

Course Outline

Course Code : BSE3713
Course Title : Industry, Digitisation, and AI
Semester : Semester 1, Academic Year 2026/2027
Faculty : Dr. Lee Kwok Hao
Department : Strategy & Policy
Email : kwokhao@nus.edu.sg
URL : <https://discovery.nus.edu.sg/24637-kwok-hao-lee>
Telephone : +65 6601 3543

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) AI and its future directions.

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/Quizzes	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 at the intersection of digital markets and smart cities. I use administrative and platform data to study how algorithms and policy rules govern search, matching, pricing, and allocation, with a focus on transportation systems and public housing.

I am an [Assistant Professor](#) (Presidential Young Professor) in the Department of Strategy & Policy at the National University of Singapore (NUS) Business School. I am also a recipient of the [Social Science and Humanities Research Fellowship](#) awarded by the Social Science Research Council of Singapore.

Previously, I was a Presidential Fellow at the NUS Business School and a postdoctoral fellow at the Cowles Foundation at Yale University. I received 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	Mini-Quiz 1
2	Games in normal and extensive form; Collusion	Mini-Quiz 2
3	Market structure and concentration	Mini-Quiz 3
4	"How to run an AI startup": Dr Gaurav Manek, Ocellivision	
5	Quality; Product differentiation; Screening	Mini-Quiz 4
6	Entry, Productivity, and Innovation	Mini-Quiz 5
<i>Recess Week</i>		
7	<i>Midterm Test</i>	
8	Digital economics; Vertical Integration	Mini-Quiz 6
9	A/B testing; Platform marketplaces (Amazon)	Mini-Quiz 7
10	Search and matching: Taxis and ridehailing (Grab)	Mini-Quiz 8
11	Market Design: Housing Platforms (Airbnb)	Mini-Quiz 9, Final paper
12	Early evidence of AI on innovation and employment	Final presentation (backup date)
13	Future directions	Final presentation
<i>Reading Week</i>		