**Week 1) Getting started**

**Learning Goals**

* Understand the added value of this course in your study program
* Know what to prepare, and how to do it effectively
* Understand the grading and assessment criteria for the course
* Get familiar with the RStudio interface and basic data manipulation using dplyr

**Preparation before class**

* Please complete the software installation (see Preparation before the course starts)
* Please read [chapter 1](https://dprep-book.hannesdatta.com/) of “Marketing Analytics: A Modern Toolkit”

**Opening lecture and R bootcamp**

* Introduction to the course
* In-class tutorial: R Bootcamp

**After the lecture**

* Exercises after class (please complete [chapters 1-4 in R for Social Scientists](https://datacarpentry.org/r-socialsci/) at your own pace; about 4-5 hours)
* Reading: [A Guide to Scrum for Researchers](https://tilburgsciencehub.com/learn/scrum)

**Week 2) Exploring data with RMarkdown**

**Learning Goals**

* Explore, manipulate, and filter data sets in R, including reading data from text files and modifying data frames.
* Create and manage various data types in R, such as vectors, matrices, and data frames.
* Apply basic programming concepts, generate summary statistics, and create plots in R.
* Assess data quality, perform calculations, and produce RMarkdown documents in HTML or PDF formats.

**Preparation before class**

* Please read [chapters 2-3](https://dprep-book.hannesdatta.com/) of “Marketing Analytics: A Modern Toolkit”

**Tutorial**

* Exploring Data with RMarkdown

**Coaching session**

**After the lecture**

* Please work through the RMarkdown part of the tutorial [R for Social Scientists](https://datacarpentry.org/r-socialsci/) (chapters 6-7: plotting with ggplot2 and getting started with R Markdown)
* Optional (for students needing more practice with R/RStudio):
  + Develop your R skills by working on the [Intermediate R on Datacamp](https://www.datacamp.com/courses/intermediate-r) (chapter 1, 2 and 3) course

**Week 3) Project Management and Version Control**

**Learning Goals**

* Understand and apply basic Git commands and workflows for version control in software projects.
* Set up and manage repositories on GitHub, including creating branches, committing changes, and resolving conflicts.
* Collaborate effectively on projects using GitHub, including using pull requests and branching strategies.
* Gain proficiency in restoring previous versions of work and managing repository contents using .gitignore and other Git features.

**Preparation before class**

* Improve your knowledge about [Shell/Bash in this Datacamp tutorial](https://www.datacamp.com/courses/introduction-to-shell) (first chapter only, “manipulating files and directories”)
* Please read [chapter 4](https://dprep-book.hannesdatta.com/) of “Marketing Analytics: A Modern Toolkit”

**Tutorial**

* Tutorial

**Coaching session**

* Work on your team goals for this course week (see coaching #2 on your workplan)

**After the lecture**

* Complete all exercises in this week’s tutorial

**Tips & tricks**

* Curious how to use Git with a graphical user interface?
  + Use Git directly from within R - [find out how!](https://swcarpentry.github.io/git-novice/14-supplemental-rstudio/)
  + Another fantastic Git client is [Sourcetreeapp](https://www.sourcetreeapp.com/), which works on Windows, Mac and Linux!
* [Git & Github cheatsheet](https://tilburgsciencehub.com/topics/automation/version-control/start-git/images/github_cheatsheet_tsh.pdf)

**Week 4) Engineering data sets**

**Learning Goals**

* Apply data wrangling techniques using the Tidyverse to clean, transform, and prepare datasets for analysis.
* Structure R scripts into modular components (setup, input, transformation, output) to facilitate reproducibility and automation.
* Implement common data operations (e.g., merging, aggregating, reshaping) and integrate basic programming concepts in R.
* Develop new variables and features (feature engineering) to enhance the analysis and understanding of datasets.

**Preparation before class**

* Please read [chapter 5](https://dprep-book.hannesdatta.com/) of “Marketing Analytics: A Modern Toolkit”

**Tutorial**

* Tutorial

**Coaching session**

* Work on your team goals for this course week (see coaching #3 on your workplan).

**After the lecture**

* After-class exercises (to be shared on Canvas)
* Optional (for students that need extra guidance in developing R skills):
  + [DataCamp Introduction to Tidyverse](https://datacamp.com/courses/introduction-to-the-tidyverse/data-wrangling-1?ex=1) (chapter 1 and 3)
  + [DataCamp Cleaning Data in R](https://datacamp.com/courses/cleaning-data-in-r) (chapter 1 and 2)
  + [DataCamp Joining Data with dplyr](https://datacamp.com/courses/joining-data-with-dplyr/joining-tables-1) (chapter 1 and 2)

**Week 5) Pipeline building and automation**

**Learning Goals**

* Learn how to organize your project with a coherent directory structure
* Conceive your project as a pipeline
* Separate your code into smaller chunks (each one with inputs, transformations and outputs)
* Automate workflows and make them reproducible using make

**Preparation before class**

* Please read [chapter 6](https://dprep-book.hannesdatta.com/) of “Marketing Analytics: A Modern Toolkit”

**Tutorial**

* Tutorial

**Coaching session**

* Work on your team goals for this course week (see coaching #4 on your workplan).

**After the lecture**

* Complete all after-class exercises for this week’s tutorial

**Week 6) Project phase**

**Learning Goals**

* Implement all skills in your team projects

**Coaching session (online, optional)**

* Work on your team goals for this course week (see coaching #5 on your workplan)

**Week 7) Project phase and final course week**

**Learning Goals**

* Complete your team projects
* Know what to expect for the exam
* Reflect upon learning goals of this course

**Lecture** - Course summary and exam preparation

**Coaching session (online, optional)**

* Work on your team goals for this course week (see coaching #6 on your workplan).