UNSW Course Outline

ACCT3672 Accounting Analytics for Business Decision Making - 2024

Published on the 12 May 2024

General Course Information

Course Code : ACCT3672
Year : 2024
Term : Term 2
Teaching Period : T2
Is a multi-term course? : No
Faculty : UNSW Business School
Academic Unit : School of Accounting, Auditing and Taxation
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course is concerned with developing students' analytical knowledge and skills in using data to solve problems in accounting. After doing this course, students should have the ability to: (1) ask the right question; (2) extract, transform and load relevant data; (3) apply appropriate data

analytic techniques; and (4) interpret and share the results with stakeholders.

The course gives students the opportunity to understand the importance of data and analytics to accounting and business management environments. Students complete case based problems throughout the course that require hands-on use of analytics tools. Students learn how data analytics can add value to business by providing powerful new insights to inform business decisions. Students learn to identify, interpret and use different forms of data to determine what is wrong and why it is so (technical accounting skills) as well how they would digitally communicate derived insights to stakeholders.

Data and analytics are transforming business and have major implications for the role of graduate accountants in business. Increasingly, accountants are competing with data analysts and scientists. However, accountants are still the preferred trusted business advisors given their historic role in preparing financial information. This course is designed to give students a much sought after skill set which will equip them to add value to organizations in data driven business environments.

NOTE: ***This course was previously identified as ACCT2672.Students who have completed ACCT2672 cannot enrol in ACCT3672.***

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Course Aims

To develop students' analytical mindset and abilities to:

a. Ask the right questions;

b. Extract, transform and load relevant data;

c. Apply appropriate data analytical techniques; and

d. Interpret results

e. Communicate the results with stakeholders.

Course Learning Outcomes

Course Learning Outcomes	Program learning outcomes
CLO1 : Understand the importance of data analytics in contemporary business contexts and developing an appropriate analytical mindset	• PLO1 : Business Knowledge • PLO2 : Problem Solving
CLO2 : Ability to identify and define business problems	• PLO2 : Problem Solving
CLO3 : Extract the right data from different sources	• PLO2 : Problem Solving
CLO4 : Select and apply the appropriate analytical tools to generate insights	• PLO1 : Business Knowledge • PLO2 : Problem Solving • PLO4 : Teamwork
CLO5 : Visualize and translate insights into concrete actions that businesses can take	• PLO2 : Problem Solving • PLO3 : Business Communication
CLO6 : Communicate insights to a specific audience and for a specific purpose	• PLO3 : Business Communication • PLO4 : Teamwork • PLO5 : Responsible Business Practice
CLO7 : Work effectively in teams	• PLO4 : Teamwork • PLO6 : Global and Cultural Competence • PLO7 : Leadership Development
CLO8 : Develop competencies in using proper analytical tools in accounting contexts.	• PLO1 : Business Knowledge • PLO2 : Problem Solving

Course Learning Outcomes	Assessment Item
CLO1 : Understand the importance of data analytics in contemporary business contexts and developing an appropriate analytical mindset	• Assessment 1: Online Quzzes • Assessment 2: Seminar participation • Assessment 3: Case Study • Assessment 4: Assignment
CLO2 : Ability to identify and define business problems	• Assessment 3: Case Study • Assessment 4: Assignment
CLO3 : Extract the right data from different sources	• Assessment 1: Online Quzzes • Assessment 3: Case Study • Assessment 4: Assignment
CLO4 : Select and apply the appropriate analytical tools to generate insights	• Assessment 1: Online Quzzes • Assessment 3: Case Study • Assessment 4: Assignment
CLO5 : Visualize and translate insights into concrete actions that businesses can take	• Assessment 3: Case Study • Assessment 4: Assignment
CLO6 : Communicate insights to a specific audience and for a specific purpose	• Assessment 3: Case Study
CLO7 : Work effectively in teams	• Assessment 1: Online Quzzes • Assessment 3: Case Study
CLO8 : Develop competencies in using proper analytical tools in accounting contexts.	• Assessment 4: Assignment • Assessment 3: Case Study

Learning and Teaching Technologies

Moodle - Learning Management System | Echo 360 | Zoom | Microsoft Teams

Learning and Teaching in this course

Lectures will provide a deep dive into the concepts, contexts, and high-level overview of applications. Tutorials, on the other hand, will be hands-on exercises focused on specific case-based problems. Throughout the course, a multitude of real-world case studies will be employed during lectures, tutorials, and assessments to reinforce your understanding.

Additional Course Information

Analytics combined with accounting data lies at the core of pivotal business decisions. Investment bankers, equity research analysts, portfolio managers, credit analysts, lenders, and capital market regulators rely heavily on accounting data to identify investment opportunities, assess business risks, and negotiate business contracts.

This course is designed to furnish you with a foundational comprehension of how analytics tools can be harnessed by professionals to extract profound insights and generate meaningful forecasts from accounting data. Emphasis will be placed on practical applications of accounting

analytics in real-world business scenarios, including quantitative investing, financial fraud detection, and earnings forecasting.

Throughout the course, a multitude of real-world case studies will be employed during lectures, tutorials, and assessments to reinforce your understanding. Additionally, popular programming languages such as Python and SQL will be utilized to undertake various analytical exercises. While no prior coding experience is assumed, participants are encouraged to acquaint themselves with fundamental concepts of Python and SQL

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Assessment 1: Online Quzzes Assessment Format: Individual	20%	
Assessment 2: Seminar participation Assessment Format: Individual	10%	
Assessment 3: Case Study Assessment Format: Group Short Extension: Yes (3 days)	20%	
Assessment 4: Assignment Assessment Format: Individual Short Extension: Yes (3 days)	50%	

Assessment Details

Assessment 1: Online Quzzes

Assessment Overview

Quizzes are set to facilitate students' understanding of business knowledge and skills required for conductig data analytics.

Assesses: PLO1, PLO2

Course Learning Outcomes

- CLO1 : Understand the importance of data analytics in contemporary business contexts and developing an appropriate analytical mindset
- CLO3 : Extract the right data from different sources
- CLO4 : Select and apply the appropriate analytical tools to generate insights
- CLO7 : Work effectively in teams

Assessment 2: Seminar participation

Assessment Overview

Seminar participation aims to help students efficiently learn knowledge and skills and to allow them to positively contribute to the learning experience of their cohort.

Assesses: PLO1, PLO2, PLO3.

Course Learning Outcomes

- CLO1 : Understand the importance of data analytics in contemporary business contexts and developing an appropriate analytical mindset

Assessment 3: Case Study

Assessment Overview

The assessment comprises group and individual components.

The case study provides an opportunity for students to apply the knowledge and skill acquired in a business case. This application process will deepen their learnings and enhance their ability to help each other in a team.

Assesses: PLO1, PLO2, PLO3

Course Learning Outcomes

- CLO1 : Understand the importance of data analytics in contemporary business contexts and developing an appropriate analytical mindset
- CLO2 : Ability to identify and define business problems
- CLO3 : Extract the right data from different sources
- CLO4 : Select and apply the appropriate analytical tools to generate insights
- CLO5 : Visualize and translate insights into concrete actions that businesses can take
- CLO6 : Communicate insights to a specific audience and for a specific purpose
- CLO7 : Work effectively in teams
- CLO8 : Develop competencies in using proper analytical tools in accounting contexts.

Assessment 4: Assignment

Assessment Overview

The assessment allows students to independently apply the knowledge and skills in a comprehensive way to solve a real business problem.

Assesses: PLO1, PLO2, PLO4

Course Learning Outcomes

- CLO1 : Understand the importance of data analytics in contemporary business contexts and developing an appropriate analytical mindset
- CLO2 : Ability to identify and define business problems
- CLO3 : Extract the right data from different sources
- CLO4 : Select and apply the appropriate analytical tools to generate insights
- CLO5 : Visualize and translate insights into concrete actions that businesses can take
- CLO8 : Develop competencies in using proper analytical tools in accounting contexts.

General Assessment Information

Grading Basis

Standard

Requirements to pass course

Achieve at least 50% of total course grade.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Lecture	Analytical mindset for accounting decision-making In this lecture, we will introduce the analytical mindset essential for effective accounting decision-making, a concept we will consistently reinforce throughout the course. Our discussion will commence with a deep dive into the process of transforming business decisions into insightful analytical inquiries. Additionally, we will offer an extensive overview covering various types of accounting data and the diverse array of tools available in the realm of data analytics.
Week 2 : 3 June - 9 June	Lecture	Mastering accounting data: Data storage, extraction and wrangling Firstly, we explore the generation and storage of accounting data within business databases. Subsequently, we delve into techniques for extracting and manipulating this data in preparation for subsequent analytical tasks, leveraging tools such as SQL and Pandas.
	Tut-Lab	Python basics for accounting analytics We'll cover the installation and configuration process of Python and Jupyter Notebook. Additionally, a brief tutorial will be provided on fundamental aspects of the Python language, along with an overview of the primary analytics packages utilized throughout the course.
Week 3 : 10 June - 16 June	Lecture	Descriptive analysis of accounting data Throughout this week, we'll uncover valuable insights by delving into the hidden characteristics of data. We'll introduce descriptive analysis tools, including summary statistics, data aggregation, data visualization, and anomaly detection techniques. These skills not only help us develop a solid understanding of the data at hand, they also allow us to better form our hypothesis and develop our test plans.
	Tut-Lab	Fundamentals of SQL and Pandas We'll dive into the fundamentals of SQL for data management, alongside essential data wrangling techniques using Pandas. Special emphasis will be placed on merging multiple datasets and conducting data cleaning operations.
Week 4 : 17 June - 23 June	Lecture	Performing data analyses and communicating findings We'll present essential analytical methods for analyzing accounting data, focusing on the selection of appropriate methods and data for addressing specific inquiries. Additionally, we'll explore strategies for effectively communicating your findings and insights.
	Tut-Lab	Descriptive statistics and data visualisation We will cover the techniques for tabulating and visualizing summary statistics, utilizing pivot tables, and employing distributional statistics and visualization methods to identify anomalous accounting figures.
Week 5 : 24 June - 30 June	Lecture	Fundamental analysis and quantitative investing Starting this week, we will explore prominent real-world applications of accounting analytics. Our this week focus will be on fundamental analysis, which involves utilizing accounting data to assess the financial performance and riskiness of publicly traded companies. This approach aids professional investors in identifying investment opportunities within stock markets. We will specifically delve into the construction of effective trading strategies grounded in straightforward accounting-based valuation metrics.
	Tut-Lab	Basic machine learning algorithms in accounting analytics We will delve into the process of conducting basic t-tests, logistic regressions, and linear regressions. Our emphasis will be on understanding how these algorithms can address various analytical inquiries and on effectively interpreting the outcomes derived from these analyses.
Week 6 : 1 July - 7 July	Other	Recharge week--No class
Week 7 : 8 July - 14 July	Lecture	Predicting financial frauds The detection of financial fraud has been a longstanding challenge in financial regulation and auditing. In this segment, we introduce methodologies tailored for identifying fraudulent patterns within corporate financial reporting. We'll cover the selection of predictors, the specification and training of prediction models, and the evaluation of model performance. These techniques extend to many other classification tasks in accounting analytics.
	Tut-Lab	Case study: Accrual anomaly We will try to replicate a trading strategy based on the accrual anomaly, which is one the most famous and successful trading strategies developed from fundamental analysis.
Week 8 : 15 July - 21 July	Lecture	Earnings forecasting Forecasting public companies' earnings is a high-stake prediction game. We use regression analysis to detect key predictors of corporate earnings. We examine how to develop, train and validate new earnings forecasting models, as well as methods for evaluating the forecast performance. We also illustrate how a good

		earnings forecasting model may help investors develop successful trading strategies in the stock markets.
	Tut-Lab	Case study: Predicting financial frauds using accounting numbers We will explore whether a combination of accounting figures can serve as indicators for detecting financial fraud.
Week 9 : 22 July - 28 July	Lecture	Analysing textual disclosures We will introduce fundamental natural language processing (NLP) techniques and their application in analyzing corporate financial disclosures. Our focus will be on utilizing textual analysis to quantify abstract concepts such as managerial sentiment and companies' exposure to nonfinancial risks. These measures hold significant implications for financial forecasting and capital market outcomes.
	Tut-Lab	Case study: Model-based versus professional analysts' earnings forecasts We will develop an earnings forecast model and compare its properties with earnings forecasts produced by sell-side financial analysts.
Week 10 : 29 July - 4 August	Lecture	Further Topics in Accounting Analytics We will provide an overview of further topics in accounting analytics, such as neural network forecasting, ensemble learning, topic modelling, semantic analysis, and large language models. Although we do not expect to cover the implementation details of these state-of-the-art methods, we seek to develop a high-level intuitive understanding these methods.
	Tut-Lab	Case study: Can managers hype stock prices We will investigate whether managers can manipulate stock market perceptions by employing a more positive tone in disclosures, despite poor actual performance.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

Lectures will provide a deep dive into the concepts, contexts, and high-level overview of applications. Tutorials, on the other hand, will be hands-on exercises focused on specific case-based problems.

Students are expected to bring their own computers to all tutorials, with appropriate software installed.

Course Resources

Prescribed Resources

We will use the Anaconda distribution of the Python language for demonstrations, tutorial exercises, and assessments. You can download and install Anaconda from https://www.anaconda.com/.

We will use the Pandas package as our primary data management tool. You can find a short introduction to Pandas here https://pandas.pydata.org/docs/getting_started/intro_tutorials/.

Recommended Resources

The following text book is recommending for reading

Vernon Richardson, Ryan Teeter and Katie Terrell. (2023) "Data Analytics for Accounting, 3rd Edition" McGraw Hill

Note that this textbook builds on various software, including Excel, PowerBI and Tablaeu. All analytical exercises in this course is based on Python. Nonetheless, the concepts and workflow described in the textbook are similar to ours.

Additional Costs

All software used in this course can be accessed for free.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Head lecturer	Zihang (Ryan) Peng				on appointment	No	Yes

Other Useful Information

Academic Information

COURSE POLICIES AND SUPPORT

The Business School expects that you are familiar with the contents of this course outline and the UNSW and Business School learning expectations, rules, policies and support services as listed below:

- Program Learning Outcomes
- Academic Integrity and Plagiarism
- Student Responsibilities and Conduct
- Special Consideration
- Protocol for Viewing Final Exam Scripts
- Student Learning Support Services

Further information is provided on the key policies and support page.

Students may not circulate or post online any course materials such as handouts, exams, syllabi

or similar resources from their courses without the written permission of their instructor.

STUDENT LEARNING OUTCOMES

The Course Learning Outcomes (CLOs) – under the Outcomes tab – are what you should be able to demonstrate by the end of this course, if you participate fully in learning activities and successfully complete the assessment items.

CLOs also contribute to your achievement of the Program Learning Outcomes (PLOs), which are developed across the duration of a program. PLOs are, in turn, directly linked to UNSW graduate capabilities. More information on Coursework PLOs is available on the key policies and support page. For PG Research PLOs, including MPDBS, please refer to the UNSW HDR Learning Outcomes.

Academic Honesty and Plagarism

As a student at UNSW you are expected to display academic integrity in your work and interactions. Where a student breaches the UNSW Student Code with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the Working with Academic Integrity module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

Submission of Assessment Tasks

SPECIAL CONSIDERATION

You can apply for special consideration when illness or other circumstances beyond your control interfere with your performance in a specific assessment task or tasks, including online exams. Students studying remotely who have exams scheduled between 10pm and 7am local time, are also able to apply for special consideration to sit a supplementary exam at a time outside of these hours.

Special consideration is primarily intended to provide you with an extra opportunity to

demonstrate the level of performance of which you are capable. To apply, and for further information, see Special Consideration on the UNSW Current Students page.

Special consideration applications will be assessed centrally by the Case Review Team, who will update the online application with the outcome and add any relevant comments. The change to the status of the application immediately sends an email to the student and to the assessor with the outcome of the application.

Please note the following:

1. Applications can only be made through Online Services in myUNSW (see the UNSW Current Students page). Applications will not be accepted by teaching staff. The lecturer-in-charge/ course coordinator will be automatically notified when your application is processed.
2. Applying for special consideration does not automatically mean that you will be granted a supplementary exam or other concession.
3. If you experience illness or misadventure in the lead up to an exam or assessment, you must submit an application for special consideration, either prior to the examination taking place, or prior to the assessment submission deadline, except where illness or misadventure prevent you from doing so.
4. If your circumstances stop you from applying before your exam or assessment due date, you must apply within 3 working days of the assessment or the period covered by your supporting documentation.
5. Under the UNSW Fit To Sit/Submit rule, if you sit the exam/submit an assignment, you are declaring yourself well enough to do so and are cannot subsequently apply for special consideration.
6. If you become unwell on the day of – or during – an exam, you must stop working on your exam, advise your course coordinator or tutor and provide a medical certificate dated within 24 hours of the exam, with your special consideration application. For online exams, you must contact your course coordinator or tutor immediately via email, Moodle or chat and advise them you are unwell and submit screenshots of your conversation along with your medical certificate and application.
7. Special consideration requests do not allow the awarding of additional marks to students.

Further information on Business School policy and procedure can be found under “Special Consideration” on the key policies and support page.

LATE SUBMISSION PENALTIES

For assessments other than examinations, late submission will incur a penalty of 5% per day or part thereof (including weekends) from the due date and time. An assessment will not be accepted after 5 days (120 hours) of the original deadline unless special consideration has been

approved. An assignment is considered late if the requested format, such as hard copy or electronic copy, has not been submitted on time or where the 'wrong' assignment has been submitted.

For assessments which account for 10% or less of the overall course grade, and where answers are immediately discussed or debriefed, the LIC may stipulate a different penalty. Details of such late penalties will be available on the course Moodle page.

FEEDBACK ON YOUR ASSESSMENT TASK PERFORMANCE

Feedback on student performance from formative and summative assessment tasks will be provided to students in a timely manner. Assessment tasks completed within the teaching period of a course, other than a final assessment, will be assessed and students provided with feedback, with or without a provisional result, within 10 working days of submission, under normal circumstances. Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Faculty-specific Information

PROTOCOL FOR VIEWING FINAL EXAM SCRIPTS

UNSW students have the right to view their final exam scripts, subject to a small number of very specific exemptions. The UNSW Business School has set a protocol under which students may view their final exam script. Individual schools within the Faculty may also set up additional local processes for viewing final exam scripts, so it is important that you check with your School.

If you are completing courses from the following schools, please note the additional school-specific information:

- Students in the **School of Accounting, Auditing & Taxation** who wish to view their final examination script should also refer to this page.
- Students in the **School of Banking & Finance** should also refer to this page.
- Students in the **School of Information Systems & Technology Management** should also refer to this page.

COURSE EVALUATION AND DEVELOPMENT

Feedback is regularly sought from students and continual improvements are made based on this feedback. At the end of this course, you will be asked to complete the myExperience survey, which provides a key source of student evaluative feedback. Your input into this quality

enhancement process is extremely valuable in assisting us to meet the needs of our students and provide an effective and enriching learning experience. The results of all surveys are carefully considered and do lead to action towards enhancing educational quality.

QUALITY ASSURANCE

The Business School is actively monitoring student learning and quality of the student experience in all its programs. A random selection of completed assessment tasks may be used for quality assurance, such as to determine the extent to which program learning goals are being achieved. The information is required for accreditation purposes, and aggregated findings will be used to inform changes aimed at improving the quality of Business School programs. All material used for such processes will be treated as confidential.

TEACHING TIMES AND LOCATIONS

Please note that teaching times and locations are subject to change. Students are strongly advised to refer to the Class Timetable website for the most up-to-date teaching times and locations.

School Contact Information

The policies regarding staff contact in the School of Accounting, Auditing and Taxation are as follows:

- All questions regarding course administration should be directed to the Lecturer-in-charge.
- The full-time staff will be available for consultation starting from Weeks 2 to 10 and STUVAC period.
- Consultation hours will be advised on the course Moodle page in a consolidated timetable.
- Students are encouraged to consult with staff during online consultation sessions. Consultation will not be provided via email or phone.
- Consultation times during STUVAC period will likely vary to the regular consultation during Term and be posted on the course webpage later in the Term.

While emails to staff should be a rare occurrence as noted above, in instances where it is warranted, please make sure that:

- You use your UNSW email address when corresponding with the teaching staff on this course. Emails from other addresses (such as Hotmail, Gmail, Yahoo, 126, QQ, etc.) are not accepted and will not be replied to.
- You must use an appropriate communication level with staff. Emails and discussion forum posts that use short-hand and “Texting” language are not acceptable, and communication

must be in English. If your email cannot be understood then staff will not reply.
- You must identify yourself by your full name, student ID and tutorial day and time.
- Please be aware that Staff will not necessarily reply to students to inform them if their emails are non-compliant.
- Full-time teaching staff only answer emails during regular working hours of Monday to Friday 9am-5pm. Tutoring staff often have other jobs and require 48 hours within regular business office hours to reply to emails.

Complaints about the assessment and other aspects of this course should be directed in the first instance to the Lecturer-in-Charge (or Course Convenor) and if still unsatisfied with the response received then you are directed to contact the School of Accounting, Auditing & Taxation Grievance Officer, details available here: https://www.unsw.edu.au/business/our-schools/accounting-auditing-taxation/contact-us