

Course Outline

Course Code : DBA4811
Course Title : Analytics for Consulting
Class Date : From 12/8/2024 To 15/11/2024
Semester : Semester 1, Academic Year AY2024/2025
Faculty : Tam Trinh
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Overview

Decisions supported by timely data analyses are the norm in this era of “Big Data”. Across multiple industries, including finance, supply chain management, retail, and healthcare, Data and Analytics have been used to create unprecedented value in multiple ways. Modern organizations are regularly using Analytics to increase efficiency, profitability, customer satisfaction, and overall operational performance.

This course will use a combination of lectures, problem-based learning, guest lectures on assigned topics, and case-based class discussions. Individual participation by students is strongly encouraged.

Course Objectives

This course adopts a practitioner’s perspective to integrate academic topics in Analytics with applications across these various business sectors. The primary lens used in this course is that of a management consultant. This course aims to prepare students for the diverse challenges faced in the real world. Specifically, it aims to equip students with an understanding of Analytics and with skills for them to succeed in their prospective roles such as management consultants and analysts, so that they can help their clients and stakeholders to make distinctive, lasting, and substantial improvements.

After taking this course, students should:

- grasp core principles of how to run and interpret Analytics,
- be equipped with key tools in modern Analytics,
- acquire skills in presenting the results of Analytics as a consultant,
- develop an appreciation of the value of Analytics across different industries,
- understand the role of Analytics in supporting and driving strategic choices, and
- gain insights, directly from industry speakers, on how Analytics is driving value in their organization

Prerequisites

DAO1704 and DAO2702

Assessment

Assessment Components	Weightage
Class Attendance & Participation	30%
Individual Assignment	30%
Group Project	40%

Schedule and Outline

Lesson/ Week	Session (lesson summary or outline / learning objectives / preparation / cases & assignments / follow-up readings & resources)
1	<ul style="list-style-type: none"> • Course overview / Discussion of trends and roles of analytics • Persuading with data – data visualization • <i>Guest Speaker Group Assignment</i>
2	<ul style="list-style-type: none"> • Winning with data / User problem & solution • Case study: Analytics in Fashion Retailing (Flashion) • Discussion and exercises with Linear regression • <i>Individual Assignment 1</i>
3	<ul style="list-style-type: none"> • Modeling & Metrics / Choice Modeling • Discussion and exercises with Logistic regression • Case study: Analytics in Medicine (Framingham heart study)
4	<ul style="list-style-type: none"> • Case study: Process Analytics (National Cranberry)
5	<ul style="list-style-type: none"> • Model selection & considerations • Discussion and exercises with subset-based, regularization methods • <i>Individual Assignment 2</i>
6	<ul style="list-style-type: none"> • Case study: Analytics in Banking (UOB) • <i>Final Group Assignment</i>
7	<ul style="list-style-type: none"> • Non-linear models: KNN, Decision trees, Naïve Bayes, SVM, Neural network • Applications
8	<ul style="list-style-type: none"> • Ensemble methods: Forest, Boosting, Bagging / Models & Limitations • <i>Individual Assignment 3</i>
9	<ul style="list-style-type: none"> • Case study: Competing (and winning) against an industry giant with Analytics (Netflix)
10	<ul style="list-style-type: none"> • Case study: Using Analytics to power last-mile delivery (GHN / AhaMove)
11	<ul style="list-style-type: none"> • Case study: Demystifying analytical methods (Target, Kohl's)
12	<ul style="list-style-type: none"> • Module wrap
13	<ul style="list-style-type: none"> • <i>Final Group Presentations</i>

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

1. Bertsimas, D., O’Hair, A., and Pulleyblank W.R., 2016. *The analytics edge*. Charlestown, MA: Dynamic Ideas LLC.
2. Pochiraju, B. and Seshadri, S., 2019. *Essentials of business analytics*. Springer, Switzerland. <https://link-springer-com.libproxy1.nus.edu.sg/content/pdf/10.1007/978-3-319-68837-4.pdf>

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>