ITIS 5431: Business Analytics for Managers

Course Syllabus

1. Course Title

Business Analytics for Managers

2. Course Credit

0.25

3. Prerequisites

None

4. Course Professors

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Title: Part-Time Professor

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5. Course Description

Analytics refers to the ways in which organizations use data to gain insights that lead to fact-based management to drive business decisions and actions. It has become the technology driver of this decade that helps businesses become more effective and efficient in their operations. Business analytics conveys ideas and concepts from both statistics and data mining with the goal of extracting knowledge from real business data and actionable insight for managers. It provides managers with a basic understanding of the main concepts of data analytics and a common language to convey data-driven decision problems so they can better communicate with personnel specializing in data mining or statistics.

While decision makers are using more computerized tools to support their work, consumers are using analytics tools, either directly or indirectly, to make decisions on routine activities such as shopping, health/healthcare, travel, and entertainment.

Students explore key areas of business analytics such as reporting, visualization and prediction to help guide business decisions. Students use current analytics technologies

to create reports, scorecards, and dashboards through guided exercises and case studies involving global companies. In addition, the Internet of Things (IoT) and Big Data are explored. Students discuss the potential that resides in data and the value that data analytics can add to business processes and.

6. Course Learning Objectives

After successfully completing this course, you will be able to:

C01: Outline the core components and technical foundations of business analytics, and describe the evolution of the field.

C02: Demonstrate the attributes of data and apply key data exploration techniques.

C03: Navigate the data model to assess information needs and create queries using several different data sets.

C04: Create an RFM customer segmentation model and incorporate it into ad hoc reporting programs.

C05: Examine the legal and regulatory environment that data scientists work in and consider the ethical and privacy considerations when conducting business intelligence and analytics.

7. Course Modality

This is a fully in-person course where instructors and students share information, ideas, and learning experiences. Students are expected to remain up to date with the deadlines and due dates provided by the instructor.

Minimum technical skills for the course:

- Essential Technological Skills for Students include but are not limited to:
    - Knowledge of how to transfer and share files
    - Understanding of digital storage software
    - Digital presentation skills
    - Advanced word processing skills
- Tips for Learning in an Online Environment
    - Preparing to learn in an online environment
    - Recommended technical requirements

- [Get Microsoft Office for Students,](#) Please note that all Carleton students receive free access to Microsoft 365 / Office.

8. Learning Materials

Textbook

- Sharda, R., Delen, D., & Turban, E. (2018). Business Intelligence, Analytics, and Data Science: A Managerial Perspective 4rth edition. New York, New York: Pearson.
- Optional: G. Keller (2017) Statistics for Management and Economics (Abbreviated), 11th Edition, South-Western, ISBN-10: 1337093459, ISBN-13: 978-1337093453

Other Resources can be

- Self-Directed Learning
- Hybrid Learning Activities
- Group Discussions
- Individual Activities
- Case Studies
- Lectures and Presentations
- Videos
- Quizzes and Tests

9. Grading Scheme

Activity Type	Percent of Total Grade	Due Date
In-Class Group Case Studies 1	6%	May 26th Morning
In-Class Group Case Studies 2	6%	May 26th Afternoon
In-Class Group Case Studies 3	6%	May 27th Morning
In-Class Group Case Studies 4	6%	May 27th Afternoon
Group Case Study Assignment 1 (Take Home)	16%	June 2nd, 11:59 pm
Group Case Study Assignment 2 (Take Home)	30%	June 9th , 11:59 pm
Final Exam (Online through Brightspace)	30%	TBD
Total Possible Points	100%	

The [Carleton University grading system](#) will be used to determine your final course grade. Letter grades correspond to the following percentages:

Grade	Percentage Conversion
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	less than 50

The course instructor determines final grades in this course and must be approved by the Dean. Grades submitted by the instructor are subject to revision and should not be considered final until the Dean has approved them.

Late Assignments

To ensure fairness to all students, penalties will be applied to late assignments: Failure to submit an assignment on time will result in an initial penalty of five (5) percentage points, followed by an additional (2) percentage points per day after that. For example, an assignment that would normally merit a grade of 80% would receive a grade of 75% if submitted after the deadline on the due date, 73% if submitted the following day, and so on. Requests for extension without penalty will be considered in cases of illness, family emergency, or other exceptional circumstances.

A sample rubric to grade the group case studied is in the following. Other rubrics may be used that will be shared/posted in advance:

Category	Not Provided 0%	Below Expectation 60-79%	Meet Expectation 80-94%	Above Expectation 95-100%	Possible
Concepts	No real demonstration of the concept in the case, or a complete lack of understanding	Some concepts are demonstrated	Most concepts are demonstrated	Drawn on concepts beyond the current topic/chapter	10
Context	Case analysis not based on an understanding of the context. No reference to the course learning objectives	Some and/or generic references to the course learning objectives	Deep understanding of (reference to) the course learning objectives	Completely understood and referenced to the course learning objectives	15
Analysis	Not really analyzed	Some parts of the analysis carried out, but with major gap/mistake	a solid analysis of the major issues	Very through and complete analysis	40
Recommendation and Conclusion	No recommendations/conclusion	not realistic and/or relevance recommendations/conclusion	Reasonable and relevant recommendations/conclusion	Thoughtful and realistic recommendations/conclusion	15
Writing	Writing severely impedes the understanding of the case	Several mistakes in writing	1-5 writing-related issues	No writing-related errors (professional writing)	10
Use of External Resources	No external resources are used	Some arguments supported by external sources	Enough arguments supported by external sources	Citations are complete and follow guidelines specified in the assignment	5
Adherence to Course Deliverable Guidelines	Not Followed	Followed a few points of the guideline	Followed most points of the guideline	Followed all points of the guideline	5
Total Possible Mark					100

10. Course Evaluation

At the end of this course, students are encouraged to complete a course evaluation that will be distributed via email and a course link.

11. Course Schedule

Please regularly check and log into Brightspace to review the new content. Configure your notifications to opt into course announcements so that they will be emailed to your Carleton email address.

Date		Topic/Agenda	Activity

May 26th	Morning
	8:35 – 12:45
		▪ An Overview of Business Intelligence, Analytics, and Data Science
		  - Needs for Decision Support and Analytics
		  - Computerized Decision Support to Analytics/Data Science
		  - Framework for Business Intelligence and Analytics Overview
		▪ Descriptive Analytics I: Nature of Data, Statistical Modeling, and Visualization
		  - A Simple Taxonomy of Data
		  - The Art and Science of Data Preprocessing
		  - Statistical Modeling for Business Analytics
		  - Regression Modeling for Inferential Statistics
		  - Business Reporting
		  - Data Visualization and Information Dashboards
			In-Class: Case 1

	12:45 – 13:15	▪ Break	

	Afternoon
	13:15 – 17:25
		▪ Descriptive Analytics II: Business Intelligence and Data Warehousing
		  - Data Warehousing Process
		  - Data Warehousing Architectures
		  - Data Warehouse Development and Implementation Issues
		  - Data Warehouse Administration and Security Issues
		  - Business Performance Management and Measurement
		  - Six Sigma as a Performance Measurement System
			In-Class: Case 2

May 27th	Morning
	8:35 – 12:45
		▪ Predictive Analytics I: Data Mining Process, Methods, and Algorithms
		  - Data Mining Concepts and Applications
		  - Data Mining Process, Methods, and Software Tools
		▪ Prescriptive Analytics: Optimization and Simulation
		  - Structure of Mathematical Models for Decision Support
		  - Decision Modeling with Spreadsheets
		  - Mathematical Programming Optimization
		  - Decision Analysis with Decision Tables and Decision Trees
		  - Introduction to Simulation
			In-Class: Case 3

	12:45 – 13:15	▪ Break	

	Afternoon
	13:15 – 17:25
		▪ Big Data Concepts and Tools
		  - Definition of Big Data
		  - Fundamentals of Big Data Analytics and Technologies
		▪ Future Trends, Privacy, and Managerial Considerations in Analytics
		  - Internet of Things
		  - Cloud Computing and Business Analytics
		  - Impacts of Analytics in Organizations: An Overview
		  - Data Scientist as a Profession
			In-Class: Case 4

12. Contribution to Program Learning Goals

MBA Learning Goal	Covered	Introduced	Taught but not Assessed	Taught and Assessed
MB1 Leadership and Collaboration Graduates will be equipped for leadership and collaboration.	No	Yes	No	No
MB2 Communication Graduates will be effective communicators	No	No	No	No
MB3 Critical Thinking and Problem-Solving Graduates will be skilled in critical thinking and problem solving.	Yes	Yes	Yes	Yes
MB4 Functional Knowledge Graduates will have knowledge that is relevant to business and be able to apply that knowledge to address business issues, opportunities, and risks.	Yes	Yes	Yes	Yes
MB5 Global Awareness Graduates will have an appreciation of the global environment of business.	Yes	Yes	Yes	Yes
MB6 Ethics and Responsible Management Graduates will apply ethical considerations and principles of responsible management in business decision-making.	Yes	Yes	Yes	Yes

13. Additional Course Information

Course Sharing Websites
Materials created for this course (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the author(s). They are intended for personal use and may not be reproduced or redistributed without prior written consent of the author(s).

Group work
The Sprott School of Business encourages group assignments in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, follower-ship and other group skills. Group assignments are also good for learning integrative skills for putting together a complex task. Your professor may assign one or more group tasks/assignments/projects in this course. Before embarking on a specific problem as a group, it is your responsibility to ensure that the problem is meant to be a group assignment and not an individual one.

Academic Regulations
University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the University's website, here:

http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/

Requests for Academic Accommodation
You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy accommodation
Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities
If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

Survivors of Sexual Violence
As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the University and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the University, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline

Academic Integrity
Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated.

Process: If an alleged violation occurs, all relevant documentation will be forwarded to the Dean. If the allegation proves true, the penalties may include; a grade of Failure on the submitted work and/or course; academic probation; a refusal of permission to continue or to register in a specific degree program; suspension from full-time studies; suspension from all studies at Carleton; expulsion from Carleton, amongst others. For a first offence, at a minimum, the penalty assigned will normally be a zero on the submitted work and at least a minimum full grade reduction of the final course grade. For a second offence, at a minimum, the penalty assigned will normally lead to a suspension from studies.

Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at: https://carleton.ca/registrar/academic-integrity/.

Sprott Student Services
The Sprott Undergraduate Student Services Office offers program advising and overall student success support. Our team is available to discuss your academic goals and your program progression plans. We can also work with you to develop strategies for success, including study skills for Business. If you experience any difficulty this term or if you would like to access support, please contact our team at bcom@sprott.carleton.ca or at bib@sprott.carleton.ca.

Centre for Student Academic Support

The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: carleton.ca/csas.

Important Information:

- Students must always retain a copy of all work that is submitted.

- All final grades are subject to the Dean's approval.

- For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting https://carleton.ca/its/get-started/new-students-2/