

COURSE INFORMATION

Course title:	SUPPLY CHAIN ANALYTICS		
Course code:	BASC524	Credits:	1.5
Session, term, period:	2020W1, Period 7	Class location:	Zoom (see Canvas for link)
Section(s):	001	Class times:	Tue/Thur, 10:00am - 12:00pm
Course duration:	Nov 2 – Dec 11, 2020	Pre-requisites:	n/a
Division:	Operations and Logistics	Co-requisites:	n/a
Program:	MBA		

INSTRUCTOR INFORMATION

Instructor:	Harish Krishnan		
Phone:	604-822-8394	Office location:	https://ubc.zoom.us/my/harish.krishnan
Email:	harish.krishnan@sauder.ubc.ca	Office hours:	By appointment (set up be e-mail)

Teaching assistant:	Vibhuti Dhingra
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COURSE DESCRIPTION

This course will expose students to the use of analytics techniques to help managers address problems and challenges that arise in the context of supply chain management.

Analytics, data science, machine learning and related techniques are increasingly being used to help address business problems. Supply chain management is one area where there are several opportunities to use advanced analytical techniques to improve design, coordination, planning and execution. This course will expose students to several analytical techniques that can be applied to improve decision making in supply chains. The primary focus will be on learning analytical techniques including regression, classification and clustering. The secondary focus is on applications in supply chains. The course is designed for to help students to understand advanced analytical techniques, and be able to think critically about data, models, and their applications in supply chain management.

COURSE FORMAT

The course will include lectures, case discussions and in-class case activities. Please see detailed course schedule below.

LEARNING OBJECTIVES

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

1. Understand the role of different kinds of models that support analytical decision making
2. Understand the role of descriptive, predictive and prescriptive analytics in making supply chain decisions
3. Be able to identify where to use predictive approaches like regression, classification and clustering approaches
4. Be able to apply simple predictive and prescriptive models to supply chain problems
5. Understand the intuition behind each of the above approaches
6. Be able to implement and run simple models of each type
7. Be able to interpret model results and apply it to case studies in supply chain management

ASSESSMENTS

Summary

<u>Component</u>	<u>Weight</u>
Group case analysis (Harmon)	20%
In-class case assignment (Whirlpool)	15%
Individual case summary (David Berman)	15%
Individual case summary (Big Basket)	15%
Final case (due in exam week)	15%
Class participation	20%
Total	100%

Details of Assessments

Class Participation:

- Please be ready and willing to actively engage in all aspects of the classroom learning experience. We all have something to contribute to the collective learning experience each day, and we all want to benefit from it.

Group work:

- Groups will be posted on Canvas.

Case summaries:

- Case summaries are short summaries of the key issues in the case.
- Details and guidelines for the case summaries will be posted on the course website.

Case reports:

- Case analysis and report guidelines will be posted on the course website.
- Questions to guide the analysis will also be posted on the course website.

LEARNING MATERIALS

Required:

1. Course pack containing Harvard cases (will be available electronically; see information on course website)
2. Class notes (will be posted before class on course website: access via <https://canvas.ubc.ca/>)
3. Links to some required (and some recommended) readings will be posted on the course website
4. Syllabus (will be posted on course website)

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.

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](#).

Other Course Policies and Resources

Assignment submission details:

- All in-class cases assignments must be submitted at the time and in the manner specified in class.
- All out-of-class submissions must be uploaded to the course website (deadline specified on course website).
- For group case analyses, only one member of each group needs to submit the analysis. Please make sure that the names of all group members are noted clearly in the submission.

Grading:

- Case summaries will be marked on a “**CheckPlus/Check/CheckMinus**” scale. These will then be converted into a number. Usually, a “**Check**” means an “average” summary and will receive approximately 80%. CheckPlus will receive more than this and CheckMinus will receive less. The exact percentage mark for CheckPlus and CheckMinus will depend on the quality of the summaries. Also, all CheckPlus summaries and all CheckMinus summaries need not receive the same percentage mark. Some differences in quality may be accommodated by assigning different percentage marks. For example, while most CheckMinus summaries may receive 75%, a really poor summary may receive a much lower mark. Also, while most CheckPlus summaries may receive 85%, a really outstanding summary may receive a higher mark. In general, a “**CheckPlus**” means that the summary is thorough and thoughtful. This means that the key issues in the case were clearly identified, appropriate analysis was discussed, and recommendations were clearly justified. “**Check**” means that the summary is satisfactory but with room for improvement. For example, the issues were clearly identified but the analysis and recommendations were not as compelling as they could be. Finally, “**CheckMinus**” means that the summary was unsatisfactory with significant room for improvement. For example, the key issues were not identified or discussed, and/or the analysis and recommendations were unclear or unsupported by facts. Again, if there are any questions, please e-mail me and I am happy to meet individually to address your concerns.
- Case reports will be marked out of a certain number of points, e.g. 20 points (please see assessment summary). Evaluation of the case reports will be based on the clarity of the report, the depth of the analysis, the logic of arguments, the effective use of fact and opinion from the case to defend arguments, and the appropriateness of the issues identified. Considerable attention will be paid to the quantitative analyses. The reasonableness of assumptions chosen to guide the analysis will enter in as well. Again, if there are any questions, please e-mail me and I am happy to meet with your group to address your concerns.

A note about case solutions:

- If you search online, you may be able to find “solutions” to case studies. These are typically assignments that students at other universities have submitted and uploaded to some repository. Given the availability of these online “solutions”, it may be useful for me to remind you about the reason we do case studies.
- Each of you has a unique perspective and understanding of the topics that we study in this course. Your case submissions give you an opportunity to articulate your perspective and, by doing so, you contribute to your own learning and to the learning of the class. Looking for the “correct” answer

online does not benefit you. In fact, it hurts you because it constrains your ability to learn. Furthermore, it exposes you to the risk of academic misconduct.

- Maintaining the highest standard of academic integrity enhances your educational experience, both individually and as a cohort. I fully expect that you are committed to getting the best possible experience from this program.

A note about feedback:

- This is a case-heavy course. Grading cases can be time consuming. There is usually not one “correct” approach to a case, and students often provide diverse responses each of which may consist of a well-thought argument. These nuances can be hard for a marker to pick up. As a result, I often grade cases by myself. A downside of this approach is that it is not always possible to provide quick feedback. Students however often request quick feedback. While I will make an effort to provide feedback as quickly as possible, I would like to emphasize a few ways that students can proactively address this issue.
- First, note that after each case is submitted, it is discussed in class. This class discussion is a form of feedback. Although it is not individualized feedback, I am happy to have one-on-one discussions with students in case they want to discuss their approach to the case and how it compared to what was discussed in class. In other words, after the case discussion, if you want to discuss your case write up, I am happy to do so.
- Second, graded assignments are not the only form of feedback. While you are waiting for a particular assignment to be returned, if you have questions, I am happy to meet and discuss this with students.
- Third, I am happy to discuss any questions you have about an upcoming assignment. This is often done over e-mail (because cases are often due after a weekend), but please consider this as a form of feedback as well.
- Finally, at the end of the course, if you would like to receive feedback on specific assignments, I am happy to provide it.

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

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 xwməθkwəyəm (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)

Week	Date	Topic	Assessments due
1	Nov 3	<ul style="list-style-type: none"> • Overview of analytics and data science • From data to decisions • The role of models • Simple predictive and prescriptive models 	
	Nov 5	<ul style="list-style-type: none"> • Forecasting: Time series and regression models, Part 1 	
2	Nov 10	<ul style="list-style-type: none"> • Forecasting: Time series and regression models, Part 2 • Harmon case assigned 	
	Nov 12	<ul style="list-style-type: none"> • Predictive analytics application: Cost modeling (Whirlpool case discussion) 	<ul style="list-style-type: none"> • In-class group case assignment: Whirlpool
3	Nov 17	<ul style="list-style-type: none"> • Predictive analytics applications: Harmon and Whirlpool case discussions 	<ul style="list-style-type: none"> • <u>Group case report:</u> Harmon Foods
	Nov 19	<ul style="list-style-type: none"> • Classification models with simple applications • Logistic regression and classification trees • Advanced topics in predictive modeling: overfitting, regularization and model cross-validation 	
4	Nov 24	<ul style="list-style-type: none"> • Tree-based approaches to classification 	
	Nov 26	<ul style="list-style-type: none"> • Introduction to the concept of similarity • Clustering with simple applications • Predictive analytics applications: background and set up for Big Basket case 	
5	Dec 1	<ul style="list-style-type: none"> • Guest lecture: Mark Chen • Discussion of Big Basket case 	<ul style="list-style-type: none"> • Individual case summary: Big Basket
	Dec 3	<ul style="list-style-type: none"> • Predictive analytics application: Using inventory level information to predict earnings (David Berman case discussion) 	<ul style="list-style-type: none"> • Individual case summary: David Berman
Case due in exam week (to be assigned later): due by Dec 11			