

Data Analysis using R

Introduction

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About This Course

- This course gives practical insights into conducting data analysis projects using R
- Covers data analysis process from beginning to end:
 1. Importing and cleaning raw data
 2. Exploratory data analysis and visualization
 3. Formulating the empirical model
 4. Communicating the results



All within R!

Learning Outcomes

By the end of the semester, you will...

... be able to conduct empirical projects on your own

... have a solid understanding of R and frequently used packages

... be able to use GitHub for version control of your code and collaboration

... be able to create dynamic, technical reports using Quarto

Course Structure

Lecture

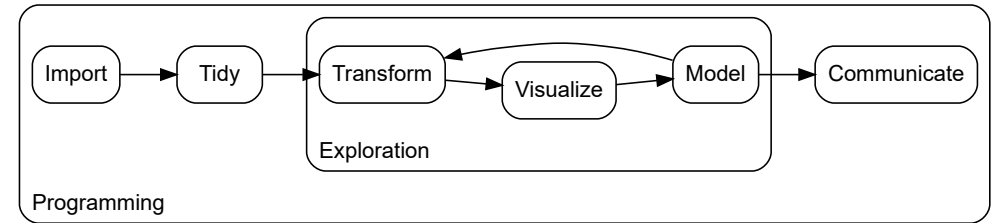
- Class times: Wednesday, 14:00 – 18:00, GD 03/354
- First half of the semester
- Each lecture covers a different topic
- Topics are shown using practical examples

Assignment

- Second half of the semester
- Working on an own data analysis project
 - In groups of 2 or 3 students
 - Submission of course work on **30.01.2024**
 - Presentation of results on **31.01.2024**
- Code repository and presentation count equally towards the final grade

Lecture: Agenda

Lecture	Topic
1	R Basics
2	Version Control
3	Programming
4	Importing
5	Data Wrangling
6	Visualization
7	Modeling
8	Reporting



Source: Wickham and Grolemund (2016)

Main Literature

Wickham, H. (2019). *Advanced R*. 2nd. Chapman & Hall/CRC. URL: <http://adv-r.had.co.nz/>.

Wickham, H. and G. Grolemund (2016). *R for data science. import, tidy, transform, visualize, and model data*. O'Reilly. URL: <https://r4ds.had.co.nz/>.

Organization

- All lecture materials can be found on the course website: <https://data-analysis-using-r.netlify.app/>
- Registration via Flexnow required!
 - Registration period: **24.10.2023** to **07.11.2023**
 - *Note:* Registration has to be done before the group work starts
- Use the Moodle forum to form groups of 2 to 3 students yourselves
- After the registration period and when all groups are formed, the data will be provided to you via [sciebo](#)
 - Cloud service with 30GB storage
 - Register via your RUB-mail (or any other mail from a higher education institution in NRW)
 - A folder containing the data will be shared with you



Do not store this data anywhere else than your own sciebo folder!

Contact Information

- Mail: sven.werenbeck-ueding@ruhr-uni-bochum.de
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- Office hours: Please make an appointment via [email](#) in advance