HE 2009 Industrial Organisation

Course Description and Scope

Industrial organization (IO) is the study of firms’ behaviour in the market. In this course, we are particularly interested in the strategic interactions among firms, as well as between firms and (potential) customers. Tools from game theory play an important role in such analysis, so the first half of the course is devoted to a detailed introduction to the basics of game theory. Along the way, we introduce and study standard models of monopoly, static oligopolies and dynamic oligopolies, as well as strategic behaviours such as entry deterrence and accommodation. In the second half of the course, we build upon the tools introduced in the first half to analyse various topics in IO, including product differentiation, price dispersion, price discrimination and product quality.

Proposed Lecture Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Suggested Readings</th>
</tr>
</thead>
</table>
| 1    | Introduction and Review  
- Cost Functions  
- Perfect Competition and Monopoly Pricing | Ch. 1, 2 Lecture notes |
| 2    | Game Theory and Oligopoly Models (Part 1)  
- Static Games  
- Nash equilibrium  
- Cournot Model | Ch. 7, 8 |
| 3    | Game Theory and Oligopoly Models (Part 2)  
- Bertrand Model  
- Dynamic Games: Backward Induction | Ch. 8, 9 |
| 4    | Game Theory and Oligopoly Models (Part 3)  
- Stackelberg Model  
- Entry Deterrence  
- Dynamic Games: Subgame Perfect Nash Equilibrium | Ch. 9, 13 |
| 5    | Strategic Behaviour  
- Strategic Substitutes and Complementarities  
- Strategic Effect of Investment | Ch. 15, 16 |
| 6    | Dynamic Oligopolies  
- Repeated Games  
- One-shot Deviation Principle  
- Collusion | Ch. 9, 10 |
| 7    | Recess Week | |
| 8    | Midterm Quiz | |
| 8    | Product Differentiation  
- Competition in Location and/or Price  
- Principles of Minimal and Maximal Differentiation | Ch. 11 Lecture notes |
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<th>Week</th>
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<th>Suggested Readings</th>
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| 9    | Price Discrimination (Part 1) and Competition Commission of Singapore  
  - 1st-degree price discrimination  
  - 3rd-degree price discrimination  
  - CCS (Guest Lecture) | Ch. 5 |
| 10   | Price Discrimination (Part 2)  
  - 2nd-degree price discrimination | Ch. 5  
Lecture Notes |
| 11   | Product Quality  
  - Moral Hazard  
  - Adverse Selection  
  - Signalling | Ch. 6  
Lecture Notes |
| 12   | Vertical Restraints  
  - Double Marginalization  
  - Downstream Moral Hazard | Ch. 22  
Lecture Notes |
| 13   | Revision | --- |

**Textbook**


This book is currently not in print and is only available (for free!) online at [http://works.bepress.com/jeffrey_church/23](http://works.bepress.com/jeffrey_church/23).

Lecture notes for topics not covered in the textbook and/or treated substantially differently will be provided.
Method of Instruction

Lecture : 2 hours per week
Tutorial : 1 hour per week

Course Assessment

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<tr>
<th>Assessment</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>20%</td>
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<tr>
<td>Midterm Quiz</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>60%</td>
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</tbody>
</table>

100%

Problem Sets

Problems sets are assigned every week. Assignments will be posted on the NTULearn website, typically on Tuesdays. The due date is the Monday of the following week. You are encouraged to work on the assignments in groups of size up to 4 students. Each group needs to submit only one copy of their work, with names of all group members written on it. Late submission will NOT be accepted.

Midterm Quiz

The midterm is open-book. You are allowed to open and read any reference materials during the quiz. You may also use a calculator but NOT electronic dictionaries or other electronic devices.

Final Exam

The final exam is cumulative. Like the midterm quiz, it is open-book.

<table>
<thead>
<tr>
<th>Lecturer</th>
<th>Office</th>
<th>Office Hours</th>
<th>E-mail</th>
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</thead>
<tbody>
<tr>
<td>Dr Pak Hung Au</td>
<td>HSS-04-67</td>
<td>By Appointment</td>
<td><a href="mailto:phau@ntu.edu.sg">phau@ntu.edu.sg</a></td>
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