Marketing Analytics

Professor: Abhishek Borah Email: aborah@upenn.edu or abhishek.borah@insead.edu Office: 752, Jon M. Huntsman Hall, Suite 700	Office Hours: Monday, 3:30 PM-5:30 PM or anytime by appointment

Course Purpose

In a business world drowning in exabytes of data, the ability to extract insights from data and use them to drive strategic decisions is an increasing source of competitive advantage. But none of us are born statisticians or data scientists, and we are all susceptible to false claims that appeal to our intuitions, personal values, desire for certainty, and workplace incentives.

This course is intended to help you develop the scientific mindset necessary for data-driven managerial thinking. We will learn to speak the language of data and think critically about research design, data collection, data analysis, and conclusions drawn from data. We will examine how both established techniques and novel techniques from digital analytics can be leveraged across a broad array of strategic decision contexts, including segmentation and positioning, product development, promotional communications, and policy design.

Why take this class?

Want to start a new company, help your established company beat its competitors, or consult with other companies to help improve their practices? Whatever you hope to achieve, marketing analytics is the key to making it happen. The use of marketing analytics is critical to sound strategic decisions of every variety, including:

- Identifying and pursuing new market opportunities
- Finding the right target segment and better understanding customer needs
- Anticipating and adjusting to current and potential competitive threats
- Keeping your products and services relevant in rapidly changing markets
- Designing better customer experiences and taking the guesswork out of service
- Balancing experimentation and innovation with profitability
- Creating performance benchmarks and assessing your effectiveness
- Understanding the information and research methodologies your problems demand
- Improving your own decision-making capabilities in novel and unfamiliar contexts
- Cultivating your own comparative advantages as you manage your career

Learning Goals

- Using Conventional and Digital Market Intelligence to Inform Marketing Strategy

- Understanding Statistical Concepts and Data Analysis

- Evaluating and Communicating Data-Driven Insights

Who Should Take This Course?

For those of you seeking careers as entrepreneurs, venture capitalists, brand managers, or managers of any sort, being an intelligent consumer of data-driven insights has never been more essential. Identifying, evaluating, or persuasively conveying the value of new market opportunities depends entirely on the proper use of marketing analytics. Take this course if you hope to develop a scientific mindset and gain familiarity with the concepts and language of data-driven thinking without the need for heavy investments in statistical or technical expertise.

Those of you seeking careers in marketing research, data analytics, digital technology, or consulting will soon be in the business of supplying data-driven insights. Take this course if you hope to better understand how to communicate the value of your data-driven insights to non-expert clients or managers who are unaccustomed or resistant to data-driven thinking.

Pre-requisites and Course Materials

The readings are in the second last page of this document and files for class demonstrations and exercises will be posted on the course website throughout the class.

Required Software:

We will use Microsoft Excel throughout the course to demonstrate methods and complete our in-class exercises. Please add the Analysis ToolPak and Solver Add-in, which are included with the Microsoft Office suite for free.

https://www.youtube.com/watch?v=SqpSwxJ9t2k for Windows
https://www.youtube.com/watch?v=BvgCKKq6FRE for Mac

Throughout the class, you will also see example code and learn to interpret output from SPSS, R, and Python, which are three of the most powerful and widely used statistical software packages. If you are interested in learning more about them, I will share a variety of free resources in class.

Course Overview

Session	Date	Session Title	Readings & Assignments
1	19-Jan	The Marketing Manager as Intuitive Statistician	
2	24-Jan	New Marketing Data and Better Science + Speaker: Jolanta Oliver, Director, Global Social Listening & Measurement, McDonald's Corporation (Focus of Lecture: Social Media Listening and Measurement)	Reading: "Data Science…" Reading: "The Rapid Adoption…" Reading: "The Age of Analytics…"
3	26-Jan	Exploratory, Descriptive, & Causal Research and Regression Models - I	
4	31-Jan	Regression Models – II and Conjoint Analysis	Reading: "Understanding Conjoint …"
5	02-Feb	Segmentation Analysis	
6	07-Feb	Perceptual Maps for Positioning+ Speaker: Christina Gravert, Professor of Behavioral Economics & Founder Impactually (Focus of Lecture: Nudges and Behavioral Science)	Group Assignment 1 Deadline on 7th Feb, 11:59 pm EST
7	09-Feb	Speaker: Akshay Mathur, Partner, Quantum Consumer Solutions: Insight & Strategy (Focus of Lecture: Thick Data and Qualitative Insights) Speaker: Dan McCarthy, Professor of Marketing, Goizueta Business School, Emory University (Focus of Lecture: New Developments in Customer Lifetime Value Models & Customer-Based Corporate Valuation)	
8	14-Feb	Trendspotting and Keyword Analytics	Reading: "Quantitative trendspotting …" Reading: "Leveraging trends …"
9	16-Feb	Text Mining and Computational Linguistics - I Speaker: Elif Isikman, Marketing Science Manager, Meta (Focus of Lecture: Research for Advertising Effectiveness Measurement)	Reading: "What can Machine Learning…" Reading: "How Analytics and Machine Learning…" Reading: "Mine Your Own…"
10	21-Feb	Text Mining and Computational Linguistics – II	Group Assignment 2 Deadline on 21st Feb, 11:59 pm EST
11	23-Feb	Demand Forecasting and Communicating Market Intelligence	Reading: "A new product growth…"
12	28-Feb	Final Individual in-Class Exam	

Evaluation

In addition to class participation (measured by your qualitative comments and demonstration of passion for learning in the in-class exercises), there will be two further components to your evaluation. You will complete two group assignments and a final individual in-class exam intended to help you understand the benefits and limitations of common marketing research methodologies.

Course Component	% of Grade
Class Participation and Professionalism	20%
Two Group Assignments	50%
Final Individual Exam	30%
Total	100 %

Group Formation

I shall organize groups of 3 to 5 people in order to do the group assignments.

Classroom Norms and Course Policies

The value of this course depends heavily on **attendance** and the **insights generated through class discussion**. This means that each of you is individually responsible for the quality of this course. Those of you with a lot of prior knowledge about market intelligence can greatly benefit your classmates by sharing your insights. And those of you with little prior knowledge can contribute just as much by asking questions that spark constructive discussions and further explanations. The classroom norms and standards for evaluation will thus be grounded in your net impact on the course: Does your involvement impose negative or positive externalities on your classmates? How much do you enhance their learning experience and the quality of the discussion?

Accordingly, in order for us to share and acquire knowledge and master skills together, please be prepared for class and arrive on time.

The general policies outlined in the MBA Code of Conduct (Academic norms) apply.

Electronic Device Policy: The Wharton School's policy is not to allow the use of Electronic Devices in MBA classes, unless specifically permitted. Please see the electronics in the classroom policy: https://mba-inside.wharton.upenn.edu/wharton-mbaacademic-policies/

This course completely adheres to that policy. Consequently, make sure any electronics (e.g., phone, laptop or tablet) are shut off and put away, unless explicitly instructed otherwise

Auditing is allowed, but please check with me first.

Readings:

1) Provost, Foster and Tom Fawcett (2013), "Data Science and its Relationship to Big Data and Data-driven Decision Making," *Big Data*, 1, 1, 51-59.

2) Brynjolfsson, Erik, and Kristina McElheran (2016), "The Rapid Adoption of Data-Driven Decision-Making," *American Economic Review*, 106(5): 133-39.

3) Henke, Nicholas, Jacques Bughin, Michael Chui, James Manyika, Tamim Saleh, Bill Wiseman and Guru Sethupathy (2016), "The Age of Analytics: Competing in A Data Driven World," *McKinsey Global Institute.*

4) Brynjolfsson, Erik and Tom Mitchell (2017), "What can Machine Learning Do? Workforce Implications," *Science*, 1530-1534.

5) MIT Technological Review (2016). "How Analytics and Machine Learning Help Organizations Reap Competitive Advantage,

6) Curry, Joseph (1996), "Understanding Conjoint Analysis in 15 Minutes", *Sawtooth Technologies, Inc.* https://sawtoothsoftware.com/resources/technical-papers/understanding-conjoint-analysis-in-15-minutes

7) Netzer, Oded, Ronen Feldman, Jacob Goldenberg and Moshe Fresko (2012), "Mine Your Own Business: Market-Structure Surveillance Through Text Mining," *Marketing Science*, 31(3), 521-543.

8) Du, R. Y., & Kamakura, W. A. (2012), "Quantitative Trendspotting," *Journal of Marketing Research*, 49(4), 514-536.

9) Du, R. Y., Hu, Y., & Damangir, S. (2015), "Leveraging trends in online searches for product features in market response modeling," *Journal of Marketing*, 79(1), 29-43.

10) Bass, F. M. (1969), "A New Product Growth for Model Consumer Durables," *Management science*, 15(5), 215-227.

Bio:

Abhishek Borah is an Assistant Professor of Marketing at INSEAD with expertise in generating customer insights from unstructured data such as textual data using computational linguistics and machine learning. He holds a PhD in Marketing from the Marshall School of Business at the University of Southern California with a focus in quantitative marketing and econometrics. Prior to joining INSEAD, he was a faculty member at the Foster School of Business at the University of Washington in Seattle. Before that he worked in McKinsey and Company.

Abhishek's research interests lie at the intersection of media, technology, and human behaviour. His research has appeared in leading academic journals such as *Harvard Business Review*, *Journal of Marketing*, *Journal of Marketing Research*, *Marketing Science*, *Information Systems Research, Strategic Management Journal*, and *International Journal of Research in Marketing.* His research has been referenced in outlets such as *Nature*, *Wall Street Journal*, *Ad Age*, *Fast Company*, *Forbes*, and futurity.org.

In recognition of his research, Abhishek has been named as a 2019 Young Scholar by the Marketing Science Institute (MSI) where MSI identifies faculty members who are likely leaders of the next generation of marketing academics. Abhishek won the MSI Robert D. Buzzell Best Paper Award 2018 for "The Dark Side of Big Data's Effect on Firm Performance," which is determined by MSI Company Trustees for the most significant contribution to marketing practice and thought. His paper "Improvised Marketing Interventions in Social Media" was awarded the 2020 AMA TechSIG Lazaridis Prize: Best Paper for Research on Innovation, Technology & Interactivity. His paper on "Data Privacy: Effects on Customer and Firm Performance", in the *Journal of Marketing* was a finalist for both the Maynard Award and the MSI Paul Root Award.

He was awarded the Dean's Commendation for Teaching Excellence 2020-2021 to MBA students at INSEAD and previously was awarded the Undergraduate Faculty of the Year cross all disciplines in the year 2017-2018 at the Michael G. Foster School of Business, University of Washington, Seattle. He has received funding for his research from the *Marketing Science Institute, American Marketing Association, EBSCO, National Science Foundation, INSEAD Emerging Markets Institute,* and *University of Southern California's Center for Global Innovation*. He has been invited to present his research in various universities such as London Business School, Tuck School of Business at Dartmouth, Darden School of Business at the University of Virginia and many other universities across the world. He is a senior advisor to Hyperthesis, a start-up using machine learning for generating insights for researchers.

Abhishek sits on the editorial review board for the top journals in marketing such as *Journal of Marketing*, *Journal of Marketing Research*, *International Journal of Research in Marketing*, and the *Journal of Academy of Marketing Science*, and reviews papers on a regular basis for other leading academic journals. He is also a co-editor of a special section on the marketing-finance interface at the *International Journal of Research in Marketing*. He has co-organized/co-chaired the Marketing Strategy Meets Wall Street Conference, 2019 and the New Ideas in Marketing (NiM) online seminar series, 2020.

Abhishek is the VP of membership for the INFORMS Society for Marketing Science.