ACCT418
Data Modelling and Visualisation
AY 2024/2025 Term 1
(Aug-Dec 2024)

Instructor and Contact Information

Benjamin LEE
Lecturer of Accounting
Director of Student Matters
SMU-X Academic Champion
School of Accountancy
Level 5, Room 5020
Tel: (65) 6808-5440
Email: benjaminlee@smu.edu.sg

HE Jian Zhong
Adjunct Teaching Mentor
School of Accountancy
Email: jianzhonghe@smu.edu.sg

Consultation times: Anytime, but please email to make an appointment

Teaching Assistants

TBC

Course Prerequisites

ACCT111/101/105

Course Description

Accountants are at a distinct advantage when analysing data as they regularly work with large amounts of financial and non-financial data. They not only have ready access to data but also often have a keen understanding of how that data can help their companies retain a strategic advantage over competitors in the modern business environment.

This course will introduce students to principles and techniques for data visualisation, which is an important means by which accountants can communicate insights obtained from data modelling to their intended recipients.

Students will learn how to create visuals including dashboards and interactive visualisations in a manner which supports decision making in accounting. They will also learn how to design and construct analytical visual models to solve accounting-related problems.

Learning Goals, Course Objectives, and Skill Development

This course contributes to the development of the following learning goals:

- LO1.1 Our students can recognize, develop, measure, record, validate and communicate financial and other related information.

- LO1.2 Our students can analyse, synthesise and evaluate financial and other related information for decision making in a management context.
- LO1.3 Our students understand and can apply concepts relating to business processes, audit and assurance.
- LO2.2 Our students can communicate effectively in a business context.

Texts and Other Resources

Readings:

Course notes and selected articles from various sources will be provided.

Software:

Microsoft Excel will be used extensively during the course for data modelling and data cleaning, where appropriate. Students should ensure that the following add-in is enabled in MS Excel:

- Analysis ToolPak - https://support.office.com/en-us/article/Use-the-Analysis-ToolPak-to-perform-complex-data-analysis-6c67ccf0-f4a9-487c-8dec-bdb5a2cefab6#__toc309744625

Tableau will also be used for data visualisation. Students should ensure that they obtain a student license here: https://www.tableau.com/academic/students

NOTE: Students are reminded that Excel and Tableau are just tools to aid in the data analytics process. The use of them in this course is not an indication that these tools are the best available in the market. Rather than focus on the types of tools being used, students should understand the principles behind the data analytics process and then apply them to other more sophisticated tools such as R (for statistical analyses and machine learning), Python (for web/software development, task automation/scripting, and machine learning), or other visualisation tools (e.g. Microsoft's Power BI, Google's Looker Studio).

Assessment

To pass this course, a student is required to obtain a **total** mark of 50% or better. The assessment components for this course are as follows:

Class participation (Individual)	10%
DataCamp Assignments (Individual)	20%
In-Class Assignment (Individual)	20%
Group Project (Group)	40%
Project Task (Individual)	10%
Total	**100%**

No questions verbatim from past year papers or published test banks will be used for the graded continuous assessments in the course. (There is **no final exam** for this course.)

Lesson Plan

Class sessions are of three-hour duration per week. The table below is the **tentative** lesson plan. The detailed course work plan will be announced in class. Note that **this schedule is subject to change**. Any changes to this plan will be published on SMU eLearn (https://elearn.smu.edu.sg/).

Week	Topic
1	Introduction + Visualisation Design Principles + Extract-Transform-Load (**Power Query**)
2	**Tableau** Fundamentals
3	Dashboards & storytelling (**Tableau**) + ***Client Introduction***
4	Visualisation Case Study + Data Pre-processing with **Power Query**

5	Additional Data Modelling methods: Clustering, Market Basket Analysis, Pareto Analysis, Benford's Analysis (**Tableau**) + Project Consultations
6	Foundations in Time Series Forecasting (**Excel**)
7	Visualisation and Dashboarding using **Power BI** (I) + Project ***Consultations with Client***
8	TERM BREAK
9	Simulation: Modelling and Decision Making under Uncertainty (**Excel**)
10	Visualisation and Dashboarding using **Power BI** (II) + Project Consultations
11	Project Consultations (Review of Tableau Dashboards)
12	In-Class Assignment* + Course Summary
13	Final Project Presentations

*In-Class Hackathon: To be done **DURING** the first 2 hours. This will be followed by a break and then a wrap-up of the course. More details on how this will be conducted will be given during the term.

Academic Integrity

All acts of academic dishonesty (including, but not limited to, plagiarism, cheating, fabrication, facilitation of acts of academic dishonesty by others, unauthorized possession of exam questions, or tampering with the academic work of other students) are serious offences. All work (whether oral or written) submitted for purposes of assessment must be the student's own work. Penalties for violation of the policy range from zero marks for the component assessment to expulsion, depending on the nature of the offense. When in doubt, students should consult the instructors of the course. Details on the *SMU Code of Academic Integrity* may be accessed at https://smu.sharepoint.com/sites/oasis/SitePages/DOS-WKLSWC/UCSC.aspx.

Copyright Notice

Please note that all course materials are meant for personal use only, namely, for the purposes of teaching, studying and research. You are strictly not permitted to make copies of or print additional copies or distribute such copies of the course materials or any parts thereof, for commercial gain or exchange.

For the full copyright notice, please visit https://researchguides.smu.edu.sg/copyright

Accessibility

SMU strives to make learning experiences accessible for all. If you anticipate or experience physical or academic barriers due to disability, please let me know immediately. You are also welcome to contact the university's disability services team if you have questions or concerns about academic provisions: DSS@smu.edu.sg. Please be aware that the accessible tables in our seminar room should remain available for students who require them.

Digital Readiness for Teaching and Learning (DRTL)

As part of emergency preparedness, instructors may conduct lessons online via the Zoom platform during the term, to prepare students for online learning. During an actual emergency, students will be notified to access the Zoom platform for their online lessons. The class schedule will mirror the current face-to-face class timetable unless otherwise stated.

Vetted by: Seow Poh Sun, 10 Jun 2024