Commerce 3KE3
Management of Enterprise Data Analytics
Winter 2026 Course Outline

Information Systems
DeGroote School of Business
McMaster University

INSTRUCTOR AND CONTACT

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COURSE INFORMATION

Class Meeting Times and Locations for Synchronous Sessions

Section	Days	Times	Location
1	Tuesdays	08:30am-10:20am	see mosaic/avenue
2	Mondays	12:30pm-2:20pm	

All communication will be through course Avenue.

COURSE OBJECTIVE

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

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(s):	No

COURSE DESCRIPTION

Data Analytics allow organizations 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 artificial intelligence (AI). The course addresses some of the basic procedures and controls of Big Data and AI 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.

IMPORTANT LINKS

- Mosaic
- Avenue to Learn
- Student Accessibility Services - Accommodations
- McMaster University Library

COURSE LEARNING OUTCOMES

Upon completion of this course, students will be able to complete the following key tasks:

- Understand the concepts of descriptive, predictive, and prescriptive analytics.
- Describe popular data analysis software tools and their applicability, strengths, and weaknesses.
- Be knowledgeable about up-to-date procedures, techniques, and standards to ongoing data analytics projects.
- Understand the concept of Big Data, AI and their characteristics.
- Understand ethical issues related to the management of enterprise data analytics, such as privacy, and security concerns.

REQUIRED COURSE MATERIALS AND READINGS

Required Textbook

Sharda, R., Delen, D., & Turban, E. Business Intelligence, Analytics, Data Science, and AI (5th ed.), Pearson eText, 6-month access.
ISBN: 9780138043308

Students can access the eText in **one** of the following ways:

1. ***Immediate Access (default / recommended)***
   - All enrolled students get **day-1 digital access** through Avenue.

- **First 2 weeks are free**; after the deadline, staying opted in charges the **discounted IA price (≈$62.95)** to your student account. If you do not want to go with this option, you should opt-out before the 2-week trial ends.
- Use this link, choose your course and section to see the book through immediate access:
https://campusstore.mcmaster.ca/Search?data=9780138043308&search=Search

2. *Direct digital purchase (if you opt out of IA)*

- Buy the same eText separately from the Campus Store (regular digital price ≈$74.95):
https://campusstore.mcmaster.ca/Item?item=9780138043308#item=9780138043308

Note: Both exams are **closed book**; the eText (IA or purchased) **cannot be used during tests/exams**.

CLASS FORMAT

This is an in-person 2-hour synchronous and 1-hour asynchronous work course. The two hours will consist of lecture, lengthier discussion, and more in-depth discussion of the topics related to the lecture.

COURSE EVALUATION

Components and Weights

The components of the course grade will be calculated as follows:

Component	Description	%
Midterm	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	Covers material from BOTH lectures and textbook chapters 5,6,8, 10 and 11 only. This is a closed book exam and will be comprised of multiple choice & true/false questions. The date of the final exam will be made known once the master final exam schedule is finalized.	25%
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 on Avenue on **Jan. 16.** The due date is **Jan. 30 at 5pm.** *-The office hours will be announced on Avenue*	8%

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 on Avenue on **Jan. 30.** The due date is **Feb. 13 at 5pm.** *-The office hours will be announced on Avenue.*	8%
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 on Avenue on **Feb. 27.** The due date is **Mar. 13 at 5pm.** *-The office hours will be announced on Avenue*	8%
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 on Avenue on **Mar. 13.** The due date is **Mar. 27 at 5pm.** *-The office hours will be announced on Avenue*	8%
Term Project	**Group Presentations**: Scheduled for weeks 4,6,9,10,11,12 and 13. • Each group must email their chosen topic and group members to the instructor **by January 16 at 5:00 p.m.** • Topics will be posted on Avenue on week 1.	10%
Weekly online content Quizzes	Weekly online content quizzes cover the content of the chapter/s related to each week. Content quiz is accessible through Avenue→ Assessment → Quizzes.	5%
Class Participation	Students are encouraged to engage actively in class discussions related to the material being presented by the instructor and TAs.	13%
Total		100%

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

COURSE DELIVERABLES

In-Class Participation (13%)

Students are encouraged to engage actively in class discussions related to the material being presented by the instructor. The instructor and the TA will feel free to cold-call on anyone at any time. Hence, 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 with their classmates is appreciated. Opportunities for in-class participation include:

- Taking part in discussions during the lecture part of class by:

- Engaging in class exercises
- Asking questions
- Responding to questions posed by the instructor or other students
- Making relevant comments on material covered

Name cards and class pictures are used to help give credit for your participation. You must have a name card with your **full first and last name** clearly written and displayed in front of you for every class. If you are absent from any class for a legitimate reason, you should indicate that to the instructor through e-mail so that you are not penalized for lack of participation during that class.
Participation marks will be based on both the quantity and quality of your in-class contributions. **Mere attendance in class without participation does not earn you any participation marks. The instructor will strive to give all students equal contribution chances, but you have to show interest in participating by raising your hand.**

Weekly Online Quizzes (5%)

After each class, students are expected to read the assigned sections of the textbook and complete a short **online content quiz** on Avenue.

- Quizzes cover the **chapter(s) and material related to that week's content**.
- Quizzes are accessible through **Avenue → Assessments → Quizzes**.

Details about quiz availability and deadlines will be posted on Avenue.

Exams (40%)

There will be two written tests: (1) a midterm exam, and (2) a final exam (this exam will be non-cumulative). Both exams cover concepts from **BOTH lectures and the assigned readings** and they both are **closed-book** exams.

Term Project (10%)

Students are required to complete a **group term project**, which includes an in-class presentation on a topic related to the course.

- A list of **approved project topics** will be posted on Avenue and introduced in **Week 1**. Students **may not choose their own topic**; each group must select one topic from the provided list.
- **Group formation and topic selection** will take place during **Weeks 1 and 2**.
- This is a **team-based assessment**: all group members will normally receive the **same grade** for the term project.

Assignments (32%)

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 support decision making in organizations. The objective of the *third assignment* is to provide students with some hands-on experience with RStudio for Optimization, sensitivity analysis and simulation and how this support decision-making in organizations. The objective of the *fourth assignment* is to practice the use of the Pivot Table, Macro, and VBA which help you manage the large volume of data. Details of each assignment will be described in class.

LATE ASSIGNMENTS

All answers to assignments must be uploaded to Avenue account, as per instruction provided on the assignments.
Late submissions are accepted; however, a penalty of 20% of the earned grade will be deducted for every 24-hour period past the deadline. 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.

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.

Students who have concerns about the course content, evaluation methods, or delivery should first reach out to the course instructor. If your concern remains unresolved after speaking with the instructor, you may then reach out to the relevant Area Chair for further consideration.

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.degroote.mcmaster.ca/forms-and-resources/missed-course-work-policy/

Non-Commerce students must follow the Missed Course Work protocols outlined by their home faculty and Program Office.

COURSE MODIFICATION

From time to time there may be a need to remove/add topics or to change the schedule or the delivery format. If these are necessary, you will be given as much advance notice as possible.

GENERATIVE AI

Generative AI Policy – Some Use Permitted
Students may use generative AI tools in this course **as a support tool**, but not as a substitute for their own work or for proper research.
Allowed (no problem):

- Using AI to get **help with software** (e.g., "How do I create this chart in Tableau / JMP / R / Excel?").
- Brainstorming ideas, clarifying concepts, or improving the **clarity/grammar** of your own writing.

Presentations & research-type content:

- For the **term project / presentations**, you **may not** rely on generative AI as your source of information.
- Any factual content (definitions, statistics, explanations, claims about a company/industry, etc.) must be supported by **proper sources** (e.g., articles, textbooks, reports, websites) and **cited** in your slides.
- Because generative AI can be inaccurate or biased, you must **verify information** it suggests and cite the underlying human sources you actually use. "ChatGPT said…" is not an acceptable citation.

Not allowed:

- Submitting AI-generated analysis, explanations, or slides as if they were entirely your own original work.
- Using generative AI during any **quizzes, midterm, or final exam** (these are closed-book, no-AI assessments).

Using AI **outside these guidelines**, or presenting AI-generated content as your own without proper research and citation, may constitute **academic dishonesty**. In alignment with McMaster academic integrity policy, it "shall be an offence knowingly to … submit academic work for assessment that was purchased or acquired from another source." When substantial parts of an assignment are effectively **outsourced to generative AI** and submitted as if they were the student's own work, this can fall under **"contract cheating,"** defined as the "outsourcing of student work to third parties" (Lancaster & Clarke, 2016, p. 639), with or without payment. In such cases, charges of academic dishonesty may be brought forward to the Office of Academic Integrity.

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. 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 behaviour 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*, 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 other 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 on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, 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, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course.

The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any

questions or concerns about such disclosure please discuss this with the course instructor.

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, WebEx 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 voice 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, to familiarize yourself with the course policies and to 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 Assistants for the course (contact information can be found above).

COURSE SCHEDULE

Management of Enterprise Data Analytics
Winter 2026 Course Schedule

Week	Date	Topic covered	Readings/Assignments
1	Jan. 5-6	Introduction to the course An Overview of Business Intelligence, Analytics, and Data Science	- Term Project Description
2	Jan. 12-13	Artificial Intelligence, Robotics, and Smart Systems	Team up (5-6 students in each group)
3	Jan. 19-20	Descriptive Analytics I: Nature of Data, Big Data and Statistical Modeling ***Assignment 1:*** Tableau: Descriptive Analytics assignment overview	**Assignment #1 released Release: Jan. 16 – 05:00 PM Due: Jan. 30 – 05:00 PM**
4	Jan. 26-27	Descriptive Analytics II: Business Intelligence, Data Warehousing, Visualization	Group Presentation
5	Feb. 2-3	Predictive Analytics I: Data Mining Process, Methods, and Algorithms ***Assignment 2:*** JMP: Descriptive & Predictive Analytics assignment overview	**Assignment #2 released Release: Jan. 30 – 05:00 PM Due: Feb. 13 – 05:00 PM**
6	Feb. 9-10	Chapters Review for mid-term exam	Group Presentation
Feb. 16-17 NO CLASSES – MIDTERM RECESS			
7	Feb. 23-24	**Midterm exam**	
8	Mar. 2-3	Predictive Analytics II: Text, Web, and Social Media Analytics ***Assignment 3:*** RStudio: Prescriptive Analytics	**Assignment #3 released Release: Feb. 27 – 05:00 PM Due: Mar. 13 – 05:00 PM**
9	Mar. 9-10	Prescriptive Analytics: Optimization and Simulation	Group Presentation
10	Mar. 16-17	Various Concepts in Data mining ***Assignment 4:*** Excel: PivotTable, Macro & VBA assignment overview	**Assignment #4 released Release: Mar. 13 – 05:00 PM Due: Mar. 27 – 05:00 PM** Group Presentation
11	Mar. 23-24	New AI-Based Trends in Analytics and Data Science	Group Presentation
12	Mar. 30-31	Ethical, Privacy and Managerial Considerations in Analytics	Group Presentation
13	Apr. 6-7	Chapters Review for Final exam	Group Presentation