

**Commerce 1DA3**  
**Business Data Analytics**  
**Winter 2026 Course Outline**

**Operations Management Area**  
**DeGroote School of Business**  
**McMaster University**

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***COURSE OBJECTIVE***

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*This course provides an introduction to the application of inferential data analysis and statistics in decision-making for business problems. Various data analytics concepts are discussed and used to address problems, including probability concepts, interval and confidence estimation, hypothesis testing, simple and multiple linear regression, etc.*

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***INSTRUCTORS***

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**C01, C04 and C05:**  
**Dr. Behrouz Bakhtiari**  
Instructor  
[bakhtib@mcmaster.ca](mailto:bakhtib@mcmaster.ca)  
**Drop-in Hours: TBD**

**C02 and C06:**  
**Maryam Mashayekhi**  
Instructor  
[masham3@mcmaster.ca](mailto:masham3@mcmaster.ca)  
**Drop-in Hours: TBD**

**C03:**  
**Mingyao Song**  
Instructor  
[songm45@mcmaster.ca](mailto:songm45@mcmaster.ca)  
**Drop-in Hours: TBD**

**C07:**  
**Hamedhossein Afshari**  
Instructor  
[afsharh@mcmaster.ca](mailto:afsharh@mcmaster.ca)  
**Drop-in Hours: TBD**

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***COURSE ELEMENTS***

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Credit Value: 3	Leadership: No	IT skills: Yes	Global view: Yes
A2L: Yes	Ethics: Yes	Numeracy: Yes	Written skills: No
Participation: Yes	Innovation: No	Group work: No	Oral skills: No
Evidence-based: Yes	Experiential: Yes	Final Exam: Yes	Guest speaker(s): No

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## ***COURSE INFORMATION***

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*Lectures: 3hr x1/wk*

*Tutorials: 1hr/wk*

*Course Delivery Mode: In-person*

*Course Description: The main emphasis will be on the applications of inferential data analysis in business. Students learn different aspects of working with and making sense of data and learn how to use data to provide insight into different business problems. Students in this course will engage with concepts from descriptive, diagnostic as well as predictive analytics to address problems from different disciplines of business. Some examples include the application of visualization, probabilities, confidence intervals, hypothesis testing, simple and multiple regressions, etc. Application of data analysis and statistics techniques with spreadsheets (MS Excel) will also be discussed in the course using various datasets.*

*Numerous examples will illustrate the practical applications of statistical analysis in business. Emphasis will be placed on connecting theory to real-world problems from different business disciplines.*

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## ***IMPORTANT LINKS***

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- [Mosaic](#)
- [Avenue to Learn](#)
- [Student Accessibility Services - Accommodations](#)
- [McMaster University Library](#)

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## ***LEARNING OUTCOMES***

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This course deals with basic statistical methods, in converting data into information, and further yet - into knowledge. Primary focus is on business related data, but data coming from other sources (e.g., economic, social, etc.) will also be explored, analyzed and discussed. Upon completion of the course, students will be able to:

- understand, describe, summarize, visualize and interpret data (both qualitative and quantitative)
- understand randomness and basic probability concepts (random variables, probability density functions, etc.)
- estimate, test and draw inferences about important characteristics of data

- identify the hypothesis that needs to be tested and conduct hypothesis testing
- understand output of different statistical analyses (outputs are usually similar regardless of the software used to perform the analysis).
- Understand, test and draw inference on comparisons between parameters relating to two or multiple populations
- understand correlation and measure the strength of linear correlation between variables.
- understand and use simple and multiple regression methods to perform predictive analytics based on data provided.
- Perform various data analysis techniques using MS Excel and various datasets.

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### ***COURSE MATERIALS AND TEXTS***

**Required:** Slides (and other material) will be available on Avenue To Learn (<http://avenue.mcmaster.ca>)

- Business Statistics (Fourth Canadian Edition) by Sharpe, De Veaux, Velleman and Wright. ISBN: 978-0136726548 (the ISBN is for the physical book only, the version that comes with MyStatLab has a different ISBN).
- Note: MyStatLab is NOT required and is completely optional.

The textbook (hard copy or electronic) can be purchased through the campus bookstore. Course ID has been posted on Avenue to Learn (announcement section).

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### ***COURSE EVALUATION***

A breakdown of the course requirements and expectations including the weight given to each and due date are outlined below. Please note, missed tests/exams will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF. Your overall mark will be calculated as follows.

<b>Component</b>	<b>weight</b>
4 online Quizzes-submitted through Avenue to Learn	25%
Midterm exam	30%
Excel Assignment	5%
Final Exam	40%
<b>Total</b>	<b>100%</b>

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## ***COURSE DELIVERABLES***

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### **Course Deliverables**

#### ***Quizzes (25% - 4 online quizzes)***

The 4 quizzes combined are worth 25% of your overall grade (6.25% each) and will be marked individually. Quizzes will be submitted online (on Avenue to Learn) and marked automatically. The following table shows the dates (tentative) when each quiz will be available.

Quiz number	Date available (tentative)
1	January 28 to February 1
2	February 11 to February 15
3	March 11 to March 15
4	March 25 to March 29

Once available, each student will have 1 attempt in the quiz. Material covered in each quiz will be announced on Avenue to Learn. The quizzes are individual and open-book.

#### ***Midterm Exam (30%)***

The midterm exam is mandatory. It is in-person, individual and closed-book. The exam is scheduled as,

Exam	Date	Time
Midterm	Saturday, February 28	9:00AM – 11:30AM

#### ***Excel Assignment (5%)***

There will be a small assignment/project due on the last day of classes. You will be provided with data sets and will need to conduct data analysis based on the material taught in the course using MS Excel. The details will be shared on Avenue. The assignment is an individual evaluation component.

#### ***Final Exam (40%)***

The final exam is cumulative. However, several of the chapters already tested in the midterm exam will be removed from the material covered in the final exam. The time of the final exam will be announced after the schedule is determined by the office of registrar. The final exam will be in-person and closed-book.

### **Tutorials**

Tutorial sessions are run by a Teaching Assistant. During these sessions additional practice problems from the material already discussed in the course will be solved and reviewed.

### **MyStatLab**

The use of MyStatLab is **NOT** mandatory for this course and is absolutely optional. If you choose to purchase MyStatLab code with your hardcopy or eText, you still need to register on the publisher's website to access it.

<https://www.pearsonmylabandmastering.com>

In order to register as “Student” you require an access code (the MyStatLab code that you purchased) as well as a course ID. Course ID has been posted on Avenue to Learn (announcement section).

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### ***COMMUNICATION AND FEEDBACK***

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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. All students must receive feedback regarding their progress prior to the final date by which a student may cancel the course without failure by default.

- For Level 1 and Level 2 courses, this feedback must equal a minimum of 20% of the final grade.
- For Level 3 courses and above, this feedback must equal a minimum of 10% of the final grade.

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.

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### ***REQUESTING RELIEF FOR MISSED ACADEMIC WORK***

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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.degrotee.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.

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### ***COURSE MODIFICATION***

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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.

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### ***GENERATIVE AI***

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Students are not permitted to use generative AI to answer assignment or quiz questions in this course. 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”. This includes work created by generative AI tools. Also state in the policy is the following, “Contract Cheating is the act of “outsourcing of student work to third parties” (Lancaster & Clarke, 2016, p. 639) with or without payment.” Using Generative AI tools is a form of contract cheating. Charges of academic dishonesty will be brought forward to the Office of Academic Integrity.

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### ***ACADEMIC INTEGRITY***

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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.

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### ***AUTHENTICITY/PLAGIARISM DETECTION***

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***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](http://www.mcmaster.ca/academicintegrity).

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### ***COURSES WITH AN ON-LINE ELEMENT***

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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.

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### ***ONLINE PROCTORING***

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**Some courses may** use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

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### ***CONDUCT EXPECTATIONS***

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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.

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### ***ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES***

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

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

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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.

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### ***COPYRIGHT AND RECORDING***

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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.

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### ***EXTREME CIRCUMSTANCES***

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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.

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***ACKNOWLEDGEMENT OF COURSE POLICIES***

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Your enrolment in Commerce 1DA3 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.

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***COURSE SCHEDULE***

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**Commerce 1DA3**  
**Business Data Analytics**  
**Winter 2026 Course Schedule**

**Note:** Depending on the pace of the lectures, the schedule below may change.

**Note:** If, for any reason, any section or part from the material stated in the table below is to be changed/removed from the covered material, it will be announced on the course webpage on Avenue.

<b>Week (excl. reading week)</b>	<b>Reading Material</b>
#1	<ul style="list-style-type: none"> <li>• Background material.</li> <li>• <b>Chapter 5:</b> Sections 5.1, 5.2, 5.3, 5.4, 5.8, 5.9, 5.11, 5.12, 5.14.</li> </ul>
#2	<ul style="list-style-type: none"> <li>• <b>Chapter 5:</b> Sections 5.1, 5.2, 5.3, 5.4, 5.8, 5.9, 5.11, 5.12, 5.14.</li> <li>• <b>Chapter 6:</b> Sections 6.1 to 6.5 (inclusive).</li> </ul>
#3	<ul style="list-style-type: none"> <li>• <b>Chapter 7:</b> Sections 7.1 to 7.8 (inclusive).</li> </ul>
#4	<ul style="list-style-type: none"> <li>• <b>Chapter 8:</b> Sections 8.1, 8.4, 8.5, 8.6.</li> <li>• <b>Chapter 9:</b> Sections 9.1, 9.2, 9.4, 9.6, 9.8, 9.9, 9.10.</li> </ul>
#5	<ul style="list-style-type: none"> <li>• <b>Chapter 9:</b> Sections 9.1, 9.2, 9.4, 9.6, 9.8, 9.9, 9.10.</li> <li>• <b>Chapter 10:</b> Sections 10.1 to 10.5 (inclusive).</li> </ul>
#6	<ul style="list-style-type: none"> <li>• <b>Chapter 10:</b> Sections 10.1 to 10.5 (inclusive).</li> <li>• <b>Chapter 11:</b> Sections 11.1 to 11.6 (inclusive).</li> </ul>
#7	<ul style="list-style-type: none"> <li>• <b>Chapter 11:</b> Sections 11.1 to 11.6 (inclusive).</li> <li>• <b>Chapter 12:</b> Sections 12.1 to 12.10 (inclusive).</li> <li>• Note: in 12.7, one-sided confidence interval is not covered.</li> </ul>
#8	<ul style="list-style-type: none"> <li>• <b>Chapter 12:</b> Sections 12.1 to 12.10 (inclusive).</li> <li>• Note: in 12.7, one-sided confidence interval is not covered.</li> </ul>
#9	<ul style="list-style-type: none"> <li>• <b>Chapter 13:</b> Sections 13.1 to 13.5 (inclusive).</li> <li>• <b>Chapter 14:</b> Sections 14.1 to 14.4 (inclusive).</li> </ul>
#10	<ul style="list-style-type: none"> <li>• <b>Chapter 14:</b> Sections 14.1 to 14.4 (inclusive).</li> <li>• <b>Chapter 18:</b> Sections 18.1 to 18.6 (inclusive).</li> </ul>
#11	<ul style="list-style-type: none"> <li>• <b>Chapter 18:</b> Sections 18.1 to 18.6 (inclusive).</li> <li>• <b>Chapter 20:</b> Sections 20.1 to 20.6 (inclusive).</li> </ul>
#12	<ul style="list-style-type: none"> <li>• <b>Chapter 20:</b> Sections 20.1 to 20.6 (inclusive).</li> </ul>
# 13	<ul style="list-style-type: none"> <li>• <b>Chapter 20:</b> Sections 20.1 to 20.6 (inclusive).</li> </ul>