



Rotman Commerce UNIVERSITY OF TORONTO

Course Outline

RSM 456 H1S

Big Data and Marketing Analytics

Winter 2017

Course Meets: Monday/ 9:10-11am / RT 142

Instructor: Andrew Ching, RT 5076
E-Mail: andrew.ching@rotman.utoronto.ca
Webpage: <http://portal.utoronto.ca>
Phone: 416-946-0728
Fax: 416-978-5433
Office Hours: Tue 5:00-6:00pm, RT 5076 (or by appointment)
Teaching Assistant: Xinlong Li, email: Xinlong.Li13@rotman.utoronto.ca

Course Scope and Mission

*Thanks to the advance of computer and information technology in the past two decades, marketing research companies have been collecting different databases to aid companies to make sound marketing decisions. It is also common for major retailers to develop their own databases (often times via their loyalty programs) to keep track of their customers' buying behavior. Some examples of these databases include **scanner panel data** that keeps track of individual customers' purchase histories, prices and promotion-mix at retail stores, **time-series product level data** that keeps track of market shares, prices and advertising efforts for different product categories, **company's loyalty programs data** that keeps track of what their customers bought from them under different promotional environment, **direct-marketing data** that keeps track of contact and transaction histories for potential clients. In order to take advantage of these databases, many companies need to go beyond the traditional toolbox of analyzing survey data, and have adopted statistical marketing models to analyze actual customer behavior data and evaluate the effectiveness of their past marketing-mix.*

This course introduces several modern marketing data sources, and discusses how these data can be used in practice, and most importantly, how to use statistical marketing models to evaluate the impacts of marketing-mix, and manage customer lifetime value. The following are examples of applications that we will discuss in detail: How should a company determine the shelf price of the products in its product line? By how much do promotional activities in retail stores boost sales, and what is the profitability from such a sales "lift"? How should a pharmaceutical company manage its promotion money to maximize the return on this budget? Which customers should a catalog retailer select to send a catalog to? How can the sales effect of publicity be measured? This course emphasizes a hand-on approach. Homework assignment will be based on the actual data from the databases discussed in lectures. Students will learn how to use software to implement marketing models to analyze data, and produce reports. Four applications will be discussed to illustrate how to combine data and models to

make sound marketing decisions. Students are also required to complete a group term project (see below for more details). This course will be particularly useful for students who want to pursue a career in quantitative marketing and marketing consulting. It would also be very useful for students who want to pursue a career in brand management because the course will help them communicate with their marketing analytics colleagues.

Course Prerequisites

ECO220Y1/ECO227Y1/(STA220H1,STA255H1)/(STA257H1,STA261H1)

Course Exclusions

RSM411H1

Required Readings

Materials available online in the course webpage

Evaluation and Grades

Grades are a measure of the performance of a student in individual courses. Each student shall be judged on the basis of how well he or she has command of the course materials. There will be no final exam for this course.

<u>Work</u>		<u>Due Date</u>
1) Individual Assignments	45%	See tentative schedule (15% for each)
3) Term Project Presentation	10%	April 3
4) Term Project Progress report	5%	March 6
4) Term Project Final Write-up	28%	April 3
5) Class Participation	12%	

Term Project

The term project requires students to work in teams. Each team consists of **three** members. This will be like a mini-consulting project. I will give you some primary data, and describe some issues that a hypothetical client would like to figure out. Each group will be working on a different project, with some similarities.

Assignments

There will be three assignments. They will be problem sets and case analysis. See the tentative schedule for deadlines. Each assignment will be given to you at least one week before its due date. All assignments are due at 9am on the due date. No late assignment will be accepted.

Note: For group assignments (incl. term project and presentations), your score will also depend on peer evaluation. See the first week slides for explanation.

COURSE FORMAT AND EXPECTATIONS

To Use Turnitin.com:

Normally students will be required to submit their course essays to Turnitin.com for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the university's use of the Turnitin.com service are described on the Turnitin.com website.

For Written Assignments:

Please note that clear, concise, and correct writing will be considered in the evaluation of each assignment. That is, you may lose points for writing that impedes communication: poor organization, weak paragraph development, excessive wordiness, hard-to-follow sentence

structure, spelling mistakes and grammatical errors. Students who require additional support and/or tutoring with respect to their writing skills are encouraged to visit the Academic Success Centre (www.asc.utoronto.ca) or one of the College Writing Centres (www.writing.utoronto.ca/writing-centres). These centres are teaching facilities – not editing services, where trained staff can assist students in developing their academic writing skills. There is no charge for the instruction and support.

For Group Work:

Learning to work together in teams is an important aspect of your education and preparation for your future careers. That said, project-based teamwork is often new to students; to work well in teams, it helps to follow a set of core expectations to best succeed at your team projects.

1. Read the document entitled, “Working in Teams: Guidelines for Rotman Commerce Students” which is available on the RC portal under the Academic Services tab.

2. When working in a team, Rotman Commerce students are expected to:

- Treat other members with courtesy and respect;
- Honour the ground rules established by the team;
- Contribute substantially and proportionally to the final project;
- Ensure enough familiarity with the entire contents of the group project/assignment so as to be able to sign off on it as original work;
- Meet the project timeline as established by the team.

3. Resolving conflicts:

Conflicts are part of the team’s process of learning how to work together. When handled well, it can generate creativity and bring-multiple perspectives to the solution.

Student teams are expected to work through their misunderstandings as soon as they arise (and prior to submission of the final project). When teams are unable to arrive at a solution that works for all members, the team must meet with the Rotman Commerce Team Coach** as soon as possible. The Coach will listen to the team and help develop options for improving the team process. All members of the project team must commit to, and, utilize their action plans.

**For an appointment with a Rotman Commerce Team Coach, please contact Nouman Ashraf at nouman.ashraf@rotman.utoronto.ca Nouman is highly skilled at facilitating team dynamics and collaboration. Note that the Team Coach’s role is to provide guidance, support and advice on team matters – not to formally evaluate or assess teamwork for academic purposes.

Weekly Schedule (Tentative)

Session	Topic	Readings
Meeting 1 (Jan 9)	Introduction to the course	
Meeting 2 (Jan 16)	Regression analysis; Difference-in-Difference approach; Examples of pharmaceutical marketing Discuss term projects examples.	Notes; Reading
Meeting 3 (Jan 23)	Logistic Regression; Multinomial logit model	Notes; Reading
Meeting 4 (Jan 30)	How to use MNL model to analyze survey data. Highlight the Importance of Consumer Heterogeneity Application: Measuring the impact of rewards on consumer payment choice Assignment 1 due	Notes; Ching & Hayashi (2010)
Meeting 5 (Feb 6)	User generated content: Google Trends, Product Reviews, Blog, Mobile Exercise Apps, etc. Introduction to Machine Learning techniques	Notes; Varian (2014)
Meeting 6 (Feb 13)	Segmentation, Targeting and Positioning Analysis using Scanner Panel Data Introducing Scanner Panel Data (keep track of customers purchase histories, and store level promotion-mix)	Notes; Guagdani and Little (1983)
Meeting 7 (Feb 27)	Measuring the impact of publicity on demand; Application: The Effects of Publicity on Demand: The case of anti-cholesterol drugs Assignment 2 due	Notes; Ching, Clark, Horstmann, Lim (2015)
Note that no class on Nov 9, Reading Break Meeting 8 (Mar 6)	Measuring inventory, consumer forward-looking behavior, and learning Application: Consumer Demand for Diapers, Peanut Butter, Yogurt Term project progress report due	Notes; Ching, Erdem and Keane (2014)
Meeting 9 (Mar 13)	Big Data: An industry perspective	Guest speaker: Greg Rogers, P&G
Meeting 10 (Mar 20)	Application: Coalition Loyalty Program; Data from Blog from Support Group Assignment 3 due	Guest Speaker: Trevor van Mierlo, Evolution Health Notes: Ching and Ishihara (2014)
Meeting 11 (Mar 27)	Student Presentations Final Project presentation slides are due on Dec 6 @ 8pm The write-up of the final project is due on Dec 7 @ 9am	
Meeting 12 (April 3)	Student Presentations	

POLICY AND PROCEDURE

Missed Tests and Assignments (including midterm examinations)

Students who miss a test or assignment for reasons entirely beyond their control (e.g. illness) may submit a request for special consideration. Provided that notification and documentation are provided in a timely manner, and that the request is subsequently approved, no academic penalty will be applied.

In such cases, students must notify Rotman Commerce on the date of the missed test (or due date in the case of course work) and submit supporting documentation (e.g. [Verification of Student Illness or Injury form](#)) to the Rotman Commerce Program Office within **48 hours** of the originally scheduled test or due date. Students who do not provide Rotman Commerce or the instructor with appropriate or sufficient supporting documentation will be given a grade of 0 (zero) for the missed test or course deliverable.

Note that the physician's report must establish that the patient was examined and diagnosed at the time of illness, not after the fact. Rotman Commerce will not accept a statement that merely confirms a report of illness made by the student and documented by the physician.

Late Assignments

All assignments are due at the beginning of class on the date specified in the course outline. *Late submissions will NOT be accepted.*

Students who, for reasons beyond their control, are unable to submit an assignment by its deadline must obtain approval from the instructor for an extension. Supporting documentation will be required as per the policy on missed tests and assignments.

Accessibility Needs

The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible: accessibility.services@utoronto.ca or <http://www.accessibility.utoronto.ca/>.

Academic Integrity

Academic Integrity is a fundamental value essential to the pursuit of learning and scholarships at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the UofT degree that you earn will continue to be valued and respected as a true signifier of a student's individual work and academic achievement. As a result, the University treats cases of academic misconduct very seriously.

The University of Toronto's Code of Behaviour on Academic Matters

<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm> outlines the behaviours that constitute academic misconduct, the process for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.

- Obtaining or providing unauthorized assistance on any assignment (this includes collaborating with others on assignments that are supposed to be completed individually).

On test and exams:

- Using or possessing any unauthorized aid, including a cell phone.
- Looking at someone else's answers
- Misrepresenting your identity.
- Submitting an altered test for re-grading.

Misrepresentation:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to), medical notes.

All suspected cases of academic dishonesty will be investigated by the following procedures outlined in the *Code of Behaviour on Academic Matters*. If you have any question about what is or is not permitted in the course, please do not hesitate to contact the course instructor. If you have any questions about appropriate research and citation methods, you are expected to seek out additional information from the instructor or other UofT resources such as College Writing Centres or the Academic Success Centre.

Email

At times, the course instructor may decide to communicate important course information by email. As such, all UofT students are required to have a valid UTmail+ email address. You are responsible for ensuring that your UTmail+ email address is set up AND properly entered on the ROSI system. For more information please visit <http://help.ic.utoronto.ca/category/3/utmail.html>

Forwarding your utoronto.ca email to a Hotmail, Gmail, Yahoo or other type of email account is not advisable. In some cases, messages from utoronto.ca addresses sent to Hotmail, Gmail or Yahoo accounts are filtered as junk mail, which means that important messages from your course instructor may end up in your spam or junk mail folder.

Blackboard and the Course Page

The online course page for this course is accessed through Blackboard. To access the course page, go to the UofT Portal login at <https://portal.utoronto.ca/> and log in using your UTORid and password. Once you have logged in, look for the My Courses module where you'll find the link to all your course websites. If you don't see the course listed here but you are properly registered for the course in ROSI, wait 48 hours. If the course does not appear, go to the Information Commons Help Desk in Robarts Library, 1st floor, for help, or explore the Portal Information and Help at <http://www.portalinfo.utoronto.ca/content/information-students> and review the Frequently Asked Questions.

Recording Lectures

Lectures and course materials prepared by the instructor are considered by the University to be an instructor's intellectual property covered by the Canadian Copyright Act. Students wishing to record a lecture or other course material in any way are required to ask the instructor's explicit permission, and may not do so unless permission is granted (note: students who have been previously granted permission to record lectures as an accommodation for a disability are, of course, excepted). This includes tape recording, filming, photographing PowerPoint slides, Blackboard materials, etc.

If permission is granted by the instructor (or via Accessibility Services), it is intended for the individual student's own study purposes and does not include permission to "publish" them in

anyway. It is absolutely forbidden for a student to publish an instructor's notes to a website or sell them in any other form without formal permission.