Marketing Analytics

Professor: Moha Ghaderi
Office hours: by appointment

Course Description

The industrial Internet is increasingly allowing firms to measure consumer data (usage data, perceptions data and preference data) as part of regular business. Large amounts of data are collected, stored and organized. Such "Big Data" can be today retrieved easily, visualized in a simple manner, and become available to marketing strategists. In this course, you will learn how to develop actionable marketing strategies based on data.

Objectives

At the end of the course, students should:

- Know how to use market measurement data to generate actionable marketing strategies: How to segment customers? Who to target? How to map product design and market structure? How and where to position your product?
- Understand the core concepts of the marketing analytics tools. Understand why and how methods such as logit analysis, cluster analysis, and conjoint analysis are useful in market segmentation, in targeting, and in mapping market structure and product design.
- Gain a deep understanding of limitations of such tools, and appropriate selection of the methods to address particular marketing strategy requirements.

Methodology

In the classroom, the course will combine lectures and expository sessions on "what" Marketing Analytics techniques are and "when" to apply them with practical hands on SPSS sessions on "how" to perform the analysis and interpret the output to make decisions. The practical sessions in this course will have a heavy "hands-on" flavor, where we will analyze dataset using the R statistical analysis program.

Important: No tutorial on R will be provided. Participants are expected to feel comfortable performing standard statistical tasks in R, e.g., data cleaning and

visualization, regression analysis, loops and conditional operators. Shall needed, you can consult the reference [7] to prepare yourself better before enrolling into the course.

The course also involves a substantial amount of autonomous work outside the classroom combining readings that will help you to gain a deeper understanding of the material covered in the class with homework assignments that will allow you to gain confidence in and become familiar with the practical issues of implementing the analytics techniques.

Evaluation criteria

Indicate all elements of evaluation and their weight in the final grade.

Class Attendance and Active Participation	20%	of your total grade
Individual Homework Assignment 1	20%	of your total grade
Individual Homework Assignment 2	20%	of your total grade
Individual Homework Assignment 3	20%	of your total grade
Individual Homework Assignment 4	20%	of your total grade

Class Attendance and Active Participation

Attendance in every session is expected and recorded by means of an attendance sheet. It is your responsibility to comply with this measure. Class attendance is compulsory and will be considered in your final grades; punctuality is a must. Note that unexcused absences reduce your score on the "attendance and participation" element of your final grade. In fact, two or more unexcused absences will result in an automatic score of zero and, in all likelihood, a fail mark for the course as a whole.

Assessment criteria for the Participation Grade

Attended all the sessions, Actively and consistently participated in the class discussions during the entire course period,	20
Attended all the sessions, Actively and consistently participated in most of the class discussions	15-19
No more than one unexpected absence, Often participated in the class discussions	10-14
No more than one unexpected absences, Participated in some class discussions	5-10

No more than one unexpected absences Limited or no participation in class discussions	1-5
Otherwise!	0

Plagiarism is to use another's work, fully or partially, and to present it as one's own without acknowledging the sources in the correct way. All homework assignments handed in by a student must be original work completed by the student. By enrolling at any UPF Barcelona GSM Master of Science and signing the "Honor Code," students acknowledge that they understand the schools' policy on plagiarism and certify that all course assignments will be their own work, except where indicated by correct referencing. Failing to do so may result in automatic expulsion from the program.

Calendar and Contents

Topic	Session	Topic
0. Understanding the Market: Insights and Inferences from the Data	1.	Welcome and Introduction to the Course – Marketing in the Age of Data
	2.	Data Visualization & Data Aggregation Case: Starting Salary
I. Linking Causes &Effects Between Resources Allocations and Desired Market Outcomes	3.	Regression Analytics Case: Medicorp
	4.	Regression Analytics (*continued*)
	5.	Exercise: Cardio Machines
	6.	Dealing with Synergies and Non-linearities Leveraging the Power of Regression Analytics: Transformation Techniques
		Homework 1
	7.	Reviewing Homework 1
II. Customer Selection Strategy	8.	Logistic Analytics
	9.	Exercise: Ski Resort
	10.	Logistic Analytics: Assessing Validity
		Homework 2
	11.	Reviewing Homework 2
III. Customer Segmentation & Profiling	12.	Cluster Analytics - Fundamental Concepts
	13.	Clustering Analytics - Implementation and practical issues
	14.	Cluster analytics - Robustness Analysis Segmenting Consumers on the Basis of Attitudes to Shopping
		Homework 3
	15.	Reviewing Homework 3
IV. Consumer Choice & Decision Analytics	16.	Conjoint Analytics and Consumer Preferences Modelling
	17.	Choice-Based and Metric Conjoint Analysis
	18.	Market Share Simulation and Benefit Segmentation
		Homework 4
	19.	Reviewing Homework 4
	20.	Future of Marketing Analytics, Course Wrap up, Q&A

Reading Materials/ Bibliography/Resources

No textbook is required for this course. All the required material will be provided. Any readings, notes, handouts, dataset or additional course material will be available through the course website.

However, if you are interested in a general reference book, I recommend the following titles:

[1] Marketing Models: Multivariate Statistics and Data Analytics, by Dawn Iacobucci (3rd edition, 2014).

[2] Econometric Analysis, by William Greene (8th edition, 2018)

[3] Multivariate Data Analysis, by Joseph Hair et al (8th edition, 2018)

[4] Probabilistic machine learning, by Kevin Murphy (2022)

Additional references:

[5] Introduction to Online convex Optimization, by Elad Hazan (2022)

[6] Algorithms for Decision Making, by Kochenderfer and Wray (2022)

[7] Chapman, C., & Feit, E. M. (2015). R for marketing research and analytics (Vol. 67). New York, NY: Springer.

Bio of Professor

Moha Ghaderi is an Assistant Professor at Universitat Pompeu Fabra. He obtained his PhD (cum laude) from ESADE in 2017. His doctoral dissertation has received the ESADE best thesis award and the URL Extraordinary Doctoral Dissertation Award, Doctoral Dissertation Award from the European Doctoral Association in Management and Business Administration, and has been named among the top 3 doctoral dissertations for the biennial award by the MCDM International Society. His research, focusing on quantitative marketing, choice modeling, and convex optimization, has received several prestigious international recognitions such as OMEGA best paper award, INFORMS young scholar best paper award, and the Bernard Roy award, the highest recognition from the European Decision Science community to a young scholar. He had visiting scholar positions at EPFL (Switzerland), Erasmus University (Rotterdam), and Columbia University (New York), and is affiliated professor at BSE and BSM.