R course

Syllabus, installation and reading

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Syllabus

Basics of R

- 01 - Introduction to R
- 02 - Data wrangling
- 03 - Data visualisation
- 04 - Markdown and Quarto

Metabarcoding

- metaPR2

Installation

R and editors

- R
- R studio
- Quarto
- VSCode

Install tutorial files

- Download Data folder
- Unzip on your Desktop
- Open R studio
- Directories:
  - `scripts`
  - `data`
  - `report-quarto` : example of a report built with quarto

Installation

Install R packages

Copy the following lines in the Console (bottom left panel) and press `RETURN`

```
# Data manipulation
install.packages("readxl")   # Reading Excel files
install.packages("readr")    # Reading and writing Text files
install.packages("rio")      # Import and export a range of files format
install.packages("dplyr")    # Filter and reformat data frames
install.packages("tidyr")    # Make data "tidy"
install.packages("tibble")   # Manipulate data frames
install.packages("stringr")  # Manipulating strings

# Graphics
install.packages("ggplot2")
install.packages("patchwork")

# Markdown
install.packages("markdown")
install.packages("tinytex")

# Display tables
install.packages("DT")
```

Installation

MetaPR2 package

Install as an R package (You will be asked to install other packages that are required).

There are two options:

1. From Github

```
install.packages("devtools")

devtools::install_github("manutamminen/blaster")
devtools::install_github("pr2database/metapr2-shiny")
```

2. From R-universe

```
options(repos = c(
  pr2database = 'https://pr2database.r-universe.dev',
  CRAN = 'https://cloud.r-project.org'))

install.packages('metapr2')
```

Note: You can also run metaPR2 from the web site (https://app.metapr2.org) but only use if you really cannot install the R package because too many users will make the website crash.

Reading material

Session 01-03 - Data analysis

Choose one of the two text below. Make sure you make the exercises.

- Statistical Inference via Data Science
  - Chapters 1 to 3
- R for Data Science
  - Chapters 1 to 5
  - Solutions to exercises

Session 04 - Rmarkdown and Quarto

- Intro to R markdown

Metabarcoding

- metaPR2 paper