

## Business M733

### Marketing Analytics Course Outline

**Winter 2017 (Wednesdays 11:30am – 2:20pm; RJC 313)**

### Marketing @ DeGroote School of Business McMaster University

#### Course Objective

Some key words heard frequently in marketing departments today are data science, analytics, informatics, bio-informatics, algorithmics, big data and data mining. Great marketing decisions are typically based on the sophisticated analysis of timely in-depth consumer, competitor and environmental information. Students in Marketing Analytics will get hands-on experience with the tools used by the most advanced marketing consultants and large successful marketers. We'll study data mining, marketing segmentation, marketing research visualization, predictive analytics, key marketing models, social media research, text analytics, big data and more through discussions, cases and projects. Students will learn how to use the software that they will encounter when conducting marketing analyses in business.

**Prerequisites:** M600 or equivalent and Q600 or equivalent.

#### Instructor and Contact Information

**Dr. Ken Deal, MBA, PhD, CMRP, FMRIA**

Professor of Marketing

[deal@mcmaster.ca](mailto:deal@mcmaster.ca)

Office: RJC #254

Office Hours: Wednesdays 2:30PM-4:00PM;  
in RJC254

Tel: (905) 525-9140 x27430

**TA: Dr. Ana Gabrielyan**

[anaitgabrielyan@gmail.com](mailto:anaitgabrielyan@gmail.com)

**Course Website:** <http://avenue.mcmaster.ca>

#### Course Elements

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

**NB,** we will be using software in this course that may not work well or at all with Apple computers. The DSB IT department does not provide support for Apple and I will not be able to provide support. Make your life easier by using a Windows-based PC or install the parallel Windows system in your Apple.

## Course Description

You've heard about the "Tipping Point". Well, that is occurring now, or has just occurred, in marketing analytics. Welcome to the show. The public used to hear about selling and advertising and very little else about marketing. Now the core of what we do is in the media daily – BIG DATA, social media, text analytics. Some are construing this as threats to our privacy – and we must be diligent to protect our private lives. However, much of this new movement in marketing analytics is focused on understanding consumers' sentiments and behaviors so that better marketing decisions can be made to grow business and that only happens when consumers get more of what they want.

Marketing Analytics M733 will introduce you to the concepts of marketing analytics, assist you to better understand how marketing analytics can be used for improving marketing decisions and will continue your education in analysis so that you can contribute to the development of marketing insights. You will be exposed to many influential Canadian contributors to marketing analytics and to projects that will expand your expertise in this valuable arena.

## Learning Outcomes

Upon completion of this course, you will have had the opportunity and training to:

- ✓ Understand the needs of marketing managers for marketing intelligence;
- ✓ Determine and react to the objectives set for marketing analytics projects;
- ✓ Identify the type of analyses that will best help achieve the objectives;
- ✓ Understand the meaning and value of big data and social media analytics;
- ✓ Appreciate the basics of R, the most pervasive analytics tool, and methods that use R;
- ✓ Understand how to manage and execute marketing analytics projects;
- ✓ Learn how to prepare data for analysis;
- ✓ Determine how to best analyze diverse types of data;
- ✓ Learn how to turn statistical findings into marketing information that gets attention.

## Required Course Materials and Readings

- Allenby & Brazell, *Seven Summits of Marketing Research: Decision-Based Analytics for Marketing's Toughest Problems*, 2015 (free download, <http://fisher.osu.edu/supplements/10/12586/7Summits%207.15.pdf> ). This includes their highly polished IDT (Interactive Decision Tool), <http://themodellers.com/AnalyticsTool/> , plus data from two large surveys.
- R, RStudio, Deducer, Rattle, RCommander (all open source and free)
- Gandomi, Amir and Murtaza Haider (2015). "Beyond the hype: Big data concepts, methods, and analytics", *International Journal of Information Management* 35 (2015) 137-144. (in Avenue)
- Please do not communicate with others electronically during class and stay off the internet unless it is for class reasons. **Keep your laptops closed during guest speaker visits.**

## Optional Course Materials and Readings

- Chapman, Chris and Elea McDonnell Feit, *R for Marketing Research and Analytics*, Springer, 2015 (bookstore). This is an excellent book on using R for marketing analytics and marketing research. While I'll refer to C&F as optional reading, those who intend to acquire a more rigorous understanding of R than is intended in this course are advised to acquire and read this book.

## Evaluation

### Teaching Method

The main learning platform in this course will be class discussions, guest speakers, assignments and a term project. Classes will consist of lectures, workshops, guest speakers and discussion of your assignments and projects. Lectures will elaborate and reinforce the course notes provided in Avenue. For this reason, the information will be covered quickly, allowing more time for examples and discussion. Therefore, it is important that you complete the assigned readings **before** class and bring any assigned lecture notes to class.

All work will be evaluated on an individual basis except in certain cases where group work is expected. The groups for the term projects will be comprised of 3 people whenever possible. Group members will share the same grade for the term project, adjusted by peer evaluation. Your final grade will be calculated as follows:

### Components and Weights

<b>Assignments</b>	About 6 assignments, due throughout the term	60%
<b>Term projects</b>	Assigned by the 6 <sup>th</sup> week, presented during scheduled final exam. (90% analysis and report, 10% presentation)	40%
<b>Total</b>		100%

## 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

## 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.

## Assignments

Exercises that generally include data analysis and marketing interpretation will be assigned for almost every week during the term. These will constitute 60% of your final mark. The exact number of assignments is not fixed at the time of this writing but it will likely be about 6. These assignments must be done **by each individual student** without help from others and submitted to the Avenue Drop Box when required. The assignments will be scrutinized for cheating and appropriate steps will be taken if collaboration is discovered. Each assignment must be placed in the appropriate Avenue Drop Box by 11:30am on the class date directly after the date on which it was assigned. Late assignments will receive grades of zero since we will discuss the assignments in class. This is a marketing + analytics course, i.e., the analysis must be done correctly and to the proper extent and the results must be interpreted to support better marketing decisions. The lack of either of these two essential components will cause reduction in grades.

## Midterm

A midterm will be held to gauge students' comprehension of the course material. (NOT INCLUDED)

## Term Projects

The term projects will be focused on providing commercial grade experiences in marketing analytics. These projects will be assigned to teams and it is expected that each team member contribute appropriately and equally to the end result. There will be a vehicle for adjusting grades if a team member were to not participate adequately. The term projects will be presented orally during the scheduled final exam period for this course. Essentially, these will be the final exams. The topics for the projects may be contributed by the guest speakers.

## Final Marks in M733

A passing mark in M733 indicates that the professor attests that the student has at least an adequate proficiency in marketing analytics and should be able to contribute to the analytical functions of the marketing department of an organization. If the professor is not able to attest to this achievement, the student will receive a grade of F.

## Academic Dishonesty

It is the student's responsibility to understand what constitutes academic dishonesty. Please refer to the University Senate Academic Integrity Policy at the following URL:

<http://www.mcmaster.ca/univsec/policy/AcademicIntegrity.pdf>

This policy describes the responsibilities, procedures, and guidelines for students and faculty should a case of academic dishonesty arise. Academic dishonesty is defined as to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. Please refer to the policy for a list of examples. The policy also provides faculty with procedures to follow in cases of academic dishonesty as well as general guidelines for penalties. For further information related to the policy, please refer to the Office of Academic Integrity at:

<http://www.mcmaster.ca/academicintegrity>

## Copyright

McMaster University has signed a license with the Canadian Copyright Licensing Agency (Access Copyright) which allows professors, students, and staff to make copies allowed under *fair dealing*. Fair dealing with a work does not require the permission of the copyright owner or the payment of royalties as long as the purpose for the material is private study, and that the total amount copied equals **NO MORE THAN 10 percent** of a work or an entire chapter which is less than 20 percent of a work. In other words, it is illegal to: i) copy an entire book, or ii) repeatedly copy smaller sections of a publication that cumulatively cover over 10 percent of the total work's content. Please refer to the following copyright guide for further information:

<http://library.mcmaster.ca/about/copying.pdf>

## Missed Academic Work

### ***Missed Mid-Term Examinations / Tests / Class Participation***

Where students miss a regularly scheduled mid-term or class participation for legitimate reasons as determined by the MBA Academic Services Office, the weight for that test/participation will be distributed across other evaluative components of the course at the discretion of the

instructor. Documentation explaining such an absence must be provided to the MBA Academic Services Office within five (5) working days upon returning to school.

To document absences for health related reasons, please provide the Petition for Relief for MBA Missed Term Work and the McMaster University Student Health Certificate which can be found on the DeGroote website at <http://mbastudent.degroote.mcmaster.ca/forms-and-applications/>. Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. University policy states that a student may submit a maximum of three (3) medical certificates per year after which the student must meet with the Director of the program.

To document absences for reasons other than health related, please provide the Petition for Relief for MBA Missed Term Work and documentation supporting the reason for the absence.

Students unable to write a mid-term at the posted exam time due to the following reasons: religious; work-related (for part-time students only); representing university at an academic or varsity athletic event; conflicts between two overlapping scheduled mid-term exams; or other extenuating circumstances, have the option of applying for special exam arrangements. Such requests must be made to the MBA Academic Services Office at least ten (10) working days before the scheduled exam along with acceptable documentation. Instructors cannot themselves allow students to unofficially write make-up exams/tests. Adjudication of the request must be handled by the MBA Academic Services Office.

If a mid-term exam is missed without a valid reason, students will receive a grade of zero (0) for that component.

### ***Missed Assignments***

**Failure to submit any assigned material** at the designated due time to the appropriate Avenue folder **without a formal release** due to one of the excuses noted above **will result in a grade of zero since we will typically discuss at least some of each assignment in class.**

There will be formal **peer evaluations of teamwork** with corresponding reductions in marks if deemed necessary by the professor.

### ***Missed Final Examinations***

A student who misses a final examination without good reason will receive a mark of 0 on the examination.

All applications for deferred and special examination arrangements must be made to the MBA Academic Services Office. Failure to meet the stated deadlines may result in the denial of these arrangements. Deferred examination privileges, if granted, must be satisfied during the examination period at the end of the following term. There will be one common sitting for all deferred exams.

Failure to write an approved deferred examination at the pre-scheduled time will result in a failure for that examination, except in the case of exceptional circumstances where documentation has been

provided and approved. Upon approval, no credit will be given for the course, and the notation N.C. (no credit) will be placed on the student's transcript. Students receiving no credit for a required course must repeat the course. Optional or elective courses for which no credit is given may be repeated or replaced with another course of equal credit value.

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

Any student who is unable to write a final examination because of illness is required to submit the Application for Deferred MBA Final Examination and a statement from a doctor certifying illness on the date of the examination. The Application for Deferred MBA Final Examination and the McMaster University Student Health Certificate can be found on the DeGroote website at <http://mbastudent.degroote.mcmaster.ca/forms-and-applications/>. Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. Students who write examinations while ill will not be given special consideration after the fact.

In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office within five business days of the missed examination.

Special examination arrangements may be made for students unable to write at the posted exam time due to compelling reasons (for example religious, or for part-time students only, work-related reasons):

- Students who have religious obligations which make it impossible to write examinations at the times posted are required to produce a letter from their religious leader stating that they are unable to be present owing to a religious obligation.
- Part-time students who have business commitments which make it impossible to write examinations at the times posted are required to produce a letter on company letterhead from the student's immediate supervisor stating that they are unable to be present owing to a specific job commitment.

In such cases, applications must be made in writing to the MBA Academic Services Office at least ten business days before the scheduled examination date and acceptable documentation must be supplied.

If a student is representing the University at an academic or athletic event and is available at an overlapping scheduled time of the test/examination, the student may write the test/examination at an approved location with an approved invigilator, as determined by the MBA Academic Services Office.

In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office within ten business days of the end of the examination period.

**Note:** A fee of \$50 will be charged for a deferred exam written on campus and a fee of \$100 for deferred exams written elsewhere. In cases where the student's standing is in doubt, the Graduate Admissions and Study Committee may require that the student with one or more deferred examination privileges refrain from re-registering until the examination(s) have been cleared.



## Student Accessibility Services

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>

## Potential Modifications 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://www.mcmaster.ca/ors/ethics>



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.

**Course Schedule ... *NOTE – topics and speakers might change***

**M733: Marketing Analytics, Winter 2017 Course Schedule**

Week	Topic	Guest Speakers, Readings, Assignments
1. 11jan17	<b>What's the marketing purpose of marketing analytics?</b> How can data science support better marketing decisions? How can social media analysis, big data and marketing analytics enhance the firm's growth, competitiveness and profitability?	<b>RBC Insurance Catherine Bishop</b> – Head of Canadian Strategy, and colleagues
2. 18jan17	It can't be done without the technology – introduction to <b>software environments for marketing analytics</b> : <ul style="list-style-type: none"> <li>• R, R packages &amp; R GUIs</li> <li>• Python</li> <li>• H2O</li> <li>• Hadoop</li> <li>• PMML, ADAPA</li> <li>• Clouds (AWS)</li> </ul>	Course PPT Notes R, R-Studio, Deducer, AWS, Hadoop, Rattle (R), Deducer will be used in this course.
3. 25jan17	<b>Before you begin analysis</b> , you need to get started! <ul style="list-style-type: none"> <li>• Where does all of this <b>data</b> come from?</li> <li>• <b>Cleaning</b> the data – survey data v social media.</li> <li>• <b>Reshaping</b> data so you can begin the analysis. What to do about 'missing values'?</li> </ul>	<b>Envionics Analytics</b> Course Notes. op: C&F, Ch1-3 <u>Assignment 1 due 01feb @ 11:30am</u>
4. 01feb17	<b>Predictive analytics</b> : <ul style="list-style-type: none"> <li>• The core basics – multiple regression</li> <li>• Logistic regression</li> </ul>	Course notes. A&B, Ch1, 3 Op: C&F, Ch4
5. 08feb17	Predictive analytics – beyond the basics & into reality: <ul style="list-style-type: none"> <li>• lift</li> <li>• Past the basics – hierarchical Bayes analysis</li> <li>• Short &amp; Fat – correlated component regression &amp; partial least squares</li> </ul>	Course notes. Op: C&F, Ch7, 9 <u>Assignment 2 due 15feb @ 11:30am</u>
6. 15feb17	<b>Visualization</b> of the meaning of the analyses: <ul style="list-style-type: none"> <li>• Shiny, d3, ggplot2 (R), plotly, ...</li> </ul>	Course Notes
	<b>Break week</b>	
7.	Visualization of the meaning of the analyses:	Course Notes

01mar17	<ul style="list-style-type: none"> <li>Correspondence analysis (R)</li> <li>Factor analysis &amp; multiple factor analysis (R &amp; XLSTAT)</li> <li>Multidimensional scaling (R)</li> </ul>	<u>Assignment 3 due 08mar @ 11:30am</u>
8. 08mar17	<p>What is <b>BIG DATA</b> and what can it do for you?</p> <ul style="list-style-type: none"> <li>Where does Big Data come from? How do you work with it? What are the insights for marketing decisions?</li> </ul>	<p><b>Guest speaker – John Sharpe, VP, CGI</b> Course Notes, Gandomi article</p> <p><u>Assignment 4 due 15mar @ 11:30am</u></p>
9. 15mar17	<p><b>Social Media / Text Analytics</b></p> <ul style="list-style-type: none"> <li>Web scraping</li> <li>Reshaping data for text analysis</li> <li>Methods for analyzing text and providing insights</li> </ul>	<b>RBC Insurance</b> Course Notes
10. 22mar17	<p>Social Media / Text Analytics</p> <ul style="list-style-type: none"> <li>Web scraping</li> <li>Reshaping data for text analysis</li> </ul> <p>Methods for analyzing text and providing insights</p>	Course Notes <u>Assignment 5 due 22mar @ 11:30am</u>
11. 29mar17	<p><b>Segmentation</b> for better marketing decisions.</p> <ul style="list-style-type: none"> <li>Investigating heterogeneity.</li> <li>Cluster analysis</li> <li>Latent class analysis</li> </ul>	<b>RBC Insurance</b> Course Notes A&B, Ch2 Op: C&F, Ch11
12. 05apr16	<p>More heterogeneity</p> <ul style="list-style-type: none"> <li>Shrinking data (R clues)</li> <li>Medoids (R pamk)</li> </ul>	Course Notes  <u>Assignment 6 due 12apr17 @ 11:30am</u>
13. 12apr17	<p><b>Deploying</b> Segmentation and other analytics for better marketing decisions</p> <ul style="list-style-type: none"> <li>Developing typing tools.</li> <li>Purpose &amp; challenge of typing tools</li> <li>Scoring data sets: PMML, ADAPA</li> </ul>	<b>Environics Analytics:</b> Jan Kestle, president
14. 19apr17	Presentations of course projects.	Course projects due

## Career Profile

**Dr. Ken Deal, M.B.A., Ph.D., CMRP, FMRIA**  
**Marketing, DeGroote School of Business, McMaster University**

## Areas of Expertise

Ken's expertise lies in the area of using sophisticated marketing analytics and marketing research to provide significant insights that help organizations build and enhance marketing strategies. He has developed marketing models to assess the potential of new products, evaluate the effectiveness of advertising and to enhance marketing decisions in a variety of management areas. Ken has substantial experience in the health sector, pharmaceutical research, energy sector, telecommunications, tourism, aviation industry, financial services, automotive parts and service, government services, environmental issues, packaged goods, retail grocery and others.

Dr. Deal has provided expert testimony to the Federal Court of Canada, the Superior Court of Ontario, the Supreme Court of Ontario, U.S. courts and professional tribunals and has advised several government departments on strategy and their markets.

He has presented executive seminars in strategic marketing for private, public and non-profit sectors, in marketing research, pricing and in other topics. Ken is an active teacher, researcher and practitioner in marketing research, marketing modeling, marketing management and strategy.

## Professional Activities

Dr. Deal's most recent book *Modern Marketing Research: Step by Step* was co-authored with Chuck Chakrapani and was revised in 2010 as an e-book. *Marketing Research: Methods and Canadian Practice*, again co-authored with Chakrapani, was published in April 1992 by Prentice-Hall. Ken also wrote *A Guide to PASW (SPSS) Statistics 18* and is available as an internet book. These books add to Dr. Deal's other publications that have appeared in a variety of professional and academic journals.

Dr. Deal was Chairman of Strategic Market Leadership and Health Services Management at McMaster University from 1998 to 2007, a position he held from 1982 to 1986 and was acting chair of Strategic Management in 2012/13. He served as President of the Canadian Survey Research Council in 2000/2001, President of the Professional Marketing Research Society (now, Marketing Research and Intelligence Association, MRIA) in 1998/1999. Ken was elected Lifetime Fellow of the Professional Marketing Research Society (FMRIA) in 2000 for "his outstanding contributions to marketing research in Canada". He has been a professor of marketing in McMaster University's DeGroote School of Business since 1973. Dr. Deal is president of marketPOWER research inc. and is a Certified Marketing Research Professional (CMRP).

**Business M733 – Marketing Analytics, 2017**

**Project Team # \_\_\_\_**

**Project Title:** \_\_\_\_\_

**Project Leader:** \_\_\_\_\_

**Team Members:**                      **email addresses,**                      **phone numbers**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

## ***M733 in Fall 2017 -- And you are ... ?***

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_

Phone: \_\_\_\_\_ email: \_\_\_\_\_

Current or most recent job: \_\_\_\_\_

\_\_\_\_\_

Intended career business sector: \_\_\_\_\_

Next previous position: \_\_\_\_\_

\_\_\_\_\_

Undergraduate degree: \_\_\_\_\_

Undergraduate university: \_\_\_\_\_

McMaster MBA Stream: \_\_\_\_\_

Are you in the ☐ Co-op programme or ☐ Full-time programme or ☐ Part-time programme?

Which of the following courses have you taken or are you taking currently?

Took	Taking	
Previously	Currently	
<input type="checkbox"/>	<input type="checkbox"/>	M600
<input type="checkbox"/>	<input type="checkbox"/>	Q600 → Your grade in Q600 [_____]
<input type="checkbox"/>	<input type="checkbox"/>	M721, Business Marketing
<input type="checkbox"/>	<input type="checkbox"/>	M731, Marketing Research
<input type="checkbox"/>	<input type="checkbox"/>	M732, Consumer Behaviour
<input type="checkbox"/>	<input type="checkbox"/>	M734, Strategic Marketing Analysis
<input type="checkbox"/>	<input type="checkbox"/>	M727, Marketing Communication
<input type="checkbox"/>	<input type="checkbox"/>	M735, New Products
<input type="checkbox"/>	<input type="checkbox"/>	M736, Services Marketing