McMaster University | DeGroote School of Business

M733
Marketing Analytics
Fall 2025 Course Outline

Marketing Area
DeGroote School of Business
McMaster University

COURSE OBJECTIVE

Marketing is the study of both the players and interactions in offering exchanges (American Marketing Association), whereas analytics is the process of converting "...raw data into actionable insights" (Amazon AWS). Therefore, "marketing analytics" broadly refers to drawing proper conclusions from data in order to solve problems related to business and offering/exchange transactions. In this course, students will learn a variety of both statistical and computer-related analytics tools (from scratch) that some of the largest firms in the globe utilize to answer business-related questions. These tools help businesses and other organizations make better decisions based on evidence or statistical support. This includes applications rooted in statistical causal inference, text analytics, and machine learning. Students will learn a variety of these tools, as well as computer software skills needed to apply these methods in order to analyze actual datasets.

INSTRUCTOR AND CONTACT INFORMATION

Section C01: Thurs. 7:00 pm
EST – 9:20 pm EST

Dr. Michael Wu
Assistant Professor of Marketing
Michaelwu@mcmaster.ca
Office: RJC 223
Office Hours: Thurs. 5:30 pm to 6:30 pm (Zoom or in person) or by appointment
McMaster Tel: (905) 525-9140 x28969

Student TA: Information on Avenue

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Course website: http://avenue.mcmaster.ca/

Course prerequisites: Q600 and M600 OR M650

Course antirequisites: N/A

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):	TBD

COURSE DESCRIPTION

M733 is designed to introduce you to the tools used in marketing analytics. You will learn many of the modern tools used in marketing and data analytics, as well as how to interpret the findings from such tools. Said another way, learning how to analyze data to see what it is reflecting, what the data is not necessarily suggesting, and understanding the limitations of such analysis are core capabilities developed in this course. We'll learn about predictive analytics, threats to validity and causal inference, text analysis and machine learning applications, as well as the software skills used to apply these tools (from scratch). As well, you will be exposed to illustrations of real firms or organizations applying such tools to answer business-related questions.

LEARNING OUTCOMES

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

- Understanding the purpose of marketing analytics;
- Identifying the limitations and threats to the validity of a proper analytic assessment;
- Learning analytic tools rooted in causal inference, text analysis, and machine learning to draw accurate conclusions from data;
- Understanding and applying the basics of R, a software language used to implement such analytic tools.

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REQUIRED COURSE MATERIALS AND READINGS (SUBJECT TO CHANGE—NOTE THAT WE WILL ONLY USE PORTIONS OF EACH TEXTBOOK)

Avenue registration for course content, readings and case materials
- http://avenue.mcmaster.ca $ FREE

R and RStudio/Posit
- https://cran.rstudio.com/ and https://posit.co/download/rstudio-desktop/ (we will go over how to install this in the course) $ FREE

Data Analysis with RStudio: An Easygoing Introduction by Franz Kronthaler and Silke Zöllner
- Offered by McMaster at: https://library.mcmaster.ca/databases/springer-ebook-collection
- Datasets are found at: https://www.statistik-kronthaler.ch/?page_id=376 $ FREE

The Effect: An Introduction to Research Design and Causality by Nick Huntington-Klein
- https://theeffectbook.net/ $ FREE

R for Marketing Research and Analytics (2nd Edition) by Chris Chapman and Elea McDonnell Feit
- Offered by McMaster at: https://library.mcmaster.ca/databases/springer-ebook-collection $ FREE

Data Science for Public Policy by Jeffrey C. Chen, Edward A. Rubin and Gary J. Cornwall
- Offered by McMaster at: https://library.mcmaster.ca/databases/springer-ebook-collection $ FREE

Applied Linear Regression for Business Analytics with R: A Practical Guide to Data Science with Case Studies by Daniel P. McGibney
- Offered by McMaster at: https://library.mcmaster.ca/databases/springer-ebook-collection
- Datasets are found at: https://businessregression.com/Data.html $ FREE

Text Analysis with R: For Students of Literature by Matthew L. Jockers and Rosamond Thalken
- Offered by McMaster at: https://library.mcmaster.ca/databases/springer-ebook-collection $ FREE

Various Articles
- Offered by McMaster at: https://libaccess.lib.mcmaster.ca/login?url=http://journals.scholarsportal.info $ FREE

OPTIONAL COURSE MATERIALS AND READINGS

Various Articles

- Offered by McMaster at: https://libaccess.lib.mcmaster.ca/login?url=http://journals.scholarsportal.info $ FREE

EVALUATION

Students in this course will be evaluated from a variety of assessment types, including assignments, attendance/participation, a term project and presentation, and two tests/exams.

Components and Weights

Assignments	Two assignments will be spread across the term (worth 10% each)	20%
Test 1	Multiple Choice and/or Written Exam (individual)	15%
Major Project and Presentation (including Preliminary Report)	Includes Data Analysis. 20% for the final project/report, 10% for an interim/preliminary report, and 10% for the final presentation	40%
Test 2	Multiple Choice and/or Written Exam (individual)	15%
Attendance and Participation	Attending class in person and participating in discussions	10%
Total		**100%**

NOTE: The use of a McMaster standard calculator is allowed during examinations in this course. See McMaster calculator policy at the following URL:

www.mcmaster.ca/policy/Students-AcademicStudies/UndergraduateExaminationsPolicy.pdf

Grade Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme:

LETTER GRADE	PERCENT	POINTS
A+	90-100	12
A	85-89	11
A-	80-84	10
B+	75-79	9
B	70-74	8
B-	60-69	7
F	00-59	0

Course Deliverables

Assignments
There are two assignments in this course, **each** worth **10%** of your final grade. Instructions for each assignment will be provided at least 2 weeks in advance of the due date, and will likely include some hands on data analysis.

Test #1 and Test #2 – Multiple Choice and/or Written Exam
There are two tests/exams in this course. **Each** test is worth **15% (for a total of 30% of your final grade)**. These tests will cover material from the text books, readings, lectures and class discussion. All content introduced in the course will potentially be asked in each test. We will likely practice sample problems in the class prior to each test.

Major Project and Presentation
There is one major project in this course and it will be worth **20%** of your final grade. There will be a corresponding presentation, also worth **10%**. You will have a preliminary report due in the middle of the semester, worth **10%**.

Attendance and Participation
This is an in-person class, where we may have discussions on content material. Attendance will be taken in each class. Attendance and Participation is worth a total of **10%** of your final grade.

COMMUNICATION AND FEEDBACK

Students that are uncomfortable in directly approaching an instructor regarding a course concern may send a confidential and anonymous email to the respective Area Chair or Associate Dean:

http://mbastudent.degroote.mcmaster.ca/contact/anonymous/

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 Administrative Assistant.

Instructors are encouraged to conduct an informal course review with students by Week #4 to allow time for modifications in curriculum delivery. Instructors should provide evaluation feedback for at least 10% of the final grade to students prior to Week #8 in the term.

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.

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.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at:

www.mcmaster.ca/academicintegrity

Students are responsible for being aware of and demonstrating behaviour that is honest and ethical in their academic work. Such behaviour includes:

- following the expectations articulated by instructors for referencing sources of information and for group work;
- asking for clarification of expectations as necessary;
- identifying testing situations that may allow copying;
- preventing their work from being used by others (e.g., protecting access to computer files); and
- adhering to the principles of academic integrity when conducting and reporting research.

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 ONLINE ELEMENT

All courses use some online 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.

Students may be required to use the Respondus LockDown Browser and Respondus Monitor. The Respondus LockDown Browser is a downloadable program that allows a student to take an Avenue to Learn quiz in a secure environment. Quizzes can be set to use LockDown Browser or LockDown Browser.

For more details about McMaster's use of Respondus Lockdown Browser please go to https://avenuehelp.mcmaster.ca/exec/respondus-lockdown-browser-and-respondus-monitor/

The available information is dependent on the technology used. Continuation in a course that uses online 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.

ONLINE PROCTORING

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.

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, 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.

ATTENDANCE

Arriving late or missing class disrupts the learning experience for both you and your peers. Punctuality and attendance are crucial to maintaining a respectful, professional and productive environment for everyone, including our faculty.

Instructors may use Top Hat in their course in a variety of ways, including to capture attendance in their classes. Attendance is recorded by submitting a unique 4-digit code displayed in your physical classroom using your personal device.

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MISSED ACADEMIC WORK

Missed Mid-Term Examinations / Tests / Class Participation

Please do not use the online McMaster Student Absence Form (MSAF) as this is for Undergraduate students only. The MBA program will not accept an MSAF.

When students miss regularly scheduled term work which contributes 10% or more to the final grade, for legitimate reasons as determined by the DSB Student Services – Academic Office (DSSAO (DSB Student Services Academic Office)), the activity necessary to compensate for the missed work will be determined by the course instructor. The compensatory activities assigned will vary with the nature of the course and the missed requirement. They include, but are not restricted to, an alternative assignment, a rescheduled midterm exam, or re-weighting the marks for the missed component to other mark components. Documentation explaining such missed work must be provided to the DSSAO (DSB Student Services Academic Office) within five (5) working days of the scheduled date for completion of the work.

Acceptable reasons for missed work, along with the Petition for Missed Term Work and the MBA Student McMaster University Student Health Certificate, can be found on the DeGroote MBA Student website (mbastudent.degroote.mcmaster.ca). Please direct any questions about acceptable documentation to the MBA Academic Advisors (askmba@mcmaster.ca).

University policy states that a student may submit a maximum of three (3) Petition for Missed Term Work per academic year, after which the student must meet with the Director of the program.

If term work is missed without an approved reason, students will receive a grade of zero (0) for that component.

Missed Final Examinations

Students must be available for the duration of the posted exam period regardless of their personal exam schedule. This is to ensure student availability throughout the entire exam period in the event that an exam must be rescheduled due to unforeseen circumstances (university closure, power outage, storm policy, etc.). A student who misses a final examination without valid reason will receive a mark of 0 on the examination.

Students who have missed a final exam for a valid reason can apply to the DSSAO (DSB Student Services Academic Office) to write a deferred examination by submitting an Application for Deferring a Final Exam with supporting documentation. The application must be made within five days of the scheduled exam.

The Application for Deferring a Final Exam and the MBA Student McMaster University Student Health Certificate can be found on the DeGroote MBA Current Student website (mbastudent.degroote.mcmaster.ca)

Deferred examination privileges, if granted, are normally satisfied during the examination period at the end of the following semester. In select cases, the deferred examination may be written at a time facilitated by the DSSAO (DSB Student Services Academic Office) (DSB Student Services Academic Office) and agreed to by the course instructor.

Requests for a second deferral or rescheduling of a deferred examination will not be considered.

ACADEMIC ACCOMMODATION FOR STUDENTS WITH DISABILITIES

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for course work at the outset of term. Students must forward a copy of such SAS accommodation to the instructor normally, within the first three (3) weeks of classes by setting up an appointment with the instructor. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is:

http://sas.mcmaster.ca

Use of Test Accommodations at McMaster University Burlington Campus Ron Joyce Centre

Whereas Student Accessibility Services (SAS), on Main Campus, determines all MBA student accommodations, the MBA Faculty Office manages the coordination of accommodations for tests, midterms, and exams at the Ron Joyce Centre in Burlington.

Process for Students

- SAS will now be using our online system, MySAS Portal, for graduate students to share accommodation letters with their Instructors and their Faculty/Program. Students will be responsible to activate their accommodations on a term-by-term basis and the approved accommodation letter will be directly sent to the Instructor.

- Students must engage the DSSAO (DSB Student Services Academic Office) to implement their accommodation(s) (e.g., extra-time, memory aid, etc.) for each upcoming test, midterm, or exam, at least two weeks in advance. Students can do this by emailing DeGroote MBA SAS scheduling office at DSBSAS@mcmaster.ca. If a student cannot meet this deadline, they

should contact DSBSAS@mcmaster.ca to discuss alternative arrangements. The program is committed to exploring flexibilities where possible to support students.

- All tests, midterms, and exams are booked synchronously with the class's start time. Any deviations from the start time (e.g. start earlier than the class to enable completion at the same end time) requires a discussion with their instructor on protocol at the time of accommodation activation.

- Students will leverage the accommodation (e.g., extra-time, memory aid, etc.), in a designated testing room. Rooms will be booked according to the student's SAS accommodation. Unless the accommodation states otherwise, students should expect that they will be writing in a room with other students. One or more invigilators will always be in the room.

- Following the request to implement the accommodation(s), dsbsas@mcmaster.ca will reach out to the student with their test, midterm, or exam details, including the date, time, and room number. As there may be other students writing tests in the room, we ask that students enter the room quietly and leave all personal items at the front of the room.

All policies and procedures, including restroom access, how extra-time is allocated for assessments under Universal Design, and the submission of memory aids in advance, are consistent with those of SAS on Main Campus. The only variance in procedure is communication around, and physical location of, assessment. There is not a dedicated testing space at RJC. Existing classrooms and lecture halls will be used for most testing. All SAS-approved accommodations will be honoured by our staff; however, core testing elements are not eliminated in alternative testing formats. Students should expect and plan for invigilation, incidental noise, and other potential distractions.

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 the DSSAO (DSB Student Services Academic Office) ***normally within 10 working days*** of the beginning of term in which they anticipate a need for accommodation. 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.

POTENTIAL MODIFICATION TO THE COURSE

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

RESEARCH USING HUMAN SUBJECTS

Research involving human participants is premised on a fundamental moral commitment to advancing human welfare, knowledge, and understanding. As a research intensive institution, McMaster University shares this commitment in its promotion of responsible research. The fundamental imperative of research involving human participation is respect for human dignity and well-being. To this end, the University endorses the ethical principles cited in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans:

http://www.pre.ethics.gc.ca

McMaster University has mandated its Research Ethics Boards to ensure that all research investigations involving human participants are in compliance with the Tri-Council Policy Statement. The University is committed, through its Research Ethics Boards, to assisting the research community in identifying and addressing ethical issues inherent in research, recognizing that all members of the University share a commitment to maintaining the highest possible standards in research involving humans.

If you are conducting original research, it is vital that you behave in an ethical manner. For example, everyone you speak to must be made aware of your reasons for eliciting their responses and consent to providing information. Furthermore, you must ensure everyone understands that participation is entirely voluntary. Please refer to the following website for more information about McMaster University's research ethics guidelines:

http://reo.mcmaster.ca/

Organizations that you are working with are likely to prefer that some information be treated as confidential. Ensure that you clarify the status of all information that you receive from your client. You **MUST** respect this request and cannot present this information in class or communicate it in any form, nor can you discuss it outside your group. Furthermore, you must continue to respect this confidentiality even after the course is over.

ACKNOWLEDGEMENT OF COURSE POLICIES

Your registration and continuous participation (e.g. on A2L, in the classroom, etc.) to the various learning activities of MBA M733 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.

ARTIFICIAL INTELLIGENCE

Students may utilize generative AI tools for learning, reviewing course material or for studying, but this course prohibits the use of generative AI for assessments. Students can refer to the following page for additional information and guidelines:

Generative Artificial Intelligence - Academic Excellence - Office of the Provost (mcmaster.ca)

COURSE SCHEDULE (SUBJECT TO CHANGE)

MBA M733

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Marketing Analytics
Fall 2025 Course Schedule

WEEK	DATE	ASSIGNMENT
1	Thursday, Sept. 11	Lecture 1: Class Outline, Schedule, Overview, Basic Statistics Review and Getting Started with R **Textbook**: Data Analysis with RStudio, Chapters 1, 2 and 4 (Chapter 4 Section titled "Statistical Charts with ggplot2" is optional") -- datasets are found at: https://www.statistik-kronthaler.ch/?page_id=376
2	Thursday, Sept. 18	Lecture 2: Linear Regression and Logistic Regression **Textbook**: R for Marketing Research and Analytics, Pages 157 to 178 (Skip Sections 7.1.1, 7.2.1., 7.2.5., and 7.33), 229 to 230, and Section 9.2.6 Optional Textbook Reading: Data Analysis with RStudio, Pages 87 to 106 Optional Textbook Reading: Data Science for Public Policy, Pages 146 to 147, and 151 to 153
3	Thursday, Sept. 25	Lecture 3: More Regression and Fixed Effects **Textbook**: R for Marketing Research and Analytics, Section 7.5 **Textbook**: The Effect, 16.11 to 16.2.2 -- be sure to use the command: install.packages('causaldata')
4	Thursday, Oct. 2	Lecture 4: More Regression, Identification, and Threats to Validity **Textbook**: Applied Linear Regression for Business Analytics with R, Pages 179-188 (Up to Section 8.11 inclusive) – datasets are found at: https://businessregression.com/Data.html **Textbook**: Data Science for Public Policy, Pages 163 to 167 (Up to Section 9.2.1 inclusive) **Article**: Social Work Research and Endogeneity Bias, Journal of the Society for Social Work and Research, Vol. 2, No. 2 (May 2011), pp. 54-75, https://www.jstor.org/stable/10.5243/jsswr.2011.3 (Pages 57 to the top of 61 only)

		Test 1 Review **Assignment 1 Due**
5	Thursday, Oct. 9	**Test 1 (In Class)**
6	Thursday, Oct. 16	Lecture 5: Difference-in-Differences **Textbook**: The Effect, 18.1.1 to 18.2.4
7	Thursday, Oct. 23	Lecture 6: Instrumental Variables **Textbook**: The Effect, 19.1.1 to 19.2.1, and 19.2.3 **Preliminary Report Due**
8	Thursday, Oct. 30	Lecture 7: Regression Discontinuity **Textbook**: The Effect, 20.1 to 20.2.3
9	Thursday, Nov. 6	Lecture 8: Text Analysis and Machine Learning Applications (Part 1) **Textbook**: R for Marketing Research and Analytics, Page 299 up to Section 11.3.5 (inclusive) **Textbook**: Data Science for Public Policy, Pages 259 to 266 **Assignment 2 Due**
10	Thursday, Nov. 13	Lecture 9: Text Analysis and Machine Learning Applications (Part 2) **Textbook**: Text Analysis with R, Pages 159 to 169 **Textbook**: Data Science for Public Policy, Pages 271 to 280 (starting at Section 13.3).
11	Thursday, Nov. 20	Lecture 10: Miscellaneous Methods and Advanced Elements **Textbook**: To be determined (readings will be given by the Nov. 13 lecture) Test 2 Review
12	Thursday, Nov. 27	**Test 2 (In Class)**
13	Thursday, Dec. 4	**Major Project Due and Project Presentations (In Class)**