

# MARKETING ANALYTICS

Summer 2023

Instructor: Prof. Dr. Lucas Stich  
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Office Hours: By appointment

Meetings: Mondays, 4pm-7pm  
              Tuesdays, 12pm-4pm  
Room: Hörsaal 127 (Neue Uni)

Language: English

Grading: Final exam (1 hour)  
Credits: 5 ECTS

## **Course Description and Objectives**

Marketing analytics involves the collection, management, and analysis of data to gain insights into the performance of marketing activities. In fact, it is increasingly possible to use data analysis to inform, make, and even automate marketing decisions. The goal of this course is to provide students with a hands-on understanding of key methods and specific techniques used in marketing analytics. This requires substantive knowledge in marketing as well as of fundamental ideas at the intersection of statistics, economics, psychology, and computer science.

The course will cover fundamentals of data science, including data wrangling and data exploration, and will then turn to applied, real-world marketing analytics problems such as marketing mix modeling, market segmentation, and measuring preferences and demand. Emphasis will be placed on data visualization and valuable methods for causal inference in marketing. The course will also delve into a few advanced marketing topics. To provide a hands-on learning experience, the course will include practical applications of the covered content using the *R* programming language.

## **Course Materials**

All materials (lecture notes, data, code, etc.) will be shared via [WueCampus](#).

## **Outline of the Course**

### **Introduction**

Tutorial: *Welcome to R*

### **Data Exploration**

- Data Visualization
- Data Transformation

Tutorial: *Exploratory Data Analysis*

### **Linear Regression & Generalized Linear Models**

- Linear Regression
- Logistic Regression

Tutorial: *Identifying Drivers of Outcomes*

### **Segmentation: Clustering & Classification**

Tutorial: *Segmentation*

### **Experimental Methods**

- Experiments
- Quasi-Experiments
- Conjoint Analysis/Choice-Based Conjoint Analysis

Tutorial: *Experimental Methods*

### **Special Topics**

- Social Network Analysis
- Text Mining

Tutorial: *Special Topics*

## **Textbook and Other Readings**

This course does not have a set textbook. Instead, it draws on various sources, some of which are listed below. You are *not required* to purchase or read any of these books to complete the course. However, I strongly encourage you to refer to these excellent sources as needed. In fact, many of them can be accessed online for free. Specific literature will be provided in the lecture notes.

- [R for Marketing Research and Analytics](#) (Chris Chapman and Elea McDonnell Feit)
- [R for Data Science: Import, Tidy, Transform, Visualize, and Model Data](#) (Hadley Wickham and Garrett Grolemund)
- [An Introduction to Statistical Learning: with Applications in R](#) (Gareth James, Daniela Witten, Trevor Hastie, and Robert Tibshirani)
- [Data Visualization: A Practical Introduction](#) (Kieran Healy)
- [Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures](#) (Claus O. Wilke)
- [Causal Inference: The Mixtape](#) (Scott Cunningham)
- [The Effect: An Introduction to Research Design and Causality](#) (Nick Huntington-Klein)

## **Software**

All software required for this course is open source and/or free. To ensure a smooth start to the course, please make sure to have all the software installed before it begins.

The primary programming language used in this course is *R*. To install *R*, please download a precompiled binary for your operating system from <https://cloud.r-project.org/>. Along with *R*, it is also recommended to install RStudio, an integrated development environment that makes it easy to write *R* code, view plots, and read documentation. You can download RStudio from <https://posit.co/download/rstudio-desktop/>.

## Tentative Schedule

<b>Week</b>	<b>Dates</b>	<b>Time</b>	<b>Topic</b>	<b>Tutorial</b>
1	4/24 (Mo) 4/25 (Tue)	4pm-7pm 12pm-4pm	Introduction	<i>Welcome to R</i>
2	5/8 (Mo) 5/9 (Tue)	4pm-7pm 12pm-4pm	Data Exploration	<i>Exploratory Data Analysis</i>
3	5/22 (Mo) 5/23 (Tue)	4pm-7pm 12pm-4pm	Linear Regression & Generalized Linear Models	<i>Identifying Drivers of Outcomes</i>
4	6/5 (Mo) 6/6 (Tue)	4pm-7pm 12pm-4pm	Segmentation: Clustering & Classification	<i>Segmentation</i>
5	6/19 (Mo) 6/20 (Tue)	4pm-7pm 12pm-4pm	Experimental Methods	<i>Experimental Methods</i>
6	7/3 (Mo) 7/4 (Tue)	4pm-7pm 12pm-4pm	Special Topics	<i>Special Topics</i>
7	7/17 (Mo) 7/18 (Tue)	4pm-7pm 12pm-4pm	Course Wrap-Up	<i>Course Wrap-Up</i>

Note: The course meets bi-weekly, so there will be two weeks in between each set of meetings.

## Enrollment

Please note that enrollment in the course through [WueStudy](#) is mandatory. The enrollment period runs from May 16 to June 15. It is imperative that you enroll within this timeframe to be eligible to take the exam. Please mark these dates on your calendar to ensure that you do not miss the enrollment deadline.