McGill | School of Continuing Studies | École d'éducation permanente

Career and Professional Development
Non-Credit Programs
Course Outline

Course Title	**Data Science for Business Decisions**
Course Number	YCBS 256
Continuing Education Units:	4
Instructor(s)	Nabil Beitinjaneh, Fouad Farès, Nathanael Weill
Contact Information	nabil.beitinjaneh@mcgill.ca fouad.fares@mcgill.ca (Tableau) nathanael.weill@mcgill.ca (Analytics Techniques) **Office hours:** upon request
Course Description	This course aims to provide an overview of how data science can help drive business decisions and create new business models. The emphasis is placed on data strategy and how to move from data to insight. The course explores the data science process and how companies could surmount the different challenges they face when implementing a data driven business including ethics, data governance and privacy. The evolution of data technology and storage, as well as application of data science tools and techniques to different business areas such as customer and web analytics, operations analytics, human resources related analytics are explored through examples from various fields such as retail, healthcare and marketing.
Learning Outcomes	○ Outline the different elements of a successful data driven strategy ○ Evaluate, by using the Business Model Canvas, how different data types and sources could be leveraged to create new business opportunities ○ Organize and explain for various industry sectors the commonalities and the differences of the application of data analytics / science techniques. ○ Apply critical thinking methods to re-frame a business question as a data question ○ Apply tools, techniques and data visualization principles to different phases of the data cycle. ○ Appreciate the applications of Machine Learning to different business contexts. ○ Assess ethical and privacy considerations that arise when gathering, storing and working with data ○ Explain the key elements that constitute a properly implemented data governance framework

Course Material

Required: Reading assignments will be provided through *My*Courses.

Optional:

Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers by Alexander Osterwalder (Author), Yves Pigneur (Author)
ISBN-13: 978-0470876411

Instructional Methods

Teaching and learning approaches are experiential, collaborative and problem/case-based.

EVALUATION

Item	%	Explanation
Presence	5 %	• This course consists of a community of learners of which you are an integral member; your presence is therefore essential to its success. This means: attending class; visiting *myCourses*, doing the assigned readings/exercises before class; and engaging in class discussions/activities. Missing classes will impact your presence marks • **A minimum attendance of 75% is required in order to pass the course.**
Assignments	55 %	• Review of case studies and real-world problems are some of the most effective ways to learn new skills and assimilate the course material • 4 individual assignments, 3 @15% and one @ 10%
Personal Learning Journal	10 %	• Journals reinforce an active learning approach by giving you the opportunity to relate the concepts covered in the course to your own experiences. You can write about your observations, insights, reflections stimulated by the course (i.e. readings, activities, case studies, in-class discussions), as well as various aspects of your own evolution throughout the course. For example, reflect on how a concept reviewed in the course could be applied to address an issue that you are facing in your professional context. Please do not summarize the class. • 125 words minimum, per course day, must be submitted before the next class on *myCourses.*
In-Class Assessments	10 %	• Micro-theme (short essay) development on material presented • 1 assessment of 10% or 2 assessments, 5% each
Final Assessment	20 %	Last Class • Develop a solution for a case study The passing grade for the final exam is 50 %.
Total	**100%**	

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

UNIVERSITY POLICIES

Academic Integrity

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see *www.mcgill.ca/integrity* for more information).

L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site *www.mcgill.ca/integrity*).

Right to submit in English or French

In accord with McGill University's charter of students' rights, students in this course have the right to submit in English or in French any written work that is to be graded.

In cases where language acquisition is part of the assessment objectives, the work must be submitted in the language evaluated.

Email Policy

E-mail is one of the official means of communication between McGill University and its students. As with all official University communications, it is the student's responsibility to ensure that time-critical e-mail is assessed, read, and acted upon in a timely fashion. If a student chooses to forward University e-mail to another e-mail mailbox, it is that student's responsibility to ensure that the alternate account is viable. Please note that to protect the privacy of students, the University will only reply to students on their McGill e-mail account.

RESOURCES

Student Services

Various services such as Walksafe, McGill Libraries, the Writing Centre, the bookstore, etc., are available to Continuing Education students:
www.mcgill.ca/continuingstudies/current-students/student-services-and-resources

Students with Disabilities

Students who have a documented disability and require academic accommodations and services should contact the Office of Students with Disabilities (http://www.mcgill.ca/osd or 514-398-6009) early in the term.

Computer Labs

Free access to computer labs is available at 688 Sherbrooke (12th floor), MACES, the McLennan Library and other locations on campus.

Minerva and Online Resources

Access your personal student information online with Minerva (www.mcgill.ca/minerva-students). Information regarding online resources such as email, VPN, myCourses, etc. can be found at (www.mcgill.ca/it).

MACES

The McGill Association of Continuing Education Students, MACES (www.maces.ca), is located at 3437 Peel, 2nd floor, tel. (514) 398-4974.

GRADING SCHEME

The following grading scheme applies to Non-Credit Transcript Professional Development Certificates.

Professional Development Certificates		**Grade**
Pass	(85-100%)	A
	(80-84%)	A-
	(75-79%)	B+
	(70-74%)	B
	(65-69%)	B-
Failure	(0-64%)	F

A minimum attendance of 75% is required in order to pass the course.

COURSE CONTENT

Date*	Topics & Assignments
Thu: 13-Sept Week 1	Introduction to the course, its logistics and fit within the overall certificate program Why Data Science and Analytics? • Disruptions and Trends • New Business Models • Examples from Companies using Data Science and Analytics
Thu: 20-Sept Week 2	Data Strategy The Business Model Canvas and Processes *Assignment - Application of BMC* due at the start of the next class
Thu: 27-Sept Week 3	Data Collection and Data Exploration with Alteryx The Data Science Process *Assignment – Documenting an Alteryx 'Workflow'*
Thu: 04-Oct Week 4	Alteryx Hands-on Mapping Data Science techniques to different business problems
Sat: 06-Oct Week 4	Introduction to Visualization Techniques and Story Telling Visualization Hands-on with Tableau *Assignment - Visual display of information with Tableau*
Thu: 11-Oct Week 5	Analytics Techniques – Deep Dive
Sat: 13-Oct Week 5	Critical Thinking and issues with Data / Statistics Analysis Deep Dive on Privacy and Law Business Problem and Analytics Framing Mapping Analytics Techniques *Assignment – The Data Skeptic* due at the start of the next class
Thu: 18-Oct Week 6	Analytics Hands on *In-class final assessment – Analytics Case Study*

*Industry Sectors / Verticals Guest Speakers (a selection of below). To Be Announced on myCourses as dates are finalized.

• Transportation / incl. Aviation	• Operations/Manufacturing
• Entertainment/Multimedia	• Health / Life Sciences
• Financial sector	• Information & Communication Technologies
• Law, Privacy and Ethics	• Financial Sector