

MARKETING DEPARTMENT
The Wharton School
THE UNIVERSITY OF PENNSYLVANIA

Data and Analysis for Marketing Decisions (MKTG 212/712)

FALL 2019

Course Syllabus and Schedule (Version: 08/27/2019)

**THIS IS A FULL CLASS: ATTENDANCE AT THE FIRST DAY
OF CLASS IS MANDATORY!**

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| <i>Instructor:</i> | Professor Jehoshua (Josh) Eliashberg 744 JMHH Email: eliashberg@wharton.upenn.edu For course related issues please use Canvas Inbox |
| <i>Office Hours:</i> | Wednesday 5-6pm and by appointment |
| <i>Grader:</i> | Yi Liu liuyliuy@wharton.upenn.edu |
| <i>Office Hours:</i> | Mondays 5-6pm and by appointment |
| <i>Administrative Coordinator</i> | Cuadrado, Megan J < mcuad@upenn.edu > |
| <i>Recommended Text</i> | Iacobucci and Churchill (IC) Marketing Research: Methodological and Foundations (11th Edition). Publisher: Earlie Lite Books |
| <i>Required Reading Pack (RP):</i> | Available via Study.net |
| <i>Software:</i> | JMP and Excel (R is also allowed) |
| <i>Student Referred Reading Material:</i> | Feel free to post on Canvas interesting articles that relate to the course for your colleagues to read |
| <i>Course Website:</i> | https://canvas.upenn.edu |

Overview and Objectives

Firms have access to various data of customers. Such data may include in-store and online customer transactions and reviews, customer surveys as well biometric data. Using real-world applications from various industries, the goal of the course is to familiarize students with several types of managerial problems as well as data sources and analytical techniques, commonly employed in making effective marketing decisions. The course involves formulating managerial problems, securing and analyzing data, drawing inferences, and telling evidence-based convincing narratives with a view of yielding actionable results. Participants should be able to report data analytics results such that industry managers not familiar with analytics can understand the analysis and recommendation

Prerequisites: For **MKTG 212:** MKTG 101, STAT 101. Students are highly encouraged to take statistics in the semester immediately preceding this course. For **MKTG 712:** MKTG 611; STAT 611, 613, 621 are strongly recommended.

Course Materials and Approach

In the course we will use a variety of readings, cases, and applications. The most important readings and complete list of cases (RP) are contained in the **Study.net**. In addition, lecture notes will be made available on the **Course Canvas** throughout the semester. The readings are designed to introduce key concepts and principles. Cases will allow examining, in detail, the applications of particular data sources and analytical approaches and techniques. The course emphasizes applications and marketing decision-making. To gain a practical experience, you will work on a group project involving data collection, analyses, and telling your story, whose progress will be monitored throughout of the semester. Statistical analyses discussed in class will be based on Excel and JMP software. Instructions how to run the software will be posted on Canvas. There will also be a number of guest lecturers who will share perspectives into the practice of data-based decision making. **Please note that there may be some changes in the dates the guests are scheduled to visit the class.**

Assessment

The final grade in the course will be based on both individual and group work. The evaluation is as follows:

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|--|-----|
| Individual assignments | 20% |
| In-class quizzes | 10% |
| Mid-term exam | 20% |
| Class attendance, etiquette, participation | 10% |
| Guest speakers engagement | 5% |
| Group mini assignment | 10% |

| | |
|------------------------------------|-----|
| Group final project presentation | 5% |
| Group written final project report | 20% |

Assessment Details

Assignments

The purpose of these assignments is to give you “hand-on” experience with designing research and employing data analyses. These assignments will help clarify the concepts and techniques discussed in the classroom. **The assignments will be placed in a Canvas folder.** It will clearly be stated there whether it is a **group or individual** assignment. If in doubt, please check with me or the grader. **Each assignment should be submitted as:** (i) two hard copies and (ii) a soft copy to be placed in the **Canvas Assignments** folder by the **beginning of the class.** The **due dates** are given in the class schedule as well as on the assignments sheets. **No late assignment will be accepted. Plagiarized work will result in severe penalty.**

Academic Integrity

Please familiarize yourselves with the University Code of Academic Integrity:
http://www.upenn.edu/academicintegrity/ai_codeofacademicintegrity.html

Please also review Penn’s Plagiarism Policy:
http://gethel.library.upenn.edu/PORT/documentation/plagiarism_policy.html

Group Final Project: Scope and Expectations

Group size should be **of size up to Four.** I expect class members to select their own project groups and to be responsible for managing the division of labor within the group. In case you don’t know other members of the class, you will be assigned by us to a group.

The project will allow you explore a data-based real-world marketing problem of interest to you within which you can apply the methods covered in class. The data to be employed in the project can be either primary, secondary or both types that can assist decision-making. For example, the project may involve supporting a startup idea or solving a pricing problem. However, your team should feel free to work on any real-world problems that require data and analytics for solutions. If in doubt, please consult with the instructor. Progress status reviews will be conducted. **Your project status report is a one-page document summarizing what you have done, key findings, and what you are planning to do next.**

Team members typically receive the same grade, although adjustments will be made, if necessary, based on instructor and peer assessment of contributions to team work. Outside executives may also provide me with inputs. Peer assessment forms are available at the end of the course syllabus.

Presenting research results convincingly to an audience is, in my opinion, a critical task. We will spend some time on it in the class. The last two sessions will give you an opportunity to practice it (**10 minutes** per presentation). Each group will be asked to make an in-class **final project presentation** in these sessions. The other members of the class are expected to participate and act as the client. I will let you know the sequence of the presentations in advance. The final written report should be no longer than **twenty** double-spaced pages in total (excluding exhibits, appendices, and other attachments). **The presentation deck and the final report are due on the last class meeting.**

Quizzes:

There will give 4 **10-minute in-class** individual quizzes and the **lowest grade among these will be dropped**. These quizzes are designed to help you summarize and understand what has been covered in class and prepare for the exam. They will also help me assess whether or not everyone is comfortable with that the topics covered in class.

Mid-term Exam:

It will be administered online and you will be given 90 minutes to work on it.

Class Attendance, Etiquette, Participation

Please bring your **name plate** to class and stay in the **same seat** every class meeting. You are expected to treat fellow classmates with respect and are expected to arrive for class **on-time**. Unexcused absence or chronic lateness will decrease your grade for the course. Every session of the course will involve some discussion. Please be prepared. Some class sessions in this course follow a case discussion format. The case provides a vehicle by which to apply the theories, concepts, and analytical techniques discussed in a class or in the reading materials. Keep in mind that your grade for class participation is not simply a function of the amount of "air time" you take up. You will be evaluated on how well you respond to questions and on how effectively you take into account the comments and analyses of your classmates.

Electronics policy

No electronic devices allowed in class. Laptops will be allowed to turn on for some in-class exercises. It will be clearly specified in advance.

Guest speakers engagement

I will have various outsiders from different industries visit our class and present on how they approach data-based issues (that we discuss in class as well as others) in the real world. Students will also earn class participation points by attending all guest presentations and by getting involved in the discussion (by asking and responding to insightful questions). It is highly recommended that you familiarize yourself with the guest speaker's firm and its clientele prior to the presentation.

Please note that since these are high-level executives, there may be some *changes* in the dates they are scheduled to visit the class.

As part of the guest speakers engagement, it is expected that you email me via Canvas at the end of the guest speaker's day (i.e., by 12 midnight) your three key takeaways from the session. In particular, I would like to hear from you how the takeaways from the guest speaker are connected to other classes that you have taken, and/or any of your real-world experience.

Student-Faculty Meals:

I will be glad to chat with you over lunch. Signup sheet is available on the course Canvas. Group size should be at least three students and no more than seven.

Marketing 212/712
Fall 2019
J. Eliashberg
Tentative Course Schedule

| Date | Session | Topics and Assignments | Readings and Preparations |
|--------------|---------|---|---|
| W. August 28 | 1 | Introduction <ul style="list-style-type: none"> • Objective of this course • What you will learn in this course • Course administrative issues • Getting to know each other | |
| M. Sept. 2 | 2 | No Class—Labor Day | |
| W. Sept. 4 | 3 | Part I: The Planning Process Applying Data Science to Marketing Problems: The Process Case: The Coop (in RP) Discussion Issues: (1) What are the factors that might be causing the decline in sales within stores (2) Evaluate the marketing research proposals: pros and cons | “Why Future Jobs Will Require Data Analytics Skills” Chapters 1,3 (IC) |
| M. Sept. 9 | 4 | Some recent technology- based data collection techniques Client/consultant interaction | |
| W. Sept. 11 | 5 | Part II: Data Types Primary Data Collection and Questionnaire Design Case: “Compact Lemon” Due: 2 Hard copies in class and a Soft copy in Canvas Assignments Folder: Group Members | “Smart Survey Design” Chapters 8,9 (IC) |
| M. Sept. 16 | 6 | More on Primary Data: Experimental Data Secondary Data | Chapter 6,7 (IC) |
| W. Sept. 18 | 7 | New Approaches to Collecting Primary Data: Neurophysiology and Biometrics | |
| M. Sept. 23 | 8 | Quiz #1 Continued topics –Secondary Data and Online Reviews Due: 2 Hard copies and a soft copy: Group Assignment #1 | “What Makes Doctors Value Patient Feedback” “Turning Loyal Patients” |
| W. Sept. 25 | 9 | Collecting and Analyzing Multiple Data Types | |
| M. Sept. 30 | 10 | No Class--Holiday | |
| W. Oct. 2 | 11 | Part III: Data Properties and Analysis Examining the Data: Scales of Measurement and Data Vetting Review of Commonly Employed Hypotheses Testing and Basic Data Analysis in Marketing Problems | Chapter 10, 15,16 (IC) |
| M. Oct. 7 | 12 | More Data Analysis —Chi-Square, ANOVA, Regression | Appendix to Chapter 14 pp.352-354 Appendix to Chapter 16 pp.395-398 (IC) |
| W. Oct. 9 | 13 | No Class--Holiday | |

| Date | Session | Topics and Assignments | Readings and Preparations |
|------------|---------|--|---|
| M. Oct. 14 | 14 | Quiz #2 Continued Topics--Regression Conjoint Analysis | “Forecasting with Regression Analysis”(RP) Chapter 17 (IC) Appendix 17 (IC) |
| W. Oct. 16 | 15 | More on Conjoint Analysis Due: 2 Hard copies and a soft copy: Individual Assignment #1 | “Conjoint Analysis: A Do It Yourself Guide” (RP) |
| M. Oct. 21 | 16 | Real-World Applications of Conjoint Analysis | |
| W. Oct. 23 | 17 | Continued topics Big Data Analysis: Factor Analysis | “Analyzing Consumers Perceptions” (RP) Chapter 18 pp.452-467 (IC) |
| M. Oct. 28 | 18 | Quiz #3 Short groups projects ideas presentations | |
| W. Oct. 30 | 19 | Continued topics Some comments on presentations Due: 2 Hard copies and a soft copy: Individual Assignment #2 | |
| M. Nov. 4 | 20 | Digital Reputation Management and Text Analysis | “Practical Text Analytics” by Steven Struhl, Chapters 1 and 2 (RP) |
| W. Nov. 6 | 21 | Quiz #4 Continued topics Midterm Exam Review Due by 5pm: 2 Hard copies and a soft copy: One page group project status report—what has been done and plan for November | |
| M. Nov. 11 | 22 | Projects Progress Reviews | |
| W. Nov. 13 | 23 | Part IV: Applications Analytics in the Books Industry Due: 90 minutes Midterm Exam by 11:59pm | |
| M. Nov. 18 | 24 | Analytics in the Health Care Industry | |
| W. Nov. 20 | 25 | Analytics in the Gaming Industry | |
| M. Nov. 25 | 26 | Analytics in the Digital Marketing Industry | |
| W. Nov. 27 | 27 | No Class—Happy Thanksgiving! | |
| M. Dec. 2 | 28 | Course wrap up Final Consultation before Presentations | |
| W. Dec. 4 | 29 | Project presentations | |
| M. Dec. 9 | 30 | Projects presentations Due: 2 Hard copies in class and a soft copy: Groups project final report and presentation deck. Peers evaluations should be submitted in sealed envelopes in | |

| Date | Session | Topics and Assignments | Readings and Preparations |
|------|---------|-------------------------|---------------------------|
| | | the instructor mailbox. | |

**Mktg 212 and 712
Data and Analysis for Marketing Decisions --Fall 2019
Professor Jehoshua Eliashberg**

Course Readings Pack in Study.net: Table of Contents

- “Why Future Jobs Will Require Data Analytics Skills”
- “The Coop: Market Research” (HBS, 9-599-113)
- “Compact Lemon” Case
- “Smart Survey Design”
- “What Makes Doctors Value Patient Feedback”
- “Turning Loyal Patients”
- “Forecasting with Regression Analysis,” (HBS, 9-894-007)
- “Conjoint Analysis: A Do It Yourself Guide (HBS, 9-515-024)
- “Portland Trail Blazers” (Darden Business Publishing, UVA-M-0773)
- “Analyzing Consumer Perceptions,” (HBS, 9-599)
- “Practical Text Analytics” by Steven Struhl. Chapters 1 and 2

Jehoshua (Josh) Eliashberg

Jehoshua (Josh) Eliashberg is the Sebastian S. Kresge Professor of Marketing and Professor of Operations and Information Management, at the Wharton School of the University of Pennsylvania. He also held visiting scholar positions at the Business Schools of The University of Chicago, Chulalongkorn University (Bangkok, Thailand), Penn State University, INSEAD (Fontainebleau, France), Erasmus University (Rotterdam, The Netherlands), Singapore Management University, Carnegie-Mellon University, The University of British Columbia, UCLA, Time Inc., and at the Operations Research Department at AT&T Bell Laboratories.

Professor Eliashberg's research interests are in developing models and methodologies to solve business problems. His research has focused on various issues including new product development and feasibility analysis, marketing/manufacturing/R&D interface, and competitive strategies. He has particular interest in the media and entertainment, pharmaceutical, and the hi-tech industries. He has authored numerous articles appearing in major academic journals. His work in the entertainment industry has been the subject of articles appearing in *BusinessWeek*, *The Christian Science Monitor*, *The Financial Post*, *Financial Times*, *Forbes*, *Fortune*, *Los Angeles Times*, *The Philadelphia Inquirer*, *The New York Times*, *Variety*, *Newsweek*, *The Wall Street Journal*, and *The Washington Post*.

He is currently the Series Editor of Springer's International Series in Quantitative Marketing and the Editor-in-Chief of *Foundations and Trends in Marketing*. He was elected a Fellow of the INFORMS Society for Marketing Science for his contributions to the field in June 2010 and was named a Fellow of The Institute for Operations Research and the Management Sciences in November 2010. His other professional services have included membership on the advisory boards of the National Science Foundation, the American Councils for International Education, and the academic liaison committee of the CMO Council.

Professor Eliashberg has been teaching various courses at Wharton. Prior to joining academia, he was employed for a number of years as an electronic engineer and marketing. He has participated extensively in various executive education programs. His executive education and consulting activities include AccentHealth, AstraZeneca, AT&T, Booz, Allen & Hamilton, Bell Atlantic, Campbell Soup, Cheil Communications, CTV Television Network (Canada), Domino's Pizza, Franklin Mint, General Motors, Givaudan, HBO, IBM, Independence Blue Cross, Inmar, Janssen Pharmaceutica Inc., Johnson & Johnson, L G Electronics, Lucent Technologies, Multimedia Development Corp. (Malaysia), Pathe Cinema (Holland), Philip Morris, The Siam Cement Group (Thailand), Sirius Satellite Radio, Warner Home Video, Weave Innovations Inc., Woodside Travel Trust, and Wyeth/Pfizer Pharmaceuticals. He also serves as an advisor to a number of startup companies.

Group Project Self and Peers Evaluation Form

The purpose of this evaluation form is to communicate the contribution of each individual in the group. Do this by allocating points among group members: give more points to individuals who did more work or for some reason deserve more credit; give fewer points to individuals who did less work or for some reason deserve less credit. The total points available for the entire group **including you** are 100. Therefore, if there are five members in your group, and if you feel that each member did their fair share of the work, then give 20 points to each member. If you give one or more members more than 20 points, then one or more other members must receive less than 20 points. I will consider confidentially all of the evaluations turned in. Please leave the form in a sealed envelope in my mailbox on the last day of the class.

Course: _____

Project Title: _____

| | Group Member | Points |
|--------------------|---------------------|---------------|
| Your Name: | _____ | _____ |
| Other Members: | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| Comments (if any): | _____ | _____ |
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