COURSE INFORMATION

Course title:	Fundamentals of Analytics and Tech		
Course code:	BA 515	Credits:	1.5
Session, term, period:	Class of 2022, Period 2	Class location:	David Lam 125
Section(s):	MM1	Class times:	Tue/Thu 10am-12pm
Course duration:	Nov. 2-Dec. 3, 2021	Pre-requisites:	n/a
Division:	AIS (Information Systems)	Co-requisites:	n/a
Program:	MM		

INSTRUCTOR INFORMATION

Instructor:	Adam Saunders, Ph.D.		
Phone:	604.822.9956	Office location:	Henry Angus 673
Email:	adam.saunders@ubc.ca	Office hours:	Available on Canvas

Teaching assistant:	Alice Li
Office hours:	Available on Canvas
Email:	alicehli999@gmail.com

COURSE DESCRIPTION

BA 515 is an introduction to business analytics and technology. There are two goals: First, we introduce the fundamental concepts of analytics and technology platforms (e.g., big data, AI, machine learning) and their implications to the economy. Second, we provide hands-on programming experiences to acquaint students with R and its rich ecosystem for data processing.

COURSE FORMAT

Class time will be used for a combination of live lectures, live programming, and group/class discussions. Lectures and discussions will assume that students have pre-read the corresponding materials as listed in the course schedule

LEARNING OBJECTIVES

By the end of this course, students will be able to:
1. Explain how firms are using digitization, automation, data and analytics in order to reach business objectives, mitigate threats, seize opportunities, and be competitive.
2. Through hands-on experience with R programming, have working knowledge on the basics of managing and analyzing data sets.

ASSESSMENTS

Summary

Component	Weight
Verbal Participation	5%
iClicker Questions	10%
In-Class Excercises	25%
Final Writeup	20%
Final Exam	40%
Total	100%

Details of Assessments

Verbal Particpation   **5%**
- A student's participation level (quantity and quality) will be recorded in every lecture.
- Students may receive verbal participation marks for asking questions of the course instructor and/or answering questions posed by the course instructor.
- Only the best 9 out of 10 lectures will be used to calculate a student's final course grade.

iClicker Questions   **10%**
- Multiple-choice iClicker questions will be given in class.
- Only the best 9 out of 10 lectures will be used to calculate a student's final course grade. Although students will receive partial marks for merely attempting the questions, full marks will be awarded for answering the questions correctly.

In-class Exercises (ICEs)   **25%**
- Students can work individually or in groups of any size. If you work in groups, you must still submit your own responses on Canvas.
- Only the best 4 of out 5 ICEs will be used to calculate a student's final course grade.

Final Writeup   **20%**
- A five-page writeup based on the course readings is due by Friday, December 3rd at 12pm.
- The details and guidelines of the writeup can be found on Canvas.
- Students can submit writeups individually or work in pairs, with a teammate of their choosing from BA 515.

Final Exam   **40%**
- There will be one written exam at the end of the course. You are responsible for everything that is covered in the classroom, including additional materials discussed in class. The exam will be open book and notes.
- The exam is scheduled for the week of December 6th-10th. The exact time will be set by RHL Operations Team and will be announced when available.

LEARNING MATERIALS

Required Reading Materials: *Machine, Platform, Crowd: Harnessing Our Digital Future* (Andrew McAfee and Erik Brynjolfsson; 2017, WW Norton). Note: any edition is fine.

Estimated cost of required materials: $25.

Required Software: R and RStudio
R and RStudio are available for free, and instructions for installation will be given well ahead of time on Canvas. No previous experience is assumed for this software. It is important to follow the installation directions exactly if students want R/RStudio to work. Most students will be able to install these programs without a problem. However, there are may be a small number of students that have difficulty because there is some issue with the laptop (e.g., it has a nonstandard configuration, the software was not installed in the right place, there is a permissions issue with the computer, etc.)

The vast majority of students will eventually be able to install R and RStudio on their own machines. We will do our very best to help students install R and RStudio on their own computers. If students cannot install R/RStudio, there is another option to use RStudio for free online. It is available at https://rstudio.cloud.

Additional Materials Highly Recommended but Not Required: *Mindset: The New Psychology of Success* (Carol S. Dweck; 2007, Ballantine).

COURSE-SPECIFIC POLICIES AND RESOURCES

Grace Period for all assessments
Students are given a one-hour grace period after the due date for all assessments (except the final exam). During this extra hour, submissions are considered late, but no penalty is assessed. Students will receive a grade of zero for anything submitted after the one-hour grace period unless academic concession has been granted.

Re-grading of Assessments
Great care is taken so as to uphold marking integrity. Should there be a suspected grading error, however, please make a request for re-marking via email to the instructor. Reasons for each re-marking request must be clearly explained in writing. The assessment will be reviewed in its entirety, from scratch, which may result in a positive, negative, or no grade change being made.

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.

Other Course Policies and Resources
In-Class Exercises and Assignments
All in-class exercises and assignments are to be submitted on Canvas. No other method will be accepted (e.g., email or hard copy).

ALL times listed on the Course Schedule are for the local time in Vancouver, British Columbia, Canada (Pacific Time).

Calculation of Final Course Grades

A student's final course grade in BA 515 will be calculated "as is" in accordance with the Assessment Breakdown in this Course Outline.

In other words, a student does not necessarily have to pass the exam components of the course in order to pass the course, so long as s/he receives a final course grade of at least 59.50 out of 100. The reverse is also true—it is possible for a student who passed the exam components of the course to still fail the course if s/he had not performed satisfactorily in other components of the course.

Use of Discussion Board

A discussion board will be provided for all students to discuss and share ideas, concepts and questions relating to BA 515. The course instructor and the TA will be monitoring this forum on a regular basis. Students are encouraged to use it to ask course-related questions, except for personal issues or requests for in-person help.

Many students, however, may still prefer to ask questions through email, and the BA 515 Team will cheerfully respond to every email they receive. Students are encouraged to include their UBC name and student number in their emails to the course instructor or the TA.

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.

COVID-19 Policies for Attendance & Academic Concessions:

If a student feels unwell, they should stay home and send a courtesy email to each impacted instructor and cc their program manager. The student should also submit an Academic Concession Request & Declaration Form.

If a student suspects possible COVID-19 infection, they should use the BC Ministry of Health's self-assessment tool, to help determine whether further assessment or testing for COVID-19 is recommended.

If a student is required to self-isolate (e.g., while waiting for test results), they should follow the steps above (stay home, email instructor(s) and program manager, submit an Academic Concession Request & Declaration Form, and follow BC Health Guidance.

Students who are required to quarantine, should get in touch with their Program Manager to discuss the possibility of academic concessions for each impacted course. The Program Manager will work closely with your instructors to explore options for you to make up the missed learning.

COVID-19 Safety in the Classroom:

Masks: Masks are **required** for all indoor classes, as per the BC Public Health Officer orders. For our in-person meetings in this class, it is important that all of us feel as comfortable as possible engaging in class activities while sharing an indoor space. For the purposes of this order, the term "masks" refers to medical and non-medical masks that cover our noses and mouths. Masks are a primary tool to make it harder for COVID-19 to find a new host. You will need to wear a medical or non-medical mask for the duration of our class meetings, for your own protection, and the safety and comfort of everyone else in the class. You may be asked to remove your mask briefly for an ID check for an exam, but otherwise, your mask should cover your nose and mouth. Please do not eat in class. If you need to drink water/coffee/tea/etc, please keep your mask on between sips. Students who need special accommodation are asked to discuss this with the program office.

Seating in class: To reduce the risk of COVID-19 transmission, please sit in a consistent area of the classroom each day. This will minimize your contacts and will still allow for the pedagogical methods planned for this class to help your learning.

Visit the following website for the most recent updates regarding COVID-19 protocol on campus:
https://students.ubc.ca/campus-life/returning-to-campus

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
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.

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All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline and could be subject to legal action. Any lecture recordings are for the sole use of the instructor and students enrolled in the class. In no case may the lecture recording or part of the recording be used by students for any other purpose, either personal or commercial. Further, audio or video recording of classes are not permitted without the prior consent of the instructor. Students may not share class Zoom links or invite others who are not registered to view sessions.

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)
All classes are in-person in David Lam 125.

Week	Class	Date	Topic	Readings or Activities	Assessments due
1	1	Tue. Nov. 2	Course Introduction	*Machine Platform Crowd* Chapter 1	
1	2	Thu. Nov. 4	Introduction to R	R Intro; Vectors and Basic Functions, part 1	ICE-1 due Tue. Nov. 9th, 9am
2	3	Tue. Nov. 9	Decision Making	*Machine Platform Crowd* Chapter 2	
2		*Thu. Nov. 11 – Rememberance Day – University Closed*			
2	4	Fri. Nov. 12*	Building a Data Set	Vectors and Basic functions, part 2; Libraries & Data Frames	ICE-2 due Tue. Nov 16th, 9am
3	5	Tue. Nov. 16	Artificial Intelligence	*Machine Platform Crowd* Chapter 3	
3	6	Thu. Nov. 18	Data Wrangling	Missing Values and the select(), filter(), mutate(), and summarise() Functions	ICE-3 due Tue. Nov 23rd 9am
4	7	Tue. Nov. 23	Creating Subgroups of Data	Applications of the group_by() Function	ICE-4 due Thu. Nov 25th, 9am
4	8	Thu. Nov. 25	Merging Data Sets	The left_join() and inner_join() Functions	ICE-5 due Tue. Nov. 30th, 9am
5	9	Tue. Nov. 30	TBA	TBA	
5	10	Thu. Dec. 2	Review and Farewell		Final Writeup due Fri. Dec. 3rd, 12pm
6		*Week of Dec 6th-10th. Final Exam (time and date TBA).*			

*Make-up class on Friday November 12th, 10am-12pm, David Lam 125.