Course Description: A Brief Introduction to Programming with R

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Prerequisites

- Install the latest R version. R is open source and freely available from here: https://stat.ethz.ch/CRAN/. Click on the respective link for your operating system (Windows, Mac, Linux), and follow the instructions.
- Once R is installed, install RStudio from here: https://www.rstudio.com/products/rstudio/download/#download. Under "Installers for Supported Platforms", click on the respective installer for your operating system (Windows, Mac, etc.) and follow the instructions.
- In case you have problems with the installations, you can create a free account for RStudio Cloud: https://rstudio.cloud/, and use the R/RStudio in the cloud for this course. Note, however, that it is strongly recommended to also have R/RStudio running on your own machine.

Course Content

Short summary

This course introduces students to the fundamental practices of programming with R in the context of economic research. The course briefly covers basic theoretical concepts and teaches basic skills in how to mJSe use of the high-level programming language and statistical computing environment R. Examples and exercises are focused on data handling and data analysis tasks. The overall aim is to give students a solid overview of basic programming in R, and how they can potentially mJSe use of R during their studies and research in economics.

Course Structure

This is a block course and part of the introductory week for MEcon students at HSG. The course is structured in three parts:

Part I: Background/Tools

- Why R? Why programming?
- The tools: R, RStudio.

Part II: First steps in R, core concepts.

- First steps in R: R as a calculator, variables.

- Basic programming concepts in R.
- R objects and data structures.
- R functions for basic statistics.

Part III: Working with Data in R.

- Loading/importing data.
- Visualizing data with R/ggplot.
- Basic data analysis with R.

Detailed Schedule

- 09:15-10:00 *Introduction, Background, Tools* (UM [TA, JS])
- 10:00-10:15 *Break, support with installations* (UM, TA, JS)
- 10:15-11:00 *Exercises, First Steps with R* (TA, JS)
- 11:00-11:15 *Break, Q&A* (TA, JS)
- 11:15-12:00 *First Steps with R, Concepts* (TA, JS)
- 12:00-13:15 *Lunch (individually)*
- 13:15-14:00 *Exercises* (TA, JS)
- 14:00-14:15 *Break, Q&A* (TA, JS)
- 14:15-15:00 *Working with Data* (UM [TA, JS])

(UM: Ulrich Matter, TA: Thomas Aebischer, JS: Jan Serwart)