

Course Outline

Course Code : BSE3713
Course Title : Industry, Digitisation, and AI
Semester : Semester 1, Academic Year 2025/2026
Faculty : Dr. Lee Kwok Hao
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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

Broadly, this course aims to develop a manager who is literate in industry analysis, familiar with current issues surrounding platforms and AI regulation, and is capable at leading teams that deal with these issues.

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)** None. Course notes suffice.
2. **(Supplementary)**
 - a. Cabral, L. (2017). *Introduction to industrial organization*. MIT Press.
 - b. Gibbons, R. (1992). *Game theory for applied economists*. Princeton University Press.
 - c. Agrawal, A., Gans, J., & Goldfarb, A. (2022). *Prediction machines, updated and expanded: The simple economics of artificial intelligence*. Harvard Business Press.
 - d. Agrawal, A., Gans, J., & Goldfarb, A. (2022). *Power and prediction: The disruptive economics of artificial intelligence*. Harvard Business 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’s 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 and the “smart city”. 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; AI alignment and existential risk	
2	Games in normal and extensive form; Collusion	Assignment 1 (Weeks 1-2)
3	Market structure and concentration; Pricing with(out) prices	
4	Quality and Product differentiation	
5	Entry, Productivity, and Innovation	Assignment 2 (Weeks 3-5)
6	Digital economics; Vertical Integration	
<i>Recess Week</i>		
7	<i>Midterm Test</i>	
8	A/B testing; Platform markets (Amazon, Lazada)	
9	Ride-hailing and food delivery (Grab, Uber)	Assignment 3 (Weeks 6, 8-9)
10	<i>No Class (NUS Well-Being Day)</i>	
11	Market Design, Housing, and Algorithms	Final paper
12	A manager's guide to harnessing AI tools	Final presentation (backup date)
13	Policy implications; Future directions	Final presentation
<i>Reading Week</i>		