

UNSW, SCHOOL OF ECONOMICS: SESSION 1, 2007
ECON 2112: GAME THEORY AND BUSINESS STRATEGY

Course Outline

Instructor

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- Consultation: Tuesday 4:30 pm - 6:00 pm or by appointment

Lecture Time/Venue

- Tuesday 2 pm – 4 pm at CLB Lecture Theatre 4

Tutorial coordinator

Simon Angus
Office: Room 113, John Goodsell
Tel: 9385 3334
Email: s.angus@unsw.edu.au

Each student must register for the lecture and one tutorial, and attend these regularly.

Course Summary

Game theoretic analysis is fundamental to understanding modern business strategies, and forms the basic infrastructure of strategy courses taught in many business schools. This course teaches the basic tools of Game Theory, and introduces a structured way to think about business interactions. This structure is further developed in advanced courses such as Economics of Corporations, Managerial Economics and Industrial Organisation.

Game theory originated in the middle of the twentieth century as the general study of strategic interactions, and has found applications in a wide variety of contexts including economics, psychology, politics and evolutionary biology. It is this generality that is the source of its power. Accordingly, the present course develops game theory broadly, with applications to strategic situations which include business as well as more general contexts.

At the end of the course, students should have a broad understanding of the basic principles of strategic analysis including solution concepts, and be able to apply the abstract theory to concrete problems.

Course Material

- Required textbook

Dixit, Avinash and Susan Skeath (2004), *Games of Strategy*, 2nd edition, Norton. This will be referred to as **DS** hereafter.

- Highly recommended book

Dixit, Avinash and Barry Nalebuff (1991), *Thinking Strategically*, New York: W.W. Norton and Company. (**DN**)

- Other reference book

Besanko, D., D. Dranove, M. Shanley, and S. Schaefer (2004), *Economics of Strategy*, 3rd edition, New York, John Wiley & Sons. (**BDSS**)

DS and **DN** are fairly easy to read. **DS** explains all of the relevant game theory very clearly. **DN** provides additional intuition and interesting examples. These need to be read before class, because they will be discussed in class. **BDSS** is more advanced, focusing on how game theory is used in forming real-world business strategies. It is rich with cases, examples, and rigorous analyses. Relevant part from **BDSS** to be discussed in class has been extracted and prepared in a separate course pack.

Copies of all three books above have been placed on reserve in the library.

- Course pack

Course pack contains several cases and articles that will be discussed in class.

- Lecture slides

They can be downloaded from the subject homepage about one week before each lecture. Subject homepage can be accessed through WebCT Vista in myUNSW, and will have additional information updated regularly, including tutorial questions and answers.

Workload expectations

It is expected that you spend at least ten hours per week studying this course. This time should be made up of reading, research, working on exercises and problems, and attending classes and tutorials. In periods when you need to complete assignments or prepare for examinations the workload may be greater. Over-commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

The material demands a high level of analytical thinking and some mathematical ability. While the level of mathematics required is elementary, it is my experience that students who are not comfortable with mathematical thinking need to put in more effort than those who do. Students should take account of their abilities in these directions when planning their workload.

Tutorials and problem sets

Tutorials will start from week 3 and there will be a problem set assigned approximately each week. These will not be marked, but answers will be discussed in tutorials. Exam questions will be largely modeled on tutorial/problem set questions.

Solutions to the problem sets will be available on the web a week after they have been set. Thus the tutor is not under obligation to repeat these solutions in their entirety. The tutorials are intended to assist students with difficulties they may face in solving the problem sets, or otherwise encounter in studying the assigned material. This presupposes that students will attempt the problems before attending tutorials. The tutor has been instructed to use his/her energy to assist primarily those students who appear to be putting in the corresponding effort.

Assessment

The assessment for the subject is based on the following weights.

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| • | Mid-term exam (week 6) | 30% |
| • | Final exam | 60% |
| • | Tutor's assessment | 10% |

Tutor's Assessment: Of the 10 tutorial assessment marks, 5 marks can be obtained on the basis of regular attendance without disruptive behaviour. The other 5 marks will be awarded for participation that furthers learning in tutorial. This may include informed discussion, offers to solve problems on the board, etc.

Course Outline and Reading Guide

The following is a general outline of the subject. Depending on circumstances, topics may be reshuffled or modified.

Week 1: Introduction to game theory and business strategy

- Required reading: DS, Chapters 1, 2
- Optional reading: DN, Chapter 1

Week 2: Games with sequential moves

- Required reading: DS, Chapter 3
- Optional reading: DN, Chapter 2

Week 3: Games with simultaneous moves I – Dominance, Nash equilibrium (Tutorial 1)

- Required reading: DS, Chapter 4
- Optional reading: DN, Chapter 3

Week 4: Games with simultaneous moves II – Coordination (Tutorial 2)

- Required reading: DS, Chapter 4; “Bank returns to official ambiguity”, *National Post*, May 11, 2006 (course pack)
- Optional reading: DN, Chapter 9

Week 5: Games with sequential and simultaneous moves (Tutorial 3)

- Required reading: DS, Chapter 6; Australian Domestic Airline Industry (course pack);

Week 6: Mid-term exam (No tutorial)

Week 7: Market structure, industry analysis, and models of oligopoly I (Tutorial 4)

- Required reading: BDSS, pp 199-231 (course pack); DS, Chapter 4 (pp 123-139)

Week 8: Market structure, industry analysis, and models of oligopoly II (Tutorial 5)

- Required reading: BDSS, pp 199-231 (course pack)

Week 9: Strategic commitment and business strategy I (Tutorial 6)

- Required reading: DS, Chapter 10; BDSS, pp 232-250 (course pack)
- Optional reading: DN, Chapters 5, 6

Week 10: Strategic commitment and business strategy II (Tutorial 7)

- Required reading: DS, Chapter 10; BDSS, pp 232-250 (course pack)
- Optional reading: DN, Chapters 5, 6

Week 11: Dynamic competition and cooperation I (Tutorial 8)

- Required reading: DS, Chapter 11; BDSS, pp 272-290 (course pack)
- Optional reading: DN, Chapters 4, 9

Week 12: Dynamic competition and cooperation II (Tutorial 9)

- Required reading: DS, Chapter 11; BDSS, pp 272-290 (course pack)
- Optional reading: DN, Chapters 4, 9

Week 13: Comprehensive cases (Tutorial 10)

- Required reading: Choe, C., “Two for the Road: Lion Nathan and the Australian Beer Industry”; Field, A. and A. Schulz, “Video Game Console Wars” excerpt; “Gates confident Xbox 360 will topple Sony”, *Reuters*, Jan 8, 2007 (all in the course pack)

Week 14: Review lecture (No tutorial)

Resources and Help

Education Development Unit: Additional learning support, tailored to the needs of students, is available from the Education Development Unit (EDU) in the Faculty. The EDU offers a range of services for FCE students including:

- Academic skills workshops run throughout the session;
- Printed and on-line study skills resources e.g. referencing guide, report writing and exam preparation;
- A drop-in resource centre containing books and audio visual material that can be borrowed;
- A limited consultation service for students with individual or small group learning needs.

More information about the EDU services including on-line resources, workshop details and consultation request forms are available from the EDU website.

EDU Web: <http://education.fce.unsw.edu.au>

EDU Location: Room 2039, Level 2 Quadrangle Building

EDU services are free and confidential and are available to students of the Faculty of Business.

Other UNSW support: In addition to the EDU services, the UNSW Learning Centre provides academic skills support services for students. The Learning Centre is located on Level 2 of the Library and can be contacted by Phone: 9385 3890 or through their website: <http://www.lc.unsw.edu.au/>. Students experiencing problems of an academic or personal nature are encouraged to contact the Counselling Service at UNSW. This service is free and confidential and run by professional counsellors. The Counselling Service is located on Level 2, Quadrangle East Wing, and can be contact on 9385 5418.

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Grievances: If you are unhappy with some aspect of the course, you should discuss this with me in the first instance. If you are not satisfied with my response, you should approach the Head of the School of Economics about the matter. You should also consider seeking the advice of the Faculty's Academic Adviser or the Director of MCom Programs.

University Regulations

You should study the University's rules and procedures at the start of the session. In particular, you should be familiar with the rules relating to examinations. If you believe you may not be available for the full examination period you should withdraw from this subject.

Students with employment commitments must make arrangements with employers to sit for examinations. The University adheres strictly to the rule that employment reasons will not be accepted as an excuse for absence from an examination.

Special Consideration: If you believe your performance on any assessment is adversely affected by sickness or other adverse circumstances which you can document, you should notify the Registrar and ask for special consideration in the determination of your results.

Requests for special consideration must be accompanied by appropriate documentation. The request should be made as soon as possible after the problem occurs and never more than a week after the relevant assessment.

A supplementary final examination is recommended for a student only if the final examination performance has been affected by serious illness or other extraordinary circumstances which can be documented **and** there is evidence on the basis of performance during the session that the student has made satisfactory progress.

Special consideration request forms and details of required documentation are available from the Student Centre in the Chancellery.

Academic Misconduct: The University regards academic misconduct as an extremely serious matter. Students found guilty of academic misconduct are usually excluded from the University for 2 years although this may range from one session to permanent exclusion depending on the circumstances.

You should read the Faculty's statement on misconduct:

<http://www.fce.unsw.edu.au/current/students/responsibilities.shtml#misconduct>.

You may find an online version of the University's policy at:

<http://www.student.unsw.edu.au/academiclife/assessment/academic/misconduct.shtml>.