

3KE3 - C03
Management of Enterprise Data Analytics
Winter 2023 Course Outline

Information Systems
DeGroote School of Business
McMaster University

COURSE OBJECTIVE

This course aims to provide students with an in-depth look at specific underlying techniques, technologies, and real-world issues related to enterprise value generation through using data analytics tools. The course provides several opportunities to explore and understand the management of enterprise data analytics through multiple hands-on activities, the analysis of case examples, and discussions.

INSTRUCTOR AND CONTACT

Kimia Ansari	Mahdi Abouei	Bitia Mehri
Course Instructor	Teaching Assistant	Teaching Assistant
ansark1@mcmaster.ca	aboueim@mcmaster.ca	mehrib@mcmaster.ca
Office: GSB 105A	Office: TBD	Office: TBD
Drop-in Office Hours: Mondays (7:00 PM – 8:00 PM)	Office Hours: by appointment	Office Hours: by appointment

Class Meeting Time and Location for <i>in-person</i> Sessions				
Section	Days	Time	Location	Website
03	Mondays	4:30 PM – 6:20 PM	PGCLL M22	http://avenue.mcmaster.ca
All communication will be through course Avenue.				

COURSE ELEMENTS

Credit Value: 3	Leadership: Yes	IT skills: Yes	Global view: Yes
Avenue: Yes	Ethics: Yes	Numeracy: Yes	Written skills: Yes
Participation: Yes	Innovation: Yes	Group work: Yes	Oral skills: Yes
Evidence-based: Yes	Experiential: Yes	Final Exam: Yes	Guest speaker: Yes

COURSE DESCRIPTION

Data Analytics allows enterprises to build competitive strategies around data-driven insights and derive value from data. This course provides students with an overview of enterprise data analytics and an introduction to the concepts which underlie its effective deployment and management. The course addresses some of the basic procedures and controls of Big Data which provide management with a basis for deriving maximum value from analytics projects. This course incorporates a variety of teaching and learning methods including lectures, hands-on-activities, case studies, and readings. The course encompasses managerial, technical, and statistical perspectives, showing how each area is dependent on the other to make enterprise analytics work.

LEARNING OUTCOMES

Upon completion of this course, students will be able to:

- Understand the concepts of descriptive, predictive, and prescriptive analytics.
- Discuss data analytics software tools, their applicability, and how enterprises use them.
- Discuss up-to-date procedures, techniques, and standards for ongoing data analytics projects.
- Understand the concept of Big Data and its characteristics.
- Understand issues related to the management of enterprise data analytics, such as privacy, and security concerns.

COURSE MATERIALS AND READINGS

From Titles Bookstore (Required)

- Sharda, Delen & Turban, “*Business Intelligence, Analytics, and Data Science: A Managerial Perspective*, 4/e” Pearson Education Canada, 2018

[Link to purchase the material from the campus store.](#)

Printed version: \$140

E-Text (Permanent access): \$79.95

E-Text (6-month access): \$55.95

Additional Reading (Optional)

- Camm, J.D., Cochran, J. J., Fry, M. J., and Ohlmann, J. W. (2021). “*Business Analytics*”. 4th edition. Cengage Learning

COURSE OVERVIEW AND ASSESSMENT

Learning in this course results primarily from assigned readings, class lectures and discussions, assignments, tests, and term projects. Missed assignments/exams will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF.

Evaluation Components and Weights

Grade Component	Description	%
Midterm Exam	Covers material from BOTH lectures and textbook chapters 1,2,3, and 4 only . This is a closed book exam and will be comprised of multiple-choice & true/false questions. The date/time of the midterm will be scheduled for week 8 (after midterm recess). Check Avenue closer to this week for more information about the exam.	15%
Final Exam	Final exam will be cumulative . The exam covers materials from BOTH all lectures and all chapters of the textbook (1,2,3,4,5,6,7, and 8). This is a closed book exam and will be comprised of multiple-choice & true/false questions. The date/time of the final exam will be made known once the master final exam schedule is finalized by the University.	30%
Term Project	Presentations: Scheduled for weeks 4,5,6,7,9,10,11, and 13.	10%
Hands-on Assignment 1	“ Tableau : Descriptive Analytics” Assignment. This is an individual assignment. More details will be made available on AVENUE once the assignment is released. The assignment will be released in Avenue on Monday, Jan. 23. The due date is Monday, Feb. 06 at 11:59 PM .	7.5%
Hands-on Assignment 2	“ JMP : Descriptive & Predictive Analytics” Assignment. This is an individual assignment. More details will be made available on AVENUE once the assignment is released. The assignment will be released in Avenue on Monday, Feb. 06. The due date is Monday, Feb. 20 at 11:59 PM .	7.5%
Hands-on Assignment 3	“ RStudio : Prescriptive Analytics” Assignment. This is an individual assignment. More details will be made available on AVENUE once the assignment is released. The assignment will be released in Avenue on Monday, Mar. 13. The due date is Monday, Mar. 27 at 11:59 PM .	7.5%
Hands-on Assignment 4	“ Excel : PivotTable, Macro, & VBA” Assignment. This is an individual assignment. More details will be made available on AVENUE once the assignment is released. The assignment will be released in Avenue on Monday, Mar. 27. The due date is Monday, Apr. 10 at 11:59 PM .	7.5%
Synchronous Participation	Students are encouraged to actively engage in class discussions through Top Hat (7%). Students should also submit presentation peer-evaluation forms (3%).	10%
Asynchronous Participation	After each session, students should read some parts of the chapters and answer associated quiz questions by next Monday at 08:30 AM .	5%
Total		100%

Exams

There will be two written exams: (1) a midterm exam and (2) a final exam. Both exams cover concepts from BOTH lectures and book chapters, and they both are closed-book exams. **The midterm exam covers materials in the first half of the course and the final exam covers all the materials in the course.** More details about the midterm exam will be given prior to the date of the exam.

NOTE: Alternate (make up) exam dates

For students who apply to miss a midterm, the Student Experience (SE) Office will schedule the alternate write dates. These dates are only for students who submit an email request to SE office (buscom@mcmaster.ca) **10 business days prior to the midterm date for the following reasons:**

- Religious observance (RISO)
- Varsity sports requirements
- Midterm conflicts
- Known absence (e.g., scheduled medical procedure)

Term Project

Students are required to do a project including a group **presentation** about a topic that should be selected from the list at the end of this outline in week 2. For this group work, all team members share the same grade.

Assignments

The assignments are designed for students to gain hands-on experience in data analytics techniques. These assignments should be done individually.

Four assignments have been devised to help you better understand the related concepts given in the lectures and/or textbook. The objective of the *first assignment* is to provide students with some hands-on experience with Tableau which is one of the most popular tools for visualization. The objective of the *second assignment* is to provide students with some hands-on experience with JMP and how it is used to for data mining. The objective of the *third assignment* is to practice the use of RStudio for Optimization, sensitivity analysis and simulation and how this support decision-making in organizations. The objective of the *fourth assignment* is to provide students with some hands-on experience with Excel Pivot Table, Macro, and VBA which help students manage a large volume of data. Details of each assignment will be described in class.

All answers to assignments must be uploaded to Avenue account, as per instructions provided on the assignments.

Assignments will be accepted after the due date, but **a late penalty will apply where 20% will be deducted from the assignment for each day late.** It is each student's responsibility to submit the assignment in advance of the deadline. Note that work-in-progress can be uploaded to AVENUE – the last version uploaded only will be marked.

Class Participation

It is very important that you prepare for each class. Debate and challenge are important activities that help in the learning process and the willingness of students to engage in such activities is

appreciated. Hence, students are encouraged to well prepared before each class and engage actively for in class discussions.

There are two types of class participation including asynchronous and synchronous.

- **Asynchronous (5%)**
 - Reading some parts of the book after each class and answering associated questions in Avenue (quiz).
- **Synchronous (10%)**
 - Answering discussion, multiple choice, true/false, etc. questions in Top Hat (7%).

We will be using Top Hat (www.tophat.com) for class participation. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message. For instructions on how to create a Top Hat account and enrol in our Top Hat Pro course, please refer to the invitation sent to your school email address or consult Top Hat's Getting Started Guide (<https://bit.ly/3ITGMLw>).

If you already have a Top Hat account, go to the course within Avenue to Learn and click on the link for Top Hat. If you are new to Top Hat, you will be prompted to create an account once you click on the link for Top Hat.

*If you do not click the launch link, then your grades cannot be synced to Avenue to Learn during the semester. Make sure that you click the link at least once to ensure your grades properly sync. **The class join code will be announced on Avenue.***

- Submitting project presentation peer evaluation form after each presentation (3%).

Synchronous marks will be based on the quantity (participation) and/or quality (accuracy) of your in-class contributions. **Mere attendance in class without active participation does not earn you any marks.**

COMMUNICATION AND FEEDBACK

Students who wish to correspond with instructors or TAs directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student. Emails regarding course issues should NOT be sent to the Area Administrative Assistants. Instructors are required to provide evaluation feedback for at least 10% of the final grade to students prior to Week #8 in the term. Instructors may conduct an informal course review with students by Week #4 to allow time for modifications in curriculum delivery.

REQUESTING RELIEF FOR MISSED ACADEMIC WORK

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work” and the link below:

<http://ug.degrootemcmaster.ca/forms-and-resources/missed-course-work-policy/>

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behavior in all aspects of the learning process. The academic credentials you earn are rooted in principles of honesty and academic integrity. **It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behavior can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

The following illustrates only three forms of academic dishonesty:

- Plagiarism, e.g., the submission of work that is not one’s own or for which another credit has been obtained.
- Improper collaboration in group work.
- Copying or using unauthorized aids in tests and examinations.

AUTHENTICITY/PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software.

All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, other software, etc.). For more details about McMaster’s use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use online elements (e.g., e-mail, Avenue to Learn (A2L), Learn Link, web pages, Top Hat, Moodle, Thinking Cap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, usernames for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities](#) (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in university activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g., use of Avenue 2 Learn, MS Teams, or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact [Student Accessibility Services](#) (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by university instructors. The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution or by a student for the purpose of personal study. Students should be aware that their voices and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your enrolment in Commerce 3KE3 will be considered to be an implicit acknowledgement of the course policies outlined above, or of any other, that may be announced during lecture and/or on A2L. **It is your responsibility to read this course outline, familiarize yourself with the course policies and act accordingly.** Lack of awareness of the course policies **cannot be invoked** at any point during this course for failure to meet them. It is your responsibility to ask for clarification on any policies that you do not understand.

PLACES TO GET HELP WITH YOUR WORK

- For help with course content, your instructor is the best source for help. Feel free to ask the professor for explanation of any topic covered in the course. Be sure to read the assigned materials before contacting the course instructor. The best way to interact with your instructor is e-mail. For help with assignments, it is best to first talk to the Teaching Assistant for the course (contact information can be found above).

COURSE SCHEDULE

Commerce 3KE3: Management of Enterprise Data Analytics Winter 2023 Course Schedule

Week	Date	Lecture Topic	Assignment/ Term Project Presentation
1	Jan. 09	Course Overview An Overview of Business Intelligence, Analytics, and Data Science I	- Term Project Description
2	Jan. 16	An Overview of Business Intelligence, Analytics, and Data Science II	- Team up (5 students in each group) - Select a topic Due: Jan. 18 – 11:59 PM

Week	Date	Lecture Topic	Assignment/ Term Project Presentation
3	Jan. 23	Descriptive Analytics I <i>Tutorial Assignment 1:</i> Tableau: Descriptive Analytics	Assignment #1 Release: Jan. 23 – 07:00 PM Due: Feb. 06 – 11:59 PM
4	Jan. 30	Descriptive Analytics II	Group A Presentation
5	Feb. 06	Predictive Analytics I <i>Tutorial Assignment 2:</i> JMP: Descriptive & Predictive Analytics	Assignment #2 Release: Feb. 06 – 07:00 PM Due: Feb. 20 – 11:59 PM Group B Presentation
6	Feb. 13	Predictive Analytics II	Group C Presentation
-	Feb. 20 to Feb. 26 NO CLASSES – MIDTERM RECESS		
7	Feb. 27	Chapters Review for the mid- term exam: Chapters 1,2,3,4.	Group D Presentation
8	Mar. 06	NO CLASS - MIDTERM EXAM Tentative Schedule: Tuesday Mar. 07, 06:30 PM – 08:00 PM	
9	Mar. 13	Prescriptive Analytics: Optimization and Simulation <i>Tutorial Assignment 3:</i> RStudio: Prescriptive Analytics	Assignment #3 Release: Mar. 13 – 07:00 PM Due: Mar. 27 – 11:59 PM Group E Presentation
10	Mar. 20	Various Concepts in Data mining	Group F Presentation
11	Mar. 27	Big Data Concepts and Tools <i>Tutorial Assignment 4:</i> Excel: PivotTable, Macro & VBA	Assignment #4 Release: Mar. 27 – 07:00 PM Due: Apr. 10 – 11:59 PM Group G Presentation
12	Apr. 03	Future Trends, Privacy and Managerial Considerations in Analytics.	Guest Speaker
13	Apr. 10	Chapters Review for the final term exam.	Group H & I Presentations

Term Project Presentation Groups - Topics		
Week	Group	Topic
4	A	Data visualization business applications (Examples, Tools, etc.)
5	B	Programing languages in data analytics (R, Python, etc.)
6	C	NLP business applications (Examples, Tools, etc.)
7	D	Social media analytics (Examples, Tools, etc.)
9	E	Simulation business applications (Examples, Tools, etc.)
10	F	Location analytics applications (Examples, Tools, etc.)
11	G	The dark side of big data analytics
13	H	The top five myths of big data analytics
13	I	New trends and technologies in data analytics