COURSE INFORMATION

Course title:	Application of Statistics in Management		
Course code:	BABS 550	Credits:	1.5
Session and term:	2023W2	Class times:	Friday, January 12 TBD
Section(s):	823		Saturday, January 13 9am-5pm
			Sunday, January 14 9am-5pm
Course duration:	January 12-14	Pre-requisites:	n/a
Division:	Operations and Logistics	Co-requisites:	n/a

INSTRUCTOR INFORMATION

Instructor:	Julia Yan		
Phone:	604 822 0322	Office location:	HA 468
Email:	julia.yan@sauder.ubc.ca	Office hours:	By appointment

COURSE DESCRIPTION

We live in an increasingly data-rich world. This course focuses on using data to make good business decisions, and involves the fundamentals of data exploration, visualization, and common statistical methods. The emphasis will be on:

1. Being an informed and critical consumer of statistics,
2. Understanding core statistics concepts both quantitatively and qualitatively, and
3. Applying the material in real-world settings.

All methods will be illustrated with real data whenever possible, and we will highlight examples common in daily life (e.g., Netflix, Craigslist, CitiBike, Instacart).

COURSE FORMAT

The course is structured as three sessions.
There are several assessments to help you practice the material prior to the exam.

LEARNING OBJECTIVES

By the end of this course, students will be able to:

1. Identify which methods are appropriate for different types of data and situations;
2. Understand the strengths and limitations behind various methods, metrics, and experimental designs; and…
3. Use visualization and key statistical tools (confidence intervals, hypothesis tests, and regression) to interpret data, tell stories, and draw conclusions.

ASSESSMENTS

Summary

Component	Weight
Prep Questions	15%
Homework (3)	40%
Final exam	40%
Attendance/Participation	5%
Total	100%

Details of Assessments

Prep Questions:
There are open-ended questions that you are encouraged to look at before the session and then work on promptly after the session so that you are prepared for the subsequent class. You are also encouraged to work with classmates to enhance your learning experience. This means you may discuss problems and solution approaches. *However, your answers must represent your own work and must be in your own words.*

Homework:
There are three homework assignments. You are encouraged to work with classmates to enhance your learning experience. This means you may discuss problems and solution approaches. *However, your answers must represent your own work and must be in your own words.*

Final Exam:
The final exam covers all material from class: lecture notes, prep questions, clicker questions, and homework. The exam will be delivered online and have a time limit of two hours, but students can begin the exam at any time before the deadline. This must be completed individually.

Attendance and Participation: Students who display repeated tardiness and/or absences will lose 0.5% for each late arrival and 1% for each missed class.

LEARNING MATERIALS

Slides will be posted on Canvas.
There is a free, optional textbook that is posted on Canvas.
Most computations can be done in Excel using the Analysis Toolpak. See Canvas for Excel instructions.

COURSE-SPECIFIC POLICIES AND RESOURCES

Missed or late assignments, and regrading of assessments

Late submissions will not be accepted and will receive a grade of zero. Regrade requests should be submitted within 72 hours of grades being posted, by email to the instructor. Grades can go up or down following a regrade request.

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. 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.

Code Plagiarism

Code plagiarism falls under the UBC policy for Academic Misconduct. Students must correctly cite any code that has been authored by someone else or by the student themselves for other assignments. Cases of "reuse" may include, but are not limited to:

- the reproduction (copying and pasting) of code with none or minimal reformatting (e.g., changing the name of the variables)
- the translation of an algorithm or a script from a language to another
- the generation of code by automatic code-generations software

An "adequate acknowledgement" requires a detailed identification of the (parts of the) code reused and a full citation of the original source code that has been reused.

Students are responsible for ensuring that any work submitted does not constitute plagiarism. Students who are in any doubt as to what constitutes plagiarism should consult their instructor before handing in any assignments.

POLICIES APPLICABLE TO COURSES IN THE ROBERT H. LEE GRADUATE SCHOOL [DO NOT MODIFY]

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

In-Person Regulations

Devices such as laptops, tablets, and cell phones are not permitted to be used in class unless directed by the instructor for in-class activities. Students who do not follow the School's policy in this regard may be required to leave the room for the remainder of the class, so that they do not distract others. Research shows that students' use of laptops in class has negative implications for the learning environment, including reducing their own grades and the grades of those sitting around them.

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.

Academic Freedom and Students Studying from Outside Canada

During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0 for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: http://academic.ubc.ca/support-resources/freedom-expression

Use of Artificial Intelligence

Generative AI (Including ChatGPT) Not Permitted

Any work submitted must be your own original work, written without outside assistance or collaboration. Any use of generative artificial intelligence (AI), including ChatGPT, is not permitted and constitutes academic misconduct. Any student suspected of submitting work that includes AI generated content may be asked for preliminary work or other materials to evidence the student's original and unaided authorship. The student may also be asked to separately explain or support their work. AI identification methods may also be employed by the instructor. After review, if it is determined by the instructor that submitted work likely contains AI generated content, the work may receive a zero and may be subject to further misconduct measures set out in the UBC Academic Calendar.

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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.

COURSE SCHEDULE

(Subject to change with class consultation)

Class	Date	Topic	Optional Readings	Assessments
1	Jan 12	**Introduction.** Fundamentals of data (types, visualization, summary statistics) and probability (Normal distribution, z-scores).	OpenIntro Ch 1.1, 1.2, 2.1, 2.2, 3.1, 3.5, 4.1	Prep Questions 1-2 HW1 *(due on Jan 26, but I suggest working on these before Class 2)*
		Confidence Intervals. Central limit theorem. One- and two-sample confidence intervals. Sample size.	OpenIntro Ch 1.3, 3.3, 5.1, 5.2, 6.1	
2	Jan 13	**Hypothesis Tests (Proportions).** One-sample and two-sample z-tests.	OpenIntro Ch 5.3, 6.1, 6.2	Prep Question 3 HW2 *(due on Jan 26, but I suggest working on these before Class 3)*
		Hypothesis Tests (Means). One-sample and two-sample t-tests.	OpenIntro Ch 7.1, 7.2, 7.3, 7.5	
		Statistics in Practice. Experimentation and ethics.		
3	Jan 14	**Simple Linear Regression.** Quantitative response variables. Correlation, interpretability, residuals, R-squared.	OpenIntro Ch 8.1, 8.2, 8.4	Prep Question 4 HW3 *(due on Jan 26)*
Exam	Feb 2 (other details TBD)			