**Marketing Analytics: Based on First Principles**

**Instructional Manual**

**Table Of Contents**

1. A Personal Note from the Authors 3

2. Instructional Resources 4

2.1 First Principles Approach Slide Library 4

2.2 Broad Analytics Cases (with Solutions) and Data 5

2.3 Analytics Case References 5

2.4 Example Syllabi 6

2.5 Test Bank 7

2.6 Instructional Videos 7

3. Delivering a Marketing Analytics Course 13

3.1 Overarching Objectives 13

3.2 Overall Course Structure 13

3.3 Course Structure for Undergraduate Marketing Analytics 14

3.4 Graded Components for Undergraduate Marketing Analytics 15

3.5 Example Syllabus for Undergraduate Marketing Analytics 15

3.6 Course Structure for a Graduate (MBA) Marketing Analytics 15

3.7 Graded Components for Graduate (MBA) Marketing Analytics 17

3.8 Example Syllabus for Graduate (MBA) Marketing Analytics 17

# A Personal Note from the Authors

We truly appreciate your use of ***Marketing Analytics: Based on First Principles***! The book can support courses focused on marketing analytics at both the undergrad and graduate levels.

We recognize there are other books you could adopt for your course. However, from our own experience, we believe this book is particularly useful for marketing analytics courses for the following reasons:

Many marketing analytics textbooks take a statistic- or model-centric perspective and are organized around different modelling techniques, which can leave the student with little guidance on when to use each approach or how the different techniques fit together. This lack of a “big-picture” structure can leave the student marketers without a working framework or understanding on how to integrate marketing analytics into their day-to-day work. This book addresses this concern by adopting a different approach by:

* Organizing the analysis tools, marketing models, and chapters around the First Principles of Marketing to give students a structured framework for understanding and applying marketing analytics into solving a diverse range of marketing problems.
* Integrating state-of-the-art marketing analytics techniques into all aspects of marketing to allow students to make more effective data-based decisions.

Providing the *underpinning of each analysis technique*, with open-source R code for conducting the analyses, as well as how to use Tableau to better visualize and generate evidence-based insights.

In the rest of the manual, we detail all the instructional resources we provide with the book, provide field guides to constructing Marketing Analytics courses using our book, and subsequently provide some sample syllabi for immediate use. We hope you enjoy ***Marketing Analytics: Based on First Principle.*** Thank you again for using our book!

# Instructional Resources

We list all the teaching resources we have provided below.

## First Principles Approach Slide Library

We provide you with a detailed library of PowerPoint slides for classroom instruction. The slide library is organized around each of the 17 chapters of the book to facilitate modular instruction. Each chapter’s slides are aligned with the content provided in the book.

In addition, we have included select examples (from the diverse marketing examples in the book) in each chapter’s slides.

## Broad Analytics Cases (with Solutions) and Data

Besides the case study examples (that include the data and step-by-step R and Tableau code) that come with each technical chapter, we also provide recommendations for additional data-driven empirical cases that instructors can use as individual or team-based assignments. These cases have been tailored for use with the material in this book and are published by Darden Business Publishing. This includes assignment questions, sample R code and Tableau packaged workbooks, and datasets that have been formatted for use with the material in this textbook.

## Analytics Case References

The book can also be used along with analytics cases developed by C-CUBESTM ([www.ccubes.net](http://www.ccubes.net)). Several of these cases provide real-world data that allow the students to practice the marketing analytics techniques of the book using R. The cases complement the chapters in the book, as indicated in the table below. Please visit <https://ccubes.net/teaching-resources/> for more information on the cases as well as instructions on how to order the cases and teaching resources.

|  |  |  |  |
| --- | --- | --- | --- |
| **TITLE** | **ABSTRACT** | **COURSES** | **Suitable for** |
| Listening to The Voice of The Customer | This note describes how customer surveys can be used to gather customer input for a wide range of strategic decisions. | Marketing, Strategy, Business, Consumer Behavior, Marketing Research, Customer Analytics | Chapter 3,4,11 |
| Pursuing the Right Prospects Fixing Sales and Bidding at GQS Through Data Analytics | This case shows how an engineering company can improve sales and bidding by pursuing prospects that they have a greater chance of converting, rather than just prospects that are the largest. | Marketing, Strategy, Business, Buying Behavior, Marketing Research, Customer Analytics | Chapter 4,5,8 |
| Hollywood Regressed | This case shows how movie studios can use scientific and analytic approaches to predict box office success. | Marketing, Strategy, Marketing Research, Customer Analytics | Chapter 3,4,5,13,15 |
| Logistic Regression For Customer Insights | This reading shows how firms can use logistic regression for customer insights. | Marketing, Strategy, Marketing Research, Customer Analytics | Chapter 8 |
| Furniture-Retail-in-Greater-Houston-A-and-B | This reading shows how firms can use customer satisfaction surveys to inform a customer-based strategy. | Marketing, Strategy, Marketing Research, Customer Analytics | Chapter 4,5,8,11,15 |
| Randomized-Experiments-For-Customer-Insights | This reading shows how firms can use randomized experiments for customer insights | Marketing, Strategy, Marketing Research, Customer Analytics | Chapter 16 |
| HealFirst-Clinics-A | This reading shows how a chain of clinics can use an experimental approach to improve strategy implementation | Marketing, Strategy, Business, Buying Behavior, Marketing Research, Customer Analytics | Chapter 4,5,16 |
| HealFirst-Clinics-B | This reading shows how a chain of clinics can use an experimental approach to improve strategy implementation | Marketing, Strategy, Business, Buying Behavior, Marketing Research, Customer Analytics | Chapter 4,5,16 |
| Green Cover-Planning-to-Go-Big-A | This reading shows how firms can use conjoint analysis for customer insights | Marketing, Strategy, Business, Buying Behavior, Marketing Research, Customer Analytics | Chapter 4,5,12 |
| Green Cover-Planning-to-Go-Big-B | This reading shows how firms can use conjoint analysis for customer insights | Marketing, Strategy, Business, Buying Behavior, Marketing Research, Customer Analytics | Chapter 4,5,12 |
| MODCO-Using-Customer-Complaints-and-Complements-for-Strategy-Implementation | This reading shows how firms can use voice of the customer data to obtain customer, strategy and financial insights | Marketing, Strategy, Business, Buying Behavior, Marketing Research, Customer Analytics | Chapter 4,5,8,11,15 |
| DISTRICO-Executing-Strategy | This reading shows how firms can use customer satisfaction surveys to inform a customer-based strategy. | Marketing, Strategy, Marketing Research, Customer Analytics | Chapter 4,5,8,11,15 |

## Example Syllabi

We have provided two complete marketing analytics syllabi for instructors to directly download and design their courses (i.e. one for an undergraduate course, and one for a graduate (MBA) course). While each of these syllabi is for a 14-week session, you might pare it down to a shorter session (e.g., for use in EMBA or other shorter courses) by combining materials from two class sessions in a 14-week class into one section for the 7-week class or by dropping (e.g.) one technical chapter per First Principle section.

## Test Bank

We have provided a comprehensive test bank with multiple choice, true/false, and short answer questions for each chapter. To put a test together, you can customize the questions from across the chapters. The test bank is available on the book’s companion website (instructor access only).

## Instructional Videos

We make available videos that show how we teach the respective classes. These videos include detailed walk-throughs of how to execute the various models and methods covered in the book in R and Tableau. Instructors who are new to the tools (in particular R and Tableau) may find these videos particularly informative. The videos are available here: <https://www.youtube.com/channel/UCVAs27b0Q83VxxMc6ziLKrQ/featured>

# Delivering a Marketing Analytics Course

## Overarching Objectives

In our view, the overarching objective of the course will be to show your students the benefits of using a systematic and analytical approach to marketing decision-making. An analytical approach will enable your students to:

* Use and execute data analytic techniques to understand how to solve marketing analytics problems in a scientific and process-driven manner, and
* Understand how the “first principles” of marketing strategy help firms organize the analytics-based opportunities and challenges that exist in today’s data era.

## Overall Course Structure

We recommend the following course structure:

The first three sessions should provide an overview of marketing analytics as well as an introduction to the two software used as part of the course – R and Tableau. Some instructors may wish to spend two sessions on R, making sure all students are able to download and install the software and understand the basics of how the software works (opening and importing data, basic commands etc.)

The subsequent sessions should be organized along the four **First Principles of Marketing Strategy**, where each “First Principle” provides the organizing framework for a section of the course. Within each of these sections, we recommend that the respective “First Principle” is presented first, followed by the three marketing analytics techniques covered within each “First Principle” unit of the book.

In terms of the marketing analytics techniques covered in the book, one session should be spent per technique. During these more technical sessions, we recommend instructors first introduce the respective analytics technique (i.e., idea behind it, how it works etc.). For this purpose, instructors may wish to use the slides we provide on the book’s companion website. Subsequently, we recommend that the instructors show students how the analytics technique works in R and Tableau using the case examples and code provided in each technical chapter. Subsequently, we would recommend that instructors ask their students to also run the models and replicate the findings. Students can start this analysis in class but finish it outside of class and submit the replication analysis as a homework assignment.

For a course targeted at masters/MBA students, we recommend instructors use additional cases. For example, instructors could use the 4 Darden cases mentioned in the section below (i.e., Carvana, Sticks Kebob, Portland Trail Blazers, and Airbnb) along with the tailored resources provided on the book’s online portal.

We also recommend instructors give at least one closed-book/closed-notes test and/or exam as part of the course, perhaps using the test bank provided on the book’s online portal.

In summary, we recommend the following resources:

* + Slide Library for the respective First Principles of Marketing Strategy.
	+ A deep dive into the analytic concept using the analytics technique’s slide library
	+ A demonstration of the analytics technique using the examples provided in each technical chapter along with the R and Tableau code.
	+ For masters/MBA students, an application of four of the analytics techniques using the Darden cases along with the tailored resources provided on the book’s online portal.

## Course Structure for Undergraduate Marketing Analytics

Below, we present a course outline for a 28 session undergraduate course. The outlined course is best suited for a 14 week long course, where the class meets twice a week. We provide a breakdown of session number, topic, instructional resource needed, and chapter, for each session. We recommend that students are asked to replicate the respective analytics techniques discussed in class as homework assignments. (i.e., replication assignments done in R and Tableau).

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Topic** | **Instructional Resource**  | **Chapter** |
| 1.1 | Introduction to Marketing Analytics | Instructor Slides | 1 |
| 1.2 | Overview of R |  | 1 |
| 2.1 | Overview of Tableau |  | 1 |
| 2.2 | Principle 1: All Customers are Different | Instructor Slides | 2 |
| 3.1 | Principle 1: All Customers are Different* Cluster Analysis and Segmentation
 | Instructor Slides and VideosReplication assignment | 3 |
| 3.2 | Principle 1: All Customers are Different* Targeting and Classification
 | Instructor Slides and VideosReplication assignment | 4 |
| 4.1 | Principle 1: All Customers are Different* Perceptual Mapping and Positioning
 | Instructor Slides and VideosReplication assignment | 5 |
| 4.2 | Review Principle 1 |  |  |
| 5.1 | TEST 1 on Principle 1 | Test Bank |  |
| 5.2 | Principle 2: All Customers Change | Instructor Slides | 6 |
| 6.1 | Principle 2: All Customers Change* RFM Analysis
 | Instructor Slides and VideosReplication assignment | 7 |
| 6.2 | Principle 2: All Customers Change* Logistic Regression
 | Instructor Slides and VideosReplication assignment | 8 |
| 7.1 | Principle 2: All Customers Change* Customer Lifetime Value
 | Instructor Slides and VideosReplication assignment | 9 |
| 7.2 | Review Principle 2 |  |  |
| 8.1 | TEST 2 on Principle 2 | Test Bank |  |
| 8.2 | Principle 3: All Competitors React | Instructor Slides | 10 |
| 9.1 | Principle 3: All Competitors React* Survey Design and Testing
 | Instructor Slides and VideosReplication assignment | 11 |
| 9.2 | Principle 3: All Competitors React* Conjoint Analysis
 | Instructor Slides and VideosReplication assignment | 12 |
| 10.1 | Principle 3: All Competitors React* Forecasting and Diffusion
 | Instructor Slides and VideosReplication assignment | 13 |
| 10.2 | Review Principle 3 |  |  |
| 11.1 | TEST 3 on Principle 3 | Test Bank |  |
| 12.1 | Principle 4: All Resources are Limited | Instructor Slides | 14 |
| 12.2 | Principle 4: All Resources are Limited* Marketing Mix Models
 | Instructor Slides and VideosReplication assignment | 15 |
| 13.1 | Principle 4: All Resources are Limited* Experiments
 | Instructor Slides and VideosReplication assignment | 16 |
| 13.2 | Principle 4: All Resources are Limited* Unstructured Data Analysis
 | Instructor Slides and VideosReplication assignment | 17 |
| 14.1 | Exam Review |  |   |
| 14.2 | Final Exam (comprehensive) | Test Bank |  |

## Graded Components for Undergraduate Marketing Analytics

We recommend the following graded components for the undergraduate course:

***Tests/Final Exam***: The tests/final exam (see course outline above) will be closed-book, and will help assess students’ understanding of the core materials discussed in class. The final exam will cover all material (i.e., not just Principle Four). You could draw test material from the test bank provided with each chapter.

***Replication Assignments***: Students turn in a ***replicated*** analysis of each of the R- and Tableau-based analytics techniques discussed in class in the class period after the technique is discussed. These are individual homework assignments.

## Example Syllabus for Undergraduate Marketing Analytics

We included an example syllabus for an Undergraduate Marketing Analytics course on the course website.

## Course Structure for a Graduate (MBA) Marketing Analytics

Below, we present a detailed course structure for a 28 session graduate (MBA) course. If the course is taught over 14 weeks, the class will meet twice a week, and cover two sessions in a week.

Increasingly, graduate and MBA programs are adopting a modular system where courses are taught over the course of 7 weeks instead of 14. Instructors of such shorter courses could cover four sessions in a week (i.e. two sessions in each class) or opt to drop some of the analytics techniques from the course (e.g., include 2 instead of 3 techniques per “First Principle” unit) and/or not have a dedicated session on the respective "First Principle”.

The key difference between the undergraduate and graduate course structure is the usage of data analytics cases in the graduate (MBA) course in lieu of the individual section tests. These cases provide application opportunities to use data analytics. As with the undergraduate course, we provide a detailed breakdown of session number, topic, instructional resource needed, and the chapter, for each session.

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Topic** | **Instructional Resource**  | **Chapter** |
| 1.1 | Introduction to Marketing Analytics | Instructor Slides | 1 |
| 1.2 | Overview of R |  | 1 |
| 2.1 | Overview of Tableau |  | 1 |
| 2.2 | Principle 1: All Customers are Different | Instructor Slides | 2 |
| 3.1 | Principle 1: All Customers are Different* Cluster Analysis and Segmentation
 | Instructor Slides and VideosReplication assignment | 3 |
| 3.2 | Principle 1: All Customers are Different* Targeting and Classification
 | Instructor Slides and VideosReplication assignment | 4 |
| 4.1 | Principle 1: All Customers are Different* Perceptual Mapping and Positioning
 | Instructor Slides and VideosReplication assignment | 5 |
| 4.2 | Review Principle 1 and Analytics TechniquesIntroduce CASE 1 |  |  |
| 5.1 | CASE 1: Sticks Kebob (segmentation) | Instructor Video |  |
| 5.2 | Principle 2: All Customers Change | Instructor Slides | 6 |
| 6.1 | Principle 2: All Customers Change* RFM Analysis
 | Instructor Slides and VideosReplication assignment | 7 |
| 6.2 | Principle 2: All Customers Change* Logistic Regression
 | Instructor Slides and VideosReplication assignment | 8 |
| 7.1 | Principle 2: All Customers Change* Customer Lifetime Value
 | Instructor Slides and VideosReplication assignment | 9 |
| 7.2 | Review Principle 2 and Analytics TechniquesIntroduce CASE 2 |  |  |
| 8.1 | CASE 2: Carvana (logistic regression) | Instructor Video |  |
| 8.2 | Principle 3: All Competitors React | Instructor Slides | 10 |
| 9.1 | Principle 3: All Competitors React* Survey Design and Testing
 | Instructor Slides and VideosReplication assignment | 11 |
| 9.2 | Principle 3: All Competitors React* Conjoint Analysis
 | Instructor Slides and VideosReplication assignment | 12 |
| 10.1 | Principle 3: All Competitors React* Forecasting and Diffusion
 | Instructor Slides and VideosReplication assignment | 13 |
| 10.2 | Review Principle 3 and Analytics TechniquesIntroduce CASE 3 |  |  |
| 11.1 | CASE 3: Portland Trailblazers | Instructor Video |  |
| 11.2 | Principle 4: All Resources are Limited | Instructor Slides | 14 |
| 12.1 | Principle 4: All Resources are Limited* Marketing Mix Models
 | Instructor Slides and VideosReplication assignment | 15 |
| 12.2 | Principle 4: All Resources are Limited* Experiments
 | Instructor Slides and VideosReplication assignment | 16 |
| 13.1 | Principle 4: All Resources are Limited* Unstructured Data Analysis
 | Instructor Slides and VideosReplication assignment | 17 |
| 13.2 | Review Principle 3 and Analytics TechniquesIntroduce CASE 4 |  |  |
| 14.1 | CASE 4: AirBNB | Instructor Video |   |
| 14.2 | Final Exam review |  |  |

## Graded Components for Graduate (MBA) Marketing Analytics

You could consider the following graded components for the undergraduate course:

***Final Exam***: The final exam (see course outline above) will be closed-book, and will help assess students’ understanding of the core materials discussed in class. The final exam will cover all material (i.e., not just Principle Four). You could draw test material from the test bank provided with each chapter.

***Replication Assignments***: Students turn in a ***replicated*** analysis of each of the R- and Tableau-based analytics techniques discussed in class in the class period after the technique is discussed. These are individual homework assignments.

***Cases:*** There are four case analyses instructors could use as part of this course (see course outline above). The cases are available for purchase and download on the Darden (University of Virginia) webpage. These cases have been tailored for use with the material in this book. This includes assignment questions, sample R code and Tableau packaged workbooks, and datasets that have been formatted for use with the material in this textbook. This additional case material is available on the book’s online web portal. We recommend that the case analyses are done in groups, and that case analyses are discussed in class.

## Example Syllabus for Graduate (MBA) Marketing Analytics

We included an example syllabus for a graduate (MBA) Marketing Analytics course on the course website.