Course Outline

Course Code : DBA3702
Course Title : Descriptive Analytics with AI
Class Date : From 10/8/2026 To 13/11/2026
Semester : Semester 1, Academic Year 26/27
Faculty : A/P Liu Qizhang
Department : Analytics & Operations
Email : bizlqz@nus.edu.sg
URL : https://discovery.nus.edu.sg/1534
Telephone : 65165822

Overview

In today's fast-paced, data-intensive business environment, the ability to understand data, extract valuable insights, and make sound managerial decisions has become an essential skill for every graduate. This course equips students to organize, visualize, and analyze data using R, a powerful open-source analytical environment, with the support of AI tools that streamline coding and data handling. Rather than a programming course, it focuses on case studies that show how AI can accelerate analysis and how findings can be summarized and presented in a structured, meaningful, and convincing way.

Course Objectives

By the end of the course, students should be able to:

- **Demonstrate fluency in R** to organize, visualize, and analyze business data.
- **Leverage AI tools to design and implement R-based solutions** for real-world data cases.
- **Critically evaluate and justify AI-generated solutions**, recognizing their strengths, limitations, and appropriateness.
- **Apply higher-order thinking** to frame and solve business problems in which data is the primary driver of decisions.
- **Interpret data visualizations and communicate insights** clearly and persuasively to managerial audiences.

Assessment

Assessment Components	Weightage
Class Participation	40%
Group Project	30%
Test	30%

Schedule and Outline

Lesson/ Week	Date	Session (lesson summary or outline / learning objectives / preparation / cases & assignments / follow-up readings & resources)
1		Course overview, Introduction to R Environment
2		R Basics: Data types and data structure
3		Basic Data Wrangling: Data sorting, data indexing, data wrangling
4		Advanced Data Wrangling: Loading data, Scrapping data online, data cleaning, reshape data
5		Data Case 1 - Building data asset
6		Test
7		Data Case 2 – Bike sharing analytics
8		Data Case 3 - Brazil e-commerce analytics
9		Data Case 3 Presentation and Discussion
10		Data Case 4 – The Paradox at the Heart of Sedap Express
11		Data Case 4 Presentation and Discussion
12		Project presentation 1
13		Project presentation 2

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

Business Analytics with AI – Digital book by Liu Qizhang

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