
Marketing Analytics and Big Data

Lecturers: Ana Freire, Alberto Lempira Guevara.

Office hours: by appointment

Course Type: Compulsory

Credits: 4 ECST

Term: 1st Term

Course Description

Nowadays, people generate more data and do so at a faster rate than at any other moment in history. From mere individuals and small communities to small and medium companies to large multinationals and government organizations and administrations, everyone's capacity to generate information rapidly grows every day.

We are constantly generating data, and this phenomenon is being boosted even further due to the Internet, cell phones, and the Internet of Things (which allows traditionally off-line devices such as electronic appliances or cars to connect to the Internet to send and receive data). Thanks to those technological advances, not only computers and Smartphones but also medical equipment, and even electronic appliances generate millions of data every second, data waiting to be used as information.

Companies are already aware that the correct analysis and understanding of the available data, both internal and external, is the key to find competitive advantages. In the fields of business and marketing, all the talk about data is focusing more and more on consumer trends, the planning of new products, and other market insights.

Working with traditional statistical techniques, explorative analysis, artificial intelligence and data mining, marketing professionals will have to face the new challenge of interpreting this vast amount of data and incorporating it into their decision-making processes.

From a marketing perspective, the advantage of using data is not limited to the possibility of offering better content or applications to consumers. By relying on data, it is also possible to improve the products and services brands provide, or to facilitate the process of making certain marketing decisions beyond what traditional market research would allow.

Objectives

- Understanding the new challenges that marketing professionals have to face when, to improve an organization's products and services, they use technologies and documented principles to extract and analyze information out of large volumes of data, they access and disseminate information on cell phones, and they gain presence in social networks.
- Understanding the importance of databases and knowledge bases to manage and reach the company's goals.
- Understanding the concept of 'Key performance indicator,' its design, and its applications as a measurement tool of marketing management.
- Learning how to integrate the company's internal and external information efficiently.

Learning to use Business Intelligence (BI) by familiarizing oneself with the appropriate tools and data analysis techniques.

Methodology

Students are expected to participate in class, work in groups, and use the WWW actively.

In-person activities to be conducted in theory sessions:

- Theory classes.
- Project presentations.
- Debates and discussion around marketing cases.
- Seminars taught by collaborators (professionals in the field...).

Autonomous learning:

- Preparation of group/individual projects
- Resolution of cases
- Research on topics related to the course
- Group dynamics involving topics discussed in class
- Individual and group tutorial sessions
- Final exam

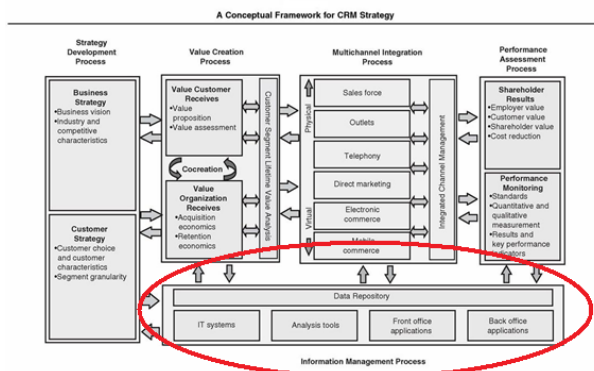
MSc in Marketing

Note: This document is for informational purposes only. Course contents and faculty may change.

The Payne and Frow framework, Journal of Marketing (2005)

We will rely on the conceptual framework by Payne and Frow and, specifically, we will focus on the information management process and its five components (see figure 1 below):

1. Data repository
2. IT systems
3. Analysis tools
4. Front office applications
5. Back office applications



Competencies to Acquire

CE2. Decide between the main market research methodologies and consumer insights acquisition for decision making together with market research companies.

CE9. Apply the models and methodologies for monitoring and updating both strategies and marketing tactics, as well as the portfolio of products and customers, to reach the management objectives set.

Learning Outcomes

CE2.

R1. Methodologically differentiate market research options.

R3 Discriminate between the advantages and limitations of each of the methodologies

R2. Differentiate the usefulness of the information from the implementation of each of the methodologies.

MSc in Marketing

Note: This document is for informational purposes only. Course contents and faculty may change.

R4 Perform the complete planning of a market study.

CE9.

R1 Differentiate between the models and monitoring methodologies available

R2 Choose between the models and monitoring methodologies available

R3 Apply the analyzes performed to support or maintenance decisions or divestment of brands and / or products.

Evaluation criteria

- ML Project (Ana Freire): 35%
- Resolution of cases (Alberto Guevara): 35%
- Final exam: 20%
- Attendance: 10%

Important:

In courses that feature a final exam, **a minimum grade of 4 out of 10 in the final exam is necessary** for the other evaluation criteria to be taken into account when computing the student's overall grade for the course. Therefore, **students who obtain less than a 4 out of 10 in the final exam will fail the course automatically**. Those students will have to take a remedial exam (more details below).

Courses in the Program will generally include group assignments (case studies, projects etc.). At the end of each term, and in order to disincentivize free-riding behaviors, students will have the opportunity to evaluate the involvement of the rest of their team members in all group assignments that took place within the term. Students who obtain sufficiently poor evaluations from their team members will be penalized. The penalty will involve a reduction in the overall group assignment grades of **all** courses that include group assignments (max penalty: 20% reduction of those grades). More details on the topic are available on eCampus.

STUDENTS WHO FAIL TO DELIVER ALL THE ASSIGNMENTS WILL NOT BE ALLOWED TO TAKE THE FINAL EXAM.

All the activities that are submitted past the deadline or that do not follow the submission instructions in terms of content, format, etc. will be considered as 'not submitted'. Students will be informed about the submission and presentation dates the first day of class.

MSc in Marketing

Note: This document is for informational purposes only. Course contents and faculty may change.

Students are required to attend 80% of classes. Failing to do so without justified reason will imply a Zero grade in the participation/attendance evaluation item and may lead to suspension from the program

Students who fail the course during the regular evaluation are allowed ONE re-take of the evaluation, in the conditions specified above. If the course is again failed after the retake, the student will have to register again for the course the following year.

In case of a justified no-show to an exam, the student must inform the corresponding faculty member and the director(s) of the program so that they study the possibility of rescheduling the exam (one possibility being during the “Retake” period). In the meantime, the student will get an “incomplete”, which will be replaced by the actual grade after the final exam is taken. The “incomplete” will not be reflected on the student’s Academic Transcript.

Plagiarism is to use another’s work and to present it as one’s own without acknowledging the sources in the correct way. All essays, reports or projects handed in by a student must be original work completed by the student. By enrolling at any UPF BSM 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

DATE/SESSION	PROFESSOR	TOPIC
27/09/2024	Ana Freire	Introduction to Big Data & Artificial Intelligence.
01/10/24	Ana Freire	Introduction to Python.
03/10/24	Ana Freire	Exploratory Data Analysis. Machine Learning I: classification.
10/10/2024	Ana Freire	Machine Learning I: classification. Machine Learning II: Regression.
17/10/2024	Ana Freire	Machine Learning II: Clustering. Project development.
29/10/2024	Ana Freire	Project development. Project presentation.
31/10/2024	Alberto Lempira Guevara	Introduction to Web Analytics. Traffic and Audience Analysis with Google Analytics.
07/11/2024	Alberto Lempira Guevara	Challenge 1: Audience Audit. Behavior Analysis and Content Performance
14/11/2024	Alberto Lempira Guevara	Challenge 2: Behavior analysis. Conversion Tracking and Ecommerce Analytics
28/11/2024	Alberto Lempira Guevara	Challenge 3: Conversion Optimization. Advanced Google Analytics Features and Future Trends
05/12/2024	Alberto Lempira Guevara	Final Presentations: Analytics Audit
13/12/2024 (14:00h-16:00h)	Ana Freire	Final Exam

Reading Materials/ Bibliography/Resources

Manyika J., Chui M. et al.; "Big data: The next frontier for innovation, competition, and productivity," The McKinsey Global Institute 2011

Payne and Frow, "A Strategic Framework for Customer Relationship Management", Journal of Marketing, Vol 69, October 2005

Big Data Now. O'Reilly Media. September 2011.

Big Data: The next frontier for innovation, competition, and productivity. McKinsey Global Institute, McKinsey & Company. May 2011.

Brad Brown, Michael Chui, James Manyika. "Are you ready for the era of 'Big Data'?", Global Institute, McKinsey & Company. McKinsey October 2011.

Brandl, Bernd; "Big data in macroeconomic forecasting: On the usefulness of knowledge discovery in databases"; PROCEEDINGS OF THE 22ND INTERNATIONAL CONFERENCE ON MATHEMATICAL METHODS IN ECONOMICS 2004; 2004

Chen, Hsinchun; Chiang, Roger H. L.; Storey, Veda C., "BUSINESS INTELLIGENCE AND ANALYTICS: FROM BIG DATA TO BIG IMPACT"; MIS QUARTERLY; Pages 36-4; 2012

Chui M, Löffler M, Roberts R, , "The Internet of Things", and Roger, McKinsey Quarterly 2010 Number 2

Competing through data: Three experts offer their game plans. McKinsey Global Institute. October 2011

Davenport, Thomas H.; Barth, Paul; Bean, Randy; "How 'Big Data' Is Different"; MIT SLOAN MANAGEMENT REVIEW; 54-1; 2012

Dearstyne, Bruce W.; "Big Data's Management Revolution"; HARVARD BUSINESS REVIEW; 90-12; 2012

How strategic is our technology agenda? Business Technology Office, McKinsey & Company. October 2011.

Ignatius, Adi; "Big Data for Skeptics"; HARVARD BUSINESS REVIEW; 90-10; 2012

Karlgaard, Rich; "Surfing the Big Data Wave EMC's Joe Tucci"; FORBES; 188-4; 2011

Kotler, P., Kartajaya, H., & Setiawan, I. (2021). *Marketing 5.0: Technology for Humanity* (1st Editio). Wiley.

- Lavalle, Steve; Lesser, Eric; Shockley, Rebecca; Hopkins, Michael S.; Kruschwitz, Nina; "Big Data, Analytics and the Path From Insights to Value"; MIT SLOAN MANAGEMENT REVIEW; 52-2; 2011
- McAfee, Andrew; Brynjolfsson, Erik; "STRATEGY & COMPETITION Big Data: The Management Revolution"; HARVARD BUSINESS REVIEW; 90-10; 2012
- McClure, D., "Startup Metrics for Pirates: AARRR!!!", <http://www.slideshare.net/dmc500hats/startup-metrics-for-pirates-long-version>
- Mouncey, Peter; "Wrestling with 'big data'"; INTERNATIONAL JOURNAL OF MARKET RESEARCH; 54-4; 2012
- Müller, Andreas C; Guido, S. Introduction to Machine Learning with Python: A Guide for Data Scientists. 2017.
- Rosenthal C, "Big Data in the age of the telegraph", McKinsey Quarterly 2013
- Russom Philip, "Big Data Analytics", TDWI Research (The Data Warehousing InstituteTM). October 2011.
- Sheppard B, Chui M, Löffler M, Roberts R, "Putting Big Data to Work: Opportunities for Enterprises", GIGAOM. March 2011. "Big Data: Cómo la avalancha de datos se ha convertido en un importante beneficio", paper de TICbeat.
- The Data Warehouse Institute, <http://tdwi.org/Home.aspx>

Bio of Professors

Ana Freire holds a PhD (cum laude) in Computer Science and is the Vice-Dean for Social Impact and Academic Innovation at UPF Barcelona School of Management. She has a vast experience in Artificial Intelligence, Information Retrieval and Social Media Analysis. She has collaborated with worldwide prestigious institutions such as Yahoo Labs, the University of Glasgow and the National Research Center of Italy.

Ana has contributed with more than 50 scientific publications, several patents and accumulates numerous national and international recognitions. She was included by Business Insider in the list of 23 young Spaniards called to lead the technological revolution. She also received the Female Young Scientific Talent Award from the Spanish Royal Academy of Sciences and Mastercard, and the Ada Byron Jr Award from the University of Deusto.

Alberto Lempira Guevara is a Marketing & Business Development Consultant. He is a Ph.D. in Business candidate at the Barcelona University (Spain), MSc. In Marketing from Pompeu Fabra University (Spain), he has a Postgraduate degree from Tecnocampus-UPF (Spain) in Digital Marketing, two Postgraduate degrees from INESDI Online Business School (Spain) in Inbound Marketing, Transmedia Storytelling/Branded Content and he has a Bachelor's degree in Production Engineering by Metropolitan University (Venezuela).

Alberto worked in Political Marketing for more than five years. He has also been working on user acquisition, CRO, digital strategy, and advertisement for the last eight years. He has worked as a consultant for the past years and is re-launching the consulting agency BoostingOut. He is the host of the @NotYourMarketer podcast.

Alberto is currently the academic coordinator of the Master of Science in Marketing at the Pompeu Fabra University.