

## Course Outline

**Course Code** : DBA4814  
**Course Title** : Analytics in Digital Marketplaces  
**Class Date** : From 17/1/2025 To 18/4/2025  
**Semester** : 2nd, Academic Year 2024/2025  
**Faculty** : Bar Light  
**Department** : Analytics & Operations  
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### Overview

In the digital age, the surge in data collection by online platforms, coupled with their unparalleled capability to tailor marketplace mechanisms, have revolutionized how markets operate. This course explores the applications of data science in digital marketplaces, focusing on how prominent platforms like Google Ads, Amazon, and Grab leverage data-driven strategies to improve key business metrics across various areas such as matching, pricing, and recommendation systems. Students will learn to apply data-driven tools to marketplace design, bridging theory and practice in important marketplace problems.

We will host guest speakers from leading online marketplaces who will share insights into key challenges faced in their platforms and the solutions they implemented to address them.

### Course Objectives

Students will gain proficiency in various aspects of marketplace design and in utilizing data-driven tools to analyze and optimize digital marketplace operations.

### Assessment

Assessment Components	Weightage
(i) Individual assignments	30%
(ii) Group project	30%
(iii) Final in-class quiz	30%
(iv) Class Participation	10%
<b>Total for CA:</b>	100%
<b>Total for Final Examination:</b>	%

### Schedule and Outline

Schedule is NOT final and subject to change according to various factors.

The schedule for guest speakers may be adjusted to take place on Saturdays.

Lesson/ Week	Date	Session (lesson summary or outline / learning objectives / preparation / cases & assignments / follow-up readings & resources)
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1	17 Jan 2025	Online Marketplaces: overview
2	24 Jan 2025	Various problems in online marketplaces: matching, quality selection, pricing
3	31 Jan 2025	Topics in ridesharing (pending: guest speaker)
4	7 Feb 2025	Revenue management
5	14 Feb 2025	Multi-armed bandit problems with applications in platforms
6	21 Feb 2025	Introduction to Mechanism Design
--	28 Feb 2025	No class: Recess
7	7 Mar 2025	Auction design and bidding strategies.
8	14 Mar 2025	Digital advertising (guest speaker)
9	21 Mar 2025	Fintech (pending: guest speaker)
--	28 Mar 2025	No class: NUS Well-Being Day
10	4 Apr 2025	Experimental design in online marketplaces
11	11 Apr 2025	Class Presentation
12	18 Apr 2025	Classroom test

### **General Guide & Reading**

Readings will be disturbed during the semester.

### **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 doubts, you should consult your instructor.

### **Additional guidance is available at:**

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