ACCT 4710 Accounting Analytics for Professional Accountants

Fall 2024
Course Outline

Instructor	Prof. Tony Shieh, PhD in Accounting, MBA in Finance, FCPA, CISA
Instructor's Contact	LSK6003, Email: actony@ust.hk, Tel.2358 7579
Lecture Time & Venue	Tue 9am to 11:50pm @ CYT G009B (Lift 36)
Teaching Associate	Vincent Leung, LSK6047A, Email: mailto:vincentltm@ust.hk, Tel. 2358 7584
Tony's Office Hours	Tuesday 15:30–16:30, or by appointment
Course Website	http://canvas.ust.hk

Course Description

Data analytics is the process of collecting, organizing and analyzing big data in order to discover useful information for different uses. Big data is a large data sets containing a variety of data types. What's really going to make big data go mainstream is the ability to connect not just with data scientists and technologists but business people. And absolutely one of the keys to that is visualization, is being able to show people—not just tell people, not just show numbers or even show charts—but to have those charts and graphs and visualizations come alive. With more and more companies computerized their business processes, accounting professionals have access to massive data that with proper data analytics skills can help them maintain or develop a strategic advantage or to remain competitive in today's fast-paced business environment. Those who fail to utilize big data or data analytics may put their organization at a disadvantage. We also saw more businesses accepting that data, in all forms and sizes, is critical for the best possible decision making. Data analytics has become a must-have skill for all business managers and particularly accountants who often know both internal and external data, better than their counterparts in other areas of the business. "Data analytics is imperative for companies that wish to employ successful financial accounting practices. It's the key to being able to maximize profits from the supply chain, manage production flows, score credit loans, predict customer churn and optimize scheduling."

Course Objectives

On completion of the course, students should be able to:

- Understand and apply basic knowledge and applications in information systems and accounting information systems.
- Apply and demonstrate knowledge of the nature and role of data analytics and how important it is to accountant.
- Apply and understand big data issues and utilize data mining, data modeling, data analysis and data visualization techniques to solve accounting and business related issues.
- Synthesize theory and applications to prepare students for the dynamics of professional accounting practice.
- Demonstrate and provide hands-on experience to develop skills with selected business analysis and data analytics technologies.

Intended Learning Outcomes (ILOs)

By the end of this course, students should be able to:
1. Identify and incorporate useful sources of financial and non-financial data that help accountants' decision-making.
2. Apply and demonstrate knowledge of the nature and role of accounting data analytics and understand how important it is to accounting professionals.
3. Use and evaluate analytics techniques to interpret accounting data, analyze business process, and develop solutions for issues in accounting processes.
4. Utilize data analytics application(s) to perform and develop skills in accounting audit, fraud detection and business analysis.
5. Diagnose accounting problems and issues by using accounting data analytics to make responsible and ethical decisions.

Course Assessments

Weighting allocated to different modes of assessment are as follows:

Corework		50%:
Participation	5%	
Cases	25%	
Excercises/Assignments	20%	
Final Exam		50%
Total		100%

Cases/Assignments

The cases and assignments will be related to using data analytics in accounting and applying ACL software in accounting/audit applications. Cases and assignments can be either downloaded from canvas web site or derived from the textbook. Questions needed to be answered for the cases will be provided in due course.

The cases and assignments may be assigned to be worked on during the class time or at home and needed to be submitted in specific due time.

Case assignments if stated to be due in specific due dates then must be <u>submitted before or in the beginning of the class on specified the due dates</u>. Grading of the assignments will be mainly based on efforts not just correctness. **Late submission will be subject to substantial penalty.**

Participation

Class attendance, cooperative attitude, active participation into class discussion, etc. will constitute the assessment for the participation component of the overall course grade.

Exam

A final exam will be conducted.

Mapping of Course ILOs to Assessment Tasks

Assessed Task	Mapped ILOs	Explanation
Participation	ILO1, ILO2, ILO3. ILO4, ILO5	This task assesses students' ability to identify and incorporate useful data for decision-making (ILO 1), apply and demonstrate knowledge of accounting data analytics and understand how important it is to accounting professionals. (ILO 2), use and evaluate analytics techniques to interpret accounting data, analyze business process, and develop solutions for issues in accounting processes (ILO 3), utilize data analytics application(s) to perform and develop skills in accounting audit, fraud detection and business analysis (ILO4), and demonstrate and provide hands-on experience to develop skills with selected business analysis and data analytics technologies (ILO 5).
Cases	ILO1, ILO2, ILO3. ILO4, ILO5	This task assesses students' ability to identify and incorporate useful data for decision-making (ILO 1), apply and demonstrate knowledge of accounting data analytics and understand how important it is to accounting professionals. (ILO 2), use and evaluate analytics techniques to interpret accounting data, analyze business process, and develop solutions for issues in accounting processes (ILO 3), utilize data analytics application(s) to perform and develop skills in accounting audit, fraud detection and business analysis (ILO4), and demonstrate and provide hands-on experience to develop skills with selected business analysis and data analytics technologies (ILO 5).

Exercises / Assignments	ILO3. ILO4, ILO5	This task assesses students' ability to use and evaluate analytics techniques to interpret accounting data, analyze business process, and develop solutions for issues in accounting processes (ILO 3), utilize data analytics application(s) to perform and develop skills in accounting audit, fraud detection and business analysis (ILO4), and demonstrate and provide hands-on experience to develop skills with selected business analysis and data analytics technologies (ILO 5).
Final Exam	ILO1, ILO2, ILO3. ILO4, ILO5	This task assesses students' ability to identify and incorporate useful data for decision-making (ILO 1), apply and demonstrate knowledge of accounting data analytics and understand how important it is to accounting professionals. (ILO 2), use and evaluate analytics techniques to interpret accounting data, analyze business process, and develop solutions for issues in accounting processes (ILO 3), utilize data analytics application(s) to perform and develop skills in accounting audit, fraud detection and business analysis (ILO4), and demonstrate and provide hands-on experience to develop skills with selected business analysis and data analytics technologies (ILO 5).

Required textbook

N. Kale and N. Jones, "Practical Analytics", Epistemy Press, 2015, ISBN: 978-0-9856008-9-1

eBook ordering information for *Practical Analytics*:
Practical Analytics 2nd Edition eBook URL: http://store.epistemypress.com/books/analytics.html
50% discount code: *HKUSTPA21*
eBook download & reading tutorials: http://store.epistemypress.com/ebook-reading

Recommended textbooks
Vernon Richardson, Katie L. Terrell, Ryan A. Teeter, *Data Analytics for Accounting,* latest edition, McGraw Hill

David L. Olson, *Managerial Issues of Enterprise Resource Planning Systems,* latest edition, McGraw Hill.

Daniel O'Leary, *Enterprise Resource Planning Systems, latest edition*, Cambridge University Press.

Use of Technology

Note: this is not a computer-skills course. However, it does require extensive use of the computer as a tool. To accomplish the objectives of this course, you will spend a significant portion of your time both in and out of the class learning and using computerized information systems with their associated idiosyncrasies. All of the class assignments will involve the use of the computer in one way or another.

Since much of our in-class work will utilize a computer, **you will need to (want to) bring your laptop to each class session** unless you were told otherwise. A PC-based computer is preferable to those with Apple/Mac operating systems as the major data analytics software we will be using, ACL Analytics and Microsoft Power BI, shall require virtual PC environment to work on Mac operating systems. Mac users may use the school's Virtual Barn or install virtual environment software such as Parallels to run the Windows applications.

Details of installing, accessing, and setting up accounts for ACL and Power BI applications will be released in due course later.

Teaching Schedule

(Subject to changes)

Week	Date	Lecture	Details
1	*Sep 3*	1	**Introduction to Information Systems, Accounting Information Systems and Data Analytics**
			• Description of information needs of managers in an organization, the opportunities and threats to corporate information systems and role of information technology in solving business and accounting problems. Data sources and databases. • Data Analytic Introduction
			Read: Chapter 1
2	*Sep 10*		**Data Sources, Data Modelling, and Data Warehouse**
			• Data Fundamentals and Data Acquisition • Structured and unstructured data • Databases and three types of anomalies • ERP System • OLAP vs OLTP • Data modelling and database structure • Data Warehouse structure and application
			Read: Chapters 2 and 3
3	*Sep 17*	2	**Relational Database and ER Diagrams**
			• Entity-Relationships (ER) Modeling • Accounting Relational Database applications on ER diagrams
4	*Sep 24*	3	**Financial Reporting & Analysis: ETL, Slicing & dicing, queries and reports + ACL Basics**
			• ETL (Extraction, Transformation, and Loading) data for analysis • Formulate appropriate information system strategies to support implementation of business and functional strategies.
			• ACL Basics • Expressions • Importing Data
			Read: Chapters 4 and 5 Cases: Using Expressions & Filters in ACL to do data analytics
5	*Oct 1*		**No class (The National Day)**
6	*Oct 8*		

7	*Oct 15*	**4**	**Data Analytics Reporting + ACL Importing Data**
			• Charts, dashboard and advanced visualization techniques • Importing data from various data sources
8	*Oct 22*		Read: Chapter 6 Cases: Importing data from Delimited Files, Excel Files, Report (Print image) Files, PDF Files, and ODBC-Compliant Files.
9	*Oct 29*	**5**	**Knowledge Discovery, Prediction, Decision Making + ACL Preparing Data**
			• Data Mining Process • Descriptive Models for decision making. • Forecasting and Predictive Models • Data preparation checklist
10	*Nov 4*		Read: Chapters 10, 11, and 12 Cases: TAFT Industries Case on preparing, analyzing, and reporting functions on ACL analytics
11	*Nov 11*	**7**	**Big Data Analytics + ACL Analyzing Data**
12	*Nov 18*		• Big Data analysis and applications. • Analyzing Data - Grouping data by using ACL commands, Classify, Summarize, Cross Tabulate, Stratify, Age, Sort, and Index • Analyzing Data – Isolating Data by using ACL commands, Extract • Analyzing Data – Combining data by suing ACL commands, Extract/Append, Export/Append, Relations, and Join
			Read: Chapter 13
13	*Nov 25*	**8**	**Data Visualization + Visualization Software**
			• Charts, dashboard and advanced visualization techniques • Qlik Sense and Tableau
			Read: Chapters 7, 8, and 9
	TBC		**Final Exam**