

## Course Outline

**Course Code** : BSE3713  
**Course Title** : Industry, Digitization, and AI  
**Semester** : Semester 2, Academic Year 2024/2025  
**Faculty** : Dr. Lee Kwok Hao  
**Department** : Strategy & Policy  
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### Overview

This one-semester course covers core methods in industrial organisation at the advanced undergraduate level, with a focus on regulation, the economics of digitisation, and artificial intelligence. We will cover four main areas: (i) foundations of game theory and demand; (ii) market structure and organisation; (iii) platform economics; and (iv) privacy, media, and AI.

### Course Objectives

1. Analyse firm competition and discuss consequences for pricing, quality, and innovation
2. Elucidate fundamental issues surrounding digital and digitising firms
3. Harness artificial intelligence and articulate its effects on labour and firm performance

**General Guide & Reading** (e.g. Case preparation guide, project report guide, main textbook & supplementary materials, etc)

**Lecture Notes:** Posted on Canvas online before each lecture. Please visit the site regularly and download and review the materials before attending class.

### Textbooks:

1. **(Main)** Cabral, L. M. (2017). *Introduction to industrial organization*. MIT Press.
2. **(Supplementary)** Gibbons, R. (1992). *Game theory for applied economists*. Princeton University Press.

### Assessment

Assessment Components	Weightage
Class participation	10%
Assignments (Best 2 of 3)	20%
Midterm test	30%
Final project and presentation	40%

### Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is “the practice of taking someone else’s work or ideas and passing them off as one’ own” (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work

of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

**Additional guidance is available at:**

- <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>
- <http://nus.edu.sg/osa/resources/code-of-student-conduct>

**About me . . .**

I am an industrial organisation economist working on platform markets, broadly defined. I study e-commerce, transportation, and housing, often through the lens of empirical market design.

I am an Assistant Professor (Presidential Young Professor) at the Department of Strategy and Policy at the National University of Singapore (NUS) Business School.

I spent a postdoctoral stint at the Cowles Foundation at Yale University. I obtained my PhD from Princeton University after formative years at the University of Chicago and Washington University in St. Louis.

## Schedule and Outline

Week	Topic	Comments/Due
1	Introduction; Games in normal form	
2	Games in extensive form; Revenue, cost, and profit; Collusion	
3	Market structure and concentration; Pricing; Moral hazard	Assignment 1 (Weeks 1-2)
4	Product differentiation; Market segmentation; Mechanisms	
5	Entry; Productivity; Innovation	
6	Digital economics; Two-sided markets	Assignment 2 (Weeks 3-5)
<i>Recess Week</i>		
7	<i>Midterm Test</i>	(Weeks 1-6)
8	Search and matching: Amazon and Grab	
9	Designing platform markets: How are HDB and Airbnb alike?	
10	Advertising and privacy: Google and Alibaba	Assignment 3 (Weeks 6, 8, 9)
11	AI 101: Demystifying Large Language Models and the Blockchain	
12	AI alignment and consequences for labour	
13	Policy implications; Future directions	Final presentation
<i>Reading Week</i>		