Course Outline

Course Code : DAO2702X
Course Title : Programming for Business Analytics
Class Date : From 11/8/2025 To 14/11/2025
Semester : Semester 1, Academic Year 2025/2026
Faculty : Xiong Peng
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Overview

This course is an introductory course to business analytics and data science. It covers basic Python programming and preliminary statistics, with a great emphasis on addressing practical business problems and real datasets. Data science is an interdisciplinary field that requires business insights and expertise, proficiency in programming, as well as a strong background in mathematics and statistics. Therefore, lectures and tutorials in this semester would focus on trainings in the following perspectives:

- Python programming and Pythonic coding styles
- Analytical and visualization packages
- Math and statistics
- Practical business insights and problem solving skills

Course Objectives

After taking this course, students would be able to use Python programming language as a tool for data processing and visualization, and they are capable of deriving insights and statistics from real-world datasets.

Assessment

Assessment Components	Weightage
Class Participation	10 %
Group Project Report	20 %
Group Project Presentation	15 %
Final Exam	55 %

Schedule and Outline

Lesson/ Week	Date	Session (lesson summary or outline / learning objectives / preparation / cases & assignments / follow-up readings & resources)
1	13/Jan/2025	Course Overview and Introduction to Programming and Jupyter Notebook
2	20/Jan/2025	Introduction to Python Programming
3	27/Jan/2025	Control Flows of Python Programs
4	03/Feb/2025	Built-in Data Structures I
5	10/Feb/2025	Built-in Data Structures II
6	17/Feb/2025	Functions, Modules, and Packages

7	03/Mar/2025	Lovely Pandas
8	10/Mar/2025	Storytelling with Data
9	17/Mar/2025	Sweet NumPy
10	24/Mar/2025	Review of Probability
11	31/Mar/2025	-
12	07/Apr/2025	Random Sampling
13	14/Apr/2025	Confidence Intervals and Hypothesis Testing

General Guide & Reading

- Python data science handbook, by Jake VanderPlas
- Storytelling with data, by Cole Nussbaumer Knaflic
- Python Tutor: https://pythontutor.com/
- Programming for Business Analytics: https://appiora.nus.edu.sg/learndao/
- PandaShifu: https://github.com/XiongPengNUS/PandaShifu

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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.

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