923 7349  
Email: j.hillas@auckland.ac.nz

**Learning resources**
There is no prescribed text for this course but comprehensive notes on the material will be provided in a Coursebook and electronically on the Class web page. For students who would like a text to accompany the course, the following is recommended:


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>Assignment 1</td>
<td>5%</td>
<td>Individual</td>
<td>In class; Date TBA</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>5%</td>
<td>Individual</td>
<td>In class; Date TBA</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>5%</td>
<td>Individual</td>
<td>In class; Date TBA</td>
</tr>
<tr>
<td>Test</td>
<td>25%</td>
<td>Individual</td>
<td>Exam conditions</td>
</tr>
<tr>
<td>Final Exam</td>
<td>60%</td>
<td>Individual</td>
<td>Exam conditions; Final Exam period</td>
</tr>
</tbody>
</table>

Pass requirements

Students who obtain at least 50% of the marks will pass the course.

Description of assessment tasks

<table>
<thead>
<tr>
<th>Assessment task</th>
<th>Learning outcome to be assessed</th>
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</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>LO1 – LO5</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>LO1 – LO5</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>LO1 – LO5</td>
</tr>
<tr>
<td>Test</td>
<td>LO1 – LO5</td>
</tr>
<tr>
<td>Final Exam</td>
<td>LO1 – LO5</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**

Student feedback is encouraged in this course. During the semester, students may
directly submit their feedback to the lecturer through a face-to-face appointment, or
they may wish to submit feedback through the class representative.

At the beginning of each semester, you will select one or more class representatives for
the paper. The role of the class representative is to gather feedback from students in the
course and bring this to the lecturer and/or the Department. Class representatives’ email
addresses are posted on Canvas and you are encouraged to contact them with feedback
relating to the course. You are also welcome to talk to the class representatives in
person.

Class representatives also submit feedback to the Department of Economics Staff
Student Consultative Committee (SSCC), which meets up to three times per semester to
gain feedback regarding the course. Only class representatives may attend the SSCC
meetings, and they will ask the class for feedback before the SSCC meeting.

At the end of the semester, you will have the opportunity to submit an evaluation of the
course in a formative feedback questionnaire. We strongly encourage you to take part in
this evaluation process.

**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**

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