COURSE INFORMATION

Course title:	Data Visualization		
Course code:	BAIT518	Credits:	1.5
Session, term, period:	2020W	Class location:	Via Zoom Meetings
Section(s):	002	Class times:	TR 2:00-4:00PM
Course duration:	2021-04-27 – 2021-05-27	Pre-requisites:	
Division:	Marketing & Behavioural Science	Co-requisites:	n/a
Program:	MBA		

INSTRUCTOR INFORMATION

Instructor:	Chunhua Wu		
Phone:	604-827-2266	Office location:	HA572
Email:	Chunhua.wu@sauder.ubc.ca		
Office hours:	Thu 10:00-11:00AM		
Zoom Links:	Class Link: https://ubc.zoom.us/j/67620411425?pwd=Wks1bDNySk12ZXVTbE5mV2JzVElzQT09 passcode: 518002 Office Hour: https://ubc.zoom.us/j/67100082498?pwd=djJoYm5IelN5ZFBFRWtvdTJMMEZaUT09 passcode: 518002		

Teaching assistant:	Qiyuan Wang (PhD student)
Email:	qiyuan.wang@sauder.ubc.ca

COURSE DESCRIPTION

> *For every leader in the company, not just for me, there are decisions that can be made by analysis. These are the best kinds of decisions! They are fact-based decisions.*
>
> *— Jeff Bezos*

We live in the data age. Firms are increasingly relying on data-driven analytics in the decision process to stay competitive in the market. A data-driven mindset and solid analytical skills have become essential for today's managers.

Humans are visual animals. The first step towards data-driven decision making is the ability to "see" the data. Effective data visualization helps managers understand business operations, identify business problems, seize market opportunities, and enhance business performance.

Data visualization is the process of getting data, organizing data, exploring data, and presenting data in a visual way. It is not only about the databases, the software tools, the statistics, the tables, and the graphics; it is also fundamentally a form of communication that achieves purposes and delivers impacts.

This course outlines important data visualization topics in a business context. Throughout the term, we will review data, statistics, economics, and visualization concepts, practice efficient software tools, and more importantly, navigate the purpose-driven aspect of data visualization. The class will equip students with a thorough understanding of visual principles, practical frameworks in exploring business data, and solid skills in creating compelling data visualizations.

COURSE FORMAT

The course consists of a mix of synchronous lectures, pre-recorded videos, software tutorials, assignments and invited guest sessions. All class sessions will be interactive, requiring you to actively participate in and contribute to the class.

We will use Zoom to have our classes during the scheduled class times.

LEARNING OBJECTIVES

By the end of the course, students are expected to be able to:

- Understand the importance of business data visualization as a communication tool.
- Understand the principles of visual perceptions and visual communications.
- Create effective data visualizations using tools such as Tableau.
- Design and execute database query languages such as BigQuery to perform data operations.
- Apply data visualization and business analytics frameworks to analyze a business situation.

ASSESSMENTS

Summary

Component	Weight
Individual Assignments	24%
Group Assignments	36%
Final Project	25%
Class participation	15%
Total	100%

Details of Assessments

Assignments (60%)

You are expected to finish three individual assignments and two group assignments during the course period. You will have time to discuss and finish part of the group assignments in class. The five assignments account for 60% of the course grade. The assignments are designed to give you the opportunity to link the lecture contents with real-world practices and applications. Details of the assignments will be posted on Canvas.

- **Assignment 1 (individual):** Data Visualization in Life (10%), due by *April 28, 11:59pm*.
- **Assignment 2 (individual):** Visualize Summary Statistics (8%), due by *May 5, 11:59pm*.
- **Assignment 3 (individual):** Spatial Data Visualization (6%), due by *May 14, 11:59pm*.
- **Assignment 4 (group):** Luckin Coffee (18%), due by *May 23, 11:59pm*.
- **Assignment 5 (group):** Yelp Review (18%), due by *May 30, 11:59pm*.

Final Project (25%)
You need to finish an individual project at the end of the course period. It accounts for 25% of the course grade and is due in the exam week (TBD by RHL). You can take either one of the following two options for the final project: the data option or the essay option. For the data option, you need to use publicly available data to create visualizations that effectively deliver important insights and implications. For the essay option, you need to analyze a management decision scenario you are familiar with which could be benefited from data visualization and/or data analytics. You need to outline the decision scenario in detail and discuss how you could help improve using knowledge learnt from this course. A detailed description of the final project requirements will be available on Canvas.

Participation (15%)
You are expected to finish all the asynchronous modules and attend all the synchronous classes and actively participate in class discussions. Class participation accounts for 15% of your final course grade and is used to reward students for contributing to the in-class learning environment. You earn the participation points only if you are an activate participant and contributor to the learning. Participation points will be deducted if you are late to the synchronous meetings.

LEARNING MATERIALS

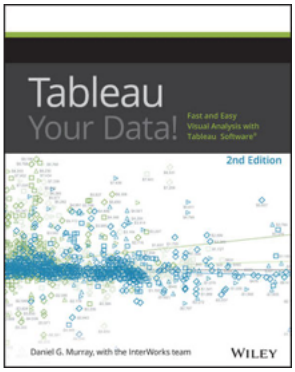
Textbooks

The following book serves as an optional textbook for this course (highly recommend you getting a copy). The relevant chapters to read are marked in the preparation section of the course schedule below. In addition, we will use customized materials.

- Scott Berinato, 2006. Good Charts: The HBR Guide to Making Smarter, More Persuasive Data Visualizations. *Harvard Business Publishing*.

I also recommend the following book as a technical reference to Tableau Software (You can get free access through UBC Library).

- Daniel Murray, 2016. Tableau Your Data!. *Wiley*.



Reading Materials

Other reading materials will be posted on Canvas.

Software Tools

We will learn the basics of two software tools for this course: Tableau and Google BigQuery. You are required install the software and get familiar with the interface by yourself.

Tableau: Please install the software (Tableau Desktop) on your computer by *May 2, 2021.*

- Download URL: http://www.tableau.com/tft/activation.
- Student evaluation license: TC59-AA85-7540-60AE-90E3
- Other resources: Tableau website.

BigQuery: Please register an account for Google Cloud by *May 19, 2021.*

- URL: https://cloud.google.com.

COURSE-SPECIFIC POLICIES AND RESOURCES

Missed or late assignments, and regrading of assessments

Per the standard for RHL courses, late submissions will not be accepted and will receive a grade of zero.

Group Policy

You will form a group based on your own preferences. Each group will have 3-4 members. Please contribute the best you can to the group assignments. In the case that you feel other members of your group are not pulling their weights, or are disrupting the functioning of the group, try to resolve the issue as a group. If you need further assistance you may always contact the instructor for help. We will conduct formal peer evaluations at the end of the course. Each member will have the opportunity to evaluate the efforts and contributions of others. In the case that the intra-group evaluations indicate a problem, the individuals who did not pull in their weights will receive discounted grades.

Academic Concessions

If extenuating circumstances arise, please contact the RHL Graduate School program office as early as reasonably possible, and submit an Academic Concession Request & Declaration Form https://webforms.sauder.ubc.ca/academic-concession-rhlee. If an academic concession is granted during the course, the student will be provided options by RHL, or by the instructor in consultation with RHL, per UBC's policy on Academic Concession.

POLICIES APPLICABLE TO COURSES IN THE ROBERT H. LEE GRADUATE SCHOOL

Attendance

Excepting extenuating circumstances, students are expected to attend 100% of their scheduled class hours. Absent students limit their own academic potential, and that of their classmates, and cause unnecessary disruption to the learning environment. Students missing more than 20% of the total scheduled class hours for a course (including classes held during the add/drop period) without having received an academic concession will be withdrawn from that course. Withdrawals, depending on timing, could result in a "W" or an "F" standing on the transcript.

Punctuality

Students are expected to arrive for classes and activities on time and fully prepared to engage. Late arrivals may be refused entry at the discretion of the instructor or activity lead. Students arriving later than halfway through a scheduled class will be treated as absent for that class.

Electronic Devices

During online lectures, students are not permitted to use any electronic devices other than the primary one used for attending the online lecture (e.g. laptop or desktop). Only Zoom should be open during the online lecture unless an instructor advises the use of another for an in-class activity. Feedback from students indicates that personal devices is the number one distraction from effective learning and participation in the online learning environment.

Citation Style

Please use the American Psychological Association (APA) reference style to cite your sources.

Details of the above policies and other RHL Policies are available at:
http://www.calendar.ubc.ca/vancouver/index.cfm?tree=12,199,506,1625

UNIVERSITY POLICIES AND RESOURCES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website at https://senate.ubc.ca/policies-resources-support-student-success.

Respect for Equity, Diversity, and Inclusion

The UBC Sauder School of Business strives to promote an intellectual community that is enhanced by diversity along various dimensions including status as a First Nation, Metis, Inuit, or Indigenous person, race, ethnicity, gender identity, sexual orientation, religion, political beliefs, social class, and/or disability. It is critical that students from diverse backgrounds and perspectives be valued in and well-served by their courses. Furthermore, the diversity that students bring to the classroom should be viewed as a resource, benefit, and source of strength for your learning experience. It is expected that all students and members of our community conduct themselves with empathy and respect for others.

Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

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ACKNOWLEDGEMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəy̓əm (Musqueam) people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

ONLINE TEACHING TOOL & REQUIREMENTS

This course will be taught using Zoom for synchronous classes and office hours.

For this course, you are required to use a Zoom account during synchronous classes and office hours. If you do not have a Zoom account, you can create one here: https://zoom.us/signup. Note: creating a Zoom account requires that you provide a first name, last name, and email address to Zoom. For privacy purposes, you may consent to using your existing email address and your real name. Alternatively, if you prefer, you may sign up using an alternative email address and an anonymized name that does not identify you (i.e. Jane Doe, jane.doe@email.com). If you have trouble creating an account, or accessing a Zoom session, please contact CLCHelp@sauder.ubc.ca. You will be required to provide the email address associated with your Zoom account in a Canvas quiz for identification purposes.

To help replicate the classroom experience, make sessions more dynamic and hold each person accountable, both students and instructors are required to have their cameras on during Zoom sessions. Students who require an accommodation with regard to the "camera on" requirement must contact their instructors in advance of the first class to discuss options. As professional graduate students, students are expected to conduct themselves professionally by joining sessions on time, muting mics when not speaking, refraining from using any other technology when in-session, attending in business casual dress (at a minimum), and participating from a quiet environment. Content from synchronous sessions will be selectively recorded per instructor discretion and made available to students on Canvas for a maximum duration of the course length. This is done to allow students the opportunity to return to lecture content to solidify learnings.

COURSE SCHEDULE

Below is the tentative class schedule. It is subject to change based on the learning progress and outcomes. "Berinato" refers to the "Good Charts" Book. "RM" refers to reading materials posted on Canvas.

Week	Date	Topic	Delivery	Hours	Readings	Due
1	Apr 27	Course Introduction History of Data Visualization Visual Principle Fundamentals Charts: Good, Bad, and Ugly	Async Video	2	Berinato Ch. 1, 2	Assign. 1
	Apr 29	Effective Data Visualization Data Visualization Canvas	Sync Zoom	2	Berinato Ch. 4	
2	May 4	Data Types and Chart Types Introduction to Tableau Summary Statistics in Tableau	Async Video	2.5	Berinato Ch. 5, 6	Assign. 2
	May 6	A Closer Look at Charts Tableau Basics Practices	Sync Zoom	2		
3	May 11	Dimensions & Segmentation Tableau Intermediate	Async (1) + Sync (1)	2		
	May 13	Time Series Data Visualization Spatial Data Visualization	Async	2		Assign. 3
4	May 18	Tableau Advanced Level of Details	Sync	2	RM: Muddy Water Research	
	May 20	BigQuery Introduction	Sync	2		Assign. 4
5	May 25	BigQuery Practices	Sync	2		
	May 27	Guest Lecture Course Summary	Sync	2		Assign. 5 (May 30)